Lessons Learned Oral History Project Interview

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Introduction:

The Yale Program on Financial Stability (YPFS) reached out to William White to request an interview regarding his views on how the availability of "easy money" and many macroprudential policies enacted by central banks have had the contrary effect of causing expanding boom-and-bust cycles, and how policies favoring low interest rates encourage debt and create the conditions for the emergence of economic bubbles and what Alan Greenspan termed "irrational exuberance."

White spent 22 years at the Bank of Canada, where he held a number of positions, including Deputy Chief of the Department of Banking and Financial Analysis and later Chief of the Research Department. He served as Deputy Governor of the bank from September 1988 until 1994 when he joined the Bank for International Settlements, where he served until 2008 in a variety of positions including Head of the Monetary and Economic Department (MED), and was also a member of the Executive Committee which manages the BIS. He was appointed Chairman of the Economic and Development Review Committee at the OECD in 2009 and served until 2019. He is currently a senior fellow at the C.D. Howe Institute in Toronto.

This transcript of a video interview has been edited for accuracy and clarity.

Transcript

YPFS: **Let's start with a little bit of narrative, since this is an oral history. Just as the Global Financial Crisis was erupting in 2008, you were in the process of moving from the Bank of International Settlements to the OECD. What were your concerns about the global financial system at that point? Did Lehman Bros. catch you by surprise, or did you see that coming?**

White: Well, the BIS had basically been writing documents, both internal—for the consumption of the central bankers that come there, including all the people from the Fed—and external, the annual report and various academic pieces that I and members of my department were writing. From

[1] The opinions expressed during this interview are those of Mr. White, and not those any of the institutions for which the interview subject is affiliated.

the early 1990s, we had been focusing in on the problems associated with excessive debt. I arrived at the BIS in 1994, and the Asian crisis came not much after that.

People were saying, "Well, that Asian crisis came out of nowhere," and our line at the BIS was that the Asian crisis came out of excessive capital inflows and excessive credit expansion in those South Asian countries. In a sense, it was a classic debt bubble, very similar to what we'd seen in Japan just a few years earlier. We were bemoaning the fact that we had a problem associated with the financial sector and its overexuberance, as it were. Then, of course, we had after that LTCM, which is another sort of big problem in the financial sector.

The response to the Asian crisis, at least insofar as the Fed was concerned, was that they didn't ease policy, as I remember, but they didn't tighten it either, which internal conditions might have predisposed them to do. And then, of course, when LTCM was threatened and the whole financial system was threatened, the Fed did ease in 1998. That, of course, led to that environment of relatively easy money that I think contributed materially to the stock market boom of 1999 and of 2000, which of course led to a huge collapse subsequently in the stock market, and a recession.

Then, we had the period of the Great Moderation, and during all of this period of time, the BIS was basically saying: "You're not putting enough emphasis on financial excesses and credit expansion and difficulties in the financial sector. You're putting all of your emphasis on inflation control and developments in labor markets and in the real economy." I guess what we were saying was that the financial side of things and the capacity of easy money in the context of a deregulated and highly elastic financial system had the capacity to cause real harm and that central bankers should be focused on that.

So the honest truth is that, when we got into the problems in 2007 and 2008, we, people at the BIS, were basically totally unsurprised; because we had been saying that the system was getting ever more dangerously exposed for a decade or more. Indeed, as I remember, I left the BIS, I retired in June of 2008, and the only question that was in our heads at the time was: "Is this the big one?" As when you think about earthquakes: "Is this just sort of a little guy, or is this the big one?" And as you know, given the magnitude of the recession and the global implications, it certainly was more than a little one. But it was not in fact the big one, because—and we'll go back to this, I'm sure in all the other questions—the central bankers once again pulled out all the stops of money creation and kept feeding the beast as it were. In fact, they did avoid the worst possible outcome, but only by kicking the can down the road one more time. So the big one is still out there. We didn't have it in 2008—2009, but the underlying problems, particularly of debt, are still there.

So to go back again, to answer your question, were we surprised? We weren't at all surprised that a crisis had emerged. However, I was surprised at the central role played by Lehman Brothers. The company failed after I left the BIS, of course. At this point, I guess I'd been at the OECD for about six months. I was surprised that, after the initial problems in 2008, it was Lehman that went under. But I wasn't surprised that I was surprised, because when you have a system that is basically fundamentally stressed, it's like an overexpanded balloon. You know that the balloon's going to burst. You don't know precisely where, and to a significant degree, it doesn't matter, because the only thing that really does matter is the system as a whole is starting to implode, because the system as a whole was overexposed to begin with.

So I didn't see Lehman. I'm sure people closer to the market might've said: "Look, they've got huge amounts of short-term borrowing, and nobody likes Dick Fuld, because he wouldn't participate like everybody else did when they had to bail out LTCM. So let's go for him." People who were in the market might've known those things, but I certainly didn't know them. But as I said, it doesn't fundamentally matter. If it hadn't been Lehmans, it would have been somebody else or something else in the system.

YPFS: So once Lehman did implode that weekend in September, what were the discussions like at that time?

White: My sense of it at the time was that they probably would do what they did do, which was to pull out all the stops to deal with the problems within the financial sector. And as you know, the original infusions of lender of last resort financing were done by the ECB, and then the Fed came along not much later, and everybody went into that kind of mode. But when you think about it, it was exactly the same, except more extreme, than what they'd done in all the previous downturns. The answer to all of them has been basically: lower the interest rates, print the money, extend the safety net. So they just did more of the same when it came to the great financial crisis in the early days. And this, I think, is a question that's been on your mind too: Well, what was wrong with that?

Well, the crisis started off as a crisis in the financial sector, and the worry was about financial instability. So the central bank as lender of last resort, all the central banks, basically went straight to the problem, tried to play the role that Bagehot had laid out for them: lender of last resort. You've got to stabilize things. And indeed, they did do that.

But then, a funny thing happened—at least I thought it was a funny thing, maybe other people didn't. Ben Bernanke gave a speech to the New York Economics Club, I think it was 2010, in which he talked about the second package of QE. I can remember at the time thinking there's something very odd about this, because the first package of QE wasn't actually thought about as quantitative easing. Although it did significantly increase the size of the Fed's and everybody else's balance sheet, it was lender of last resort. It was lending to stabilize the financial system.

But when you got into QE as such, starting with the second package, it was the same policy, but done for a totally different purpose. It wasn't done to stabilize the financial system. It was done to increase aggregate demand. The whole idea was that you would use the QE to lower the long-term spreads, to flatten the yield curve, to encourage more spending. I think Ben Bernanke was pretty explicit at the time that he was expecting this to lead to asset price increases, and the asset price increases versus the standard wealth effect in a consumption function would lead to more spending, which would help to stabilize the economy. But the whole purpose of it was to stabilize the real economy, whereas the first round had been to stabilize the financial system. So it was a totally different beast, and I'm not quite sure why they did what they did.

I can remember people asking me the question: "What do you think is behind the Fed's logic?" And the other central banks, too, I don't want to pick on the Fed. The question that I had at the time, and I guess I still have, is: Why did they do it? And the answer is: I don't really know.

There are two possibilities. One of them is that they really did think it would work, that QE would, in fact, stimulate aggregate demand. That it would reduce disinflationary or deflationary pressures. They really believed that was the right thing to do. The other thing is that at the time, by 2010, fiscal policy had basically gone sharply into reverse, whereas there'd been a lot of fiscal expansion right in the middle of the crisis.

My own personal sense, and maybe I'm not going to get the dates right here, is that there was a G20 meeting, sometime in 2010, after the European crisis. I'm sort of making this up as a hypothesis that the Germans, having gone through the Greek crisis and the crisis with the peripherals, were really attuned to the idea of debt overhang. The Germans probably are the ones that are most concerned about debt with the "debt brake" and all that kind of stuff. I think they managed to convince everybody else that they were on the road to becoming Greek, and they really had to put that fiscal expansion from the crisis into reverse.

So at that stage of the game, what you had was fiscal policy tightening up after having eased through the crisis. Regulatory policy was also tightening up, because people recognized that they'd been too lax. We're going into all the Basel III kind of stuff. So the alternative hypothesis is they didn't just do it because they thought it would work, but they did it because monetary policy was the only game in town. Fiscal policy was moving in a contractionary fashion. Regulatory policy was moving in a contractionary fashion. As the line goes from the movies in the 1930s: "After you, Alphonse." Central bank easing was the only game in town and they had to get on with it.

YPFS: **Well, the Euro crisis was kind of an existential threat to the EU. The debt crisis didn't ease until Mario Draghi stood up and said they would do whatever it takes. So you can understand why the Europeans might have seen that they had to do whatever it took.**

White: Absolutely. I'm just reading a draft of a book done by a friend of mine, David Marsh, who sort of goes into all of the internal political discussions that preceded Mario's statement, and he was absolutely onside with Angela Merkel to provide political support for that, because he knew that he was going to run into a rough time with the Bundesbank people. But in a certain sense, he went over their heads by getting the support of Angela Merkel, and then he felt confident to be able to stand up and say, "We'll do whatever it takes." And then, with that Sicilian twist: "And trust me, it will be enough."

I really understand the Germans being concerned about debt issues and the problems that can arise from it. But it is purely a hypothesis on my part that they actually succeeded in convincing other countries that they too had to retreat from fiscal expansion, otherwise, they would also be in an untenable fiscal position. That left the central bankers as being the only game in town. But it stiii seems very odd to me that those crisis management measures in 2008 and 2009 were still out there in 2019. That's the thing that's really odd about it all.

YPFS: But the toolbox that central banks have to work with is limited to interest rates and providing liquidity, lender of last resort facilities and such. So thinking of the policy responses to the GFC, what would you say were the sort of most critical mistakes that were made both by the U.S. policymakers and also the Europeans? What would you have done differently?

White: I certainly would have ceased the monetary easing much earlier on and I probably would have continued the fiscal stimulus for longer. There are more dangers associated with excessively easy monetary policy than there are with easy fiscal policy, since you've actually got more rope to hang yourself with fiscal policy. It takes longer for those policies to really wind up in a really bad outcome. Monetary policy, conducted the way that it has been for such a very long period of time, can contribute to some pretty bad outcomes, and we may not have seen the worst of it yet.

YPFS: You have argued that monetary policy that's focused on keeping inflation low has contributed to the systemic risk. Can you explain how you see that working, and what would you propose as an alternative approach?

White: Well, I think for a starter, there has always been too much emphasis on disinflationary dangers or the dangers of deflation. I think this came out of the American experience of the 1930s, but there have been a number of studies that have indicated pretty clearly that the Great Depression was actually a one-off and that the vast majority of circumstances in which prices go down, they go down because of positive productivity growth. Moreover, if you've got prices going down because of positive productivity growth, there's no reason to get really worried about it. There's enough both profits and real wages to go around. And so, this preoccupation with deflation has led to the belief that we must fight against deflation to the death, whereas inflation is seen as less of a worry.

I think that belief is wrong. Unfortunately, this belief lay behind an important change to the Fed's monetary policy framework announced in 2020. Essentially, the Fed said that they were more worried about unemployment that was a little bit more than it needed to be, rather than being worried about inflation being a little more than it should be. They embraced this framework of average inflation targeting. It was basically asymmetric, and was based on the belief that inflation was less of a worry than deflation. From everything I read, the Fed themselves and all of the people around the Fed are now seriously questioning what the Fed did in the last review of their framework, and are admitting that it was a mistake. What I'm saying more broadly is that the concern to prevent prices from falling was also a mistake, that in most circumstances a decline in prices is not a bad thing. Indeed, it actually is a quite efficient method of allocating the gains of productivity between the entrepreneurs and between the workers.

George Selgin wrote a wonderful piece on this some years ago which was called "Less than Zero," and has been republished as a Hobart paper. George makes the point that there was in fact a huge debate about this in the pre-war literature. It starts by noting that, when productivity goes up, real wages have to go up. Real wages are W over P, right? So the question is: do you keep W constant and let the P go down, or do you keep the P constant and let the W go up? There was a big debate about that in the pre-war literature, and it subsequently totally disappeared from anybody's consideration. All I'm saying is that I think they should have read that literature, and I think it would have led people to lean against deflation or excessive disinflation less strongly than they did.

I put it to you that, during the years leading up to COVID, there was something very odd about central banks pulling out all the stops to deal with a shortfall of inflation that was measured only in decimal points below their target. Paul Volcker in his autobiography, written just before he died, seemed to agree with me when he said "Ironically, the 'easy money' striving for a 'little' inflation as a means of forestalling deflation, could, in the end, be what brings it about" I think what Volcker was referring to was that if you engineer a boom-and-bust kind of process like this through debt creation, you're really setting yourself up for a big deflation. Or to put it another way, by resisting all the little downturns, you set yourself up for a really big downturn.

YPFS: **You argue for a system that pushes against financial excess, and I think I'm hearing this in your argument, one that is more tolerant of accepting a small downturn. What does a system like that look like and how do we get from here to there?**

White: What does a system like that look like? I guess I've been advocating since the early 1990s actually, that we should be more systematically leaning against credit booms. I've had this out with many people from the Fed who've systematically resisted that view; so much so that it's come to be known as the "clean versus lean debate". I don't know whether that phrase says much to you, but at the BIS we used to say that, if you've got a big credit bubble and a debt bubble building up, lean against it using both regulatory means— macroprudential as it's now fashionable to call it—and monetary policies. And if you do that, when the inevitable bust comes, it will be less dangerous than if you had let the whole thing just simply take off unimpeded. Moreover it will be easier to clean up the bust afterwards since their will be lower levels of bad debt and other consequences of the boom.

One thing that really needs to be done differently is that the people who are responsible for the boom and bust should pay the price. The way it works at the moment is that, not only do all the perpetrators get bailed out, but in addition, because everybody remembers that they've been bailed out in the past, you're simply creating moral hazard that makes the next boom-bust cycle likely be even more terrible than the past one. So there's an element here of path dependence, and once you get on the path, it's very, very hard to get off. If you kick the can down the road, as has been done over the course of the last 20 or 30 years, you just simply encourage the kind of behavior that makes it more likely that you're going to have that problem again and perhaps even worse. So I think the Germans, again, are sort of right. We do have to worry about moral hazard.

YPFS: **But at the same time, the too big to fail doctrine came about because we saw what happened when they let Lehman fail. The stock market just went off a cliff. So can we factor in panic and contagion into this discussion? How would you approach a crisis like that in a system you're talking about?**

White: I guess this is where you go back to my point about path dependence, that each time central banks do what they do, which sort of bails out the system, you're setting the stage for another cycle that's likely to be even worse than the one before. But then, you just use your monetary instruments even more strongly than you did the time before to deal with that problem. So you can see that once you're on that path, ultimately, getting off it becomes almost impossible. That's what is really worrisome today since debt to GNP ratios, whether private sector or public sector ratios in many, many countries are now at record levels.

The household debt ratio in the U.S. has admittedly fallen back quite a bit, which is really good. But in most other places, debt levels are at record levels. The question then becomes; what do you do about it? And I think at the moment, while this is another whole range of questioning, some sort of effort to restructure debts and write off some debts is required. I also think fiscal restraint to try to help offset the inflationary pressures at the moment are really required, but these things don't seem to be on the current agenda. And so, the situation to me looks like it's getting worse, not better.

YPFS: **You have argued about debt restructuring and debt forgiveness being an alternative as a stabilization policy. But given these concerns about high debt levels globally, is that really a viable solution? What would**

be the main challenges to implementing an effective debt restructuring? Is it a political question, more than a fiscal or monetary policy question?

White: I guess the answer depends a bit on whether it's private sector debt or public sector debt. In private sector debt, you can talk about write-offs, but of course, to the people that are the creditors, that's the last thing that they want to hear, right? So they keep telling the debtors: "You just have to try harder." And so now, you have a situation, for example, where a lot of things that ought to have been dealt with some years ago just haven't been dealt with. They just sort of sit out there.

YPFS: Such as which?

White: Well, for example, there's been a number of studies that have been done about zombie companies that the banks should have blown the whistle on years ago, but they haven't, and it's particularly the less well capitalized banks because they can't afford to take the hit of recognizing that this loan has gone bad. So they just evergreen it and sort of hope for the best: in the words of Mr. Micawber, that something will turn up So that's a problem. For private non-financial debt, one of the big problems, I think, is that the banks don't want to blow the whistle because in most cases—the IMF did a study on this a while back—the governments stand at the top of the list of the people that are going to get the benefit. So when they start distributing the spoils, it's the government that takes the spoil even though it's the bank that's blown the whistle. And so, the bank's response is, "Well, why do it? Just wait and hope that something will turn up."

And of course, when you get into the financial sector itself, as you just pointed out, people worry that if banks go bankrupt there's going to be no new lending. So there's all sorts of reasons why steps to resolve the issue just dont happen.

And for sovereign debt—this applies mostly to emerging market countries at this point— the politicians leading these debtor countries are basically the ones who've got to step in and say, "We can't pay, won't pay." They don't want to do it, particularly if they were responsible for borrowing the money, so they'll sort of hold off the restructuring until somebody else's in charge of the government. You know what I mean? It's kicking the can down the road again, so that's a problem.

Another problem with restructuring sovereign debt is that, because of zero capital weighting under the Basel Accord, banks can load up on the debt of their own sovereign without increasing their capital charges. But what that means then is that if the sovereign does goes bankrupt, the banking system goes bankrupt, too. And then, there's nobody to bail out the banking system, because the government's bankrupt, so you're in a situation which you just got to avoid at all costs.

YPFS: **There's a definite interconnectedness that the GFC really put in on display, both the interconnectedness of the financial sectors and monetary policy and the interconnectedness of countries. You've argued that the central banks created this environment of high debt that challenges the financial stability of the world. Can you elaborate on this connection between how the advanced market economies deal with crisis and how that affects emerging market economies and how that showed up in the Global Financial Crisis? How do we address that in the future?**

White: Well, there's really two strands to the question, it seems to me. One of them is why one worries about easy money policies in advanced market economies, and let me just say a few words about that. And then, the next question is, what are the implications for emerging market economies?

What are the problems associated with advanced countries using easy money as the sort of default option every time there's an economic problem. For a starter, prices will always go up, because they're never allowed to go down. Okay? So you start thinking about the cumulative drift over time, the fact that a U.S. dollar is now worth domestically about 5 cents relative to what it was worth in 1907 when the Fed was set up. There is this constant, constant drift upwards in prices, and that's not a good idea. And then, there's all those other arguments that I talked about before. Sometimes prices should go down, the George Selgin kind of argument.

The second thing about easy money in advanced countries is that I don't think it always stimulates the real economy and prices in the way that central bankers believe.. And there's two strands to this argument., one static and one dynamic. At a static level there's a wonderful line of Keynes. In the General Theory, where he's moving towards recommending fiscal policy as the desired response to recession, Keynes says: "If we are tempted to assert that money is the liquid that activates the system, we had best remember there are many slips twixt the cup and the lip." I can give you all sorts of reasons why lower interest rates don't necessarily lead to less saving and more consumption. If you are saving to buy an annuity, a lower roll-up rate means more saving not less. And lower rates don't always lead to more fixed investment. Corporations, for example, that have got defined benefit pension programs, if the pension program is not receiving income from higher interest rates, then it's got a deficit that the corporation itself has to fill. So now we've got a drain on cashflow that might otherwise go into investment.

Anyway, the broad point that I would make is that, even at the static level, it's not so obvious that easy money has the kind of effects that people think. And we also have to add in Keynes' concerns about liquidity preference and the liquidity trap. It is not just that people don't react to the signal of easy money, but sometimes the signal does not get through in the first place..

The dynamic concern arises when monetary policy is eased over aand over in successive cycles, which is what we have been doing. What you observe is that you encourage people through lower interest rates to bring forward spending in time that they would otherwise have made only later. But the only way you can do that basically is by taking out debt to allow you to get the money to do the spending now. But the more you build up debt over time, it eventually becomes the "headwinds" that Alan Greenspan used to worry about. But you keep doing this over and over again, because every time it works, even though you have had to do it with ever more aggressive policies. So that interest rates first went down a little, and then they had to go down a lot, and then eventually they had to go down to zero, and then some central banks even tried to push rates below zero.

And finally central banks were forced complement interest rate policy with quantitative easing, forward guidance, and in some countries yield curve control. So we're managing to get the result we want more or less, but only by using ever more extravagant means. And what you know logically is this can't go on forever. That's sort of the way that I see the whole process working.

So that's the second drawback, the ineffectiveness of policy. And, then, the third aspect of monetary easing is all of the unintended consequences. This extends well beyond the debt buildup to a whole range of other developments. Among these I would include rising wealth inequality due to the effects on house and stock prices, the risk of growing financial instability and the dampening effects on potential growth of the economy.

These latter two effects are closely interrelated.. As I have just noted, easy money might ight actually lead to less investment, not more investment. Andrew Smithers makes a convincing case that lower rates lead to more borrowing for share buybacks and constrained investment levels. But secondly, the investment that it does lead to may not be very productive investment. This is what the Austrian school used to talk about under the guise of "malinvestment". Let's put it this way: Low interest rates threaten the livelihood of financial institutions, and they then turn to ever more risky lending in order to "gamble for redemption". And the borrowers are prepared to do ever more risky borrowing because the money's so cheap.

And so, you get into is a situation where all sorts of people, both borrowers and lenders, are doing some really, really dumb things. As Warren Buffett said, "It's only when the tide goes out that you see who's been swimming naked." I suspect that in the next crisis, and this is the real worry, there will be all sorts of stress points within the system because of people who have invested dumbly. And we'll see what the implications of that will be, although it'll only become apparent when the tide goes out. These are the sort of concerns that I've expressed in so many documents, many papers and presentations over many decades with very, very little, I would have to say, positive response from any of the central banks. They are on the path that I have described and what I fear is that they're going to continue on the path until hell freezes over.

YPFS: **Well, you are kind of arguing against what is basically their toolbox.**

White: Absolutely.

YPFS: **It's interest rates and the money supply because any other action would require, as a number of people from the Fed and the Treasury Department said in their interviews, political action, legislation. That is got its own set of traps.**

White: But you know, there's a line that has been around for many, many years, and it is: "People get the government they deserve." The reason why we've gotten into excessive reliance on monetary policy is because of the lack of political will to do hard things when they are necessary.The hard things might include changes in the structure of your real economy, changes to your financial institutions, fiscal restraint—but the politicians are not prepared to do it. And they're not prepared to do it because the voters aren't prepared to do it. That is a real fundamental problem with our democracies. There's no question about it, that people vote for what they think is in their own short-term interests and they're actually voting against their long-term interests and the long-term interests of their friends and neighbors. But that's a broader issue.

YPFS: **Well, but it leads to COVID-19, because when the pandemic broke out, it basically removed the moral hazard argument. There was this virus. You had to shut down, and something had to be done to keep the economies of the world from collapsing. You published a paper right about the time that the pandemic started, arguing about the ultra-low and negative interest rates. You suggested that it basically trapped policy in a debt trap because it just made it so much easier to keep getting deeper in debt. What would be the alternative? Could COVID have been addressed differently, instead of just pumping stimulus into the economy?**

White: Let's talk specifically about the pandemic. There, it seemed to me that the governments and the various programs that they brought forward, particularly in the U.S. and in Canada and the UK - the cash directed directly to consumers and to companies to keep things afloat - was done to a degree that had not been seen previously in peacetime. And for the central banks to then come along, and in addition, follow the kind of easy money policies that they did, I think had a lot of people worried at the time. I know Larry Summers expressed this very, very clearly on a number of occasions. And I agree with him that this really was a form of overkill that led in part to the subsequent rise in inflation.

And I think most people at the Fed would agree that some really big mistakes were made. Indeed, since the Fed is planning to issue a new monetary policy framework in 2025, the magnitude of that error demands a really serious rethink about the Fed's mandate and the Fed's framework. This is not a little error that can just easily be papered over. My own sense is that, almost from the beginning of my time at the BIS, we have been saying that central banks have systematically underestimated the importance of slow-moving supply-side developments. Instead, all the emphasis in setting policy has been on demand side developments with the upshot that the central banks missed the importance of positive supply shocks in the 1990s and subsequently through to the "Great Moderation" that ended in 2009 with the Great Financial Crisis. They failed to see that the low prices and the disinflation of that period were really a result of positive supply shocks: globalization, China, Eastern Europe, all of this extra workforce coming into the global markets. They simply missed it. In contrast, they thought about the low prices of the disinflation as something that needed to be met with a demand side response, and it wasn't true. And that's what I think Paul Volcker was getting at in his comment about leaning against a little deflation. It's just going to create a lot of big deflation. Then, the central bankers missed it again during the COVID pandemic. They were focusing on people that weren't getting salaries and couldn't spend, but they didn't focus on the fact that people weren't producing, that supply was going down at the same time as the demand was going down, so the net effect was actually smaller in terms of deficient demand than if you just looked at the gross numbers. So that was a mistake.

And, as you may know from some stuff that I've written more recently, my big worry now is that we are actually moving from what I've called an "Era of plenty" to an "Era of scarcity", and the central bankers are going to miss that supply side shift as well. . Start thinking about all of the positive things that have happened in recent decades. Unfortunately, the richer components of our society have managed to appropriate most of those gains for themselves, but it doesn't deny the fact that over the course of the last 20 or 30 years, we did have a lot of positive shocks affecting the economy. Above all, we had globalization. As well, we had all of the demographic advantages, the baby boomers, et cetera. , Not we didn't have to worry about climate change, but we chose not to worry about it. So therefore, we had all these cheap fossil fuels to help support economic growth.

Sadly, all of that stuff is going into reverse. The demographics have turned terrible. I think I read the other day that a quarter of the German workforce will be retired in 10 years. Population labor force is already going down in Japan, in Korea, in China, in Poland, in Europe. The situation in the US and Canada is a little bit better, but not much. As for climate change, it is now, I think, an existential problem, and it's going to both cut supply and increase demand because huge amounts of investment will be required to deal with both climate adaptation and climate change mitigation. As for globalization, that was going into reverse even before President Trump and his tariffs. Estimating the full costs of this is impossible but they will be substantial.

So all of those things that made life easy in the past, particularly for richer people who got most of the benefit, these things are all going into reverse now. And I worry again that there's inadequate attention being paid to the slow moving supply-side components of the economy and that we've got some real problems facing us.

And of course, the difficulty with all of these problems looming in the future is that they're all going to have to be faced against a backdrop of all of that debt and all of those imbalances that built up because we didn't deal with the plentiful times in the appropriate fashion. So to me, it's like we're going into a world of COVID where the patient has already got a lot of morbidities. Do you follow my analogy? That it wasn't just ordinary people that died from COVID. Some did, but most of them were people who were ill already with something else. And my problem is that I see the economic and the political frameworks at the moment as being fraught with ills that are going to be very problematic going forward.

YPFS: **And in an ideal world where politics was not as important a factor as it is, what do you see as the policy measures that might actually help address this situation proactively before we get to the crisis stage?**

White: Yeah. Well, going forward, I guess the two things that I see, I mean, from where we are, going from this age of plenty to an age of scarcity, we're going to have big inflation problems going forward, and real interest rates are going to be higher than they would otherwise be to fight the inflation and still higher in nominal terms. And what would you do about that? Well, for a starter, I guess I would say we need more attention to debt restructuring. We should get out there and try to improve the processes through which we restructure debt, both public and private.

And secondly, there should be an awful lot more fiscal restraint because interest rates are going to have to be higher in order to fight the inflation. But here's the rub: the rub is the government is going to have to do a lot of the heavy lifting in terms of the increased investment. So you say, "How then can we have fiscal tightening when the government needs to spend more money on infrastructure, aging, defence and reacting to climate change, all of this stuff?" Well, you don't need to be a rocket scientist. I mean, Y equals C plus I. And if the Y is down and I is up, the only thing that's left is the C. Consumption is going to have to take a big hit. And I don't have to tell you that that is not the kind of message that people want to hear.

YPFS: **You wrote a chapter in the OECD book during the pandemic where you sat down 10 lessons for policymakers. I'm not going to make you go through all 10, but what do you think is the most fundamental lessons that they need to internalize and which may actually be the most challenging for them?**

White: I actually have done another more recent paper on that. It's on my website. It's a presentation I just made to the Global Risk Institute in Toronto about lessons to be learned from embracing complexity. I wrote the original piece for the OECD when the pandemic was on. It was not a response to the pandemic as such. What that paper basically says is that—and this is a crucial point it seems to me—that all of the central banks and most of the macroeconomics profession has made what a philosopher would call a fundamental epistemological error. They have misjudged the character of the system that they're trying to stabilize. Most central bankers, and most of the stylized models that they use, basically assume that the economy is relatively simple. The equations that describe relationships in the economy are relatively simple. How can I phrase it? The economy, because of that simplicity, is understandable, and then it's not only understandable but it's controllable. Which is what, of course, they've been trying to do.

My contention is that this description of the economy has nothing to do with reality. The reality is that the economy is what they call a complex adaptive system. It's made up of thousands, millions of interacting agents, all of which are constantly learning from each other and learning what works and what doesn't work. It's a huge evolutionary bundle of activity, with no tendency towards reaching some kind of equilibrium, and has no resemblance at all to the models that all of these macroeconomists are using. And since they've made such a basic mistake about the character of the system that they're trying to deal with, it's not at all surprising that the policies that they've chosen to follow are more likely to cause harm than to do good. And that's basically the starting point for the articles I have just referred to.

I've got 15 separate lessons for the conduct of monetary policy that arise from simply admitting that the economy is a complex adaptive system. I wont belabor them all now, but let me begin by asserting that these complex adaptive systems are universal in nature and in society and they've been studied by all sorts of different disciplines. And what is absolutely amazing to me, is that somehow the economists figure that economics is unique in that it is not complex and adaptive. The element of denial here is just extraordinary to my mind. Anyway, complex adaptive systems have certain characteristics that are similar across all of them, and they provide you with some significant guidance as you go forward.

So lesson number one, these systems always break down according to a Power Law, . They have a natural tendency to optimize their efficiency in such a way that it makes them open to breakdowns. And so, I guess what I'd say is this. If the system always breaks down at some point, the first lesson is be prepared. You should be doing your planning for what happens when really bad things happen.

And yet, when you look at the history of where we've been in terms of our planning for crises, it's been nowhere. We don’t plan because we assume really bad things wont happen. I mean, look at the post-crisis Dodd-Frank Act. Hal Scott from Harvard wrote a whole book about how the Fed's capacity to respond to future crises has been constrained by Dodd-Frank. And why was it constrained? Because the people that wrote the legislation were of the view that it would prevent all future crises. So why does the Fed have to have all these extra powers to deal with something that will never happen? Total nonsense.

We're always trying to maximize, trying to squeeze out the last dollar of GDP when what we should be thinking about is minimax. We don't know enough to maximize. What policy should be directed at instead is preventing really bad things from happening. And yet, most of the models, the way they're constructed, forecast that really bad things can't happen. The economy self-regulates. It goes back to equilibrium, in total defiance of Keynes's fundamental insight. But somehow, we've signed on to this. The economies always equilibrate themselves. Nothing much to do. It'll look after itself. This is total nonsense.

What we need is a paradigm shift. We need to start off by saying the way we've looked at the world is wrong, and we have to look at it differently. And you want to know what the biggest challenge will be? The biggest challenge will be to get people to make that paradigm shift because they've been doing what they've been doing for so long, and they've got so much invested in it, both as academics and as policymakers. They're totally incapable of saying, "I've got it wrong."

I think one of the most wonderful lines ever was from Oliver Cromwell who wrote a letter to the Scottish Synod of the Presbyterian Church, and what he said to them was, "Brothers, I beg you in the bowels of Christ, think it possible you might be in error." But, when you start talking about preparing for the worst and looking reality in the eye, you run into all the practical problems. I'm thinking now about Jean Paul-Juncker. He was the Prime Minister of Luxembourg, and then he was the President of the European Commission. He got off a wonderful line, which was, "Of course, we know what to do. What we don't know is how to get re-elected after we do it."

I'm living now in London. I just moved here about six months ago. The UK has got all the problems that everybody else has got, closely related to the difficulties you and I have been talking about. But in addition, they've got Brexit. So if our situation is desperate, their situation is desperate plus. Anyway, prior to the last election, I said to many people, "Wouldn't it be nice if both The Conservative Party and the Labour Party could say, 'Ladies and gentlemen, we've got terrible fiscal problems coming down the line, and given the amount of debt we already have, the only way out of this problem is we are going to have to raise taxes and implicitly constrain consumption'?" And if they'd both said that and then said to the electorate, "You choose which party you think can best deal with that reality," that would have been an optimal solution.

But both parties refused to do it because each said to themselves, "If we say it's bad, we won't get elected." It is the classic prisoner's dilemma problem. I'm going to say it's bad, and the other guy will say, "No, it's not so bad," and he'll get elected and I won't get elected. So therefore, they both decide to say, "It's not so bad," but it is bad. The UK papers, just in the last week or so, have really been starting to say, "There is no way that this government can meet their fiscal targets and not raise taxes." And this will come as a huge shock to everybody, but as I said, it was inevitable, and it would have been far better if they'd started off at the beginning and said, "This is what needs to be done." But they didn't because they knew they wouldn't get elected. So we have a deeper problem here. It's not just an economic problem. It's a political problem.

YPFS: **Well, it's a case of "You first." We all know what needs to be done. You first.**

White: Yeah, the line from the movies in the 1930s, "After you, Alphonse."

YPFS: **Any parting shots? Anything that we haven't covered that you'd like to make sure to include?**

White: I apologize that I only half answered one of your earlier questions. I forgot to make the point that the spillovers from the advanced economies to the emerging economies are really quite substantial as well. You have a situation where you have easy money in the advanced market economies, and then there's a flow of capital into the emerging market economies that tends to be often wasted. It leads to booms and busts in the same way as it leads to booms and busts in the advanced countries.

One of the particularly unpleasant side effects is that we have many countries, particularly in Africa but not just in Africa, that now have debt levels that are very high because they borrowed very heavily when the times were good and they could do it. Now, the interest rates have gone up, so the debt service has gone up. There are many countries now that are spending more money on debt service than they are on education and health combined, which when you think about it, it is pretty unfortunate for their citizens. I'm not sure, but I think the International Monetary Fund has recently estimated that 50 or 60% of all of the low-income countries are either in debt default or exposed to debt default. So for a lot of these countries, they'll eventually have to throw in the towel one way or another.

We have the extra complication now too of China, where you're not quite sure who's doing the lending. And for that matter, you're not even sure how big the debt burden is for many of these countries because the borrowing has not been totally transparent. So emerging markets are going to pay a price for all of this as well, and it's all coming at a time when these people need much more help, particularly to finance climate change, whether it's prevention or mitigation. And of course, the foreign aid budgets are going in exactly the wrong direction. So it's like I said, it's COVID plus comorbidities in spades for some of these people.

YPFS: **So we're looking at something on the horizon that could turn into another global crisis?**

White: I'm frankly very worried about that. I think the biggest concern at the moment is another financial crisis with its roots in some combination of easy money, financial regulation and the provision of safety nets. We touched on this earlier.

When you run into difficulties, monetary policy, monetary easing comes in as a way to smooth the downturn. But that's not the only thing, there's a general extension of the safety net. And the way I see the whole thing going is that you start off with banks and you say, "Banks are subject to runs, and runs are very costly. So therefore, we need to have safety nets of which monetary easing is one." We need safety nets. And then, you say, "But safety nets create moral hazard," so therefore, you need regulation to deal with the moral hazard. But then, you bring in regulation, and then you get evasion into the shadow banks. And when you think about it, that's precisely what we had leading up to 2008 and 2009, all that lending that was done through the shadow banks. Then, of course, we had the extension of the safety net from just banks to bank holding companies during the Great Financial Crisis. It went even further during the pandemic, so it wasn't just a bailout of financial institutions. It was actually the Fed and others being actually buyers of last resort to keep the financial markets going.

And at the moment, I know that what the FSB is concerned about—there was a recent publication by some researchers at the Federal Reserve Bank of Boston—a lot of concern about this massive expansion in lending, not through banks, but through private credit, private equity, and through hedge funds. These have exploded. I mean, hedge funds' total assets under control are up 15 times since 2008. Private credit and equity funds, of course, have also expanded enormously.

What everybody's worried about is that they don't really know the details about what has taken place, so we don't know who's doing the lending and we don't know who's doing the borrowing. So how can you prepare yourself for something when you don't actually know where any of the stress points are? So, there's just a kind of vague sense that we really ought to be looking at this more carefully, which I think they've been saying for almost a decade now, as the banking regulations have had this effect of diverting all of the lending into all of these non-bank sources. But as far as I can tell, nothing much has happened. So, you just get repeated concerns being raised by people that maybe this is another weak point in the system.

YPFS: **Well, there's again that question of the political will to do what needs to be done.**

White: Yes, and as I was saying before, the problem grows over time. You bail somebody out, you simply encourage more debt, so that the next time you've got a problem, you have to respond even more aggressively. And so it continues. Then finally, you get to a point where trying to deal with the problem is politically very, very hard to sell. Consider the fact that the US House of Representatives just passed a Big Beautiful Bill that will significantly raise US sovereign debt in the years to come. I can't imagine too many people at Yale saying, "Go for it, brother" when US sovereign debt levels are already at record highs.

The world's a very odd place, and as I said before, if the whole system is stressed, it doesn't really much matter what's the trigger. The point is that if the system is really stressed, something's going to happen. And I'm afraid that we've always taken the easy way out, which is basically to use monetary policy as the principal weapon chosen to do that. And thereby, you can avoid all of the really hard stuff, like restructuring debt and accepting losses and admitting mistakes. So as you can see, I'm not a very happy camper.

I was preaching all this stuff inside the walls of the central bankers' castle, the BIS, and nobody took any notice, and here we are 20 years later. The funny thing about it is I've had so many people recognize the fact that the BIS—I was the head of the economics department at the time—so many people recognize that we predicted the Great Financial Crisis. Not in the detail, as I said before, which company was going to go under, but basically saying: "Gentlemen, Houston, we have a problem."

So having said that, central bankers nevertheless went back in terms of policy response to doing just what they did before, but in spades. So is anybody listening to anything? I doubt it.

YPFS: **Anybody who had been around to see previous bubbles knew that was going to happen. It was just a matter of which was going to be the precipitating incident.**

White: Even after the thing started. Do you remember that Ben Bernanke was basically saying in 2009, if I remember it correctly, that the damage was limited to the subprime sector and would not exceed something like $50 billion?

YPFS: **I'm pretty sure that if they had known that letting Lehman fall would have had the effect that it did, they probably wouldn't have let it happen. And you saw what they did with AIG later. Obviously, once one failed and took everybody down with it, they realized there was such a thing as too big to fail.**

White: Yes. Paul Volcker had a comment to make about that, too. I participated at a lunch that he attended at the office of the German president, and I did ask him about the Volcker Rule. I said, "Why the Volcker Rule when that kind of inter-firm trading was not what caused the crisis?" And his response was really, I thought, very thoughtful. He said: "The reason why we've had all the bailouts is because we have no understanding of the linkages between all of the systemically important firms. And in the absence of knowledge about who's exposed, the only prudent thing to do is to bail out everybody."

And so, for a starter, you need much more transparency about who's in whose pockets. And at the moment, from what I read, when you get into all of the business about the lending being done by the non-regulated sectors, we have no real understanding.

The only thing that we do know, and I guess that people are very worried about, is that the regulated banks have been making loans to these non-regulated financial institutions in very large volumes. And we're all resting on the assumption that the banks themselves must know what they are doing. They have done due diligence and they think these loans will be repaid. Whereas others remain worried that, given the opacity of the on-lending by the people that borrow the money from the banks, we simply don't know where the credit risk resides. And so, again, the reaction will be: we have to bail everybody out.

There's a recent book by Bernard Connolly. Bernard's been around for ages and ages and is a very thoughtful observer of the financial scene. He's just written a huge book, which I have to say is very hard to read, but the book is called *You Always Hurt the One You Love: How Central Banks Killed Capitalism.* And the basic message in a way is this: if safety nets keep getting bigger and bigger and bigger, well, in the end, if the government backs up everybody, capitalism is dead. That's the message.

YPFS: **A lot of what we were discussing earlier rests on the assumption of the efficient market and how the market finds its own balance if you just leave it alone.**

White: As I was saying about my suggestion that the economy is a complex adaptive system. These are evolutionary systems which have no equilibrium. There's no guarantee of stability. I think in a certain way, although none of them spoke in quite those terms, both Hayek and Keynes recognized the fact that things could get terribly, terribly out of whack in the capitalist system, that they were not self-equilibrating. I've often wondered, although I have no answer to this, when Milton Friedman came out with his monetarist doctrine, lurking behind it was the idea that the real side stabilized itself. To me, he totally ignored the fundamental Keynesian insight that the economy does not behave this way. How Friedman's doctrine came to the ascendancy, and then had as its children the whole set of dynamic stochastic general equilibrium models and linearity, I have no idea. That's a study in philosophy, really, I mean, the evolution of knowledge. How do people get wrong ideas into their head? How do they spread?

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