

**John Greenwood**

# **Reviews of Monetary Policy, Currency Boards, and Country Experiences**

**With an interview conducted by Petia Minkova with  
Steve H. Hanke and John Greenwood**



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**John Greenwood**

MA and PhD, Edinburgh University, UK

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Experiences (With an interview conducted by Petia Minkova  
with Steve H. Hanke and John Greenwood)*

Author: **John Greenwood**

MA and PhD, Edinburgh University, UK.

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# Preface

**A**head of Chapter 1 we feature an exclusive joint interview conducted by Petia Minkova, Deputy Editor in Chief of 168 Hours (a Bulgarian weekly publication) with Prof. Dr. Steve H. Hanke and John Greenwood.

Chapter 1 first traces the evolution of Milton Friedman's views on fiscal policy from his early acceptance of the prevailing Keynesian orthodoxy to his later adoption of an entirely contrary view that fiscal policy played almost no role in macroeconomic stabilization. Until the late 1940s or early 1950s Friedman believed that fiscal policy should be the primary tool of government policy in macroeconomic stabilisation – the management of real GDP growth and inflation. However, by 1953 he had shifted to the diametrically opposite view that fiscal policy played almost no role in macroeconomic stabilisation and that as a result policymakers should rely principally on monetary policy. Second, the chapter explores some of the theoretical arguments Friedman used to defend his new position. Third, the chapter takes up a challenge that Friedman himself proposed to assess the relative importance of monetary and

fiscal policies by comparing a series of episodes when fiscal and monetary policies were acting either in the same direction or in opposite directions. All the examples cited confirm Friedman's finding that monetary policy invariably dominated over fiscal policy in determining macroeconomic outcomes, and particularly when the two policies were acting in contrary directions.

The purpose of Chapter 2 is to clarify the relation between money and interest rates. In section 1, the author examines the empirical validity of Keynes's claims for his liquidity preference theory by looking at the relation between changes in interest rates and changes in the quantity of money. In section 2, the author considers Irving Fisher's findings. Fisher, whose studies had mostly preceded Keynes, had shown that over any longer-term horizon the relation between money and interest rates was exactly the reverse of Keynes' hypothesis of short-term liquidity preference. A reconciliation is proposed that treats Keynes' theory as a short-term, liquidity effect, and Fisher's results, which incorporate the effect of inflation or inflation expectations, as the longer-term determinant of interest rates. In section 3, the author applies the resulting combined theory of the relation between money and interest rates to five case studies in recent decades: two from Japan, and one each from the Eurozone, the U.K., and the U.S. The conclusion is that interest rates are a highly misleading guide to the stance of monetary policy; it is invariably better to rely on the growth rate of a broad definition of money when assessing the stance of monetary policy.

Chapter 3 features a eulogy of Milton Friedman, published soon after his death in 2006. Milton Friedman is widely known as a brilliant teacher and theoretical economist, but he was also intensely interested in the practical application of his theoretical analysis. In this eulogy, given at the Institute of Economic Affairs (I.E.A.) in



London, the author recalls two striking examples of these aptitudes. First, anticipating the breakdown of the Bretton Woods system of fixed exchange rates, he advocated the introduction of currency futures by the Chicago Mercantile Exchange. These instruments have subsequently become indispensable for portfolio managers and currency traders around the world. Second, although Friedman was renowned for his advocacy of floating exchange rates, he was also at the same time an advocate of fixed exchange rate systems, or currency boards, for small open economies. This idea led to his direct involvement with the stabilization of the Hong Kong dollar after its collapse in 1983. Friedman's mastery of academic economic analysis no doubt reinforced his confidence in the implementation of those ideas.

Chapter 4 is an analysis of the problems associated with the IMF's proposed solution for the Argentine crisis of 2018. Since the end of "Convertibility" in January 2002 Argentina has suffered from persistently rising inflation. From 5% in 2004, annual inflation increased to 40% p.a. by the end of 2014. The underlying source of the problem has been excessive fiscal deficits funded from the Central Bank of Argentina's (BCRA's) balance sheet by successive governments. This chapter starts with the key abuses of the BCRA's balance sheet which have undermined monetary stability and proceeds to a wider view of the ingredients of Argentina's current crisis. Despite the accession of the market-friendly President Mauricio Macri in December 2015, the situation had continued to deteriorate. After two and a half years in office, the administration had made little progress in solving the country's macroeconomic problems. Faced with another episode of currency depreciation in May 2018 and rising inflation, the Argentine authorities appealed to the IMF in June for a \$50 billion loan which they were successful in obtaining. The IMF's Stand-By Agreement (SBA) came with numerous conditions attached: the SBA

proposed to strengthen the BCRA's autonomy, stop the direct financing of the government by the BCRA, while maintaining an inflation targeting regime and a freely floating peso. However, the author's diagnosis was that the IMF's SBA document implied the inflation targets and other reforms could be achieved by means of a gradual reduction of the fiscal deficit -- without pain and without a deep recession. Meantime the growth of the monetary base and M3 growth were still far too high. In the author's view the fiscal and inflation targets in the IMF plan were unattainable, and the plan would fail – as indeed turned out to be the case. This caused President Macri to lose the next election and ensured a return to populism for another decade.

During the 2016-17 bull market in the U.S., investors were subjected to two main market scares – the possibility of near-term inflation and the threat of an imminent recession, both spelling the end of the business cycle expansion. Chapter 5 examines first two commonly cited theories of inflation: the fiscal theory of the price level, and the Phillips curve (or output gap). Each is a form of reduced form analysis that omits any reference to the underlying monetary causes of inflation. The author shows that both in the US and more broadly across the OECD money and credit growth remain subdued. Since inflation is ultimately a monetary phenomenon, no sharp upswing in inflation can occur without a sustained period of faster money and credit growth. Second, the chapter reviews briefly the basis for an extended business cycle expansion. The shape of the yield curve, money growth and the health of private sector balance sheets all implied there was, in 2018, no basis for predicting an imminent recession. This justified the view that the prevailing expansion would continue for several more years with low inflation.

Chapter 6 explains why the Hong Kong dollar reached the lower end of its trading band in 2018, and how this was a

normal feature of the operation of Hong Kong's currency board mechanism. In the years since the Global Financial Crisis of 2008-09, the spot rate for the Hong Kong dollar had mostly traded near the upper end of its band, the Convertibility Undertaking of 7.75 set by the HKMA. After a year and a half of gradual weakening, the HK\$ finally reached the weak side level of 7.85 on April 12, 2018, triggering US\$ sales by the HKMA. The author explains first why the weakening of the HK\$ is perfectly normal under the currency board system, posing no threat to the currency board mechanism. He also explains why it has taken so long for the weak side convertibility undertaking to be triggered, and why HK\$ interest rates have lagged behind US\$ rates. He also explains why Hong Kong dollar purchases by the HKMA at 7.85 would lead to a shrinkage of Hong Kong dollars in the money market, a rise of interest rates in Hong Kong, and a return of short-term interest rates in Hong Kong to approximate parity with short-term US\$ interest rates.

Chapter 7 is an exploration of a parallel in monetary history. During the First World War Japan experienced large surpluses on its external accounts which, via monetary expansion, drove up prices to an uncompetitive level compared with other leading economies such as the US and the UK. Similarly, following China's devaluation of its currency and exchange rate reunification in 1994 along with the adoption of a fixed rate against the US dollar, China gradually built up huge external surpluses in the early 2000s, which continued even after the 2005-14 appreciation of the currency. For Japan in the 1920s the result of the overvaluation was a decade of financial crises, slow growth, agricultural depression, and deflation. Only in December 1931 did the authorities finally abandon the fetish of returning to the pre-war exchange rate and devalue the yen, allowing Japan's external accounts to return to equilibrium. In 2017, the author explains that China was faced with an

essentially similar set of choices as Japan in the 1920s: undertake the prolonged process of internal economic and price changes that would eventually restore external equilibrium or allow the currency to adjust quickly to its equilibrium level.

Chapter 8 examines the tricky question of whether negative interest rates would provide satisfactory outcomes for Japan and the Eurozone in the period after the Global Financial Crisis. Since the Global Financial Crisis in 2008-09 four major central banks implemented Quantitative Easing (QE) programs. However, the types of QE implemented by the Federal Reserve and the Bank of England on the one hand and the Bank of Japan and the European Central Bank on the other have been very different. In the case of the Fed and the Bank of England, the QE operations were consistent with an expansion of deposits in the banking system, a reduction of leverage in the non-bank private sector, and the gradual normalization of growth, interest rates and inflation. By contrast, the QE operations of the Bank of Japan and the ECB have not been consistent with an expansion of deposits in the banking system or a reduction of leverage in the nonbank private sector, and hence they have failed to promote the gradual normalization of growth, interest rates and inflation. As a result, the monetary authorities in these two economic areas adopted lower and lower interest rates, eventually moving to negative interest rates. However, this is essentially a false solution. The right solution would have been to change the QE mechanism, adopting the US/UK model, and ensuring faster rates of monetary growth, which in turn would have promoted faster nominal GDP growth and higher nominal interest rates.

**John Greenwood**

29 April, 2022

London, UK.



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**Prof. Dr. Steve H. Hanke and  
John Greenwood's Exclusive  
Joint Interview conducted  
Petia Minkova, Deputy Editor  
in Chief of 168 Hours**

**Prof. Dr. Steve Hanke's Answers for Petia  
Minkova's Questions of November 10,  
2021**



*Prof. Hanke and his wife Liliane*



**Minkova:** *How did you meet Mr. Greenwood? What do you remember?*

**Prof. Hanke:** I met John in a spontaneous way. Sir Alan Walters, who was my closest colleague and collaborator at the Johns Hopkins University, informed me that the best materials on money and banking in Asia were contained in *The Asian Monetary Monitor*, a publication John Greenwood edited in Hong Kong. So, I was introduced long distance to Greenwood and his work, and we began to correspond. That resulted in two of my best students, Dr. Kurt Schuler and Dr. Christopher Culp, becoming interns with Greenwood in Hong Kong. So, John and I knew each other very well before we actually had the pleasure of meeting face-to-face.

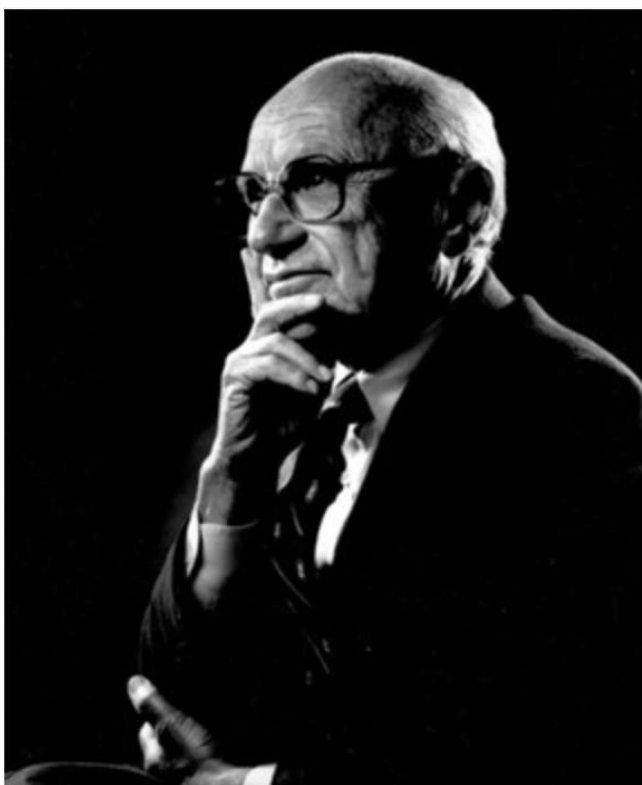
**Minkova:** *You managed the world's most profitable fund in 1995; he is the chief economist of a fund that manages \$1.6 trillion. Are investments the basis of your friendship? Or the general views on the economy? Or the fact that both of you are the architects of some currency boards?*

**Prof. Hanke:** Greenwood and I have a very deep friendship that is solidified by many shared interests, including investments, general views on economics, and, of course, currency boards. And if that's not enough, Mrs. Hanke and Mrs. Greenwood are friends, too.

**Minkova:** *Do your articles in the Wall Street Journal cause reactions?*

**Prof. Hanke:** Our *Wall Street Journal* articles are given the most careful and anxious attention by those in circles of influence. For example, just this past summer, Greenwood and I wrote a *Wall Street Journal* article that resulted in a telephone call and invitation for Mrs. Hanke and I to attend a dinner party in Newport, Rhode Island.

Newport is where those with “old money” reside in the summer season. It’s the place made famous by the Vanderbilts, the Morgans, the Astors, and the Kennedys. Indeed, Newport is where Jack and Jackie were married. Back to the invitation. Our host, who we have known for 30 years, informed us about the dinner venue in which he had invited 20 billionaires. He promised a great evening. And great it was. I capped the evening off with an after-dinner speech about the investment implications implied by the Greenwood-Hanke WSJ article. That was Sunday evening. The dinner guests were moving their money on Monday morning.



*One of the favorite mentors - Milton Friedman*

**Minkova:** *You had very curious dialogue with the founder of Twitter, Jack Dorsey. He said he expects hyperinflation in the United States, and you answered him that hyperinflations are very rare and that there have only been 62 episodes in world history. Did he react to your comment?*

**Prof. Hanke:** Dorsey did react via Twitter, of course. After I scolded Dorsey for misusing the word “hyperinflation,” he stopped using that word.

**Minkova:** *Bulgaria has currency board in which the lev is a clone of the euro, but the ECB continues to print money. What could be the consequences for Bulgaria?*

**Prof. Hanke:** Well, the printing of money by the ECB has not been nearly as excessive as the U.S. Federal Reserve. So, inflation will be much more muted in the Eurozone. Since Bulgaria is de facto part of the Eurozone because of its currency board and the fact that the lev is a clone of the euro, inflation in Bulgaria next year will be 3% or slightly above, while inflation in the U.S. will be 6% or slightly above.

**Minkova:** *In the EU, countries like Italy, Spain, and Greece have accumulated huge debts. On the other hand, there are countries like Bulgaria with low debt levels. What lessons can we learn from these debt disparities?*

**Prof. Hanke:** Bulgaria has much more fiscal discipline than virtually all Eurozone countries thanks to its currency board. If Bulgaria formally joins the Eurozone, the currency board’s straitjacket around its politicians will be thrown out the window. Without the straitjacket, government waste, fraud, and abuse would definitely increase in Bulgaria. That’s why I am totally opposed to Bulgaria’s adoption of the euro and formal entry into the Eurozone. Any Bulgarian who votes for a politician

favoring the abandonment of Bulgaria's currency board and the adoption of the euro will, in fact, be voting for more Bulgarian corruption.

**Minkova:** *What topics are you discussing at your famous Friday seminars at the Johns Hopkins University, which are attended by Mr. Greenwood? Are there other experts who attend?*

**Prof. Hanke:** Some of the topics of discussion have been "Why Money Matters for Investors," "How Money is Created," "Quantifying the Impact of Money," "Money Creation and the Exchange Rate," "Money and Shadow Banking," "Money Counterpart Analysis," "Case Studies of Hong Kong and Australia," "Money and Credit in Financial Bubbles and Busts," and "Case Studies of Sweden and Thailand." In addition, each week we always review what's going on in the world markets and why it's important.

This term, I lead the Friday seminars, with John as a primary contributor, plus Denis McHugh. Denis is a former student, a very experienced trader, and is now the Chief Risk Officer at the Bank of Montreal. Both John and Denis are Fellows at the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise, which I founded and co-direct. We also have other distinguished visitors. For example, Jacques de Larosière, who is a family friend, former Managing Director of the IMF, former Governor of the Banque de France, and former President of the European Bank for Reconstruction and Development, joins us on occasion from Paris. So, the seminar operates at a very high level. It's what I call a "precision drill." It's quite exciting. To my great satisfaction, Wall Street places a very high value on my students.

**Minkova:** *Did you know Sir Alan Walters? What can you tell us about him? Some stories?*

**Prof. Hanke:** Mrs. Hanke and I knew Sir Alan very well. He was my closest colleague at Johns Hopkins. We taught courses together, we edited two books together, and we co-authored a regular column “Point of View” in *Forbes Magazine* for many years. In addition, I was the one who introduced Sir Alan to the insurance giant, the American International Group, where he became Vice Chairman. But perhaps most importantly, Sir Alan introduced me to John Greenwood and currency boards. Our work on currency boards included a co-authored entry for “Currency Boards” in *The New Palgrave Dictionary of Economics*, which is the most authoritative publication of its kind in economics.

I have hundreds of stories about Sir Alan.

**Minkova:** *Could you tell us some stories related to your mentor Milton Friedman?*

**Prof. Hanke:** Milton was a very tough, but very funny and generous mentor. He was also a big supporter of currency boards. In 1992, he publicly endorsed my currency board proposal for Estonia, a currency board that was installed in June 1992. Also, in 1992, Mrs. Hanke and I, along with Milton and Mrs. Friedman, traveled to Mexico City to try to convince the Mexican authorities to adopt a currency board to protect the peso from what we predicted would be a collapse. We didn’t win the prize in 1992, but we were vindicated in December of 1994, when the peso collapsed and set off the famous Tequila Crisis. Milton also publicly backed my proposed currency board for Indonesia in 1998.

As an example of Milton’s generosity, allow me to tell you a little story. We had been talking a lot about the

stock market, when out of the blue, on August 6, 1996, I received a package of materials from Milton which contained all of his background work on what he called his “Bubble Detector” model of the stock market. He said that he didn’t have time to fully develop it, but that I could. I called him to thank him and ask if he wanted to co-author an article on the “Bubble Detector.” He said, “No, you have given me quite a few ideas on it,” which was quite a huge exaggeration, and said that whatever I did with the “Bubble Detector” was fine with him and required no acknowledgment to him.



*Prof. Hanke and John Greenwood*

**Minkova:** *What would you say about Robert Mundell?*

**Prof. Hanke:** Robert “Bob” Mundell was a great friend—a man with a certain genius quality. Mrs. Hanke and I spent many summers in Tuscany at Palazzo Mundell, where I was part of Mundell’s inner circle, along with John Greenwood. In fact, when I received my

Doctorate, *Honoris Causa* in 2013 from the Bulgarian Academy of Sciences, a private jet was sent to Tuscany to retrieve Mrs. Hanke and myself and take us to Sofia.

When I told Bob that I was writing a book on currency boards in 1993, he invited me to lunch in New York City so that I could present my ideas to him. I did, and he fully agreed and endorsed the currency board idea. Mundell was a big devotee of Bulgaria's currency board. And when I say "Bulgaria," I recount one dinner in Dubai, where Bob and I were members of the United Arab Emirates Financial Advisory Council. Bob told Mrs. Hanke that he had to excuse himself early because he had to retrieve his camera from a Bulgarian that he had forgotten it with the last time we were in Dubai. Mrs. Hanke and I said nothing, but just looked at each other in a knowing way, thinking, "A Bulgarian in Dubai?" When it came to anything connected to Bulgaria, Bob would consult me. For example, before making the symbolic first move in the World Chess Championship in Sofia in 2010, Bob called me for a briefing on Bulgaria. Bob thought that the Bulgarian currency board was the type of system that should be adopted in emerging market countries. He was very critical of the International Monetary Fund for not aggressively advocating currency boards like Bulgaria's.





*Mrs. Hanke and I spent many summers in Tuscany at Palazzo Mundell, where I was part of Mundell's inner circle, along with John Greenwood, said Prof. Hanke.*

**Minkova:** *You were an adviser to the great president Ronald Reagan? What kind of man was he?*

**Prof. Hanke:** I first met President Reagan in 1974, when I was a Professor at the University of California at Berkeley and Reagan was the Governor of California. We were both part of what was, at the time, known as the National Tax Limitation movement. Later, I became part of Reagan's White House staff as a member of his Council of Economic Advisers. It was there that Reagan gave me the responsibility for developing his privatization proposals.

Maybe the most notable part of that assignment was the introduction of the word "privatization" into the English language. I was giving a speech in Reno, Nevada, in which I was advocating the privatization of great swathes of the lands owned by the federal government. These are a huge Socialist chunk of the U.S.A. They are six



times larger than France. As Mrs. Hanke reviewed my speech in our hotel room at the MGM Grand, she said that I had to change the language to say that it was “privatization” that I was advocating. Well, at that time, that word wasn’t in *Webster’s Collegiate Dictionary* because it was a French word Mrs. Hanke had brought with her from Paris. I started to use “privatization” in public speeches, and we eventually had the word entered into *Webster’s Dictionary*.

The ladies thought Reagan was, as they would say, very handsome. For me, he had the look of an old-fashioned Hollywood star. But, more importantly, when he entered the room, things just sort of lit up. He was very charismatic. He had very strong ideas about liberty. These are all expressed in hundreds of speeches that he wrote in his own hand before he became President. These were written without any advisers whispering in his ear. He was much more intellectual than the portrayals of him in the press. He was relaxed, charming, and very loyal. But, when pushed into a corner, he could be ruthless. When the Secretary of Interior James Watt demanded my head for advocating the privatization of government lands, Reagan came to my defense and told the Secretary that if he didn’t like what I was proposing, then the Secretary could resign.

**Minkova:** *Did you know Margaret Thatcher? Would you compare her to Reagan? What did they look like? Were there differences in their approaches?*

**Prof. Hanke:** Unfortunately, I never had the pleasure of meeting Mrs. Thatcher. The only British Prime Minister that I know and worked closely with is Sir John Major. We both served together on the International Advisory Board of the National Bank of Kuwait.

**Minkova:** *Were you involved in the work around the currency board in Hong Kong?*

**Prof. Hanke:** No, I was not involved in the establishment of Hong Kong's currency board. That's John Greenwood's baby. That said, I was involved in saving the Hong Kong system from what would have been a fatal blow. One Sunday afternoon in July 2020, Secretary of State Mike Pompeo called me. He indicated that the United States was going to impose financial sanctions on Hong Kong, and that a final decision would be made by President Trump the next day. But, before the meeting in the White House, Secretary Pompeo had been instructed to obtain my opinion. We spoke via telephone for 35 minutes. Pompeo was adamantly for sanctions. I was adamantly against. Monday afternoon, the White House called to tell me, "Hanke you won. There will be no financial sanctions against Hong Kong and its currency board."

## John Greenwood's Answers for Petia Minkova's Questions of November 10, 2021



*The Currency Boards are attractive to the ordinary citizen but unappealing to politicians, said Greenwood.*

**Minkova:** *You are the chief economist at Invesco, an investment management company supervising \$1.6 trillion of assets. You employ a monetarist model that states that macroeconomic developments revolve around changes in the money supply. If the money supply surges, asset prices surge, then with a lag, the real economy surges, and finally with another lag of about 2 years, inflation rears its ugly head. So, how does Invesco guide investments with what you anticipate to be elevated and persistent inflation for the next 2-3 years?*

**John Greenwood:** Invesco manages money under many different mandates (equities, real estate, bonds and cash as well as ETFs) in numerous different economies so not all portfolios follow the same strategy. However, with

the rapid growth of the broad money supply since the onset of Covid-19, especially in the US and to a lesser extent in other economies such as the Euro area, UK, Canada, Australia and New Zealand, for the past 18 months I have advocated full exposure to risk assets such as equities and real estate, and minimal exposure to bonds (other than index-linked or inflation-protected bonds). In the bond markets, rising interest rates resulting from higher inflation will likely lead to losses by bond investors over the next 3-5 years.

**Minkova:** *You and Prof. Hanke are friends, colleagues, and have trained many of the same people--when you were in Hong Kong and Prof. Hanke was at Johns Hopkins in Baltimore. I suppose you have the same views about how the world works. Is that true? I see that you often write together. How did that come about? Do you often compare notes? You have become a centerpiece in Prof. Hanke's famous Friday seminar on Problems in Applied Economics. How did that come about? And what motivates the chief economist at a \$1.6 trillion fund to participate in a seminar aimed at training young students?*

**John Greenwood:** Yes, Prof Hanke and I share the same framework for our analysis of "how the world works." We like to collaborate because we have complimentary skills in analysis, in writing and with our media contacts. In recent years we regularly met at Prof. Robert Mundell's conference in Siena, Italy, and since the onset of Covid-19 we have talked several times each week by telephone.



*John Greenwood and Prof. Steve Hanke*

My teaching at Prof Hanke's class is in part due to my teaching experience here in the UK where, over the past 20 years with the encouragement of Invesco, I have taught a course on Asian economies and exchange rate policies at Cardiff University; and in part a result of preparing a series of video lectures for the Heriot Watt and Edinburgh University Business Schools. The contents of these video lectures, which focus on case studies of macroeconomic experience drawn from many different economies, have proved ideal for students of the Hanke seminar on applied economics. As a practising economist I believe it is important to keep one foot in the academic world and one foot in the business world!

**Minkova:** *How did the introduction of the currency board in Hong Kong come about? What do you remember as most memorable? What do you remember about your work with Sir Alan Walters, Margaret Thatcher's adviser? Do you still have a role in the Hong Kong Monetary Authority?*

**John Greenwood:** I had studied as a postgraduate student in Japan in the early 1970s, specialising in Japan's monetary policy and business cycle. In 1974, I moved to Hong Kong and extended my analysis to all the smaller East Asian economies from South Korea down to Australia and New Zealand and across to India. As a vehicle for my research, in 1976 I started publishing a bi-monthly journal called Asian Monetary Monitor which did what it said on the cover – we monitored monetary conditions across Asia. In those days we did not have access to computers so we had to collect the data from statistical publications or directly from central banks and government agencies, drawing charts or preparing tables by hand.



*Sir Alan Walters*

Hong Kong proved a special challenge both because of the paucity of data and the lack of any authoritative analysis of the unusual monetary system. However, I

made steady progress, sharing my analysis with the top monetary scholars I knew – Alan Walters, Milton Friedman and Max Fry. Consequently when the Hong Kong dollar crisis developed in 1982-83 as a result of the Sino-British negotiations over the future of Hong Kong after 1997, I had three possible monetary solutions for Hong Kong ready for adoption. I had not worked with Sir Alan previously, but I knew him on a personal basis, and when my plan was ready we arranged for a copy to be flown by Concorde to Washington (where he was living). He was able to quiz me by phone in Hong Kong and present my proposals to Mrs Thatcher when she visited Washington for the IMF-World Bank meetings in September 1983. The end result was that the UK government endorsed my plan, but it was left to the (British) Hong Kong government to make the announcement and take care of the details of implementation in October 1983.

Yes, I still have a role at the Hong Kong Monetary Authority where I have served as an external member of the Currency Board Committee since 1998. During the Covid-19 pandemic these meetings have necessarily been “virtual” meetings, but I expect physical meetings will resume in 2022.

**Minkova:** *I know that Prof. Hanke’s mentor is Prof. Milton Friedman. Did you know him?*

**John Greenwood:** I knew Milton Friedman well. I first met him in Tokyo in 1969 and we became good friends through our common research interest in monetary policy. In 1978 I joined the Mont Pelerin Society which he had helped establish in 1946, so we met regularly at MPS conferences as well as in Hong Kong when Friedman visited (e.g. when he was making his “Free to Choose” TV



series) or in California when I went to live there between 1994 and 1998. In his biography with his wife Rose, “Two Lucky People” you will find numerous references to me. Friedman was a delightful individual with a sparkling humour and a brilliant teacher. He was always able to explain even the most complicated subject in simple terms so that even a non-economist could understand.

**Minkova:** *If currency boards suppress inflation, reduce corruption, and ensure stability, why aren't there more of them?*

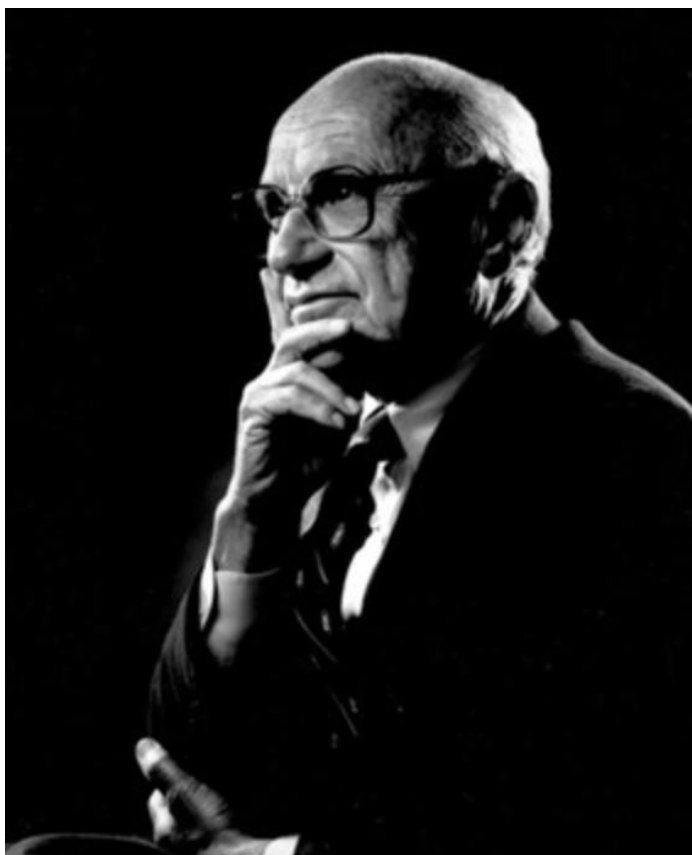
**John Greenwood:** It is politicians in government who select the monetary system of their country and generally they have chosen to have central banks rather than currency boards because the central bank comes with a range of powers that are attractive to politicians – such as the ability to use the central bank to finance government spending, the ability to manage interest rates and the exchange rate, and the greater prestige generally associated with a central bank. By design a Currency Board limits the power of the government or politicians to intervene in the monetary system and effectively imposes a “hard budget” constraint on government spending, requiring disciplined budgets, orthodox finances and the accumulation of substantial reserves. These features are what make Currency Boards attractive to the ordinary citizen but unappealing to politicians.

**Minkova:** *How can ordinary people keep their savings in the face of rising inflation?*

**John Greenwood:** Not all countries are going to face inflation in the aftermath of the Covid-19 pandemic – only those economies that have witnessed very rapid money growth. The countries where inflation will increase the most are the US, Israel and Brazil; in contrast three



countries that have not allowed rapid money growth include Switzerland, Japan and China. One strategy is to allocate most of your assets to equities and real estate since they are well-protected against inflation. Another is to hold the currencies of those economies where the inflation rates will be lowest since these currencies are likely to appreciate in value relative to the higher inflation currencies.



*Friedman was a delightful individual with sparkling humor and a brilliant teacher, said John Greenwood.*

**Minkova:** *Why were you awarded the Order of the British Empire?*

**John Greenwood:** I was awarded the OBE in 1994 by the British administration in Hong Kong for my “services to the Hong Kong economy”. This included my work on the stabilisation of the HK\$ in 1983 as well working as an adviser to the HK Government, as a member of the Stock Exchange Listing Committee and a director of the HK Futures Exchange Clearing Corporation. In addition, last year I was awarded the Silver Bauhinia Star (SBS) by the Hong Kong SAR Government for my services in helping to stabilize the Hong Kong dollar. (The bauhinia flower is the emblem of Hong Kong.) It is gratifying to have been recognised by both the British and Hong Kong Chinese governments for my contribution to prosperity and stability in the territory before and after the handover of sovereignty in 1997.

**Minkova:** *Did you know Margaret Thatcher?*

**John Greenwood:** During the 1970s and 1980s when Margaret Thatcher was Britain’s Prime Minister I was living in Hong Kong, so I only met her when I went to live in London after 1999. By that time she had retired and I met her through the Mont Pelerin Society which held a meeting in London. She mentions the Hong Kong dollar episode and Alan Walters’ role in her autobiography, “The Downing Street Years” pp.489-90. She quotes the financial press as calling the stabilization of the HK\$ as “an unalloyed success.”



# 1

## Milton Friedman's Views on the Interaction of Monetary and Fiscal Policy

### Introduction

Much has been made of the two views that Milton Friedman held during his lifetime about fiscal policy. As Tim Congdon puts it in his book *Money in a Free Society*, "The inconsistency between [Friedman's] standpoints in 1948 (when he said fiscal policy mattered enormously) and 1996 (when he said fiscal policy did not matter at all) is so extreme that someone new to his work might ask questions about his intellectual integrity" (p.189).

In this chapter Section 1 deals with the inconsistency between Friedman's two views of fiscal policy and explains how they can readily be reconciled. Section 2 sets out Friedman's settled, empirically-based view of fiscal policy which he arrived at in the late 1940s or early 1950s. Section 3 applies this more mature, data-based analysis of the interaction of monetary and fiscal policy to a series of episodes: first in the United States during the 1960s, relying on the content of a lecture given by Friedman in 1969 on the

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evolution of fiscal and monetary policy through those years; second, some more general cases from different economies and different eras; third in the UK; and finally in Japan. The contribution of this paper is to offer a simple matrix which is exactly in line with Friedman's formulation of the problem – encapsulating cases where monetary and fiscal policy were acting in the same direction, and cases where they were operating in opposite directions. All the matrices are populated with relevant case studies and an assessment is made of how Friedman's general observations apply to these specific episodes. Section 4 concludes.

## **Friedman's Early Views on Fiscal Policy, 1941-48**

In his early years as an economist, Milton Friedman's views on fiscal policy were mostly conventional. He first became involved in the public policy debate about fiscal versus monetary policy through his work at the US Treasury Department (1941-43). As he relates in his interview with John Taylor ([Barnett & Samuelson, 2007](#)) (when Friedman was already 88) he became interested in monetary economics "because the crucial question was, "What are we going to do to keep down inflation?" Everybody was aware that, during the First World War, taxes had paid for a very small fraction of the war and, during the Second World War, they were determined to raise the fraction paid for by taxes. At the same time, they also had the problem of predicting inflation, and that's how I got involved."

"The problem – it was interesting from a political point of view and from a scientific point of view – was that a group in the administration who were trying to get a price control statute didn't want us [in the Treasury] to come up with a tax proposal because they were afraid we would say, "we

can stop inflation through taxes, we don't need price controls." They wanted price controls." (...)

**Taylor:** Why didn't people mention money in all of this talk about inflation? Was it discussed at all?

**Friedman:** Hardly. As a result of the Keynesian revolution, money had almost dropped out of the picture. I look back at that and say, how the hell could I have done that? I had good training in monetary theory at Chicago and yet, once the Keynesian revolution came along, everything was on taxes and spending, everything was on fiscal policy, and that's why I was trying to answer the question about the level of taxation needed to stem inflation. With a sufficiently expansive monetary policy, no amount of taxes could do it. It was the wrong question. The right question was, "What monetary policy do we need?" That was the result of the mindset we had."

During the 1940s Friedman wrote one article on inflation and two on macroeconomic stabilization which conveyed his Keynesian cast of mind in those years. The first article, *Discussion of the Inflationary Gap* (Friedman, 1953), was later republished in *Essays in Positive Economics* (1953) with corrections and a footnote clearly indicating the shift in his view: "with indicated additions to correct a serious error of omission in the original version" (p.251). He was referring to "the omission from [the original version] of monetary effects....which is not excused but may perhaps be explained by the prevailing Keynesian temper of the times".

The two articles on macroeconomic stabilization were also influenced by Keynesian perspectives, treating monetary policy as something to be managed as the by-product of fiscal policy. "*The Effects of a Full-Employment Policy on Economic Stability: A Formal Analysis*" focused on fiscal policy rules. He proposed that the quantity of money should vary counter-cyclically – increasing when there was a recession and decreasing when there was an expansion. The article

developed fiscal policy rules for taxes and spending that would give budget balance on average, but also generate deficits and surpluses over the cycle that would produce the appropriate growth of money. At this stage, fiscal policy was clearly the senior partner in his mind.

Similarly, “*A Monetary and Fiscal Framework for Economic Stability*” (Friedman, 1948) was an article in which the monetary component was based largely on the 100% reserve proposal of the Chicago Plan of the 1930s. This aimed at eliminating the variability of money that derived either from the central bank’s discretionary power to create credit (e.g., by rediscounting or by open market operations) or from commercial banks’ ability to create loans and hence deposits. The “chief function of the monetary authorities” was “the creation of money to meet government deficits or the retirement of money when the government has a surplus.” In addition to being a fiscally driven plan for monetary control, this was also an argument from first principles, rather than a proposal based on empirical findings.

However, by the early 1950s Friedman had been persuaded, either by statistical evidence or by other researchers that the quantity of money was the senior partner. As he continued in the Taylor interview:

**Taylor:** “Was part of the reason for the change [in your view] that the link from deficits and surpluses to changes in money growth were not so tight [as they were] with changes in the money multiplier?

**Friedman:** “Partly it was that, and partly it was that the link from fiscal policy to the economy was of no use. (...) Certainly, the argument that money plays an important role in the economy has been settled. (...) [But] I still have more extreme views about the unimportance of fiscal policy than the profession does. (...)”

**Taylor:** “In looking back at these monetary versus fiscal debates, it seems that most of your articles are empirical

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rather than theoretical. Macroeconomic models appear sometimes, but they are not the main focus. Would you agree with that?

**Friedman:** "I believe that one reason the work had whatever effect it has had is because it did have an empirical base. I believe that I can honestly say that I never reached a judgment about monetary or fiscal policy because of my beliefs in free markets. I believe that the empirical work is independent and honest in that sense. If fiscal policy had deserved to play a much larger role, that would have showed up in the data."

These exchanges show that Friedman's early views of fiscal policy were largely in conformity with the prevailing orthodoxy, placing limited reliance on independent, empirical research<sup>1</sup>. As an ingenious analyst he was able to formulate a plausible theoretical model of the conventional or Keynesian interaction of fiscal and monetary policy, but it was a hypothesis (of countercyclical money) that he would reject just a few years later. For the remainder of his career Friedman was an economist who accepted a theory only when it was supported by empirical evidence.

In addition, he was also sceptical of large-scale econometric models. As he said in relation to time-series analysis later in the Taylor interview (p.133), "I think the major issue is how broad the evidence is on which you rest your case. Some of the modern approaches involve mining and exploring a single body of evidence all within itself. (...) I believe that you have a more secure basis if, instead of

<sup>1</sup> Edward Nelson has pointed out to me that Friedman's "chapter in Taxing to Prevent Inflation does consider the empirical importance of monetary growth, but that he is too dismissive of the evidence that he does find in that article on money. Also, while his 1940s multiplier/inflationary gap work did accept the existing Keynesian analytical framework, it did undertake empirical work within that framework." (Email to the author, XX November 2018.)



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relying on extremely sophisticated analysis of a small body of data, you rely on cruder analysis of a much *broader and wider* body of data, which will include widely different circumstances. The natural experiments that come up over a wide range provide a source of evidence that is stronger and more reliable than any single very limited body of data.”<sup>2</sup> (Emphasis added.)

## **Friedman’s settled view on fiscal policy, and its interaction with monetary policy**

I wish to start this section on a personal note. I first met Milton Friedman in Tokyo in September 1969 when he gave a lecture in the auditorium of the Nihon Keizai Shimbun, Japan’s leading financial newspaper (which now owns the Financial Times). As an intern at a Japanese company in Tokyo that summer I had acquired a portable Sony tape recorder, which I used to record and later transcribe his lecture.

The lecture was a life-changing event for me. First, he completely overthrew some of the core Keynesian ideas that I had learned at Edinburgh University, including the notion of a monotonically downward-sloping liquidity preference function. Second, he demonstrated the rewards – intellectual and financial -- that came from successfully combining economic theory with real world data. And third, in discussion after the lecture he provided me with a Japanese

<sup>2</sup> See for example, Ogus, Simon (2016). “Episodes from Asian Monetary History – A selection of articles published in the Asian Monetary Monitor, 1977-89.” To inject a personal note, I personally believe this explains why Friedman was an enthusiastic reader of my journal, Asian Monetary Monitor (1977-96) since it covered the monetary experience of many Asian economies over two decades, together with some selected episodes from Asian monetary history, providing him with exactly the kind of “broader and wider” evidence that he valued. See also [Friedman, 1990](#).

research project that would keep me occupied for four years before I left for Hong Kong, and a research agenda that would occupy me for the rest of my life. He was an inspiring teacher who I met many times in subsequent years, and somebody who – along with Alan Walters and Max Fry -- provided me with crucial intellectual backing at the height of the Hong Kong dollar crisis in 1983 when I proposed a scheme to stabilize the currency. He mentions that event in his autobiography, *"Two Lucky People"*, (p.326) co-authored with his wife Rose Director Friedman, saying later that he had enjoyed a "ringside seat" during the currency crisis. We remained firm friends thereafter until his death in 2006.

In his 1969 lecture in Tokyo Friedman set out a definitive analysis of the relative roles of monetary and fiscal policy in the United States over the period 1961-69, building on the debate he had had with Walter Heller less than a year previously (Friedman & Heller, 1970). His approach was to divide the decade into four distinct monetary and fiscal episodes. In addition to giving an account of what happened in terms of both fiscal and monetary policy in each period, he also asked the question for each episode, which policy dominated? Was fiscal policy the dominant partner, or was monetary policy the dominant player? The way he set out the history was so compelling that it was difficult to do anything except come to a clear-cut conclusion based on the evidence. He convincingly showed that if fiscal policy was either expansionary or contractionary, it was not at all clear what the outcome would be without also knowing what had happened to monetary policy. However, if monetary policy was either expansionary or contractionary, that was enough to explain broadly how the securities and asset markets, the economy and later inflation would behave.

My purpose here is not to repeat the empirical content of that lecture, although I will provide some details of those four episodes in Figure 1 of Section 3, but rather to

summarise his argument as to why fiscal policy is invariably the junior partner in any examination of the interaction of monetary and fiscal policy.

One of Friedman's favoured approaches was to argue that there are only three ways to finance a budget deficit (or an increase in the budget deficit). First, the government can increase taxes, in which case individuals or firms will have less to spend, and therefore increased government spending will be offset by reduced private sector spending. Second, the government can borrow the funds, in which case there will be less funds available for private sector firms or households to borrow and invest. Third, the government or the central bank can arrange for the additional government spending (or private sector investment spending) to be financed via the central bank or through the banking system by credit creation – in effect, the printing of money. In this case it was unambiguous that total spending would rise, implying that increased fiscal spending is only stimulatory when it is financed through a sustained increase in the quantity of money. This was a position that he came to in the late 1940s or early 1950s, and a conclusion which he continuously reinforced by reference to a growing catalogue of real-world examples.

In Tokyo in 1969 Friedman presented two contrasting examples of fiscal policy: the 1963 tax cut in personal and corporate incomes and the 10% tax surcharge of 1968. Pursuing the narrative in chronological order, he first discussed the tax cut. "Enacted in 1963 it was given, by the public at large as well as by many informed economists, primary credit for the rapid expansion in the American economy which got under way in late 1962 and continued for some years thereafter". In point of fact, argued Friedman, the evidence on the tax cut was very mixed. The problem was that the rate of growth of the economy started speeding up before the tax cut took effect and continued long

afterwards. In order to explain both the early expansion and the continued expansion by means of the tax cut, one must argue that the tax cut had a large part of its effect in advance through anticipations, but also had a further effect again after its implementation.

As it happened, he pointed out, “two things were going on at the same time: there was a tax cut on the one hand, but on the other the rate of growth of the quantity of money speeded up rather sharply in the middle of 1962, and this preceded, by roughly six months, the speeding up of the economy which in turn preceded the tax cut, so that from a scientific point of view the evidence of the period from 1961 to 1964 or 1965 is very mixed. There were two factors at work: on the one hand the changes in fiscal policy and on the other hand the changes in monetary policy. They were both working in the same direction, and therefore one cannot, on a simple view, determine which was primarily responsible.”

In summary, Friedman’s view was that while the tax cut of 1963 was potentially positive (in the view of Keynesian economists), the simultaneous acceleration of monetary growth must at least mean that any widespread acceptance of the tax cut as the major source of stimulus was open to doubt.

The next major fiscal event was the 10% tax increase of 1968. The Keynesian view that tax increases (or reductions in the budget deficit or increases in the surplus) are disinflationary while increases in government spending (or reductions in the budget surplus or increases in the budget deficit) are stimulative was so ingrained that Friedman sometimes resorted to hyperbole or polemics to counter his opponents’ arguments. In Tokyo he started out with the rhetorical question: “How can it be that an increase in taxes is not anti-inflationary? Is it not the most obvious thing in the world that if you raise taxes and thereby cut the incomes of tax-payers -- that they will have to reduce their spending,

and that this in turn will reduce the pressure on prices? How can anybody be so foolish as to suppose anything else?"

"But then how do you explain the results (...) that I have just described? How is it that the sharp tax increase (the 10% surtax on personal and corporate income) in the middle of 1968 in the U.S. appeared to have had little effect on the pressure of spending? The answer is that the usual analysis of the tax increase of the kind that I have given is only half the story. It is true that if taxes are increased, then taxpayers have less to spend. So far as that goes, that does reduce the pressure of demand.

"But we have to look at the other side of the government's accounts. If the government continues to spend what it otherwise would have, it has to borrow less in order to finance it. If it raises \$10 billion more in taxes, it needs to get financing from other sources of \$10 billion less. If the reduction from other sources occurs because it borrows \$10 billion less, then that means that those who would have loaned funds to the government have \$10 billion more to pay their taxes, or to maintain consumption, or to lend to somebody else. Taxpayers have less; potential lenders have more. So far as that goes, there is no net effect of a tax increase on the funds available. So far as that goes the effect of the tax increase will be to lower interest rates, but it will not directly reduce spending. It will mean that people who would otherwise have loaned the funds to the government will now have to find other borrowers. In order to find other borrowers, they will have to offer slightly lower interest rates. This will induce business investors – or maybe people who want to build houses or [other capital equipment] -- to borrow the funds that otherwise would have gone to the government. The effect of the higher taxes will be lower consumption and higher capital formation – and that is precisely what happened in the last half of 1968."

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In summary, Friedman considered that the 1968 tax increase was not effective in slowing aggregate demand first because the government continued to spend the funds acquired by the tax increase, while at the same time there was merely a shift in private sector spending away from consumption towards investment. However, there was also a second reason: sustained rapid monetary growth. Once again, monetary policy dominated fiscal policy.

“Of course, if the higher taxes are matched not by a reduction in borrowing from the public, but by a reduced printing of money then the situation is different. Then the tax increase is accompanied by a slower rate of monetary growth, and that will have a definitely deflationary effect. So the reason in 1968 in the United States why you had a controlled experiment was because the counterpart of the tax increase was a reduction in [private] spending but not a reduction in monetary growth. Monetary policy remained expansionary, while tax policy became contractionary. And the results were those that you would expect from the kind of theoretical analysis I just have just given – namely there was no slowdown in the rate of economic expansion, but there was a shift in the composition of output with some slowing down in the rate of consumption spending and some increase in the rate of investment spending.”

Much later in his life Friedman summarised his analysis with the following challenge: “One of the things I have tried to do over the years is to find cases where fiscal policy is going in one direction and monetary policy is going in the opposite. In every case the actual course of events follows monetary policy. I have never found a case where fiscal policy dominated monetary policy and I suggest to you as a test to find a counter-example.” (Snowdon & Vane, 2005, p.217).

I will not expand this account of Friedman’s analysis of the 1960s any further except to distil his framework into four

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possible cases of the interaction of fiscal and monetary policy: expansionary monetary policy with either expansionary or contractionary fiscal policy, and contractionary (or restrictive) monetary policy with either expansionary or contractionary fiscal policy. Friedman's separation of these two key tools of macroeconomic policy allows us to construct a simple 2x2 matrix that contains each of these four cases.<sup>3</sup> I am not aware that Friedman ever summarised his analysis in this format, but I have found this presentation helpful, and this idea forms the focus of the next section.

## Case Studies of the Interaction of Fiscal and Monetary Policy

Before embarking on selected case studies of the interaction of fiscal and monetary policy it is worthwhile to define the measures of monetary and fiscal policy used in this paper. On the fiscal side the preferred measure is the change in the cyclically adjusted or “structural” budget balance for each economy, meaning the change in the annual budget balance relative to potential nominal GDP – resulting from changes in tax rates, tax collections or government spending. This data is available from successive issues of the IMF's World Economic Outlook (WEO) from 1980 (in terms of level) and 1981 (in terms of annual change) for the US, UK and Japan, and for China from 1995 (level) or 1996 (annual change). Where the cyclically adjusted data is not available,

<sup>3</sup> Conceptually, the 2x2 matrix could be extended to a 3x3 format where the third element in each column and each row would be neither expansionary nor contractionary, but simply neutral. I have not done that in this paper, but if central banks become adept at managing monetary growth so that their economies enter a prolonged steady state with stable real growth and stable, low inflation, it may be worthwhile to include a third column and row in future versions of the tables shown here.

budget balances relative to GDP are used. In all these instances, a stimulatory fiscal policy is represented by a series of *negative* numbers (i.e., increases in the budget deficit, or movements from a surplus to a deficit), and conversely a tight fiscal policy is represented by a shift to *positive* numbers (i.e., decreases in the budget deficit or increases in the surplus). If budget balances are not available, changes in the outstanding stock of government debt are used.

In practice this means that for case studies in the US and UK in periods after World War 2 but before 1980-81 changes in the budget balance relative to GDP are used. For the UK and Japan before World War 2 changes in the budget balance are used wherever possible, but changes in the outstanding stock of government debt -- the nearest approximation to the changes in the budget balance -- are used when other measures are not available. Deviations from this taxonomy are explained in the footnotes.

On the monetary side we adopt Friedman's view of monetary policy by using the rate of growth of broad money on a year-on-year basis as the appropriate metric – not changes in interest rates. The use of year-on-year changes of money growth is consistent with Friedman's view that it requires a sustained change in the rate of broad monetary growth to have any substantial impact on the economy or inflation. Again, any deviations from this procedure are explained in the footnotes.

## Illustrations from the USA in the 1960s (Figure 1)

Taking the subject of Friedman's 1969 Tokyo lecture on the evolution of fiscal and monetary policy in the US in the 1960s, I have separated each episode that he discussed into four distinct cells in the matrix in Figure 1. Fortuitously there



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was one case of each type (Cases A, B, C and D) during the decade, and even more remarkably they occurred chronologically in that order. When monetary and fiscal policy were each acting in the same direction (Cases A & D in the matrix) the outcome was straightforward. The test cases were B and C where monetary and fiscal policy were operating in opposite directions.

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**Figure 1.** *The Interaction of Fiscal and Monetary Policy: The United States during the 1960s*

	MONETARY POLICY																									
FISCAL POLICY	Expansionary	Contractionary																								
Expansionary	<p><b>Case A, 1964 Tax Cut</b></p> <p><b>Fiscal Policy:</b> Deficits to fund Great Society Programs and the Vietnam War from 1964.</p> <p>Change in Budget Balance:</p> <table><tr><td><u>1963</u></td><td><u>1964</u></td><td><u>1965</u></td></tr><tr><td>+0.7%</td><td>-0.3%</td><td>+0.6%</td></tr></table> <p><b>Monetary Acceleration:</b> M2 %</p> <table><tr><td><u>Jul 60</u></td><td><u>Feb 61</u></td><td><u>Nov 63</u></td><td><u>Apr 65</u></td></tr><tr><td>3.0%</td><td>6.0%</td><td>8.8%</td><td>8.4%</td></tr></table> <p><b>Outcome:</b> Economic recovery from recession of 1960-61.</p>	<u>1963</u>	<u>1964</u>	<u>1965</u>	+0.7%	-0.3%	+0.6%	<u>Jul 60</u>	<u>Feb 61</u>	<u>Nov 63</u>	<u>Apr 65</u>	3.0%	6.0%	8.8%	8.4%	<p><b>Case B, 1967 Economic Slowdown or Mini-Recession</b></p> <p><b>Fiscal Policy:</b> Budget deficit widened to 4.6% of GDP in 1967.</p> <p>Change in Budget Balance:</p> <table><tr><td><u>1966</u></td><td><u>1967</u></td></tr><tr><td>-0.2%</td><td>-1.7%</td></tr></table> <p><b>Monetary Deceleration:</b></p> <table><tr><td></td><td><u>Apr 66</u></td><td><u>Jan 67</u></td></tr><tr><td>M2</td><td>7.8%</td><td>4.2%</td></tr></table> <p><b>Outcome:</b> Despite increased fiscal deficit, economy slowed significantly.</p>	<u>1966</u>	<u>1967</u>	-0.2%	-1.7%		<u>Apr 66</u>	<u>Jan 67</u>	M2	7.8%	4.2%
	<u>1963</u>	<u>1964</u>	<u>1965</u>																							
+0.7%	-0.3%	+0.6%																								
<u>Jul 60</u>	<u>Feb 61</u>	<u>Nov 63</u>	<u>Apr 65</u>																							
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-0.2%	-1.7%																									
	<u>Apr 66</u>	<u>Jan 67</u>																								
M2	7.8%	4.2%																								
Contractionary	<p><b>Case C, Temporary 10% Tax Surcharge, 1968</b></p> <p><b>Fiscal Policy:</b> higher personal and corporate income taxes, effective until June 30, 1969.</p> <p>Change in Budget Balance:</p> <table><tr><td><u>1968</u></td><td><u>1969</u></td></tr><tr><td>+0.8%</td><td>+1.1%</td></tr></table> <p><b>Monetary Acceleration:</b></p> <table><tr><td></td><td><u>Jun 67</u></td><td><u>Feb 69</u></td></tr><tr><td>M2</td><td>4.2%</td><td>7.8%</td></tr></table> <p><b>Outcome:</b> Despite tightening budget, economy expanded.</p>	<u>1968</u>	<u>1969</u>	+0.8%	+1.1%		<u>Jun 67</u>	<u>Feb 69</u>	M2	4.2%	7.8%	<p><b>Case D, Recession of 1969-70</b></p> <p><b>Fiscal Policy:</b> Budget deficit narrowed in 1968-69, only widening after the economy entered recession in December 1969.</p> <p>Change in Budget Balance:</p> <table><tr><td><u>1968</u></td><td><u>1969</u></td><td><u>1970</u></td></tr><tr><td>+0.8%</td><td>+1.1%</td><td>-2.3%</td></tr></table> <p><b>Monetary Deceleration:</b></p> <table><tr><td></td><td><u>Feb 69</u></td><td><u>Mar 70</u></td></tr><tr><td>M2</td><td>7.8%</td><td>2.2%</td></tr></table> <p><b>Outcome:</b> Despite wider fiscal deficit, M2 growth plunged, and recession followed.</p>	<u>1968</u>	<u>1969</u>	<u>1970</u>	+0.8%	+1.1%	-2.3%		<u>Feb 69</u>	<u>Mar 70</u>	M2	7.8%	2.2%		
	<u>1968</u>	<u>1969</u>																								
+0.8%	+1.1%																									
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M2	4.2%	7.8%																								
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	<u>Feb 69</u>	<u>Mar 70</u>																								
M2	7.8%	2.2%																								

**Data sources:** Fiscal policy is measured by the change in the budget balance as a percentage of GDP, using OECD data extracted from Refinitiv Datastream. Negative figures (an increase in government expenditure relative to revenue) indicate a net stimulus in Keynesian terms. Following Friedman, monetary growth refers to percentage rates of change of M2 over the preceding year. Source: FRED, Federal Reserve Bank of St Louis, website as at 23 October 2018.

The outcomes of cases B and C in Figure 1, both drawn from Friedman's 1969 lecture, were decisive: in each case

monetary policy proved more powerful than fiscal policy for macroeconomic outcomes. His analysis of the monetary and fiscal experience in the United States during the 1960s can be readily extended to cover other economies and other eras. In line with his preference for “broader and wider” evidence, Figure 2 highlights some striking cases from China, the US, the UK and Japan in different eras while Figures 3 and 4 below focus on the UK and Japan respectively. In all the case studies in Figures 2, 3 & 4, but particularly Cases B & C of each matrix, the data point to the same conclusion: almost always, when monetary and fiscal policy point in opposite directions, monetary policy (i.e., money growth) has a greater impact on the macroeconomic outcomes than fiscal policy.

The remainder of Section 3 offers a brief overview of the episodes selected in Figures 2, 3 and 4. Most attention will be paid to episodes listed under Cases B & C in each case where monetary and fiscal policy were operating in opposite directions.

## **Classic Cases from Around the World (Figure 2)**

China’s highly successful “fiscal stimulus” of 2008-10 (Case A in Figure 2) is of great importance to anyone interested in the Great Recession of 2008-09 and the countervailing fiscal policies implemented at the time. In contrast to many advanced, western economies which had built up considerable leverage especially in the household and financial sectors, China’s economy had entered the Great Recession with those sectors in a much stronger, less leveraged position as measured by the ratios of sectoral debt-to-GDP. Accordingly, unlike those developed economies that needed to undertake an extended period of de-leveraging and balance sheet repair (and whose banks

were therefore constrained in their ability to expand credit and hence money), the Chinese authorities were able to launch a strong stimulus programme starting in November 2008.

However, the interesting part of the story is that although the central government of China announced a huge fiscal stimulus plan amounting to CNY 4 trillion, or 6.5% of China's GDP at the time, the central government only increased its deficit from 0.3% of GDP in 2008 to 1.8% in 2009 (according to the IMF's database of cyclically adjusted budget balances – henceforth IMF CABB). This represented a stimulatory shift of only -1.5% (Figure 2) which was almost entirely reversed in 2010 when the budget balance returned to -0.4% of GDP, a contractionary shift of +1.4%. The remainder of the boost to activity and spending came from provincial governments, many of which set up local government financing vehicles (LGFVs) to borrow from the banking system. In short, rather than funding the additional spending by taxation or borrowing, most of it was in fact financed by new credit creation from the banking system. As a result, M2 and bank credit increased enormously over the two years 2009-10. Average growth of M2 over this period was 25% p.a. compared with about 15% p.a. before the crisis (Figure 2). As Friedman would no doubt have pointed out, while fiscal policy was mildly expansionary in 2008 and 2009, monetary policy was highly expansionary. The outcome was that China's stock market doubled in 2009, there was a surge in house prices and commodity prices, together with a strong economic recovery. In addition, consumer price inflation increased from -1.8% in July 2009 to 6.5% in 2011.

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**Figure 2.** *The Interaction of Fiscal and Monetary Policy: Classic Cases from Around the World*

	MONETARY POLICY	
FISCAL POLICY	Expansionary	Contractionary
Expansionary	<b>Case A, China Stimulus 2008-10</b> <b>Fiscal Policy:</b> China's 4,000 bn. yuan fiscal stimulus, lasting two years. <b>Change in Budget Balance (%)</b> <u>2008</u> <u>2009</u> <u>2010</u> <u>2011</u> -0.2 -1.5 +1.4 +0.3 <b>M2 Growth (% yoy):</b> <u>2008</u> <u>2009</u> <u>2010</u> <u>2011</u> 14.7 29.6 19.5 16.2 <b>Outcome:</b> Rapid, strong recovery; inflation hit 6.5%.	<b>Case B, Reagan Tax Cuts, 1981-86</b> <b>Fiscal Policy:</b> President Reagan Cut Taxes and Raised Defense Spending, 1981-86 <b>Change in Budget Balance (%)</b> <u>1981</u> <u>82</u> <u>83</u> <u>84</u> <u>85</u> <u>86</u> +4.6 -0.9 -1.1 -0.6 -0.7 -0.4 <b>M2 Growth (year-ave, % yoy):</b> <u>1980</u> <u>1981</u> <u>1982</u> <u>1983</u> <u>1984</u> 8.0 9.0 9.0 11.9 8.4 <b>Outcome:</b> Though M2 did not slow until 1984 & 1987, high real interest rates and supply-side reforms slowed inflation from 13.6% in 1980 to 6.2% in 1982.
Contractionary	<b>Case C</b> <b>Britain's 1931 Budget</b> <b>Britain's 1981 Budget</b>  For further detail, see Figure 3.	<b>Case D</b> <b>Japan's Matsukata Deflation, 1881-85 and the "Dodge Line" deflation from 1949</b>  For further detail, see Figure 4.

**Data sources:** Chinese and US fiscal data show changes in cyclically adjusted budget balances (CABB) as % of GDP, using the IMF's World Economic Outlook database (October 2008 and October 2018 editions). A negative change indicates stimulatory fiscal policy. Following Friedman, monetary growth refers to percentage year-on-year rates of change of M2. The source for China's M2 is the Federal Reserve Bank of St Louis's FRED database, as of November 2018.

By contrast, the story in many of the highly leveraged, developed economies after the 2008-09 crisis such as the US and UK was very different. In these economies, despite budget deficits expanding to 10% of GDP and more, despite interest rates being lowered to almost zero, and despite large amounts of quantitative easing or QE (initially in the US and the UK), the recoveries proved to be universally sub-par.<sup>4</sup> The crucial difference between the US, the UK, Japan and

<sup>4</sup> Japan after 1990 and the Matsukata deflation along with the Dodge Line will be discussed in the section covering Figure 4 below.

other developed economies and China was that none of the former experienced the kind of sustained surge in broad money growth that prompted China's recovery. In short, the lack of expansionary broad money growth in the developed economies was the missing ingredient that was needed for a normal recovery. Again, as Friedman would no doubt have pointed out, circumstances combined to arrange a natural controlled experiment contrasting two very different combinations of fiscal and monetary policy in China on the one hand (Case A) and in the advanced western economies on the other (Case B). In both cases monetary policy (i.e., broad money growth) proved decisive.

Another episode selected for Case B in Figure 2 is President Ronald Reagan's policy of tax cuts and increased defense expenditure in the first half of the 1980s. The episode is interesting in the current circumstances because there are obvious parallels between his fiscal programme and President Trump's fiscal agenda. Under Reagan the budget deficit swelled from 1.6% of GDP in 1981 to 5.3% by 1986 (as measured by the IMF's CABB). At the same time, however, far from accelerating under the pressure of increased government spending, inflation fell sharply from 14.8% in March 1980 to 1.1% by December 1986. How could it be that with such a large stimulatory fiscal spending plan the inflation rate could come down so dramatically? The answer, of course, was that this was the period when Paul Volcker was Chairman of the Federal Reserve Board, and he was on a mission to raise interest rates, squeezing money and credit until inflation fell. Therefore, despite an expansionary fiscal policy, monetary policy was tight, and monetary policy dominated. Although this was a period of confusion for followers of the money supply data -- including Friedman himself -- due to significant deregulation of the financial system and the introduction of NOW (Negotiable Order of Withdrawal) and new "sweep" accounts, the results in terms

of inflation were unambiguous. Tight money had brought down inflation – even in the face of a highly expansionary fiscal policy.

## Cases from British Financial History (Figure 3)

Case A in Figure 3 presents some key statistics on British fiscal and monetary policy during the years of the “Barber Boom” in the early 1970s. The prime minister Edward Heath and his Chancellor of the Exchequer, Sir Anthony Barber, pursued both an expansionary fiscal policy with widening budget deficits together with highly expansionary monetary growth (for details, see Figure 3). Facilitated by a major liberalisation of the banking system following a Bank of England report entitled “Competition and Credit Control” (May 1971), this led to very strong growth of bank lending, much of it to speculative property concerns, and therefore extremely rapid broad money growth exceeding 20% p.a. in 1972 and 1973. The boom inevitably proved unsustainable, with a deteriorating external balance of payments account and high inflation, ending in the deepest post-war recession up to that date. Statistically it would be hard to differentiate which was the dominant partner in the boom – fiscal or monetary policy – but when contrasted with Case B-type episodes in which monetary growth did not accelerate despite large fiscal deficits, the implication is that without monetary expansion the boom would have been far less exuberant.

Case B, Alistair Darling’s budgetary response to the Great Recession of 2008-09, is an example of the policy mix in the developed economies after 2008 that did not work as well as China’s Case A-type policy in Figure 2, discussed above. The reason was that although there was a substantial fiscal “stimulus” in the UK (see Figure 3), there was also a

complete absence of any stimulus on the monetary side – at least in terms of growth of the broad quantity of money. The juxtaposition in time of the two plans – in China and the UK respectively – makes a striking contrast between Case A in Figure 2 and Case B in Figure 3.

Cases Ci and Cii in Figure 3 feature two controversial and much-discussed episodes from British financial history – the 1931 budget of the Labour Party's then Chancellor of the Exchequer Philip Snowden and the famous – or infamous – 1981 budget of Geoffrey Howe under the first Conservative government of Margaret Thatcher. Both budgets were much tighter in terms of their squeeze on government spending and in their supposed impact on private sector spending than supporters in the two respective political parties had hoped.

Although Keynesian arguments were used to support increased public sector spending as a means of boosting activity and employment in the private sector, Snowden's 1931 budget ignored such arguments in favour of fiscal conservatism. He opposed radical, expansionary policies to counter the Great Depression and refused to adopt protectionist tariffs. Instead, he pursued a fiscal squeeze at home and orthodox trade policies abroad in the face of recession and deteriorating government finances. He cut unemployment benefits and reduced public sector pay, leading to riots in the streets and a mutiny among sailors of the Royal Navy at Invergordon in Scotland. Nevertheless, the fiscal measures were not especially restrictive in terms of the budget balance (see Figure 3, Case Ci). Indeed, given that Snowden's budget decisions were occurring against the backdrop of the onset of the Great Depression, it is not surprising that the budget deficit widened as a percentage of GDP in 1931 from 1.5% to 2.4%.

On the monetary side broad money growth was 5% in 1930, falling to -3% in 1931, but surged to 10.7% in 1932. In



addition, the 28% devaluation of sterling relative to the US dollar in September 1931 from an average of \$4.86 in 1930 to an average of \$3.50 in 1932 -- after Britain left the gold standard in September 1931 – doubtless acted as a stimulus to the exporting sector, even if it raised the price of imports for domestic consumers and businesses. The net result, as we saw in the case of the US surtax in 1968, was that monetary ease overcame fiscal tightness or Treasury orthodoxy; Britain was far less impacted by the Great Depression than the US.

These decisions and their immediate political and economic impact triggered a split in the cabinet – ultimately resulting in the fall of the Labour government later in the same year. Although Snowden (and Prime Minister Ramsay MacDonald) survived politically, winning re-election in a “National” coalition administration, he was widely excoriated for his adherence to liberal, Gladstonian policies and was branded a traitor to Labour’s cause.

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**Figure 3.** *The Interaction of Fiscal and Monetary Policy: Cases from British History*

	MONETARY POLICY	
FISCAL POLICY	Expansionary	Contractionary
Expansionary	<b>Case A, Barber Boom, 1971-73</b> <b>Fiscal Policy:</b> Larger deficits Change in CABB (% GDP): <u>1970</u> <u>1971</u> <u>1972</u> <u>1973</u> <u>1974</u> 0.2% -1.8% -1.8% -1.3% -1.4% <b>Monetary Acceleration (M3):</b> <u>1970</u> <u>1971</u> <u>1972</u> <u>1973</u> <u>1974</u> 12.0% 16.3% 21.7% 22.3% 10.9% <b>Outcome:</b> Economic boom and 26% inflation led to balance of payments and banking crisis.	<b>Case B, Global Financial Crisis, 2008-09</b> <b>Fiscal Policy:</b> Big deficits during deep recession. Change in CABB (% GDP): <u>2007</u> <u>2008</u> <u>2009</u> <u>2010</u> -0.7% -2.0% -1.6% +1.5% <b>Monetary Deceleration (M4):</b> <u>2007</u> <u>2008</u> <u>2009</u> <u>2010</u> 10.6% 3.7% 1.6% 2.5% <b>Outcome:</b> Despite large budget deficits, slow M4 growth meant the recovery was weak and inflation stayed low.
	<b>Case C i, Snowden's 1931 Budget</b> <b>Fiscal Policy:</b> Classic tightening <b>Change in Budget Balance (% GDP):</b> <u>1930</u> <u>1931</u> <u>1932</u> <u>1933</u> -0.8% -0.9% +1.8% +1.0% <b>Monetary Acceleration (M3):</b> <u>1930</u> <u>1931</u> <u>1932</u> <u>1933</u> 5.0% -3.0% 10.7% 1.5% <b>Outcome:</b> Recovery from 1932 <b>Case C ii, Howe's 1981 Budget</b> <b>Fiscal Policy:</b> Tax increases <b>Change in Budget Balance (% GDP):</b> <u>1980</u> <u>1981</u> <u>1982</u> <u>1983</u> N/A +1.7 +1.6 -1.7 <b>Monetary Acceleration (M3):</b> <u>1980</u> <u>1981</u> <u>1982</u> <u>1983</u> 17.3 14.0 12.6 13.2 <b>Outcome:</b> Economy recovered	<b>Case D, Post-WWI Deflation, 1919-22 under Lloyd George</b> <b>Fiscal Policy:</b> Hugely contractionary after wartime expenditures <b>Change in Budget Balance (% GDP):</b> <u>1918</u> <u>1919</u> <u>1920</u> <u>1921</u> <u>1922</u> +1.5 +17.8 +7.9 -1.9 +1.5 <b>Monetary Deceleration (M3):</b> <u>1918</u> <u>1919</u> <u>1920</u> <u>1921</u> <u>1922</u> 24.8 15.3 6.0 -3.4 -9.4 <b>Outcome:</b> Economy slumped in 1919-20 and deflation followed.

**Data sources:** Fiscal data: IMF CABB from 1981; for episodes before 1981, data were obtained taken from the Bank of England's *Three Centuries* database where the budget balance is public sector net lending/ borrowing as a % of GDP. Monetary growth is shown as % year-on-year rates of change of M3 or M4, also sourced from the Bank of England's *Three Centuries* database.

Geoffrey Howe's 1981 budget (Figure 3, Case Cii) was delivered at a time when the economy had suffered seven successive quarters of decline in real GDP (from 1979 Q3 to 1981 Q1) as part of the struggle against inflation. On the monetary side, a Medium-Term Financial Strategy (MTFS) had been put in place in 1979 to ensure a gradual reduction in the rate of growth of broad money over a period of years and was starting to prove successful, even though broad money growth continued in double digits. On the fiscal side, increases in indirect taxes were imposed along with spending controls designed to achieve a lower public sector borrowing requirement (PSBR), a policy mix which flew in the face of conventional or Keynesian wisdom that the government should use fiscal spending to promote a recovery.

Confronted in 1981 with a projected £14 billion PSBR or fiscal deficit for the 1981/82 tax year, nearly twice what had been forecast in official budget documents a year earlier, Chancellor of the Exchequer Howe and his team nevertheless decided to reduce the PSBR to £10.5 billion in 1981/82, committing the government to a third successive year of austerity. This was to be accomplished on the revenue side mainly by above-inflation increases in indirect taxes (including on petrol and diesel fuels), by new, one-off taxes on the banks and on North Sea oil, and by *not* indexing personal tax allowances for inflation. (These tax increases in the midst of a recession were greeted with the newspaper headline next morning: "Howe it Hurts".) On the spending side the plan was to keep public expenditure flat in real terms, with tight controls maintained on spending by extending the coverage of "cash limits". Separately the Bank of England's Base Rate was cut by two percentage points from 14% to 12%. In the mind of policymakers, the rate cuts were only feasible because the PSBR had been reduced, making "space" for lower interest rates.

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Perhaps the most famous response to this combination of fiscal tightening and monetary easing was the indignant letter from 364 disgruntled professional economists who predicted, mainly on the basis of the government's plans to narrow the fiscal deficit, and echoing criticism of the 1931 budget, that "present policies will deepen the depression, erode the industrial base of our economy and threaten its social and political stability." (Wood, 2006). Directly countering their Keynesian, "fiscalist" predictions, the economy troughed in the second quarter of 1981 and the recovery started in the third quarter, just a few weeks after the budget. By 1981 Q4 the real GDP had increased by 1.5% over the previous year, rising a further 1.8% in the year to 1982 Q4 and 4.1% in the year to 1983 Q4.

In retrospect, the British budget of 1981 is widely acknowledged to have marked the start of a sustained period of expansion for the UK economy. It also marked a turning point in the management of the fiscal deficit. On a cyclically adjusted basis the PSBR declined from an average of 4.1% p.a. between 1978/79 and 1980/81 to an average of -1.0% p.a. (i.e., a surplus of 1.0%) between 1981/82 and 1983/84. More importantly, as we have seen from Friedman's forensic separation of fiscal and monetary forces, the continued growth of the quantity of broad money (M3) played the key role in ensuring the sustained economic expansion of the 1980s. The steady reduction in the PSBR or budget deficit, though important for reducing the role of the state in the economy, was essentially a sideshow compared with the role of monetary policy in securing stronger growth and lower inflation.<sup>5</sup>

<sup>5</sup> There is a considerable literature on the subject of "expansionary fiscal contractions" featuring writers such as Alberto Alesina, Francesco Giavazzi and others, but this literature mainly focuses on the question of whether cuts in government expenditure or tax increases are more beneficial for an economic recovery. The problem, however, is that even

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In summary, in both the 1931 and 1981 episodes, the allegedly “tight” fiscal stance was outweighed by the underlying easing of monetary policy (i.e., money growth).

Case D in Figure 3 reports on the post-World War 1 financial squeeze in Britain that, despite some social programmes such as “homes fit for heroes” under the Addison Act, contemporaries mostly associated with budget cuts such as those recommended by the Geddes committee in 1921. However, since broad money growth was consistently decelerating from 1918 until 1922, slowing from 24.8% growth in 1918 to a 9.4% decline in 1922, both fiscal and monetary policy were contractionary. The data for Case D alone do not permit a judgment as to which policy was dominant. However, if viewed in conjunction with other cases such as Case Ci ([Snowden’s 1931 budget](#)) where fiscal policy was contractionary but monetary growth was expansionary, it seems clear that it was monetary growth that made the decisive difference in the early 1920s.

## Cases from Japanese Financial History (Figure 4)

To conclude this survey of the interaction of fiscal and monetary policy, Figure 4 features a number of contrasting episodes from Japanese monetary and financial history.

The two episodes labelled Case Ai and Case Aii in Figure 4 (expansionary monetary and expansionary fiscal policy) both had a momentous impact on the performance of the Japanese economy in widely differing political and intellectual contexts. Finance Minister Takahashi’s monetary

where the analysis does take into account changes in monetary policy, it does not use changes in the quantity of money as the measure of monetary policy. In Friedman’s terms, overall nominal spending growth is ultimately determined by monetary growth; fiscal policy – changes in government spending or changes in taxes – only determines the division of that spending between the private and the public sectors.

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and fiscal expansion of 1931-36 succeeded because it was based on an underlying plan that deliberately combined monetary, fiscal and exchange rate elements.

His fiscal expansionism of the 1930s is sometimes credited with being the first example of the implementation of a Keynesian stimulus -- several years ahead of the publication of Keynes' *General Theory*.

Applying Friedman's analysis, however, its success was at least as much due to the monetary and exchange rate parts of the programme as to the purely fiscal part of the programme. First, after Japan left the gold standard in December 1931 (devaluing the currency by 60% against the US\$ and 44% against the British pound), the performance of exports and industrial production improved dramatically in contrast to the performances of the US or UK. Second, increased spending by the Japanese government during the Great Depression was financed directly by the Bank of Japan from November 1932 when the authorities began to sell entire issues of deficit-financing bonds to the central bank rather than to private sector institutions. There was consequently an acceleration of money in the hands of the public (M2) as the government spent the funds. In effect, the increased government spending was funded entirely by the Bank of Japan. Takahashi's motivating idea was first to boost the money supply and stimulate industry, and then, as conditions improved, to have the private sector buy back the bonds from the Bank of Japan, soaking up money from general circulation and thereby controlling inflation. By 1933, Japan had emerged from the Great Depression.

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**Figure 4.** *The Interaction of Fiscal and Monetary Policy: Cases from Japanese History*

		MONETARY POLICY		
FISCAL POLICY	Expansionary	Contractionary		
Expansionary	<b>Case A i, Takahashi Reflation, 1931-36</b> <b>Fiscal Policy:</b> Govt expenditure and deficits increased hugely (%yoy): <u>1931</u> <u>1932</u> <u>1933</u> -5.2    +32.0    +14.0 <b>Monetary Acceleration:</b> BOJ buys Govt Debt, Yen devalued 60%. BOJ Holdings of Govt Debt, Yen mn <u>1931</u> <u>1932</u> <u>1933</u> JGBs 259    565    682 M2 -4.0%    +3.6%    +5.9% <b>Outcome:</b> Japan was the first economy to recover from the Great Depression. <b>Case A ii. Tanaka plan to “remodel Japanese archipelago”, 1972-74</b> <b>Fiscal Policy:</b> Deficits from big infrastructure projects <b>Change in Budget Balance** (% GDP):</b> <u>1970</u> <u>1971</u> <u>1972</u> <u>1973</u> <u>1974</u> 0.7% -1.0% -0.8% -0.2% -0.8% <b>Monetary Acceleration (M2):</b> <u>Jan 71</u> <u>Nov 72</u> <u>Apr 73</u> 17.1% 28.5% 27.2% <b>Outcome:</b> Asset prices surged, economy boomed, inflation increased to 26% in 1974.	<b>Case B i, Deflation of the 1920s</b> <b>Fiscal Policy:</b> Balanced budgets plagued by weak nominal growth; periodic stimulus e.g., after Great Kanto Earthquake of 1923. Govt Debt/GDP ratio (%): 1918    1923    1928 35%    42%    48% <b>Monetary Deceleration (% yoy):</b> <u>1917-19</u> <u>1920-30</u> M2    +37.0% p.a.    +2.1% p.a. <b>Outcome:</b> High unemployment, weak wages, and deflation through 1920s. Inflation: <u>1917-19</u> <u>1920-30</u> WPI    +26.4% p.a.    -4.4% p.a. Tokyo RPI    N/A    -5.0% p.a.* <b>Case B ii. Japan’s Lost Decade -- fiscal stimulus programs after the asset bubble burst, 1990</b> <b>Fiscal Policy:</b> Repeated large budget deficits through 1990s <b>Change in CABB (% GDP):</b> <u>1991</u> <u>1992</u> <u>1993</u> <u>1994</u> <u>1995</u> <u>1996</u> -0.2    -0.5    -2.6    -1.1    -1.0    -1.0 <b>Monetary Deceleration (average % yoy):</b> <u>1988-90</u> <u>1991-97</u> M2    10.9% p.a.    2.4% p.a. <b>Outcome:</b> Despite numerous fiscal stimulus plans and 0% interest rates, economy remained weak and experienced deflation. Deleveraging and loss of risk appetite kept M2 money growth rate low.		
	* Tokyo Retail Price Index average annual % change is for 1923-30.			
	** Measured as change in public sector balance from Flow of Funds (BOJ).			

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**Figure 4.** (continued)

MONETARY POLICY	
FISCAL POLICY	Contractionary
Contractionary	<b>Case Ci, Pre-WWI Prosperity, 1902-14</b> <b>Fiscal Policy:</b> After the Russo-Japanese War of 1904-05, austerity lowered Debt/GDP. Govt Debt/GDP: <u>1905</u> <u>1908</u> <u>1913</u> 84%    67%    59% <b>Monetary Acceleration, 1902-14</b> (Average % yoy) <u>M2</u> +9.6% p.a. <b>Outcome:</b> Economy was buoyant and inflation at a moderate rate. Wholesale Price Index +2.2% p.a. (1902-14 average) <b>Case Cii, The 1980s and Asset Bubble, 1985-90</b> <b>Fiscal Policy:</b> Budget balance shifted steadily from -6% (1979) to +2% (by 1991). Change in CABB (% GDP): <u>1985</u> <u>1986</u> <u>1987</u> <u>1988</u> <u>1989</u> +0.6 +0.5 +1.0 0.0 +0.7 <u>1990</u> +0.2 <b>Monetary Acceleration (M2):</b> <u>Dec 83</u> <u>Dec 87</u> <u>Apr 90</u> 7.6%    11.5%    13.2% <b>Outcome:</b> Despite budget moving to surplus, asset markets and the economy boomed. Inflation increased to 3.9% by January 1991.
	<b>Case Di, Matsukata Deflation, 1881-85</b> <b>Fiscal Policy:</b> After Satsuma rebellion (1877), govt wanted to deflate and return to silver standard at pre-war parity. Level of Govt Debt (Yen Mn) <u>1876</u> <u>1877</u> <u>1878</u> <u>1881</u> <u>1884</u> 53.9    238.2    252.4    246.1    241.9 <b>Monetary Deceleration:</b> Deflation of paper money to lower price level. Currency issue outstanding (Yen Mn) <u>1877</u> <u>1878</u> <u>1881</u> <u>1884</u> <u>1885</u> 139.7    189.2    178.2    152.5    153.0 <b>Outcome:</b> Despite high debt levels, inflation turned to deflation. Wholesale Price Index, 1873=100 <u>1877</u> <u>1878</u> <u>1881</u> <u>1884</u> <u>1885</u> 111    117    162    110    112 <b>Case Dii, The Dodge Line, 1949</b> <b>Fiscal Policy:</b> Cessation of budget deficits and ban on BOJ funding deficits. Change in Government Debt (Yen Bn) <u>1946</u> <u>1947</u> <u>1948</u> <u>1949</u> <u>1950</u> +65.9    +95.3    +163.8    +112.8    -83.2 <b>Monetary Deceleration:</b> End to BOJ financing of government budget deficits. Change in BOJ credit to govt (Yen Bn) <u>1947</u> <u>1948</u> <u>1949</u> <u>1950</u> +156.5    +124.9    -40.4    -124.8 M2: <u>1947</u> <u>1948</u> <u>1949</u> <u>1950</u> (%yoy) 90.4    89.8    33.3    28.2 <b>Outcome:</b> Abrupt decline in inflation. Wholesale prices (% yoy): <u>1946</u> <u>1947</u> <u>1948</u> <u>1949</u> <u>1950</u> +365    +196    +166    +63    +18

**Source:** *Hundred Year Statistics of the Japanese Economy*, Statistics Department, The Bank of Japan, July 1966. Thomson Reuters Datastream, OECD Economic Outlook, and IMF WEO databases. Fiscal policy: Where changes in the IMF's CABB were not available, data used was government expenditure (Case Ai), Government debt/GDP (Cases Bi & Ci), or the level of government debt (Cases Di and Dii). Monetary growth refers to the % year-on-year rates of change of M2 where available. The wholesale price index is equivalent to a producer price index.



The fiscal data in Case Aii of Figure 4 summarise the bare bones of Prime Minister Tanaka's much-touted plan to "remodel the Japanese archipelago." As the data show, however, the scale of the fiscal spending boost was not especially large, but at the same time dramatic events were occurring on the monetary side. Following the closing of the gold window by President Nixon in August 1971, currencies such as the German mark, the Swiss franc and the Japanese yen were unpegged from the US dollar and revalued upwards by substantial margins. Japan, being a major trading nation and exporting large volumes was particularly vulnerable to yen appreciation. The Japanese monetary authorities feared that a yen revaluation would precipitate a recession ("*endaka fukyo*"), and therefore promoted a rapid acceleration of monetary growth, allowing M2 to surge to well over 25% year-on-year in both 1972 and 1973 (see M2 data in Case A ii). Consequently, PM Tanaka's remodelling plan and its large-scale public works fiscal plans were combined with a huge monetary expansion.

Whether PM Tanaka's 1972 fiscal plans would have created a boom on their own will never be known. Fortuitously, their coincidence with a massive monetary expansion due to unexpected international monetary developments generated a domestic monetary explosion – the largest since 1948 in Japan's case – so that both fiscal and monetary policy were highly expansionary. The results were to create a bubble in the stock market, soaring property prices, serious overheating in the economy, and an average CPI inflation rate of 22% for 1974.

The two episodes featured in Cases Bi and Bii of Figure 4 illustrate the futility of trying to boost an economy with fiscal stimulus programmes unaccompanied by monetary expansion. To understand Case Bi we need to begin with the overvaluation of the Japanese yen in the 1920s caused by the surge in the domestic price level at the fixed exchange rate

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during the First World War (see WPI data). After the war the maintenance of the fixed rate at the high domestic price level led to persistent overall balance of payments deficits which drained foreign exchange reserves and reduced banks' reserves held at the central bank, thus undermining any attempt at monetary stimulus. Periodic attempts at providing a fiscal boost (e.g., after the Great Kanto Earthquake of 1923) failed to reverse high unemployment, weak wages, and persistent deflation. Tragically, this policy combination led to the erosion of democratic government at home and military adventurism abroad in the 1930s.

Case Bii documents how, in the 1990s, even with a generally freely floating exchange rate, repeated attempts at fiscal stimulus failed to overcome the inertia of slow monetary growth. In almost every year of the 1990s the Japanese government consistently ran large deficits in the main budget, regularly boosted by "supplementary" spending programs. Nonetheless, just as in the 1920s, the failure to boost monetary growth in the 1990s meant that Japan continued to suffer from deficient domestic demand and bouts of deflation. In fact, Japanese government deficits continued subsequently between 2000 and 2019 along with slow monetary growth (until 2020), prolonging macroeconomic weakness, and causing the Japanese government's gross debt to rise to over 250% of GDP.

Cases Ci and Cii in Figure 4 feature episodes where contractionary fiscal policies were counteracted by monetary expansion. Case Ci focuses on a relatively little-studied period before the First World War. Although Japan emerged as the winner in the Russo-Japanese war of 1904-05, the country was left with substantial debts. The ratio of government debt-to-GDP reached 84% in 1905 (see Figure 4). Since Japan had adopted the gold standard relatively recently (in 1897), the government considered the reduction of public debt a priority to ensure continued adherence to

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the gold standard. As a result, a strong policy of fiscal austerity was implemented, but because monetary growth remained buoyant, the economy was able to grow successfully with low inflation even as the debt was reduced.

Case Cii, the Japanese asset bubble of the late 1980s, arose as a result of the two international currency agreements of the 1980s – the Plaza Agreement in September 1985 and the Louvre Accord in February 1987. After a decade of stable monetary growth and approximately steady-state growth and inflation, Japan's monetary policy was derailed by these external agreements. In response to the Plaza Agreement the Bank of Japan lowered interest rates steeply, while in response to the Louvre Accord the Japanese authorities intervened heavily in the foreign exchange market<sup>6</sup>, encouraging rapid money and credit growth both inside and outside the banking system and promoting a wider programme of financial deregulation. Case Cii also illustrates the way private spending can be stimulated by rapid money growth at the same time as the government budget shifts from deficit to surplus. Since Japanese government tax revenues were very buoyant throughout the boom period of 1983-90, a fiscal deficit of 4.0% of GDP in 1983 was transformed into a fiscal surplus of 2.0% by 1990, creating – in Friedman's phrase – a "natural experiment" consisting of monetary expansion combined with fiscal contraction. (This episode is comparable in certain ways to the experience in the US a decade later in the late 1990s under President Clinton when there was an information-technology bubble in the stock market and vigorous growth in the economy, while at the same time the federal

<sup>6</sup> Japan's gold and foreign exchange reserves almost doubled between January 1987 (\$51.5 billion) and January 1989 (\$98.2 billion), while M2 accelerated from 8.2% year-on-year in September 1985 to 12.3% by February 1988.

government's budget gradually shifted from deficit to surplus.)

Finally, Case D in Figure 4 features two dramatic episodes of economic stabilisation in Japan following episodes of high inflation. Both the Matsukata and Dodge stabilisation plans relied on abrupt slowdowns or tightening of monetary policy together with fiscal contractions.

In the first case there had been an inflation-financed war in south-western Japan to suppress the Satsuma Rebellion of 1877. The money-printing had drastically raised Japan's price level. To reduce the price level after the rebellion and to restore equilibrium in the balance of payments under the silver standard, Finance Minister Matsukata deliberately cut government spending and reduced the money supply. After the internal price level was reduced, Japan was able to return the value of the Japanese silver yen to its pre-rebellion parity and to maintain the silver standard until 1897 when it was abandoned in favour of switching to the gold standard.

In case D ii, the "Dodge Line" refers to the policy-mix adopted by the Japanese government in April 1949, following the recommendations Joseph Dodge, a Chicago financier, who had been brought in by the Occupation authorities to restore order to Japan's chaotic post-war finances. The aim was to end the abusive financing of post-war budget deficits through the Development Bank of Japan and the printing of money by the Bank of Japan to fund such government spending. These policies had caused persistently high, triple digit inflation between 1945 and 1949. It was therefore decided that henceforth the government would, in principle, balance the budget, only borrowing in the open market to finance any future deficits and not funding them via the central bank. In addition, the Japanese exchange rate was fixed at 360 yen per US\$. In short, for a time both monetary and fiscal policy were contractionary. Just as the Matsukata deflation of the 1880s

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had enabled Japan to maintain the silver standard, the Dodge Line enabled Japan to adopt and maintain a fixed exchange rate under the Bretton Woods system for the next twenty-two years (1949-71).

## Conclusion

Friedman often said that for clear thinking on macroeconomic policy, monetary and fiscal issues should be separated from one another. This article has examined a series of macroeconomic policy episodes across some key economies in different eras, dividing them into the contribution of monetary policy<sup>7</sup> and the contribution of fiscal policy. In all cases Friedman's observations have been validated. When monetary and fiscal policy have been acting in the same direction the results have been clear-cut, whether expansionary or contractionary. However, whenever monetary and fiscal policies have been acting in opposite directions, our case studies suggest that monetary policy (in the sense of broad money growth) invariably dominates.

These were not the conclusions of an ivory-tower economist but were based on a lifetime's study of real-world data. As Friedman wrote, "One swallow does not make a spring. My own belief in the greater importance of monetary policy does not rest on these dramatic episodes. It rests on the experience of hundreds of years and of many countries. These episodes of the past few years illustrate that effect;

<sup>7</sup> Notice that in all these case studies we have barely mentioned interest rates. In Friedman's view, interest rates are the price of credit, not the price of money. They can be and are used by central banks as an instrument to encourage or discourage bank lending (and hence deposit money creation), but they are also a symptom of other conditions in the credit market such as risk aversion and inflation expectations. As a result, they are potentially highly misleading. For example, while low rates may reflect the initial stages of a surge in money growth, they may also be low because money growth has been low in the past few years and inflation expectations are low.

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they do not demonstrate it. Nonetheless, the public at large cannot be expected to follow the great masses of statistics. One dramatic episode is far more potent in influencing public opinion than a pile of well-digested, but less dramatic, episodes. The result in the USA at any rate has been a drastic shift in opinion, both professional and lay." (Friedman, 1970).

The reason why fiscal deficits without monetary expansion are unsuccessful in stimulating economic activity is that the underlying financing requirements effectively neutralise or substantially counteract the stimulus. For example, larger budget deficits always need to be financed, and the financing – whether by taxation or borrowing – invariably offsets the effect of the supposed stimulus. Only in the case of financing by the creation of new money did Friedman find an unmistakably positive effect from the additional government spending, and in those cases it was difficult to say which was more important in providing the stimulus -- monetary policy or fiscal policy. The case studies in this article confirm that logic.

Conversely, if a smaller budget deficit was planned with an unchanged monetary policy, then the government would have less to spend and the private sector would have more. The fiscal multipliers were essentially unity. Only in the case of a reduction of overall spending accomplished by means of slower money growth or a monetary contraction was there an unmistakably negative effect from the reduction in government spending. In these cases where both monetary and fiscal policies were restrictive it was hard to say which policy was responsible for the outcomes -- the reduction in government spending or the tightening of monetary growth. Again, Friedman's findings are confirmed by the case studies in this article.

No wonder Friedman was quoted as saying, "How can the government stimulate the economy by taking money out

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of one pocket of the public and putting it into another pocket?"<sup>8</sup>

<sup>8</sup> Where Carter is Going Wrong: Interview with Nobel Prize Winner Milton Friedman, New York: U.S. News and World Report, Inc, March 7<sup>th</sup>, 1977.

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# 2

## Monetary Policy is not about Interest Rates; the Liquidity Effect and the Fisher Effect

Discussions about monetary policy are frequently bedevilled by vague terminology. For example, monetary policy is said to be “easy” or “accommodative”. This lack of precision arises from the lack of a common criterion by which to assess monetary policy. Most observers, including most professional economists, typically rely on interest rates as their criterion of whether monetary policy is easy, neutral or tight. Consequently, much of the debate among the leading protagonists in recent years has focused on the question of how far interest rates were from the natural or neutral rate, often designated by  $r^*$  (Powell, 2018). A minority of observers and economists focus instead on the quantity of money, which can lead to quite a different assessment of the stance of monetary policy.

The problem with reconciling these two viewpoints is that there is no monotonic relation between money and interest rates. In fact, it is possible, at least in the short run, to have rapid money growth coexist with high or low nominal

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interest rates, or conversely to have low money growth coexist with low or high nominal interest rates.

The purpose of this paper is to clarify the relation between money and interest rates. Section 1 will examine the empirical validity of Keynes's claims for his liquidity preference theory by looking at the relation between changes in interest rates and changes in the quantity of money. Section 2 will consider Irving Fisher's findings. Fisher, whose studies had mostly preceded Keynes development of the liquidity preference theory, had shown that over any longer-term horizon the relation between money and interest rates is exactly the reverse of Keynes' short-term relationship. A reconciliation is proposed that treats Keynes' theory as a short-term, liquidity effect, and Fisher's results, which incorporate inflation, as the longer-term determinant of interest rates. Section 3 will apply the resulting combined theory of the relation between money and interest rates to five case studies in recent decades: two from Japan, and one each from the Eurozone, the U.K. and the U.S. The conclusion, in Section 4, is that interest rates are a highly misleading guide to the stance of monetary policy; it is invariably better to rely on the growth rate of a broad definition of money when assessing the stance of monetary policy.

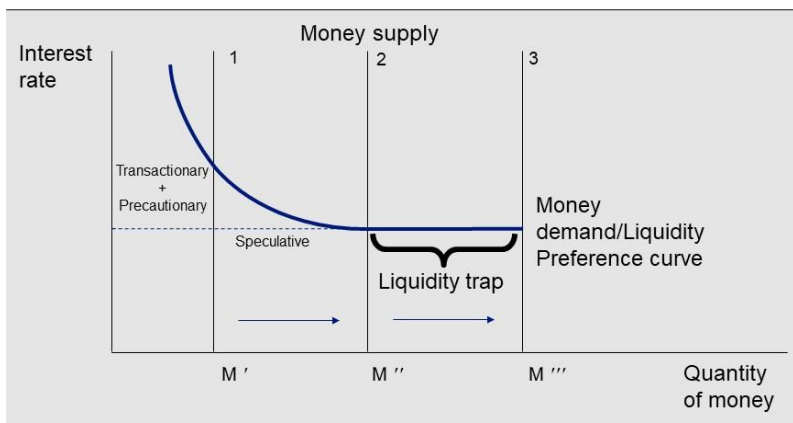
## Keynes' Liquidity Preference Theory

John Maynard Keynes devised a theory of the demand for money -- which he called liquidity preference theory (Keynes, 1936) -- in the 1930s as a hypothesis to explain why monetary policy in the U.S. and U.K. economies was failing to generate a recovery from the Great Depression. Keynes' theory of the demand for money is ingenious, incorporating several types of money-holdings. For example, the demand for non-interest-bearing money in his analysis depends on the interest foregone by not holding bonds or other income-

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earning assets. He rationalised the demand to hold interest-bearing money such as time deposits as a reward for parting with liquidity, while at the same time he recognised the paradoxical willingness of investors to continue to hold money or liquidity even in conditions of very low bond yields -- hence his term “liquidity preference”. In this formulation, the interest rate is the “price” of money.

According to Keynes, the demand for money can be decomposed into three types – Transactions demand (for day-to-day expenses), Precautionary demand (liquidity to cover unforeseen expenditures such as an accident or health emergency) and Speculative demand (to take advantage of future changes in interest rates or bond prices). For this last category, the higher the (money market) rate of interest, the lower the speculative demand for money, and the lower the (money market) rate of interest, the higher the speculative demand for money. Summed together, these three create a typical, downward-sloping demand curve similar to that shown in Figure 1.



Source: John Greenwood, Invesco. For illustrative purposes only.

**Figure 1.** *The Liquidity Preference Function*

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Keynes' liquidity preference theory hypothesized that in normal times an increase in the money supply (denoted below by MS) would lead to a fall in interest rates ( $r$ ), generally followed by higher investment ( $I$ ) which would then result in higher real income ( $y$ ) via the multiplier effect and higher inflation ( $P$ ):

$$\uparrow MS \rightarrow \downarrow r \rightarrow \uparrow I \rightarrow \uparrow y \rightarrow \uparrow P$$

But in the 1930s the yield on bonds and other investable assets fell so low that no matter how low the money market rate of interest, and by implication, no matter how large the stock of money, the demand for investment did not pick up, breaking the causal chain:

$\uparrow MS \rightarrow \downarrow r \rightarrow$  no increase in  $I$ , therefore no increase in  $y$  and no increase in  $P$ .

Liquidity preference theory combined with his multiplier theory for autonomous expenditures won many adherents because together they accomplished two things. First, liquidity preference theory seemed to solve the problem of why monetary policy was failing to restore economic growth and employment in the Depression years. By proposing that at some (low) level of interest rates and investment yields the speculative demand for money holdings encountered a "liquidity trap", Keynes implied that at this lower bound, monetary policy became impotent. Second, the multiplier idea seemed to offer a way out of the monetary and economic impasse of the early 1930s. Keynes's flash of insight was that in these circumstances, another type of policy could be adopted to overcome the liquidity trap. The alternative policy was fiscal spending by the government which could boost aggregate spending in the economy. Government spending, he argued, was a form of autonomous spending that could replace the apparently

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moribund private sector investment and thereby revive economic growth and employment.

In summary, since monetary policy was in effect disabled by the liquidity trap and therefore unable to restore economic growth, policymakers could turn to fiscal policy, directly injecting the spending that would enable the economy to recover.

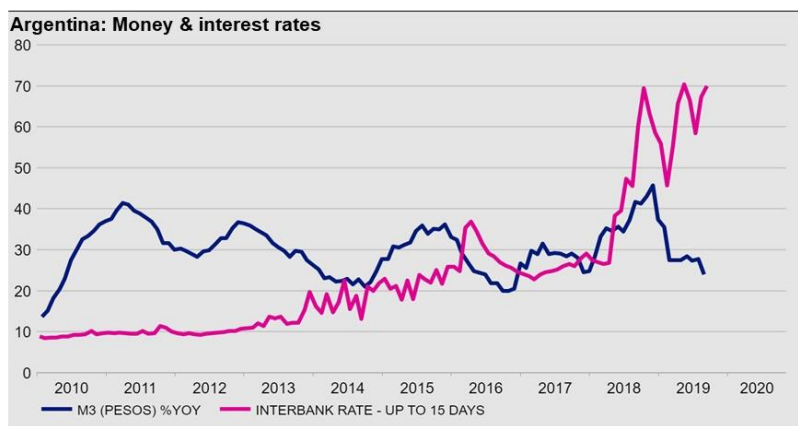
The intellectual framework underlying the twin theories of the liquidity trap and fiscal stimulus achieved widespread success both in the years immediately before, during and after the Second World War. This was in part because the years up to 1945 saw large increases in government spending on armaments and warfare along with a resumption of near-full employment in the U.S. and the U.K. Similarly, the post-war years saw a fairly rapid return to near-full employment (albeit with some inflation) in contrast to the high unemployment and deflation that had persisted in the U.K. after the First World War and in the U.S. after 1929. Consequently, Keynesian concepts of aggregate demand management – led largely by variations in government spending -- became the dominant orthodoxy among academic economists and policy-making practitioners in the post-war western world.

If interest rates and the quantity of money are indeed related in the way described by Keynes's liquidity preference function, then the analysis also implies that countries with high interest rates will be those where the quantity of money has been reduced or its growth rate restricted; and conversely countries with low interest rates will be those where the quantity of money has been substantially increased or its growth has accelerated.

The problem with these implications of the liquidity preference theory is that they are directly contradicted by the "facts on the ground". For no matter where one looks around the world, the opposite relationship holds.

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For example, in Figure 2, Argentine interest rates at 70% are among the highest in the world today. The Keynesian liquidity preference function would imply that monetary growth had been exceptionally tight. Yet on the contrary, the reason interest rates have been so high is that Argentina has had a long period of rapid money growth and it has been experiencing high and rising inflation. The reason why interest rates have been so high is that inflation is also very high, reflecting the rapid growth rate of the Argentine money supply over a long period.



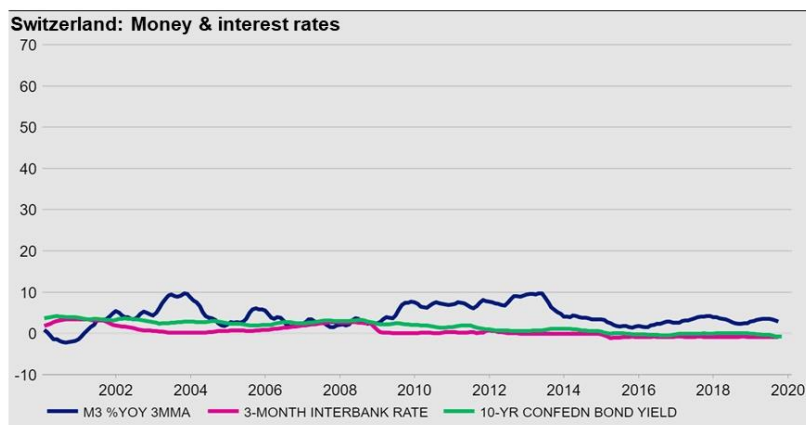
Source: Refinitiv as at 4 November 2019.

**Figure 2.** Argentina

Conversely, in Figure 3 (which uses the same vertical scale as in Figure 2) interest rates in Switzerland have been amongst the lowest in the world – virtually zero for most of the past two decades, and even before that. Again, according to diligent students of the liquidity preference theory that should mean that Switzerland has been increasing the quantity of money very rapidly. Yet on the contrary, as the chart shows, the quantity of money in Switzerland has increased only at very modest rates. The reason why interest rates have been so low is that inflation is very low, reflecting

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the low growth rate of the Swiss money supply over a long period. Other examples of economies in a similar situation to Switzerland are Japan, Germany and the Eurozone more generally.



Source: Refinitiv as at 4 November 2019.

**Figure 3.** *Switzerland*

As the examples of Argentina and Switzerland demonstrate, empirical experience in the real world does not support the implications of Keynes' liquidity preference theory. The downwards-sloping liquidity preference function is simply not consistent with the facts.

Equally important, the foundations of the liquidity preference framework are questionable on theoretical grounds. One of the most basic analytical tools of the economics profession is the supply-demand diagram in which, for any commodity, the quantity is typically shown on the horizontal axis and the price is shown on the vertical axis. In the case of the liquidity preference diagram the quantity of money is shown on the horizontal axis, but on the vertical axis the "price" shown is an interest rate.

The problem is that interest rates are not the price of money; the price or value of money is whatever has to be



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given up to obtain it. For example, the diagram would make sense if the vertical axis showed either the domestic or foreign purchasing power of the units of money on the horizontal axis. In the first case it would be reasonable if the vertical axis showed the value of money in terms of domestic purchasing power relative to a basket of goods or an overall price index. (In this case the axis would show  $1/P$  or the inverse of the price level where  $P$  is the aggregate price level.) Alternatively, in the second case the vertical axis could show an exchange rate since the price of a unit of currency such as the British pound can be expressed in terms of another currency such as the U.S. dollar. Conceptually the two cases are equivalent; the holder of money is giving up a certain amount of domestic or foreign purchasing power in exchange for holding either a basket of goods and services or different units of currency in preference to the money he or she previously held.

However, in the Keynesian liquidity preference diagram the scale on the vertical axis is always an interest rate, not the value or price of money. But interest rates -- normally expressed in annual percentage rates -- are the price of credit or the price of renting money for a period of time, not the price or value of money itself. In effect the liquidity preference diagram is conveying the idea that, other things equal, the higher the cost of credit (the interest rate) the less individuals and firms will wish to borrow, and conversely the lower the cost of credit the more they will wish to borrow. Insofar as that goes, provided credit was the quantity on the horizontal scale, the diagram could have some practical applications. However, credit is not money; the demand for credit (and hence interest rates) can be high or low irrespective of the quantity of money.

In the past decade since the Global Financial Crisis (GFC) of 2008-09, money growth rates in the developed world have been almost universally low, while interest rates have also

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been very low. In other words, the advanced economies have experienced tight money (in the sense of low growth rates of money) but low rates. Conversely, Argentina, Venezuela and Turkey have experienced very easy money (in the sense of rapid money growth) with very high interest rates. In short, the entire edifice of liquidity preference theory, its application to money (instead of credit) and its extension to monetary policy is therefore constructed on unsound foundations.

Both the empirical shortcomings of the liquidity preference hypothesis and the weakness of its theoretical foundations are reasons why monetarists have long emphasised that interest rates are a very unreliable measure of the stance of monetary policy. There can be high interest rates under conditions of rapid money growth or under conditions of slow money growth; equally, there can be low interest rates under conditions of slow money growth or rapid money growth.

Economics therefore needs a better theory of the relation between money and interest rates.

## Fisher's Theory of Interest

Besides Keynes, another economist who was puzzling over monetary and financial developments in the 1930s was Irving Fisher, the famous American economist who had taught for many years at Yale University. One reason why he was re-examining his theories was that he had been caught out by his rash pronouncement, nine days before the stock market crash of October 1929, that stock prices had "reached what looks like a permanently high plateau."

In his book, *The Theory of Interest* (1930), Irving Fisher took a much more empirical approach than Keynes to the relationship between money, interest rates and prices. Having collected data for British and other prices and interest rates during the century from 1820 to 1924, Fisher

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came to a very different conclusion compared with the relationship postulated by Keynes in his liquidity preference function.

“Furthermore, the results and other evidence indicate that, over long periods at least, interest rates *follow* price movements. The reverse, which some writers have asserted, seems to find little support. Experiments, made with United States short term interest rates, to test the alternative hypothesis of distributed influence of interest rate changes instead of price changes, gave results of negligible significance. Our investigations thus corroborate convincingly the theory that a direct relation exists between *inflation* and *interest rates*, the price changes usually preceding and determining like changes in interest rates.”<sup>1</sup>

The conclusion of Fisher’s analysis was simple: “These highly significant correlations seem to establish definitely that over long periods of time high or low interest rates *follow* high or low prices by about one year.”

As a life-long student of the equation of exchange ( $MV=PT$ ), Fisher attributed changes in the overall price level to changes in the stock of money. Implicitly, high prices (or inflation) followed from rapid money growth; low prices (disinflation or deflation) followed from low money growth. In turn, this meant that the true or longer term, more permanent relationship between money, inflation and interest rates is precisely the opposite to the one postulated by Keynes’ theoretical liquidity preference curve. How can the two theories be reconciled?

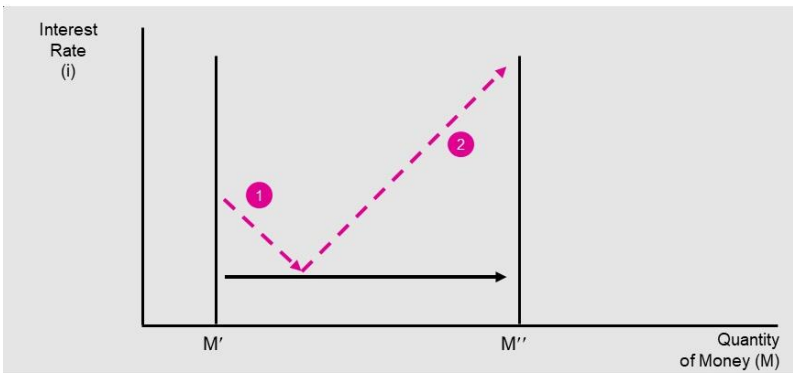
Turning to the theoretical side of the analysis, Fisher did not dismiss the idea that easier money (i.e. faster money growth) initially drove interest rates lower. However, in contrast to Keynes’s theory of liquidity preference which

<sup>1</sup> “The Theory of Interest” (1930), final paragraph of Ch XIX, section 6. Emphasis added.

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implied there was a monotonic<sup>2</sup> relation between money and interest rates, Fisher – and later Friedman -- hypothesized the impact of money growth on interest rates as a two-stage process. If the growth of money doubled, for example from 5% p.a. to 10% p.a., *and* the higher money growth rate persisted (for a year or more), interest rates would initially fall. However, later, as the economy strengthened and the demand for loans increased, inflation expectations and inflation would both increase and interest rates would rise.

In practical terms, the first effect of easy money (i.e., faster money growth) was to lower nominal interest rates (Keynes' liquidity effect); the second and *more permanent* effect (of faster money growth) was to raise interest rates (the Fisher effect). This relationship is shown in Figure 4.



Source: Invesco as at November 2019.

**Figure 4.** *The Relation between Money and Interest Rates after Monetary Acceleration*

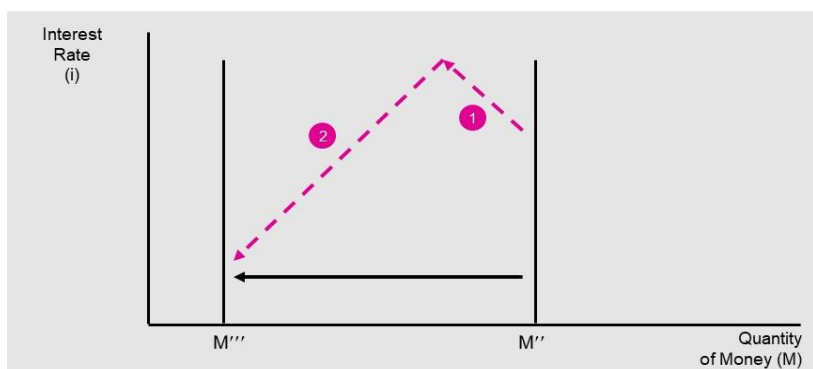
Conversely, if the growth rate of money halved, for example, and the lower money growth rate persisted for at

<sup>2</sup> A monotonic relationship between two variables is one where there is a uni-directional influence only, e.g. higher money supply always means lower interest rates.

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least a year, interest rates would initially rise as money markets tightened (see Figure 5). Later, as the economy weakened and the demand for loans declined, inflation would decrease, and interest rates would also fall. In short, given a sustained deceleration of monetary growth, the first effect was higher interest rates but the second and *more permanent* effect was for inflation and interest rates to fall.

One key implication, frequently insisted upon by Friedman, of these opposite effects of the Keynesian liquidity effect and the Fisher inflation effect on interest rates is that interest rates cannot be relied on as a guide to the stance of monetary policy; it is better to rely on money growth in judging monetary policy. For example, the fact that interest rates are extremely low in so many economies today [in 2019] does not constitute evidence that monetary policies are easy; interest rates could be low as the second stage result of a prior tight money, not as the first stage result of a faster money growth rate. In my view, both Keynes's liquidity preference theory and Fisher's assessment of the lagged impact of inflation on interest rates must be integrated to convey the true relationship between money, interest rates and inflation.

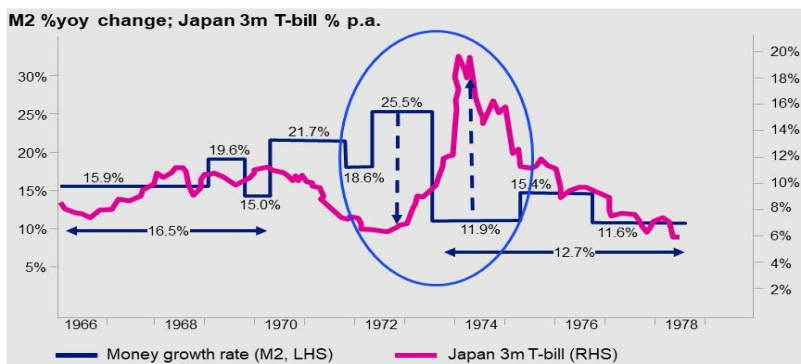


Source: Invesco as at November 2019.

**Figure 5.** *The Relation between Money and Interest Rates after Monetary Deceleration*

## Case Studies

Early in my research career I examined the relationship between money growth and interest rates in Japan in the 1960s and 1970s. As shown in the area depicted by the oval in Figure 6, (which is drawn from my original hand-plotted chart), when money growth accelerated, as in 1972-73, from an average of 18.6% p.a. to an average of 25.5% p.a. interest rates initially fell until roughly the end of 1972 – in line with the liquidity effect in Keynes' theory of liquidity preference; but then subsequently, in 1973 as the economy strengthened and inflation increased, interest rates also increased – exactly as predicted by Fisher.

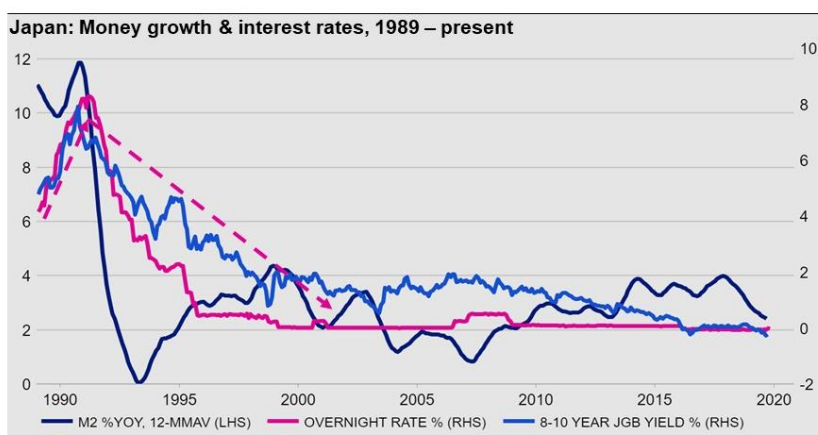


**Figure 6.** *Money Growth and Interest Rates in Japan, 1966-78*

Conversely, when money growth was brought down from 25.5% p.a. in 1972-73 to 11.9% from late 1973 onwards, the initial effect was to push interest rates even higher as one would expect from the downwards-sloping liquidity preference function. However, as the economy subsequently slumped and inflation fell, interest rates declined from a peak of close to 20% ultimately to around 6% by 1978 conforming to the results one would expect from Fisher's inflation effect.

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A similar two-stage process was seen after the bursting of Japan's notorious asset price bubble of the late 1980s (see Figure 7). The Bank of Japan started tightening monetary policy from May 1989, raising the official policy rate or overnight call rate from 2.5% to 6.0% by August 1990. Thanks to the availability of overdraft facilities for many companies, M2 only started slowing dramatically in the last quarter of 1990 and the early months of 1991, pushing short-term interbank rates to 8.4%. The equity market peaked in December 1989 and real estate prices peaked about a year later. However, the Bank of Japan continued raising interest rates through August 1990 and did not start to lower them until July 1991.



Source: Refinitiv as at 4 November 2019.

**Figure 7.** Money and Interest Rates during and after Japan's Asset Bubble of 1985-90

In the early 1990s, as money growth tightened, the initial effect was to push interbank interest rates higher – as shown by the pink line and the first dashed arrow in Figure 7. However, as economic growth weakened and the demand for credit fell, inflation and subsequently interest rates also fell sharply, as indicated by the second dashed arrow.

Japanese money growth, inflation and interest rates (as well as bond yields) have remained low ever since. On the basis of Irving Fisher's analysis, Japan's current low interest rates are not an indication of an easy monetary policy (i.e., rapid money growth), but rather reflect the second stage, lasting effects of a tight monetary policy (i.e., slow money growth). In Irving Fisher's terms, and to repeat, Japan [in 2019] is therefore not in the first stage of an easy money policy; rather – and despite QE (2001-06) and QQE (since 2013) – Japan is still in the second stage of a tight money policy. In these circumstances it is not surprising that Japanese inflation and interest rates have not been able to rise.

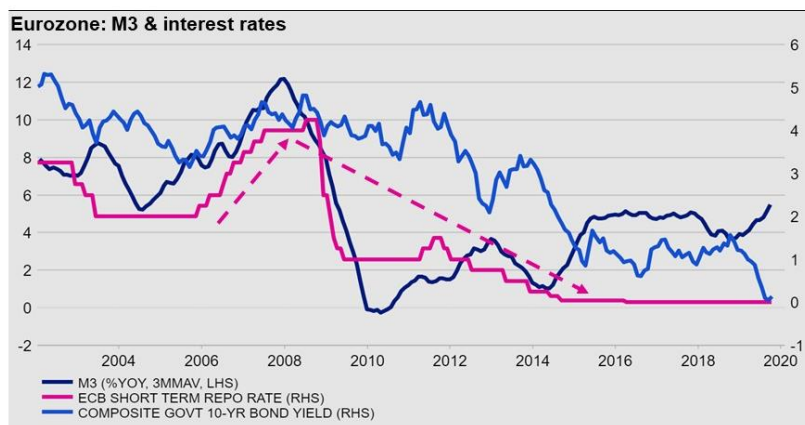
The pattern in the eurozone is similar to that in Japan. The ECB normalised interest rates between December 2005 and May 2007 (basically following the Fed's interest rate increases between 2004 and 2006), but M3 continued to accelerate until November 2007 when it peaked at 12.6% year-on-year. Bizarrely, the ECB raised rates to 5.25% in July 2008 (in response to higher oil prices) when M3 growth had already fallen below 10% year-on-year and was about to plunge (based on data for loan growth). The abrupt slowdown in M3 was therefore accompanied by higher rates initially, but in the second half of 2008 and subsequently short-term rates fell dramatically along with M3 growth (see Figure 8). Longer term rates such as the composite euro-area bond yield shown in Figure 8 took much longer to fall, but they too have ultimately fallen to very low levels. Since June 2014 the ECB rate on its deposit facility has been negative, and since mid-2016 bond yields across much of the eurozone have moved into negative territory.

In other words, and consistent with the two-stage pattern of interest rate changes observed in Japan, the first stage effects of tight money in the Euro-area were higher interest rates; the second stage effects were lower interest rates.



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Given the persistent weakness of Euro-area money and credit growth ever since, a strong case can be made that interest rates and inflation remain low because the eurozone economy is still in the second stage of tight money policy, not the first stage of easy money policy.



Source: Refinitiv as at 4 November 2019.

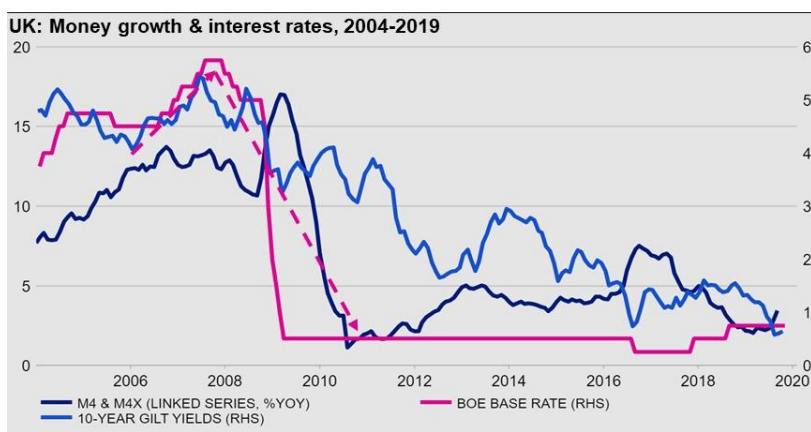
**Figure 8.** *Money and Interest Rates in the Eurozone before and after the 2008-09 Crisis*

In the U.S. and the U.K. the evidence in favor of rates being low today due to easy money rather than as the second stage result of tight money is more mixed as monetary policy has been easier – i.e., monetary growth has been faster in both economies than in either Japan or the Eurozone. While it is true that both the Federal Reserve and the Bank of England have been able to raise rates since December 2015 and November 2017 respectively -- thanks to faster money growth in recent years -- it is nevertheless also true that in both economies (until 2019 in the U.S.), money growth had remained low at around 4% year-on-year, and therefore interest rates could not rise far or rapidly.

Also, in both the UK and the US the monetary data must be interpreted with care to take account of developments in

2. Monetary Policy is not about Interest Rates; the Liquidity Effect and...

the large shadow banking sectors in both economies. In Britain the Bank of England steadily raised its Base rate from 4.5% in July 2006 to 5.75% by July 2007 in a “post-normalization” tightening. During these years Bank of England Governor Mervyn King said at least a couple of times that he was concerned at double-digit M4 growth. The rate rises prompted some slowdown in M4 from 13.8% in August 2007 to 10.3% by June 2008. However, once the intensive phase of the crisis began in September 2008 the rate of M4 growth surged to 17.8% by February 2009, as shown in Figure 9. The explanation is straightforward: the problems in the shadow banking sector caused many holders of the short-term debt of shadow bank institutions to transfer their funds to the relative safety of the banking system.



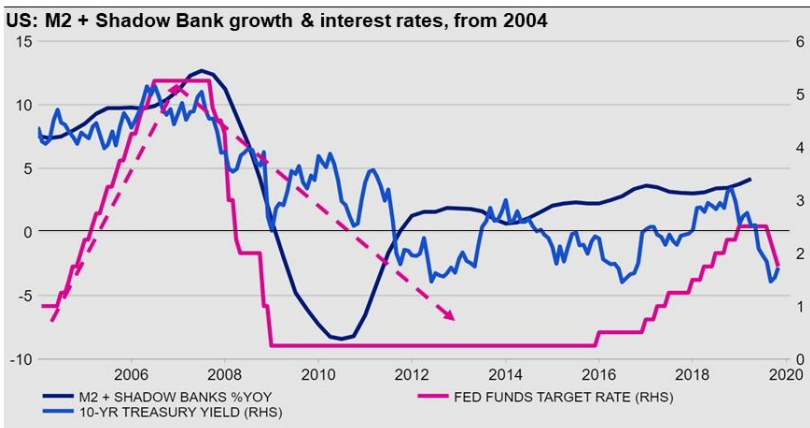
Source: Refinitiv as at 4 November 2019.

**Figure 9.** Money and Interest Rates in the UK before and after the 2008-09 Crisis

Turning to the U.S., the Fed did not engage in any “tightening” rate hikes after the normalisation of rates in 2004-06 (the period indicated by the rising red dashed arrow in Figure 10). Partly as a consequence M2 growth accelerated from 4% in 2005-06 to over 6% p.a. in the first half of 2008,

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but after the onset of the crisis in September 2008 M2 growth surged from 5.5% year-on-year in August 2008 to a peak of 10.3% by January 2009. This was due to the same phenomenon as in the UK – shifts of funds from the short-term debt instruments issued by shadow banking entities (such as investment banks and mortgage finance companies) to insured deposits in the relatively safe, regulated banking system. In addition, several investment banks<sup>3</sup> applied to become member banks supervised by the Federal Reserve System and having access to its discount window, further adding to deposits in the reported data for M2.



Source: Refinitiv as at 4 November 2019.

**Figure 10.** Money and Interest Rates in the US before and after the 2008-09 Crisis

With the deepening of the crisis in the final quarter of 2008 and from the early months of 2009, U.S. banks began shrinking their loan books and writing off loans, while customers scrambled to de-leverage by repaying borrowings. As a result, M2 slumped to an average increase of only 2% year-on-year during the first half of 2010. Subsequent operations by the Fed (mainly QE2 and QE3

<sup>3</sup> These included American Express, Goldman Sachs and Morgan Stanley.

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together with Fed support to other credit markets) enabled growth to recover in 2011-14. Even so, since December 2015 the Fed has only been able to raise rates at a far more gradual pace than in previous expansions.

If we consider the quantity of “total money” in the US to consist not only of “money in the banking system” (M2) but also “money in the shadow banking system”, we can develop an explanation of the growth of total money and nominal income during this troubled period that is consistent with the two-stage theory of interest rates explained earlier.

Figure 10 shows the year-on-year growth of this concept of “total money” as the dark blue line. As in the U.K., broad money accelerated mildly in 2006-08, before plunging from +12.6% in July 2007 to -8.4% between April and October 2010. During the early part of this period the economy slumped and the demand for credit fell sharply, as did inflation. In the wake of the crisis interest rates – both long and short – fell to their lowest levels in a generation. This fall in rates was consistent with Fisher’s second stage of tight money.

Subsequently the Fed was able to raise rates modestly and slowly between December 2015 and December 2018, but M2 and “total money” growth rates remained very subdued until 2019 when banks’ demand for securities aided a resumption of faster money growth. Attempting to normalize or reduce the size of its balance sheet from October 2017, the Fed unintentionally precipitated a brief credit crunch in the repo market in September 2019. In response, the FOMC cut rates three times between August and November 2019.

The conclusion from our two-stage theory of interest rates and from these observations is that attempts by the Fed to pinpoint the appropriate or neutral level of interest rates, or arbitrary adjustments of the size of its balance sheet are

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misdirected. Yet throughout the years 2015-2018 the Fed was trying to manage interest rates or trying to adjust the size of its balance sheet instead of focusing on delivering the appropriate growth of broad money. In an environment of constrained money growth and still-cautious demand for credit, a rise in interest rates to levels perceived by FOMC members to be appropriate was virtually impossible. Money growth -- both inside and outside the banking system -- had simply been too low.

At this stage it is again instructive to ask whether, in terms of our two-stage concept of interest rate adjustments, U.S. interest rates currently [in January 2020] reflect the first stage of an easy monetary policy or the second stage of a tight monetary policy?

As discussed above, a strong case can be made that – ever since the recovery from the GFC – U.S. monetary policy had never been “easy” in the sense of allowing rapid money growth despite the long period of exceptionally low interest rates. There had been no vigorous expansion of “money in the banking system” (i.e., M2), nor had there been exuberant growth of “money outside the banking system” (i.e., in the shadow banking system), and consequently the sum of “money in the banking system” plus “money outside the banking system” (what I called “total money”) had not shown the rapid growth witnessed in the pre-crisis period. Between 2000 and 2007, the average growth of M2 plus shadow bank money was 9.9% p.a.; between 2012 and 2018 the same aggregate averaged only 2.4% p.a.

On the supply side the slow growth of money (and bank credit) is the result of higher capital requirements, together with enhanced liquidity and loan underwriting standards imposed on banks by Dodd-Frank and Basel III. The sustained weakness of shadow banking activity is also attributable to the new regulations which have limited balance sheet capacity for capital market funding activities

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such as securitisation and repo financing. On the demand side slow growth of money and bank credit has been partly due to the unwinding of pre-GFC leverage by households and financial firms, and partly due to the Fisher effect – i.e., the resulting lower nominal GDP growth rate.

## Conclusion

In this chapter the stance of monetary policy has been judged by broad money growth, not by interest rates. In this framework, monetary growth becomes the causal variable and interest rates become primarily a symptom of current or prior monetary conditions. According to our two-stage “liquidity effect” and “Fisher effect” concepts, it can plausibly be argued that, following the GFC, the low interest rates, the low nominal GDP growth and the low inflation rates in Japan, the eurozone, the UK and the US are all symptoms associated with the second stage of a tight monetary policy, not the first stages of an easy monetary policy.

The key conclusion is that in order to see a shift to higher interest rates and higher inflation it would be necessary for policymakers in the individual economies to engineer a sustained period of substantially faster growth of broad money – i.e., M2 for Japan, M3 for the euro area, M4x for the UK, or M2 plus shadow bank money for the US – in order to increase nominal GDP and inflation. Only then – according to Fisher’s theory -- after some increase in nominal spending and inflation due to faster money growth, would significant rate rises become possible.

Monetary policy is not just about interest rates; it is (broad) money growth that matters for nominal spending and inflation. From a theoretical perspective this means that central bank policies that focus solely on achieving some alleged “neutral” rate of interest will only be successful if by chance they simultaneously achieve the appropriate growth

2. Monetary Policy is not about Interest Rates; the Liquidity Effect and...

of broad money. The practical effect of this prescription for central banks whose interest rates are already near or at the zero lower bound is that policy measures should focus exclusively on increasing broad money growth by quantitative measures, not by the further gradual reduction of interest rates. Such policies would include central bank purchases of securities from non-banks (*not* from banks), incentivising commercial banks to increase bank credit (by making more loans or by purchasing more securities), or temporarily easing regulations such as capital and liquidity requirements until money growth reached an adequate growth rate.

In this respect, negative interest rates and yield curve control are policy mistakes; they are not a substitute for well-designed policies that ensure faster growth of commercial bank balance sheets or broad money. Recent experience both in Japan and in the euro area shows that these policies can have adverse consequences for the banks and for other parts of the financial system, prolonging the period of low inflation and low interest rates.

In summary, in terms of the two-stage analysis of monetary policy and interest rates that has been developed here from Keynes' liquidity preference function and Fisher's inflation effect, I conclude [as of January 2021] that despite low interest rates, monetary policies in the U.S., the U.K., Japan and the Eurozone are not yet in expansionary mode. With broad money growth lower than is appropriate, inflation remains below the 2% target in all four economies, and mainly for that reason interest rates remain low. Judging the growth of broad money in all four economies from the perspective of Irving Fisher (or Milton Friedman), monetary policy is still in the second stage of a tight money policy, not the first stage of an easy money policy.

# 3

## Remembering Milton Friedman - A Eulogy

I was privileged to meet Milton Friedman when I was a student in Japan in 1969. The lecture that he gave that August afternoon in the Nihon Keizai Shimbun Hall in Tokyo on “Monetary versus Fiscal Policy” had a profound impact on my thinking. He inspired me to undertake economic research in Japan, and this decision set the course for my career. He remained an unfailingly loyal friend and supporter for the next 37 years.

Tonight, I want to discuss two related topics in economic analysis that will illustrate Friedman’s extraordinary ability to combine the most rigorous of academic arguments with the practical application of those ideas in the real world – currency futures and exchange rates. Many academics are happy to develop a theory, but when it comes to implementation they often step back and leave that to others. Not Milton Friedman.

Friedman became well known from the early 1950s onwards for his advocacy of flexible exchange rates. By the late 1960s and early 1970s his academic advocacy had



### 3. Remembering Milton Friedman - A Eulogy

become a one-man campaign to end the Bretton Woods system of fixed but adjustable exchange rates (and the periodic crises they created), and to replace them with floating exchange rates. Much to the consternation of central bankers he predicted not only that the shift to floating exchange rates was inevitable, but also that this eventuality would be highly desirable. Variable (but relatively stable) exchange rates had after all been the subject of his famous article, "The Case for Flexible Exchange Rates," twenty years earlier in 1953.<sup>1</sup>

Perhaps less well known is that this advocacy positioned him to become the intellectual godfather of financial derivatives. This came about because he clearly foresaw – ahead of other economists of the day – the imminent demise of the Bretton Woods system. But he did not stop there. He also foresaw that to deal with some of the practical consequences of exchange rates that were free to vary on a day-to-day basis, traders, bankers, businessmen and investors would need wide and deep markets in currency futures, which until then had not existed. (Forward contracts arranged by banks already existed, but this was essentially an OTC market limited to substantial bank clients with approved trade transaction requirements, not a market based on a formal exchange where anyone could hedge or speculate at will.)

In the words of the Chicago-based lawyer and founder of the Chicago International Money Market, Leo Melamed: "I asked him [Friedman] whether he would endorse – when Bretton Woods collapsed – the concept of futures contracts in foreign exchange. Without hesitation, Dr. Friedman embraced the concept and authored a study in December 1971 which became the intellectual foundation for the birth

<sup>1</sup> Friedman M. (1953), *Essays in Positive Economics*, University of Chicago Press, Chicago, U.S.

of currency futures. It was not a major treatise, hundreds of pages long with footnotes and a bibliography. The world-renowned economist stated all he needed in just 11 pages. His paper, entitled 'The Need for Futures Markets in Currencies,' provided us with academic authenticity of the highest magnitude to prove that our theory was a viable necessity. As I have often stated, Professor Friedman gave my idea the credibility without which the concept might never have become a reality. For with Dr. Friedman's paper in hand, I was able to convince government officials, bank presidents and the brokerage community of the Chicago Mercantile Exchange that the idea had merit."

In effect Friedman created the intellectual framework for the extension of futures markets from their agricultural base (wheat, pork bellies, and the like) to financial instruments. Five months later, in May 1972, the Chicago International Money Market opened. Futures in gold, interest rates, Treasuries and stock indices followed, and in time the modern world of derivatives and risk management was born.

To give some of the flavour of that paper it is worthwhile to quote Friedman's concluding paragraph: "To summarize this analysis: changes in the international financial structure will create a great expansion in the demand for foreign cover. It is highly desirable that this demand be met by as broad, deep, as resilient a futures market in foreign currencies as possible in order to facilitate foreign trade and investment. Such a wider market is almost certain to develop in response to the demand. The major open question is where. The U.S. is the natural place, and it is very much in the interests of the U.S. that it should develop here. Its development here will encourage the growth of other financial activities in this country, providing both additional income in the form of services, and easing the problem of

executing monetary policy.” Most of these predictions have proven correct.

The other topic that I want to focus on this evening is Milton Friedman’s position in the debate on fixed versus floating exchange rates. In particular I want to illustrate Friedman’s versatility and his intense interest in real-world problems by telling you about his involvement with the fixing of the Hong Kong dollar in October 1983. As many of you will know, after a decade of floating between November 1974 and mid 1983, Hong Kong faced a currency crisis that caused the Hong Kong dollar to plunge 40% in the space of a couple of months. Living in Hong Kong at the time I had studied the problem extensively and published several papers on the topic in *Asian Monetary Monitor*, a bi-monthly journal. Among other solutions I had proposed a restoration of the old currency board mechanism that had been used in British colonies and elsewhere – essentially a fixed exchange rate system with 100% foreign exchange reserves as cover for the local banknote issue.

I had made little headway with the currency board proposal in the preceding year or two, so when the crisis came in September of 1983, like Leo Melamed, I sought out the strongest academic backing for my proposal that I could muster. Among others I consulted Alan Walters and Maxwell Fry, but I also consulted Milton Friedman. In his autobiography with Rose Friedman, *Two Lucky People*, he recounts his role: “John was on the phone almost nightly conferring [...] with me on the details of the proposed reform” (p.326). Milton was pleased to have what he called a ringside seat, and had numerous helpful suggestions, especially on the detailed mechanics of the proposal.

So here we have the best-known academic advocate of floating or flexible exchange rates consulting with me on, and promoting, a fixed exchange rate system for Hong Kong in 1983, barely a decade after the demise of Bretton Woods

whose collapse he had cheered on from the sidelines. Moreover, as we know he later became a strong opponent of the single currency for the European region. How to explain these apparently contradictory positions?

Simple really! Circumstances alter cases. One clue was in the words he used to describe the Hong Kong episode in *Two Lucky People*: “The monetary reform,” he wrote, “led to the Hong Kong dollar being *unified* with the US dollar.” In effect he was willing to back a thorough-going monetary union between a small territory and a far larger economy, and particularly a small economy like Hong Kong where there was a high degree of flexibility in prices, wages and so on. But the case for a monetary union between two or more larger economies with a range of rigidities in pricing and institutional practice was by no means so clear-cut.

Valuing personal and economic freedom above all, Friedman could see that the benefits to a small, *highly externally oriented* market economy like Hong Kong would bring benefits far outweighing the costs of any alternative system. By contrast, for much larger, well-established and more rigid (one might even say sclerotic) economies in Europe he could see that adherence to a single currency would eventually imply surrender of economic and possibly even political freedom and sovereignty to the much larger entity of the currency union.

I have argued that Friedman’s ability to combine powerful, academic theories with contributions to the practicalities of markets (such as currency futures and exchange rate mechanisms) was rare in economists. I will miss him as a friend, as a supporter, mentor and teacher. We will all miss his exceptional ability to convey a complicated analysis in simple, layman’s terms.

Thank you.

# 4

## Prospects for Argentina under IMF Surveillance

### Introduction

The prospects for the new, market-friendly administration of Mauricio Macri who became President of Argentina in December 2015 were challenging from the outset. Replacing the populist President Christina Fernandez de Kirchner, President Macri was confronted with excessive government expenditure and deficits deriving from subsidies in key sectors such as utilities and fuel, rapid growth of the public sector, inflation of 30-40% p.a., capital controls, and a dual exchange rate system. Having only a bare majority in the legislature and faced with midterm legislative elections in October 2017, the Macri government initially adopted a policy of cautious gradualism in dealing with the economic problems they inherited.

A year ago, in September 2017, my assessment was that there had been very limited improvements in the day-to-day experience of average Argentinians. In fact the purchasing

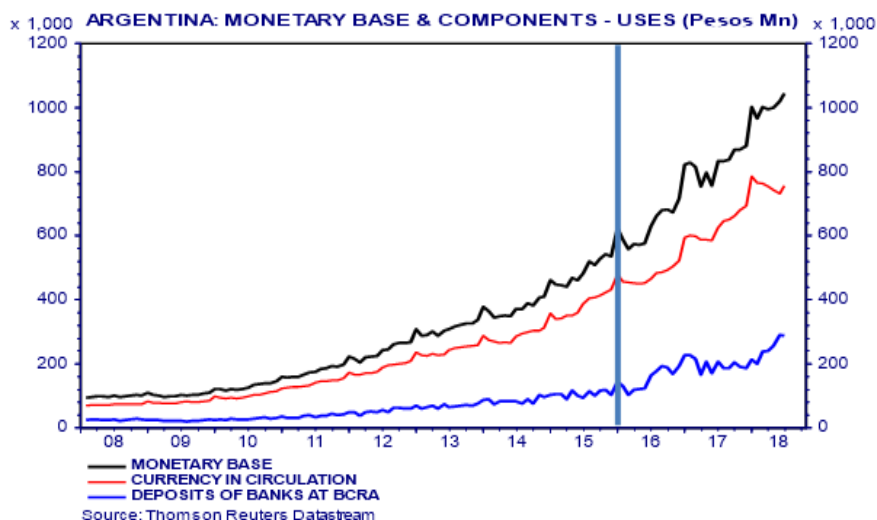
power of the lower middle class, who were major supporters of Macri, had worsened due to the removal of subsidies for fuel and utilities and the resulting steep rise in their prices.

Subsequently there has been little further progress. Consumer prices have risen 44% since December 2016 and the currency has depreciated from 9.61 per US\$ in November 2015 to 26.56 in June 2018. Meanwhile, partly as a result of the handover recession of 2015-16 (when the fuel and utility subsidies were ended) the real GDP has grown by only 4.3% since the first quarter of 2016, averaging 0.9% p.a. Moreover, in June 2018, following yet another episode of weakness in the currency in May (when the currency fell from 20.55 to 25.15), the government appealed to the IMF for an assistance package. However, instead of obtaining a Flexible Credit Line (FCL) or Precautionary and Liquidity Line (PLL) they were only able to obtain a Stand-By Loan Agreement (SBA) which imposes a high degree of conditionality. In short, being unwilling to bear the pain of an abrupt reform programme, and by failing to implement adequate reforms in a timely manner, Argentina has ultimately been forced to undergo an external supervision programme. But will the IMF's SBA do the job?

## The Abuse of the Central Bank's Balance Sheet

A good starting point for the analysis of any economy is the balance sheet of the central bank, in this case the Banco Central de la Republica Argentina (BCRA), and its role in money creation and government financing. As I shall explain, there are **three main problems** with the BCRA's balance sheet.

#### 4. Prospects for Argentina under IMF Surveillance



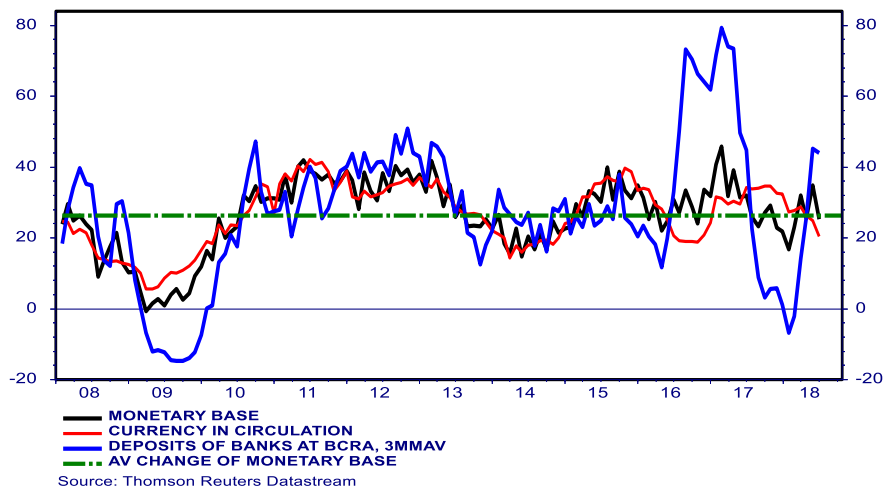
**Figure 1.** *Argentina's Monetary Base only Tells a Fraction of the Story*

A normal central bank will maintain careful control over the growth of the monetary base (currency issued plus deposits of banks at the central bank) in order to ensure that the broad supply of money -- created largely by commercial bank lending -- remains broadly in line with the economic needs of the economy, i.e. growing sufficiently to finance (1) the potential real GDP growth rate, (2) the targeted inflation rate, and (3) allowing for any increase in the demand for money holdings. In an economy like Argentina such a strategy could be expected to generate a growth rate of money (M2 or M3) and the monetary base of 7-10% p.a. each.

Figure 1 shows the level of the monetary base and its components (or uses) – cash currency and reserve deposits of banks at the BCRA – since 2008. The vertical blue bar indicates the accession of Pres. Macri in December 2015. It is immediately clear that there has been no slowdown in the expansion of the monetary base under the new administration.

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##### ARGENTINA: MONETARY BASE & COMPONENTS - USES (% YOY)



**Figure 2.** Monetary base growth has continued at 26% p.a. since 2008, 29% p.a. since 2016

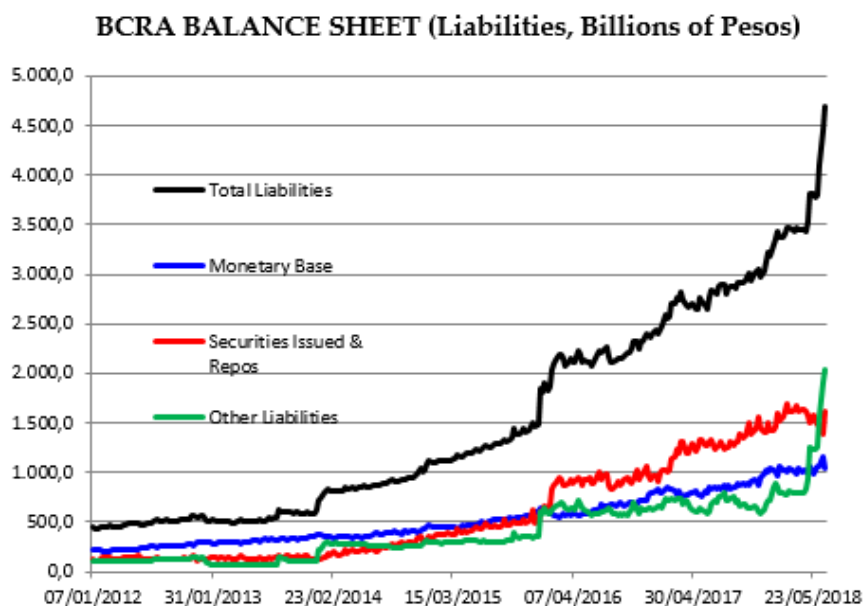
Instead, as shown by the green dashed line in Figure 2, the growth rate of the monetary base has averaged 26% p.a. since 2008. This includes the period of global slump in the wake of the 2008-09 Global Financial Crisis (GFC) when growth of the monetary base declined for a while to zero. As can be seen, the growth rates of its components were roughly similar between 2010 and 2016. In broad terms – and oversimplifying -- this would imply that the consolidated balance sheets of the overall banking system -- and hence the quantities of broad money and credit – were likely to have been growing at approximately the same rate. This growth rate on its own would ultimately have resulted in an inflation rate of over 20% p.a., but probably somewhat higher as velocity increased.

Unfortunately, since President Macri assumed the reins of power in December 2015 the growth rate of the monetary base has actually accelerated from 26% p.a. to 29% p.a. For the past two and a half years the components of the base have behaved very differently, with wide fluctuations in the



reserve deposits of banks at the BCRA (in blue), contrasted with continued moderate changes in the rate of growth of peso currency in circulation. Even if the exchange rate had remained stable, the 29% p.a. growth rate of the monetary base would not have been a good basis for bringing down the rate of inflation.

**The first problem** with the BCRA's balance sheet, therefore, is that the central bank has presided over an excessively rapid growth of the monetary base over the past decade. Moreover the growth rate has accelerated since the accession of the Macri government in December 2015.



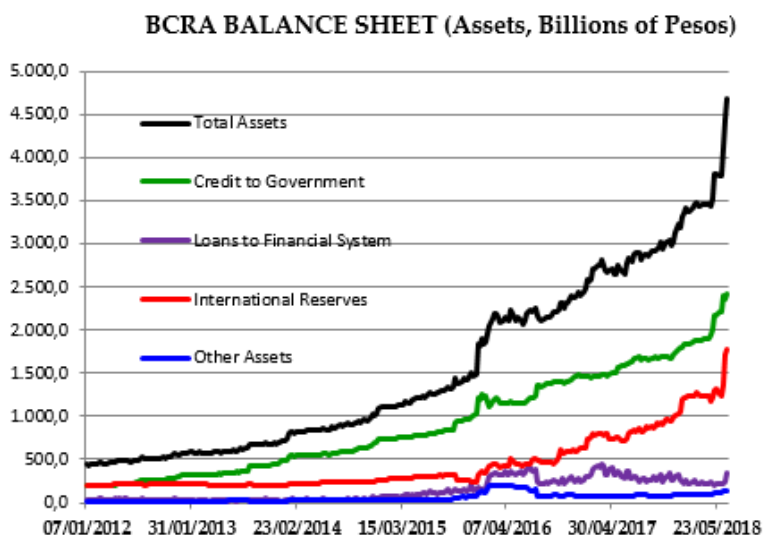
**Figure 3.** *The Monetary Base is only 22% of BCRA's Total Balance Sheet*

**The second problem** with the BCRA is that it has been asked to do too much and its balance sheet has massively expanded in line with the growth of these inappropriate functions. Beyond a purely monetary role it plays a large role in funding the government and acting as the

government's agent in the sourcing of foreign exchange to meet the government's external obligations, which in turn has required it to sterilise the creation of pesos (that derive from this activity) on a very large scale. This now also involves the payment of very high interest rates to bank and non-bank holders of these instruments.

As shown in the chart above the total balance sheet of the BCRA at end-June was 4.69 trillion pesos (black line). The monetary base (in blue; 1.04 trillion pesos at the end of June) represents less than one quarter of the total liabilities of the BCRA. The largest single item on the liabilities side (shown in red) is debt issued by the BCRA including LEBACs, NOBACs and repos (1.8 trillion). These are the debt instruments issued by the BCRA and used to absorb the excess pesos created by the BCRA's role as a large operator in the foreign exchange market. The final item (in green) is the total of several smaller items: foreign currency deposits of the government and other non-bank entities in Argentina (0.789 trillion – a number that has recently surged in peso terms as the currency has tumbled in value); plus other liabilities and provisions; plus obligations to foreign entities.

In short, the BCRA has been exploited by the government in its search for funds. In any reform program the BCRA's operations should be cut back to the essential monetary functions only.



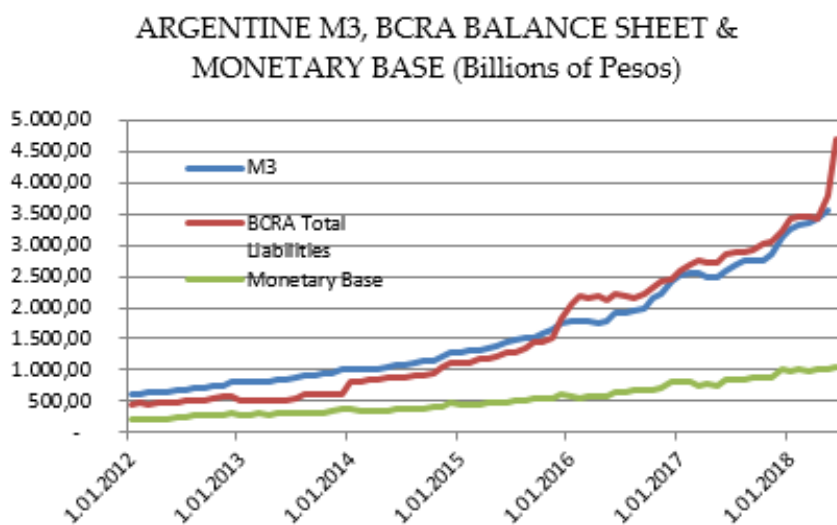
**Figure 4.** *BCRA's Assets are Bloated with Government Debt and the Foreign Assets of Other Holders.*

Turning to the asset side there are also problems. First, in green, the largest single asset is credit to the government (consisting of holdings of domestic government debt plus “temporary advances” to the government). In a fiat currency system with a floating exchange rate this is a normal situation and is not a problem so long as these holdings do not grow too rapidly. (An exception in recent years is that the central banks of the US, UK, Japan and the Euro-area have deliberately acquired large amounts of government bonds under QE programmes in an effort to expand the broad money supply because the commercial banks were not expanding credit and hence the money supply was not growing rapidly enough.) However, in Argentina’s case the acquisition of government debt was (1) a direct result of the government first misappropriating the foreign exchange reserves (under President Cristina Fernandez de Kirchner) to finance domestic expenditures and replacing the reserves with domestic, peso-denominated government debt, and (2)

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the government subsequently leaning on the BCRA to fund its budget deficits directly at artificially low rates instead of the government borrowing funds in the financial markets.

Second, in red, the surprisingly large holdings of foreign exchange (\$55 billion in reserves at end-June, plus other non-reserve holdings) resulted initially from the Kirchner-era capital controls that required exporters to channel all foreign earnings over \$1 million to the central bank. Today, however, they consist of foreign reserves plus the asset counterparts of some of the government's official foreign obligations, plus the foreign currency the BCRA is holding on behalf of the government, state enterprises and other entities. The two remaining items on the asset side of the BCRA's balance sheet) are: loans to the financial system (in blue), together with contributions to international agencies such as the IMF and other assets (in purple).



**Figure 5.** *BCRA Assets Exceed the Size of M3 (including foreign currency).*

**The third problem** is that the balance sheet of the BCRA has become excessively large.

In most monetary systems the size of the central bank's balance sheet is only slightly larger than the monetary base, and typically between one tenth and one quarter of the size of the broad money supply (M2 or M3) or the consolidated assets or liabilities and capital of the banking system over which it presides. For example, in Australia (where there has been no QE), the Reserve Bank's balance sheet is less than one tenth of M3.

However, as Figure 5 shows, the BCRA's balance sheet is larger than even the widest definition of money in Argentina, the entire "bi-monetary" M3 – i.e. larger than the combined peso-denominated M3 plus the dollar-denominated M3. This is a result of the prolonged abuse of the BCRA by successive governments in the period since 2002 (i.e. since the end of the Convertibility scheme).

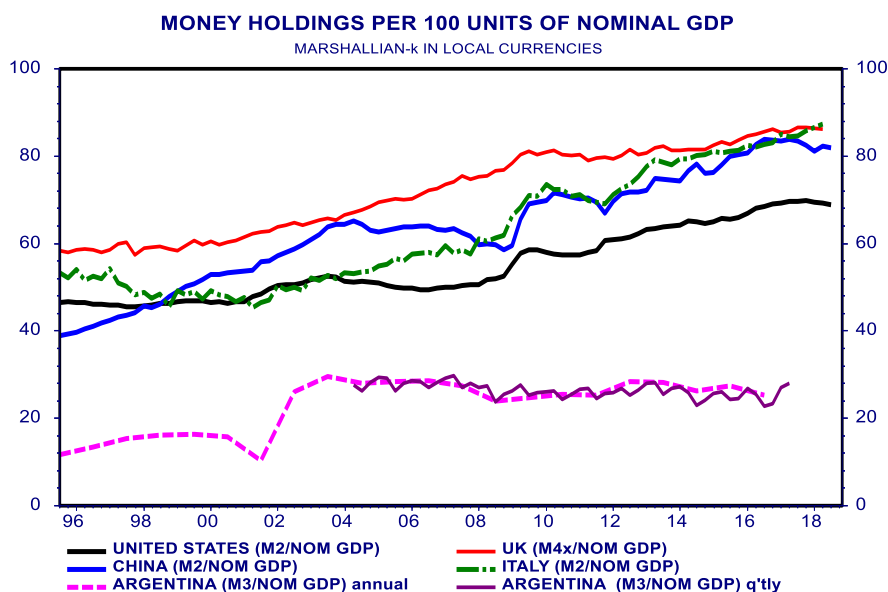
To sum up this section, the BCRA's balance sheet has been serially abused over the past decade and a half. First, the Kirchner governments impounded the country's foreign exchange reserves to fund its domestic expenditures; second, excessive expenditures and budget deficits were regularly financed by resort to direct borrowing from the central bank.

## **Some Symptoms and Consequences of Monetary Mismanagement**

One consequence of Argentina's monetary mismanagement in recent decades is that Argentine citizens have drastically reduced the amount of money they hold in relation to nominal GDP. As Figure 6 below shows, average holdings of money (M2 or M3) in the US, the UK, China and Italy range between 65% and 90% of GDP. In the US and the UK there has been a steadily rising trend over the past two decades, while in China and Italy the rising trends have been

#### 4. Prospects for Argentina under IMF Surveillance

even steeper. In Italy's case it was because after joining the ERM and later the euro in the 1999 Italians at last had a stable currency they could hold with confidence, while in China's case it has been because Chinese incomes have risen so rapidly. By contrast, Argentineans' money holdings are equivalent to only 25-27% of national income, a major drag on productivity. The BCRA should be attempting to raise this ratio by providing money that maintains its value. Paradoxically, it will do this best by shrinking its balance sheet, not by encouraging more money creation.

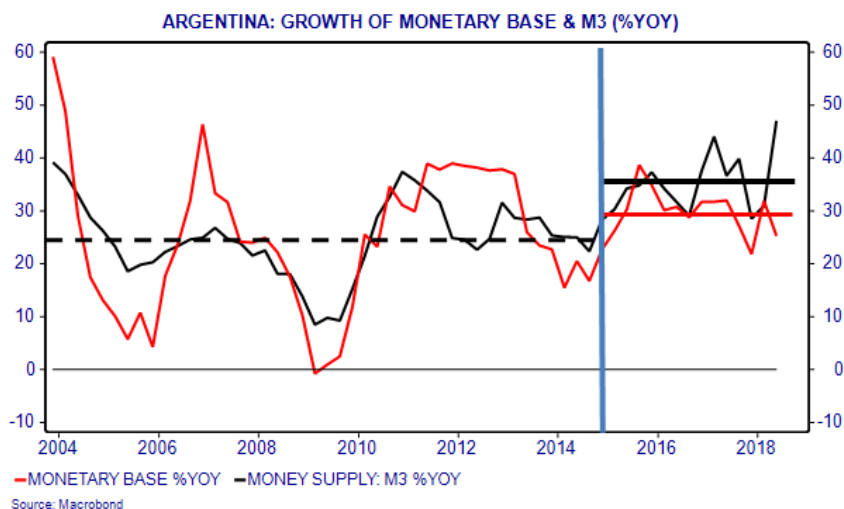


**Figure 6.** *Argentina's History of Inflation Means that Money Balances are far Lower than Elsewhere.*

The BCRA should (A) get out of the business of funding the government (other than buying bonds as a by-product of its monetary operations), and (B) also get out of the business of acting as a monopoly or even premier foreign exchange depository. The first is supposed to be ensured under the new IMF agreement which promises greater independence

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for the central bank, while the second is desirable in its own right.



**Figure 7.** Monetary Base and M3 have averaged 29% and 35% since December 2015

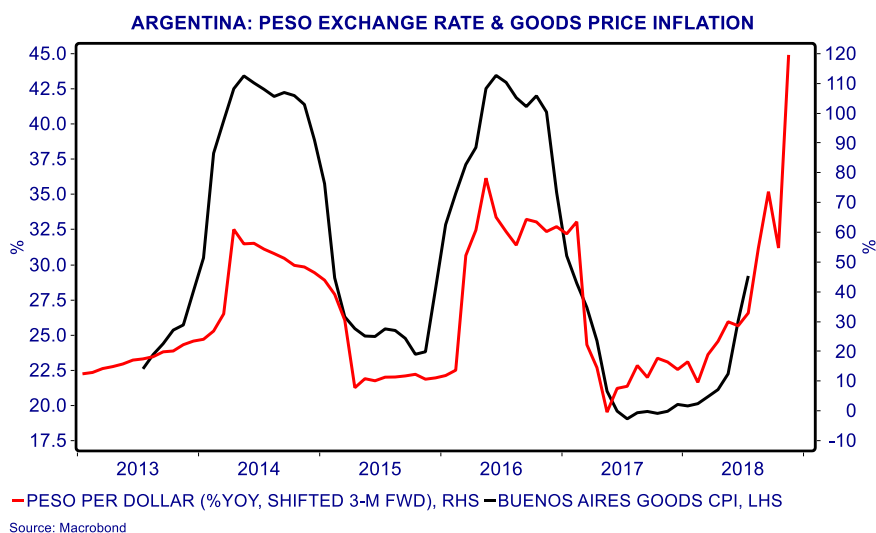
It is clear from the analysis so far that the balance sheet of the BCRA has become detached from any normal relationship to the rest of the banking system such as those that prevail in other, more orthodox economic and financial systems. However, the role of the BCRA as a provider of funds to the government or as collector of foreign currency on behalf of the government has not changed the relation between the monetary base and the growth of broad money (M3) in the economy as a whole.

As shown in Figure 7, growth of the monetary base and growth of M3 have fluctuated together since 2004, with the base averaging close to 25% p.a. (shown by the black dashed line). This has generated an almost identical 25% p.a. average growth of the quantity of broad money (M3) in Argentina. However, since January 2016 and the accession of President Macri the growth rates of the monetary base and

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M3 have grown even faster, averaging 29.0% p.a. and 34.7% p.a. as shown by the solid red and black lines respectively.

The failure of the monetary authorities to engineer any significant or sustained slowdown since December 2015 means that two and a half years of President Macri's term have been used up without addressing the core source of inflation. In addition, on this basis the inflation rate will not slow down as promised or predicted in the plan agreed with the IMF.



**Figure 8.** *In the Short Term Inflation May be Driven by Currency Depreciation or Commodity Price Increases*

In the short term the inflation rate can be heavily affected by large, sudden exchange rate movements or by abrupt commodity or domestic price changes, but in the longer term the dominant driver of inflation is money and credit growth. As Figure 8 shows, there have been two episodes when the inflation rate (reflected in the goods price index for the Buenos Aires area, shown by the black line) has accelerated sharply to around 40-45% in recent years. The first, in 2014-15 was prompted by the fall in the peso from around 5.50



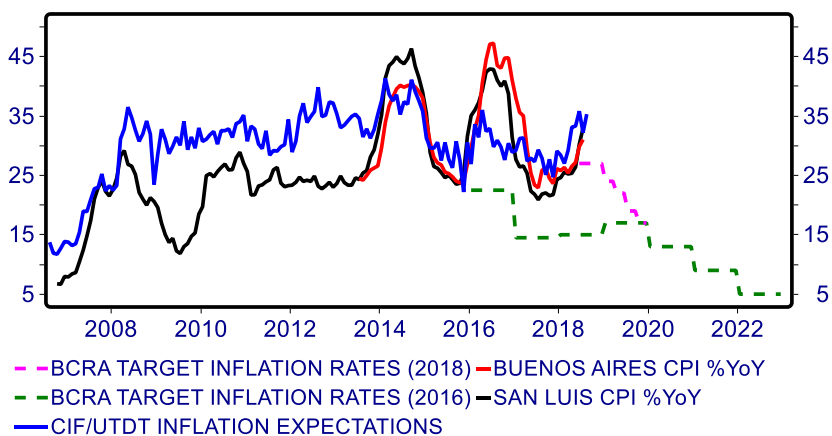
#### 4. Prospects for Argentina under IMF Surveillance

pesos per US\$ in mid-2013 to nearly 9.60 pesos per US\$ by November 2015.

The second episode, in 2016-17, followed from (1) the abolition by the newly elected President Macri of the controlled or official exchange rates maintained under his predecessor, Christina Fernandez de Kirchner, and (2) from the abolition of price subsidies and other price controls that had distorted the economy. On that occasion the peso depreciated from 9.60 to 15.90 per US\$ by January 2017.

A third episode of imported inflation is currently under way due to the further depreciation of the currency from 17.70 in December 2017 to around 26-27 pesos per US\$ in July 2018<sup>1</sup>. Unfortunately this will severely affect the inflation rates going forward and hence the pledges made by the government to the IMF.

#### ARGENTINA: CONSUMER PRICES & BCRA TARGET INFLATION RATES



Source: Macrobond

**Figure 9.** *Argentina's Inflation Targets Submitted to the IMF  
Unattainable with Current Monetary Growth.*

<sup>1</sup> At September 4<sup>th</sup> 2018 the peso exchange rate had fallen even further to 38.48 per US\$.

Fundamentally each of the three episodes of inflation highlighted in Figure 8 can be viewed as “once-for-all adjustments” in the price level after peso depreciation or extended periods of suppressed inflation due to price controls or fuel/utility price subsidies. No doubt the abolition of the exchange controls and the ending of subsidies is good economics in itself, but it has had and will have a severely adverse impact on the living standards of lower and middle class Argentines which will erode Pres. Macri’s support at the polls.

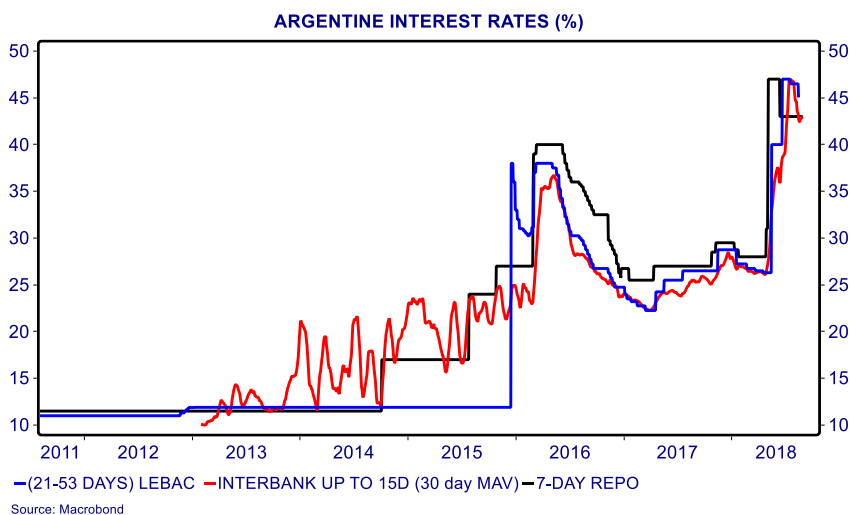
Already the BCRA has had to abandon its inflation targets set out (in green in Figure 9) in 2016. Looking forward, the administration made ambitious pledges to the IMF on June 12 to bring down the rate of inflation (to the revised set of figures shown in Figure 9 in pink), but – so far – it has entirely failed to slow the rate of money growth (M3). This means that, combined with the pass-through of imported inflation from peso depreciation this year, the 27% inflation target provided to the IMF for 2018 and 17% for December 2019 are very unlikely to be attained unless **either** there is an immediate and very deep recession, **or** Argentines suddenly decide to hold much higher money balances than we saw in Figure 6, effectively reducing velocity and lowering spending power. Either way, M3 growth needs to slow down drastically over the next two years from its 36% growth rate in May and decline to the 10–15% range. Only then would the BCRA stand any chance of meeting its previous targets for single digit inflation in 2021–22.

## Early Stages of the 2018 Crisis

Already the BCRA has had to abandon one set of inflation targets announced in 2016 during the early stages of the Macri administration. That abandonment followed the freeing up of the exchange rate and the steep rise in repo,

#### 4. Prospects for Argentina under IMF Surveillance

interbank and LEBAC rates which rose abruptly to 38% between February and May 2016. Thereafter interest rates gradually declined to around 25% in early 2017, but nothing was done to ensure money and credit growth slowed. Consequently there was no progress in bringing down inflation, and the currency began to weaken again from May/June of 2017. Ahead of the election in October 2017 no further tightening was imposed.



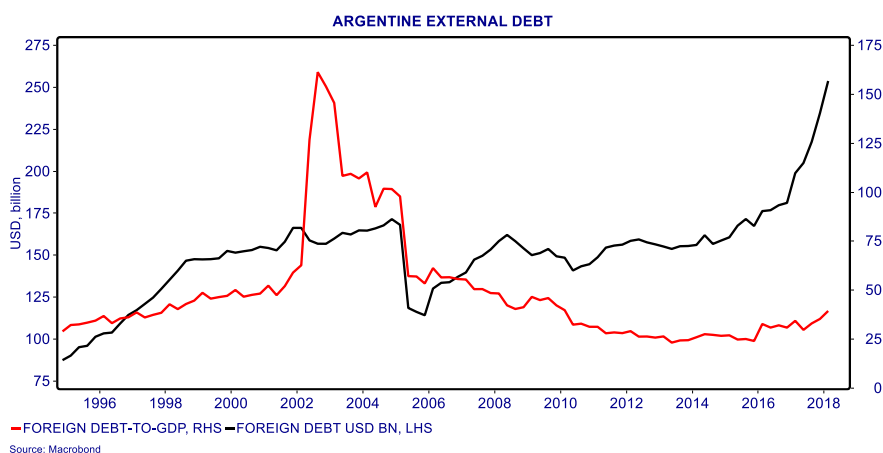
**Figure 10.** *Interest Rates have had to be steeply hiked after the increase in inflation*

After the October election the peso remained moderately stable at 17 per US\$, but then began to fall steeply from January 2018. To prevent further currency depreciation and to minimise capital flight rates were raised again to 40% and 47% in May and June this year.

It is extremely doubtful whether even these rates will be sufficient to stabilize the economy. If the inflation targets recently committed to by the BCRA (as part of the Stand-By Agreement with the IMF) also have to be ditched, this may yet drive rates higher.

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The conundrum Argentina faces is this: if the authorities maintain a free float and an open capital account, then in an already largely dollarized system, any expected weakening of the peso will prompt abrupt outflows, which in turn will exacerbate the problem of foreign debt repayment – unless the BCRA enforces extremely high interest rates. However, prolonged high rates would of course precipitate a very severe recession, something the authorities could not tolerate for long given the short (4-year) political cycle.



**Figure 11.** *Under President Macri Argentina has been able to return to the global capital markets*

Upon being elected in December 2015, the current government's urgent priority was to reach a deal with the last of Argentina's "holdout" bond holders that had been pursuing the country in the courts since its 2001 default. This task was achieved in late 2016 and has enabled the government to tap international markets once more. In June 2017 Argentina was even able to issue US\$ 2.75bn of 100-year bonds. The century bonds were issued with a yield of

7.9%<sup>2</sup>, with the proceeds going to fund the government's budget shortfall and refinance some of their existing debt.

However, with the depreciation of the peso and the resort to the IMF, foreign confidence in the new government will have been dissipated.

In 2018 Q1 external debt reached USD 253.7 bn (shown in black and on the left scale of Figure 11), 60% higher than when Argentina defaulted on foreign creditors in 2001. In addition, there are the new borrowings drawn down from the IMF in June.

The memorandum agreement with the IMF<sup>3</sup> makes numerous pledges on the reporting of economic data, on “reinforcing the BCRA’s autonomy” (by December 2019), on cleaning up the BCRA’s balance sheet, committing to a “flexible and market-determined exchange rate”, the introduction of supply side policies, and warm words about “protecting society’s most vulnerable” and “supporting gender equity”. All of this is accompanied by forecasts of lower budget deficits in 2019, the reduction of central bank credit to the government and reduced inflation rates (17% by the final quarter of 2019). But there is no mention of reducing the rate of monetary growth, only a target for the net domestic assets of the BCRA.

The Argentine crisis of 2018 is yet another example of the failure of fiscal and monetary discipline in a country where this has become endemic. However, nothing will be solved on any sustainable basis unless the core problems of excessive monetary growth and funding of government expenditures and deficits by the central bank are addressed forcefully and on a permanent basis.

<sup>2</sup> The Century bond was yielding 10.23% on September 4, 2018.

<sup>3</sup>[[Retrieved from](#)].

## Summary & Conclusions

The BCRA's balance sheet has been abused by successive governments in the past two decades. Under the IMF Stand-By Agreement with Argentina signed in June it is proposed to strengthen the BCRA's autonomy, stop the direct financing of the government by the BCRA, while maintaining an inflation targeting regime and a free floating peso. However, the IMF program was too gradualist, and is likely to be overtaken by market developments.

The problem is that the IMF's SBA document implies the inflation targets and other reforms can be achieved by means of a gradual reduction of the fiscal deficit -- without pain and without a deep recession. Meantime the growth of the monetary base and M3 growth are still far too high. In my view the current fiscal and inflation targets in the IMF plan are unattainable, and the plan will fail. More likely either the current plan will fail and Argentina will once again default on all foreign-denominated debt held by the private sector (the IMF will again be exempted as they were in 2002), or under a tougher version of the IMF plan Argentina will again face financial collapse and high unemployment, causing President Macri to lose the next election, and virtually ensuring a return to populism for another decade. Both the IMF and the government of President Macri owe it to the Argentine people to address the core issues and provide durable solutions, not temporary fixes that will fail at the next set of challenges.

# 5

## Why Fiscal and Phillips Curve Theories of Inflation are not Working

### Introduction

Over the past two years US financial markets have been subject to two opposing market scares – most recently that inflation is about to spike upwards in an alarming way, and previous to that a common view that a recession was imminent and therefore the current business cycle expansion was approaching an end. Neither of these two scare stories has much substance, and yet they have dominated financial market sentiment and financial commentaries for months at a time.

The inflation scare, which is very much current, is based on widespread misunderstandings of the inflation process. Although measured inflation may move upwards slightly during 2018, there is no basis for predicting or expecting any significant surge of inflation any time in the next two or three years.

The recession scare was dealt a significant blow by the passage of President Trump's tax cuts in December 2017, but

the legislation was not fundamental to the maintenance of the current business cycle expansion. On the basis of the NBER definitions, the current expansion is likely to be the longest in recorded US financial history, exceeding even the ten-year expansion of the 1990s (March 1991-March 2001).

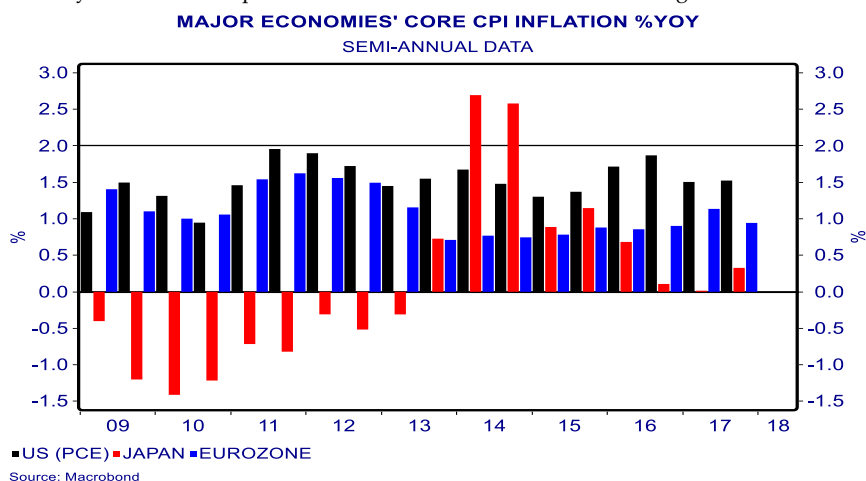
This chapter will explain why these two market beliefs are unsound, and why the basis for continued expansion at low rates of inflation is still largely intact.

## **Inflation since the Global Financial Crisis**

In the US, Japan and the Eurozone core inflation has persistently undershot official targets of 2% p.a. in every year since 2009. Figure 1 shows semi-annual data for the targeted price index in each country on a year-on-year basis – i.e. January-June compared with the previous year and July-December compared to the previous year. The only six-month period when measured inflation exceeded 2% was when Japan's Goods and Service Tax was raised by 3% in 2014, which of course is not inflation in the fundamental sense – this was an administrative measure that led to a step increase in the price level (which is reflected in two successive increases of the year-on-year percentage changes of the semi-annual rate), not a sustained or continuing increase in prices. After the tax change, Japan's price inflation returned to its trend before the GST price increase.



## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working

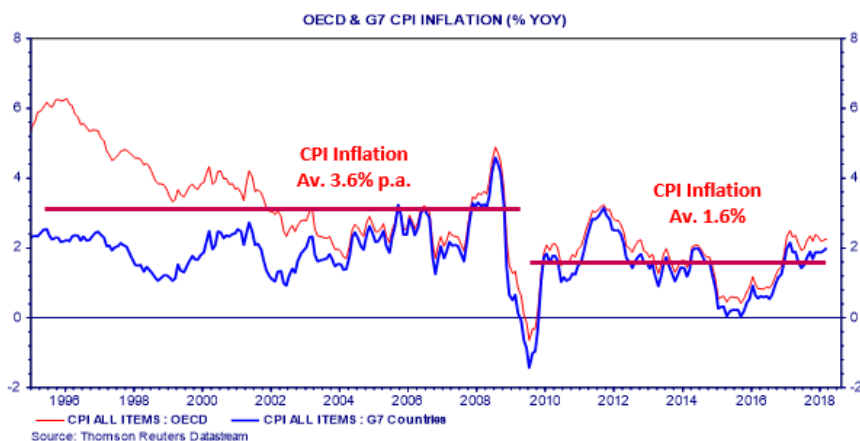


**Figure 1.** *Prolonged Undershoot of 2% Inflation Targets in Major Economies*

Yet central bankers, investment bank economists and many others have explained the low rates of inflation by referring to one-off factors. They often quote weak commodity or oil prices, or the fact that a particular currency has been strong, or other idiosyncratic events such as the “Verizon effect” in March 2017 when there was a price war among leading providers of data for US mobile phone users. Such explanations may suffice on occasion to explain temporary undershoots, but they cannot be used to explain nine years of sub-target inflation – either in the US, the Eurozone, or Japan.

The low inflation rates since 2008 are not limited to the US, the Eurozone and Japan. Figure 2 shows the GDP-weighted inflation rates – this time as measured by the overall or headline CPI in each country – for the 35 OECD member nations as a group, and for the G7 countries.

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**Figure 2.** *Inflation in the G7 and OECD Economies*

For the OECD as a whole and for the G7 the average inflation rate has fallen well below its pre-crisis norm. From an average of 3.6% p.a. in the pre-crisis years 1995-2008 the average OECD CPI inflation rate has fallen by two percentage points to 1.6% p.a. in the period since the GFC. In the G7 the average rate has fallen from 2.1% pre-crisis to 1.3% post-crisis. In other words, the problem of inflation undershooting is more general than simply confined to the US, Eurozone and Japanese economies.

## Two Popular Explanations for Inflation

Why has inflation fallen so broadly? What is it that has changed fundamentally in such a way as to generate this result? Before answering these questions, it is worthwhile considering two popular explanations frequently quoted by financial market participants.

### (1) Fiscal Expansion

The financial markets tend to embrace one theory, often to the exclusion of others, when explaining inflation (or, indeed, other economic phenomena). In late 2017 and early

## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working

2018 there was widespread concern that a large increase in the US budget deficit as a result of President Trump's plans to cut taxes and increase infrastructure spending would cause rising inflation. This 'fiscal theory of the price level', which sees inflation as dependent on changes in government fiscal policy, attracted much attention.<sup>1</sup>

**Table 1.** *US Fiscal Deficits and Inflation, 1980-86*

The Experience of Fiscal Deficits and Inflation under Ronald Reagan			
Federal Budget Balance as % GDP		Consumer Price Inflation %yoy	
1980	-1.3%	Mar-80	14.8%
1981	-2.8%	Jan-81	11.8%
1986	-5.9%	Dec-86	1.1%

However, the view that larger fiscal deficits invariably produce inflation is not supported by the evidence. One previous occasion when there was a significant cut in US taxation and rise in government spending was during President Reagan's period in office. The federal deficit rose from 1.3% of GDP in 1980 to 5.9% of GDP in 1986. However, far from increasing, the inflation rate plummeted – from 14.8% in March 1980 to just 1.1% in December 1986 (see Table 1). That result was due to the tight control of money growth implemented by the Fed under Chairman Paul Volcker. Another case is Japan in the period 1993-2015 when numerous fiscal stimulus programs failed to re-ignite either economic growth or inflation. The lesson is that without an accompanying easing of money and credit conditions (and particularly money growth), increased fiscal deficits will not bring higher inflation.

<sup>1</sup> The theory was set out, for example, by Christopher Sims at the Jackson Hole Fed policy symposium in August 2016. See [[Retrieved from](#)].

## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working

**Table 2.** *Fiscal Policy versus Monetary Policy*

Combinations of Fiscal and Monetary Policy				
Case	Fiscal Policy	Monetary Policy	Case Histories	Outcome
A	Expansionary	Contractionary	US under President Reagan, 1981-86	Economy recovered; inflation declined
B	Contractionary	Expansionary	UK 1981 Budget under PM Thatcher	Economy recovered
C	Expansionary	Expansionary	China, 2008-10	Economy recovered, inflation increased

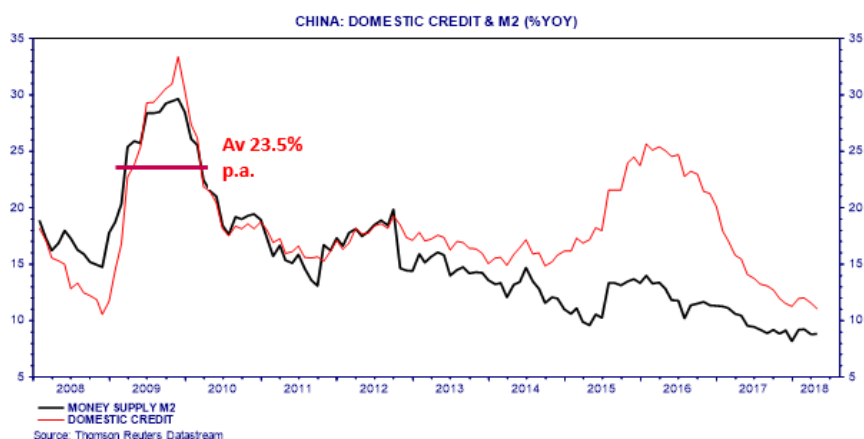
More generally, a fiscal deficit (or more accurately an increase in the fiscal deficit) can only be financed in three ways: by increased taxation, by increased central government borrowing, or by the printing of money to fund the new spending through the banking system.

If the increased government spending or deficit is financed by taxation but overall spending in the economy remains broadly unchanged, then there is simply a shift of spending from the private sector to the government sector. If the increased government spending or deficit is financed by borrowing, then borrowing by the private sector will be crowded out, overall spending in the economy will not change, and again there is simply a shift of spending from the private sector to the government sector. If, however, the increased government spending or deficit is financed by the printing of money (i.e. by the creation of new credit and a corresponding increase of deposits in the banking system) then overall spending can rise and – if the monetary acceleration is sustained -- inflation will follow.

Now consider the interaction of fiscal and monetary policy in Table 2. Case A cites the case of fiscal expansion against a backdrop of slower money growth – as in the US

## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working

under Reagan and Volcker. In this example monetary policy dominated over fiscal policy. Case B, the case of the 1981 budget in the UK under Margaret Thatcher is similar, although the opposite policies were in force -- fiscal policy was contractionary but monetary policy expansionary. Once again monetary policy dominated. Finally in Case C, if both fiscal policy and monetary policy are operating in the same direction, the result will be clear, but it may be hard to determine which policy was dominant. The clearest recent illustration of this is the case of China's fiscal stimulus of 2008-10.



**Figure 3.** *Money and Credit Growth in China, 2004-18*

China's fiscal stimulus of 2008-10 is often cited as an example of successful fiscal stimulus, and indeed some writers have credited China's fiscal package and the subsequent recovery in 2008-10 with rescuing the global economy. But was it really the fiscal stimulus that explains the doubling of stock prices by July 2009, the surge in property prices, the commodity price bubble, China's strong economic recovery in 2009-10, and China's 6-7% consumer price inflation in 2010-11?

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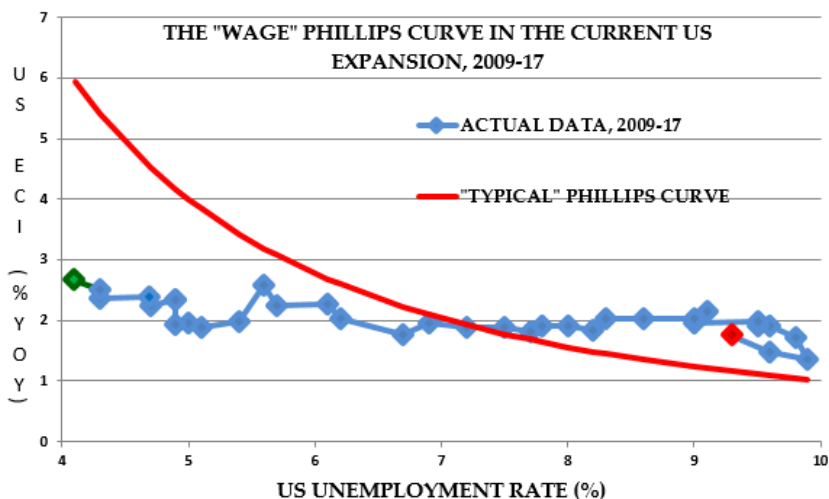
Briefly, RMB 4.0 trillion of fiscal spending (equivalent to US\$ 586 billion at the time, equivalent to 5.6% of China's GDP) was announced in November 2008, but the central government would only provide 1.2 trillion yuan of funds. The rest was to come from provincial and local governments. In practice the provincial and local entities did not have the funds, so they turned to the banks, often creating Local Government Financing Vehicles (LGFVs) for the purpose. Banks were authorised and encouraged to support the funding needs of these provincial entities.

The result, as shown in Figure 3, was that M2 and bank credit surged from growth rates of around 15% p.a. to peaks of 30% and 34% respectively, or an average growth of 23.5% growth rates over two years. In other words, China's spectacular recovery was based at least as much on monetary expansion as on fiscal expansion. By contrast, much of the developed world was also running large fiscal deficits, but – despite QE in several economies - in no case was there an equivalent expansion of money and credit. The result, in developed economies, was anaemic recovery, and below-target inflation.

### **(2) The Phillips Curve**

A second misguided view of the causes of inflation, popular in the financial markets and amongst academic and central bank economists, is the Phillips curve or – closely related – the output gap theory of inflation. A “typical” Phillips curve relationship, shown in Figure 4, sees wage inflation rising as the unemployment rate falls (as shown by the stylised red curve), and wage inflation feeding directly into overall price inflation. This concept is a standard feature of many economists' and central bank models of inflation.

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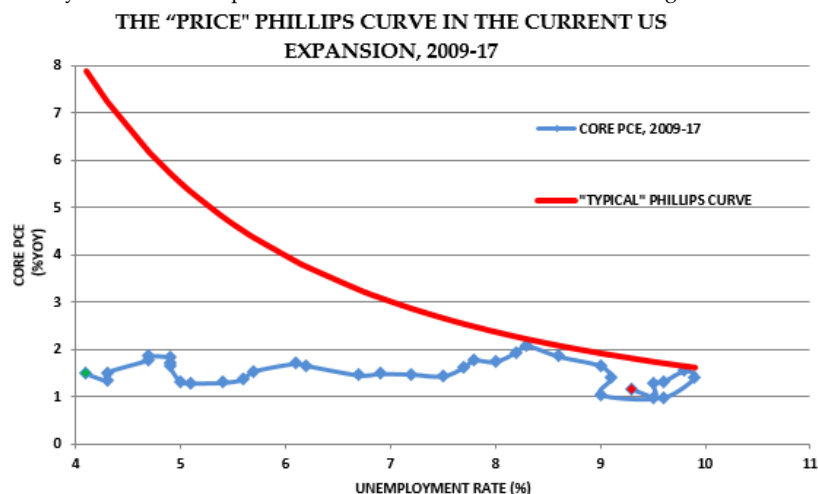


**Figure 4.** *The US Wage Phillips Curve, 2009-17*

In practice, as shown by the blue line, which plots successive co-ordinates of the US unemployment rate and wage increases as measured by the Employment Cost Index, the US “wage” Phillips curve has been almost flat in the current economic expansion, as well as in the two previous expansions on 1991-2001 and 2002-07. The same broad flatness of the plotted wage Phillips curve relationship is found in the UK, Germany, Japan and elsewhere.

Figure 5 shows the “price” version of the Phillips curve – i.e. instead of wage increases on the vertical axis it shows inflation on the vertical axis. In this case we have chosen to show the quarterly data for year-on-year increases of the PCE deflator which is the preferred measure of inflation for the Fed and its FOMC members.

## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working



**Figure 5.** *The US Price Phillips Curve, 2009-17*

When asked why the Phillips curve is not working, most economists will say that although it does not appear to be working now, at some stage there will be a trigger point at a lower level of unemployment that will cause wages and inflation to increase much more quickly. In other words, they imply that the shape of the Phillips curve is more like a rectangular parabola, kinking sharply upwards at some undefined, lower level of unemployment. However, in my view this is not credible.

The problem with this approach to inflation is that while the Phillips curve is an empirical relationship that sometimes holds, it is not a complete theory of the inflationary process. Therefore although the Phillips curve relationship can be observed in numerous past episodes when a tightening of the labour market was followed by wage increases which in turn were accompanied by or followed by rising consumer prices, this need not always be the case. Moreover, there is no theoretical reason why this should always be the case. In other words, it may be feasible for the economy to



## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working

experience rates of unemployment below the supposed “natural rate”, and yet for inflation to remain low.

The same problems apply to the output gap theory of inflation. In the past there have been numerous episodes when inflation has increased following the supposed closing of the output gap. But again this is an empirical observation, not a complete theory of inflation. Leaving aside the problem of measuring the output gap and the potential level of real GDP, there is no theoretical basis for asserting that closing the output gap will inevitably lead to inflation. The truth is that these explanations of wage increases or price increases deriving from tighter labour market conditions are what economists call “reduced form” relationships – i.e. simplified versions of reality, but not the whole story.



**Figure 6.** *The Mechanism Underlying the Business Cycle*

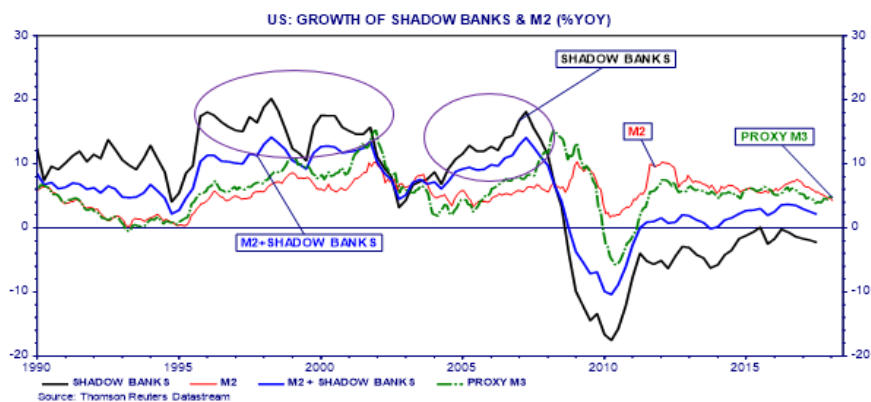
More fundamentally, the key point is that inflation is a monetary phenomenon, and therefore it will only rise after a sustained period of faster money and credit growth. Moreover, inflation should be seen as a part of the business cycle which itself is a monetary phenomenon.

A stylised, flow-chart version of the relation between (broad) money growth, asset prices, economic activity and CPI inflation is shown in Figure 6. It will immediately be apparent that the Phillips curve and the output gap explanations of inflation only focus on the two right hand boxes in the diagram. The Phillips curve says, in effect, because the labour market (in the Economic activity box) has

## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working

tightened, goods and service price inflation (in the final box) will follow.

In a case where a tight labour market has been preceded by a sustained period of more rapid money growth, such a forecast will probably turn out to be correct. However, in a case where there has been no such acceleration of money growth it does not follow that there need be any significant increase in the inflation rate. As we shall see below, in most developed economies since 2009 there has been no sustained acceleration of money growth sufficient to cause a surge in inflation. Until there has been, it follows that inflation will remain low.



**Figure 7.** Money and Shadow Banking Growth in the US, 1990-2017

Taking the US first, Figure 7 shows year-on-year rates of change for the key monetary aggregates of the United States – M2 and M3, and data for the shadow banking system.<sup>2</sup> The money growth rates since around 2012 have been low and

<sup>2</sup> The official data for M3 were discontinued by the Fed in 2006, but it is possible to construct a proxy for M3 from data released by the Federal Reserve. This is the series used here. For the shadow banks in Figure 7, I have used the total liabilities of broker dealers, finance companies, ABS issuers and funding corporations, plus money market funds, as suggested by Hyun Song Shin. See for example: [[Retrieved from](#)].

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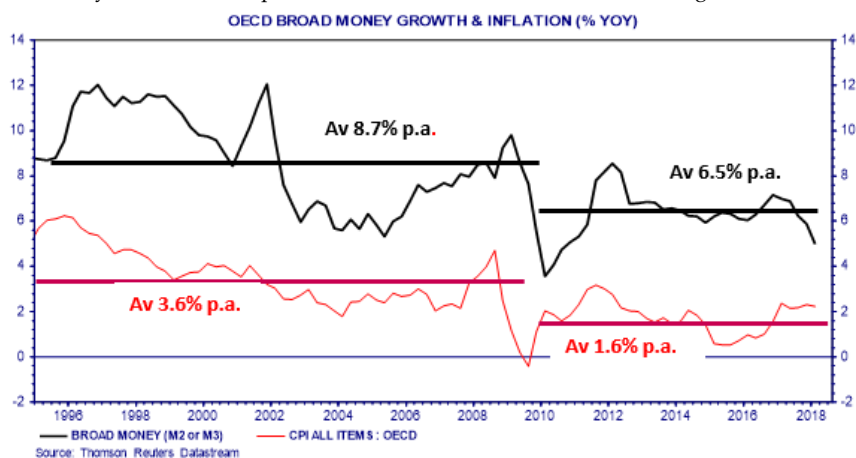
broadly stable with M2 and M3 averaging 6.6% and 5.2% year-on-year respectively. Historically such growth rates have never led to a significant rise in inflation, so there is no reason to expect any upsurge over the next two years.

Notice that M0 (or the monetary base or the Fed's balance sheet) is not included in the chart because inflation is related to rates of growth of broad money held by the non-bank public (i.e. mostly firms and households), not the size of the central bank's balance sheet.

Notice also that the circled periods, namely the tech bubble of the 1990s and the housing bubble of the early 2000s, were both accompanied by double-digit growth of credit in the shadow banking system and accelerating growth of M3. Since the GFC, shadow banks have essentially been in hibernation, with shrinking balance sheets. Consequently the total for M2+Shadow banks has only been growing at about 2% p.a.

Since the start of 2017 M2 and our proxy for M3 (which is in many ways preferable to M2) have slowed to 3.7% and 4.2% year-on-year respectively in April 2018 – enough to support the growth of the economy and an inflation rate of around 2%, but not much more.

## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working



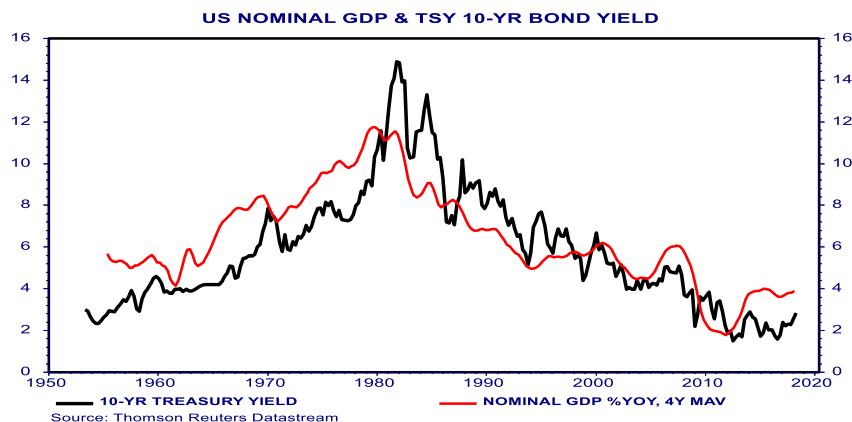
**Figure 8.** Money Growth and Inflation in the OECD, 1995-2018

Low and stable money growth is not confined to the US. The Eurozone, the UK and other developed economies have all experienced significantly slower growth rates of broad money and credit than in the period before the GFC. Consider the weighted growth of broad money (M2 or M3) in the 35 economies of the OECD in Figure 8, where the data are shown on a quarterly, year-on-year percentage change basis. Between 1995 and 2008 average money growth was 8.7% p.a., which generated an average CPI inflation rate of 3.6% p.a. over the same period. Since the GFC, in the period 2009 to 2017 average broad money growth has been 6.5% p.a. which has generated a CPI inflation rate of 1.6% p.a. across the OECD as a whole (to 2018 Q1).

In effect the OECD average broad money growth rate has slowed by 2.2 percentage points since the GFC while the CPI inflation rate has slowed by 2.0 percentage points. Given the way in which these data were collected from such a wide variety of sources, it cannot be mere coincidence that these reduced rates of money growth and inflation are so close numerically.

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In 2018 Q1 (the latest data available) OECD money growth slowed to 5.0% while CPI inflation stood at 2.2%.



**Figure 9.** US Nominal GDP and 10-year Treasury Bond Yields, 1953-2018

For the US, the low growth of money and credit in recent years implies that inflation, a primary driver of long bond yields, will remain subdued. However, as mentioned at the start, there have been significant inflation scares – mostly deriving from President Trump’s tax cuts combined with his proposed increased infrastructure spending and the prospect of a larger budget deficit.

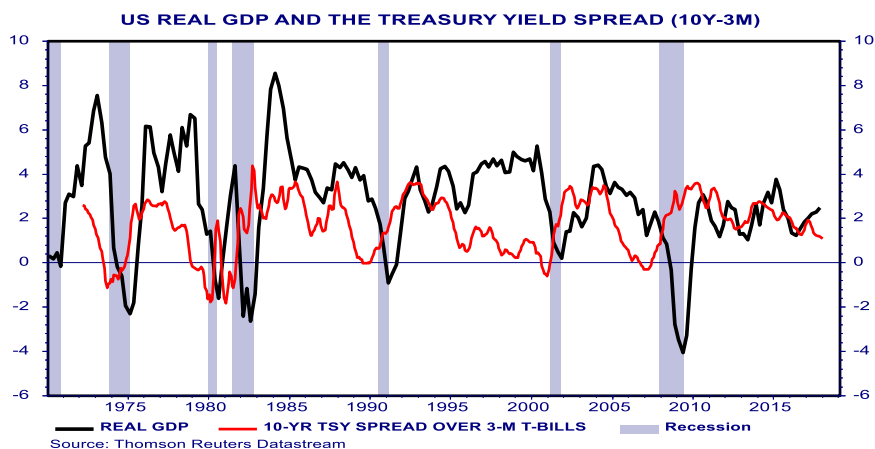
These background developments in fiscal policy fell on fertile ground – a climate of ideas dominated by the fiscal theory of the price level, together with a widespread reliance on economic models that rely heavily on the “Phillips curve” or an “output gap” framework. All this means that inflation *expectations* have become much more sensitive to current developments. For example, the modest increase in US average hourly earnings to 2.9% year-on-year (compared with consensus expectations of 2.6%), announced on Friday, February 2, 2018 produced an abrupt rise in 10-year Treasury bond yields to over 2.8% for the first time in four years. (Figure 9 shows bond yields for April at 2.83%.)

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Thus despite near full employment, despite low unemployment, despite the fiscal deficit, and despite the weak dollar in 2017 it is likely that as long as money and credit growth remain low (as in the past few years), **actual** inflation will not match **expected** inflation.

## Popular Explanations for the End of the Business Cycle Expansion

The second scare story mentioned at the start of this article was an imminent recession. In my view this idea, which admittedly has been less prevalent since the Trump tax cuts of 2017 but was nevertheless widely explored in numerous models of “recession probability” in 2016 and 2017, is largely groundless. A recession is probably at least two years ahead, possibly more. Before explaining the rationale for a continued business cycle expansion we examine some popular views about why the cyclical upswing may be about to end.



**Figure 10.** US Real GDP Growth and the Treasury Yield Spread

**First**, the best indicator by far of an imminent recession in the US has been the inversion of the yield curve shown by

## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working

the spread between the 10-year Treasury yield and the 3-month Treasury bill yield in Figure 10. However, the yield spread is composed of the difference between two rates: a long term rate determined in the market, and a short term rate largely determined by the Fed. The cause of an inversion is almost always a steep rise at the short end of the curve – i.e. by deliberate Fed tightening (for example, to deal with inflation). Consequently the yield curve is a symptom of underlying tightening of policy; the real cause of the inversion is the tightening of policy (usually reflected in slower growth of money and credit aggregates).

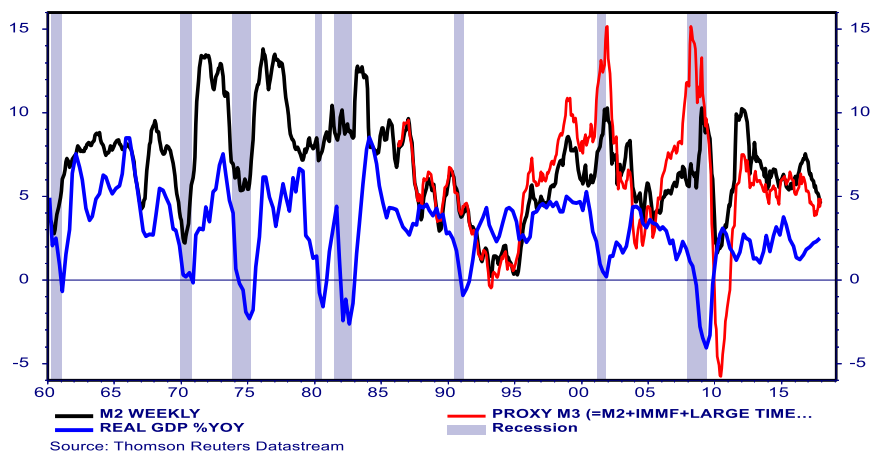
In most historical cases an inverted yield curve implies that short term rates have been raised, tightening monetary policy and slowing money growth. Thus ahead of every NBER-designated recession since 1973 the yield spread has turned negative, although in 1989 the inversion was only marginal. The growth rate of real GDP is shown in Figure 10 on a year-on-year basis in order to reduce its volatility, although it should be noted that the NBER does not measure recessions based solely on changes in the real GDP.<sup>3</sup>

In any case the yield curve is far from inverted currently. The latest data in the chart (for April 2018) show a yield spread of 1.03%. Assuming no decline at the long end of the curve, short rates would need to rise abruptly by 1.03% or more in order for the yield curve to invert.

<sup>3</sup> <http://www.nber.org/cycles/recessions.html>

## 5. Why Fiscal and Phillips Curve Theories of Inflation are not Working

### US REAL GDP & BROAD MEASURES OF MONEY (%YOY)



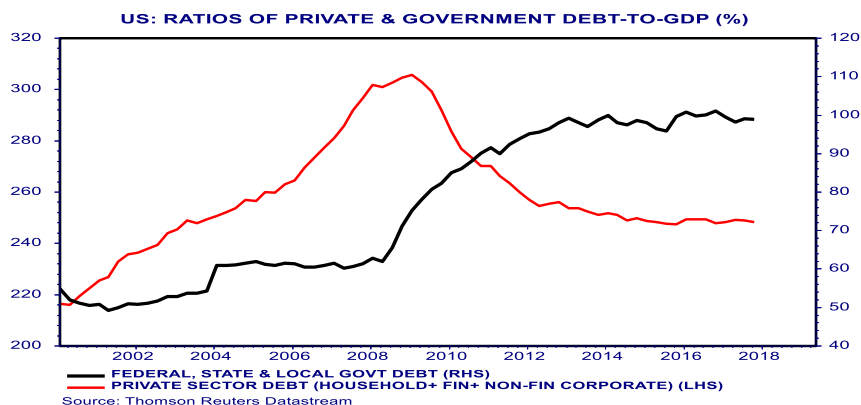
**Figure 11.** *US Money Growth and Real GDP Growth*

The **second** indicator that could spell a recession ahead is a slowdown in money growth. The chart shows the NBER-designated recession bands, this time since 1960. Ahead of every recession from 1960 to 1980 there was a slowdown in M2 growth. In 1981-82 the recession came about largely as a result of the high inflation rate interacting with limited money (so real money growth declined), but deregulation of interest rates and other similar measures meant that M2 growth did not show the same sort of slowdown as in earlier episodes. The recessions of 1990-91 and 2001 were each preceded by monetary slowdowns, and for these episodes there is data for M3 which showed a very similar profile to M2 in each case. The interesting case is the recession of December 2007 to June 2009 when there appeared to be no slowdown of M2 or M3 – on the contrary they both accelerated. For a proper understanding it is necessary to consider the rapid growth of credit – or financial liabilities -- in the shadow banking system (Figure 7). This peaked in 2007 Q2, and then slowed sharply in the period up to the Lehman Brothers bankruptcy in September 2008, when it plunged into negative territory. The bankruptcy precipitated



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a sudden freeze in the credit markets, and a dramatic shift of funds back into the banking system. So the surge in M2 and M3 in 2007-09 was a result of the run on the shadow banking system, not a sign of ample liquidity in the financial system as a whole.



**Figure 12.** *Private sector deleveraging has improved resilience of US to possible recession*

A **third** indicator that is important in the aftermath of the 2007-09 balance sheet recession is the health of private sector balance sheets. The chart above shows the ratios of private and public sector debt to GDP for the US since 2000.

US private sector debt – which includes the debt of the household sector, non-financial business sector and financial sector -- peaked at 305% of GDP in 2009 Q1. Since then the private sector leverage ratio has declined to 248% as of 2017 Q4, a cumulative decline of 57 percentage points. This means that the private sector leverage ratio has returned to the level of 2003, unwinding two thirds of the leverage built up since 2000. Most of the deleveraging has been achieved by balance sheet repair in the financial sector (banks and shadow banks), with the household sector contributing to a smaller degree. The US public sector debt ratio -- which includes federal, state and local government debt -- began rising in

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2008 soon after the start of the US recession in 2007 Q4. So far the all-government debt ratio has risen from 62.6% of GDP in 2008 Q2 to 99% in 2017 Q4.

We cannot know in advance how much the US private sector will de-lever, and relative to GDP there may be further deleveraging ahead. However, the key point is, as regularly reported by the New York Fed, consumer balance sheets are in much better shape, so that even if rates continue to rise, US consumer spending should remain resilient.

## Conclusion

The two main threats to financial markets – inflation and recession – have been exaggerated. Financial market participants and others have relied on unsound theories of inflation: the fiscal theory of inflation, and the Phillips curve or output gap.

Fundamentally, however, inflation is a monetary phenomenon and requires sustained faster growth of money and credit to support any significant increase in goods and service prices. Yet in the US and across the OECD money and credit growth remain subdued since the GFC. Money growth is not so rapid as to cause inflation, nor has it slowed sufficiently to precipitate a recession. It follows that the current US business cycle expansion is based on firm foundations, and should be able to continue for several more years, with low inflation. Similarly, the yield curve, money growth and the health of private sector balance sheets imply there is currently no basis for predicting an imminent recession.

# 6

## Hong Kong: The Currency Board's Autopilot Kicks in at 7.85

### Introduction

Over the past nine years since the Global Financial Crisis (GFC) of 2008-09, Hong Kong's exchange rate has persistently remained on the strong side of the Hong Kong Monetary Authority's convertibility band, often close to the strong side Convertibility Undertaking at HK\$ 7.75 per US\$ 1.00. However, starting in early 2017 the market rate for the HK\$ started to weaken, moving away from the 7.75 level, and on 12 April 2018 the rate finally reached the weak side Convertibility Undertaking at HK\$ 7.85, triggering US\$ sales by the HKMA.

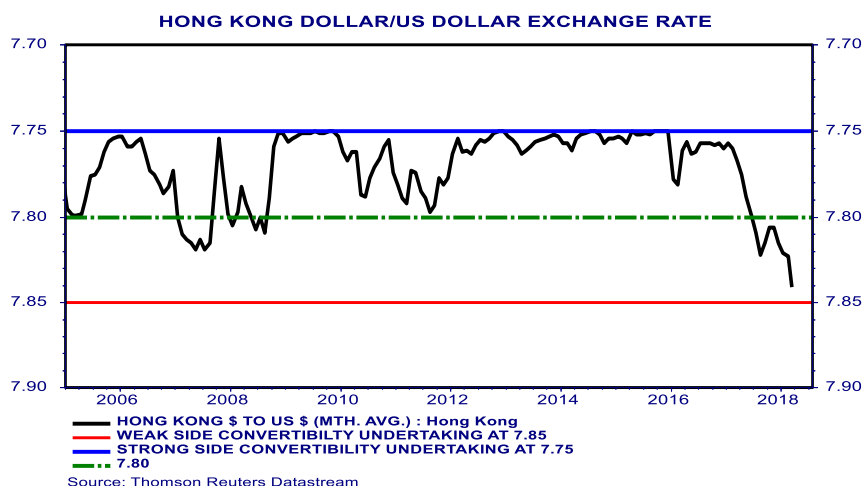
Why did the HK\$ remain so firmly on the strong side of the 7.80 rate for currency note issuance for so long? Does the recent weakening of the exchange rate represent a crisis for the currency, or is it a normal part of the working of the Currency Board system? Given that the rise in interest rates in Hong Kong (represented by HIBOR) has lagged behind the increase in US rates (like US\$ LIBOR) for the past two

years, is there a case for the HKMA stepping in and accelerating the process of interest rate normalization?

This brief paper explores some of the background to these events, and how the HKMA should operate in the future.

## Recent Developments

The Hong Kong currency system is often referred to as a Linked Exchange Rate System (LERS) centered on HK\$7.80 per US\$1.00. However, in reality the HKMA is better described as operating an exchange rate band with the exchange rate varying between 7.75 and 7.85 per US\$ 1.00 (see Figures 1 & 2).

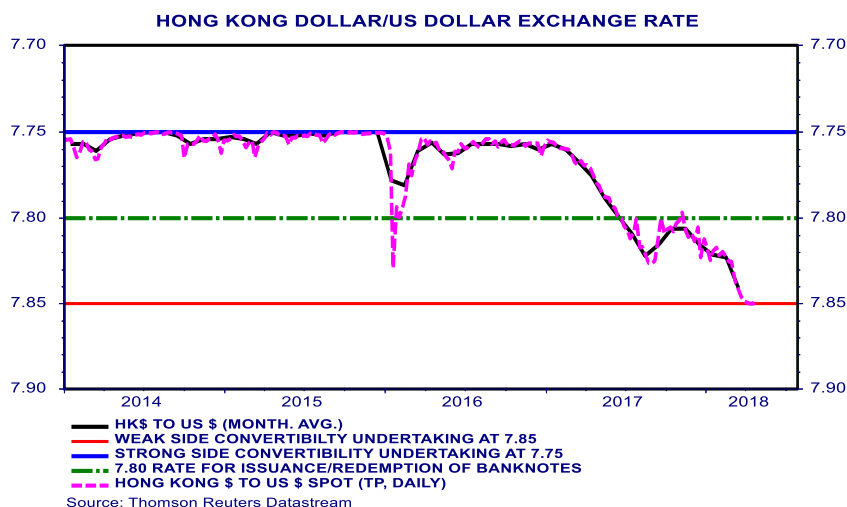


**Figure 1.** Spot Rate for HK Dollars per US Dollar, 2005-18

It is true that in order to issue banknotes the three note-issuing banks – the Hong Kong & Shanghai Bank, Bank of China, and Standard Chartered Bank - must pay US\$ at the central 7.80 rate to the HKMA in order to obtain Certificates of Indebtedness (CIs) which in turn authorize the banks to issue HK\$ banknotes. However, banknotes today only comprise about 6% of total HK\$M3 (the broad money supply

## 6. Hong Kong: The Currency Board's Autopilot Kicks in at 7.85

held by households and companies in Hong Kong). By contrast, the vast majority of foreign exchange transactions occur in the open market at exchange rates somewhere between the two limits of 7.75 and 7.85 – i.e. within the convertibility band.



**Figure 2.** *Daily Spot Rate for HK Dollars per US Dollar, 2014-18*

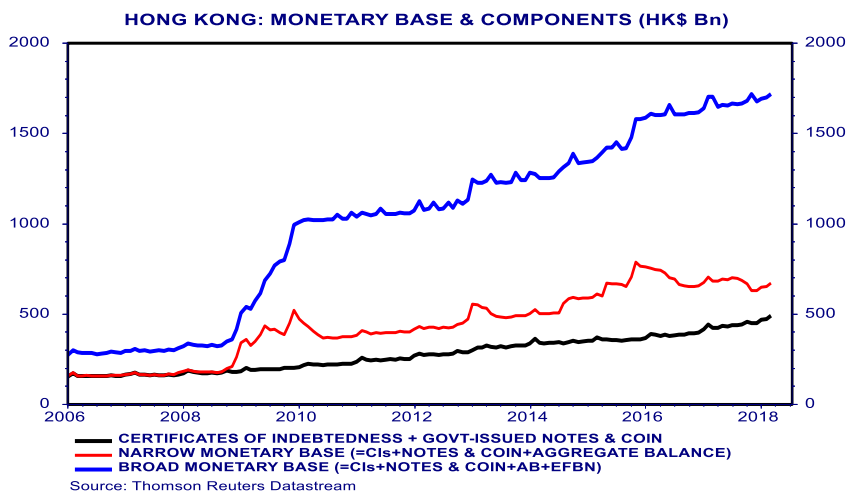
A key point to note about the system is that so-called interventions by the HKMA are in fact not initiated by the HKMA at all, but rather by the commercial banks. The reason is that the HKMA has issued “Convertibility Undertakings” (CU) or promises to sell Hong Kong dollars at 7.75, and US dollars at 7.85 in whatever amounts the market requires.

So whenever the HKD/USD exchange rate reached or exceeded the strong side CU – say, 7.74 – it became cheaper for banks to buy HK dollars from the HKMA, obtaining HK\$7.75 for every US\$ 1.00, than to buy in the market where they would obtain only HK\$7.74 for every US\$ 1.00.

Conversely, when the exchange rate reaches the weak side CU -- say, 7.86 – it becomes cheaper for the banks to buy

## 6. Hong Kong: The Currency Board's Autopilot Kicks in at 7.85

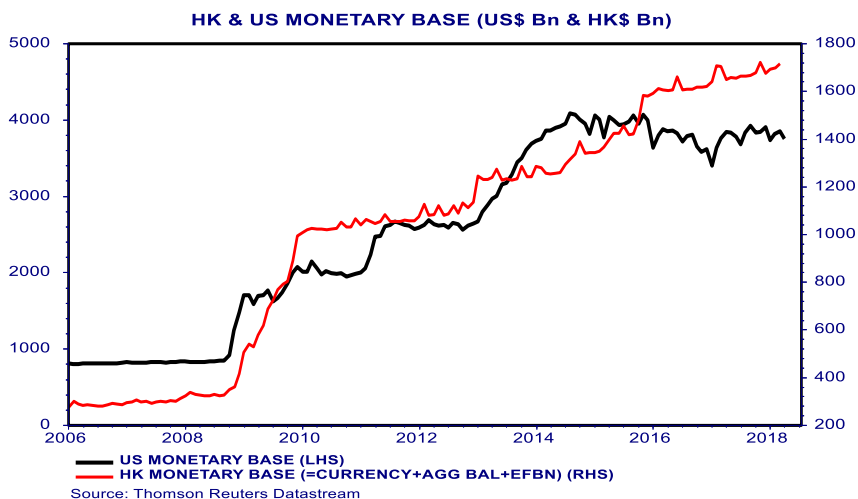
US dollars from the HKMA at 7.85 than to buy from the market at 7.86. In other words, the banks typically approach the HKMA to do the transactions. It is not the HKMA stepping into the market to “prop up” the currency or defend it. Since April 12, 2018 in response to demand from the banks, the HKMA has been simply fulfilling its obligation under the CU to supply US\$ at 7.85.



**Figure 3.** *Components of Hong Kong's Monetary Base, 2006-18*

Another key point to be aware of is that since the GFC in 2008, inflows into Hong Kong have been enormous, pushing the exchange rate to the 7.75 strong side CU for much of the time. This resulted in sales of US\$ by the banks to the HKMA in exchange for HK\$ requested by their customers. In fact the monetary base, or the key part of the HKMA's balance sheet (comprising banknotes and coin plus banks' settlement accounts plus Exchange Fund Bills & Notes) that includes these transactions, increased from HK\$ 348 billion on 30 September 2008 to HK\$ 1,663 billion on 26 April 2018, an increase of over HK\$1.3 trillion (Figure 3).

The overall HKMA balance sheet (which includes on the asset side additional fiscal reserves from past government surpluses and accumulated earnings on foreign exchange reserves) reached HK\$ 4,193 billion (or US\$ 537 billion when converted at 7.80) in January, more than twice the size of the monetary base. With official foreign exchange reserves of US\$ 442 billion in January 2018 and HK\$M3 at HK\$ 7,266 billion (or US\$ 931.5 billion), the foreign assets of the HKMA were equal to 47% of HK\$M3. As all of the foreign currency reserves are available to support the HK\$ and persistent outflows of HK\$ would reduce the available stock of liquidity, driving up interest rates, outflows would soon be deterred by rising rates and funds would flow back into Hong Kong. The currency board, in short, is in no danger.

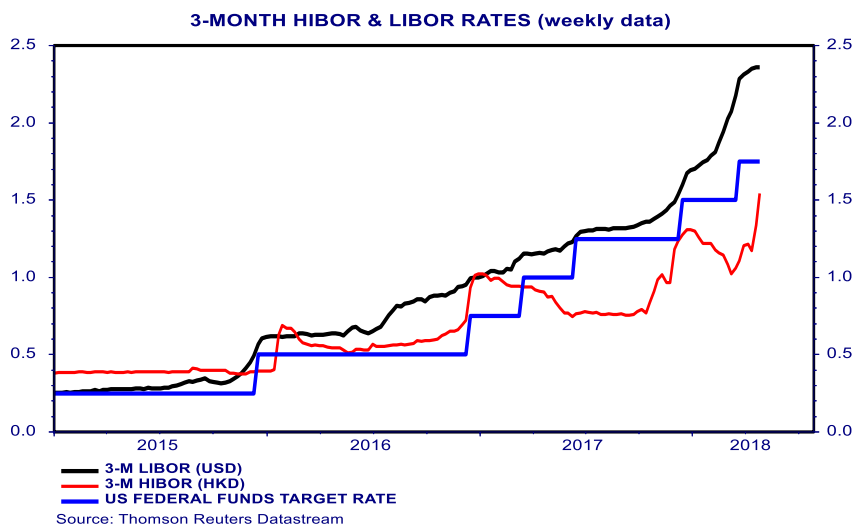


**Figure 4.** Comparison of Hong Kong's Monetary Base with the US Monetary Base, 2006-18

Just as the US Federal Reserve is currently reducing the size of its balance sheet – a process that started in October 2017 – the HKMA will also want its balance sheet to diminish in size (Figure 4). But in Hong Kong the only way

## 6. Hong Kong: The Currency Board's Autopilot Kicks in at 7.85

this can happen naturally through market forces is if the exchange rate falls to the weak side CU level of 7.85, resulting in “outflows” of HK\$ (i.e. sales of HK\$ by the banks to the HKMA at 7.85 and the debiting of banks' settlement accounts at the HKMA). This process also tightens up the Hong Kong money market, pushing HK\$ interest rates upwards.



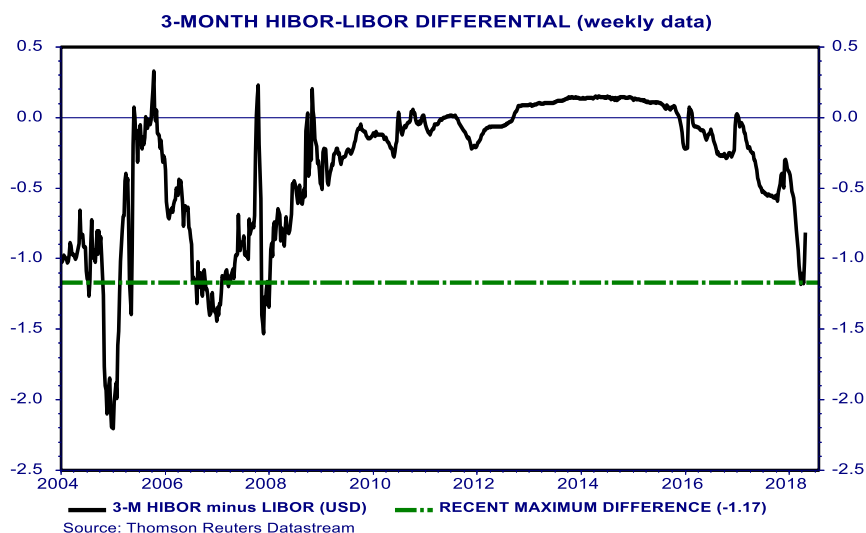
**Figure 5.** *Increases in HK\$ HIBOR interest rates have Lagged behind US\$ LIBOR rates*

However, as shown in Figure 5, since December 2015 when the Fed started raising interest rates, Hong Kong Interbank Offered Rates (HIBOR) have generally lagged behind London Interbank Offered Rates (LIBOR) in US\$, partly because the exchange rate remained well above the weak side CU, and there was no draining of funds out of the HK\$ money markets. One long-standing reason for the divergence is that since the CU points are set at 7.85 and 7.75, or 1.3% apart, it would require at least a difference of at least 1.3% in interest rates before profits from arbitrage under interest rate parity theory can be guaranteed.



## Analysis of the Background

This raises two questions. First, why did the HK\$ remain so much stronger than 7.85 for so long? And second, why did the HKMA not push the process forward and close the HIBOR-LIBOR gap by stepping into the market to sell US\$ (or buy HK\$) before the exchange rate reached 7.85?



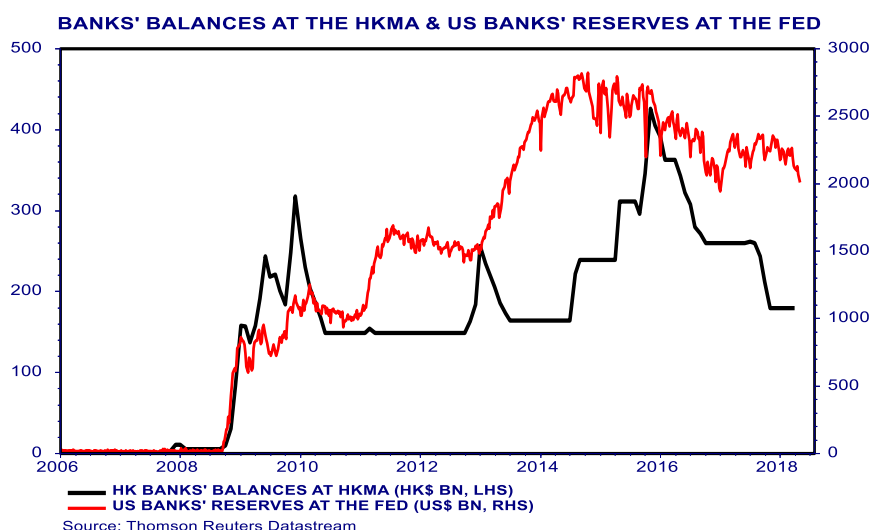
**Figure 6.** *Despite special factors in the LIBOR market, recent HIBOR-LIBOR spreads have not been unusual*

The answer to the first question is that inflows from the Mainland have created more liquidity in Hong Kong than in the past. The Hong Kong-Shanghai Connect and the Hong Kong-Shenzhen Connect schemes have seen a predominance of southbound flows. In addition, strong buying interest in the Hong Kong property market by Mainland investors has also been an additional source of HK\$ liquidity.

Because these Mainland investors are possibly not so concerned with the interest rates or short term returns they receive in Hong Kong, but are more concerned about keeping assets in Hong Kong as a kind of long term, safe

haven investment, they are perhaps less sensitive to the interest rate differentials between the HK\$ and US\$ money markets.

The result is that it has taken time for the HIBOR rates to follow LIBOR. An additional factor to mention is that since the end of 2017 and the enactment of President Trump's corporate tax cut with its cash repatriation incentives US\$ LIBOR has increased relative to either EURIBOR or the Sterling LIBOR, exacerbating the apparent difference between HIBOR and LIBOR (see Figure 6).

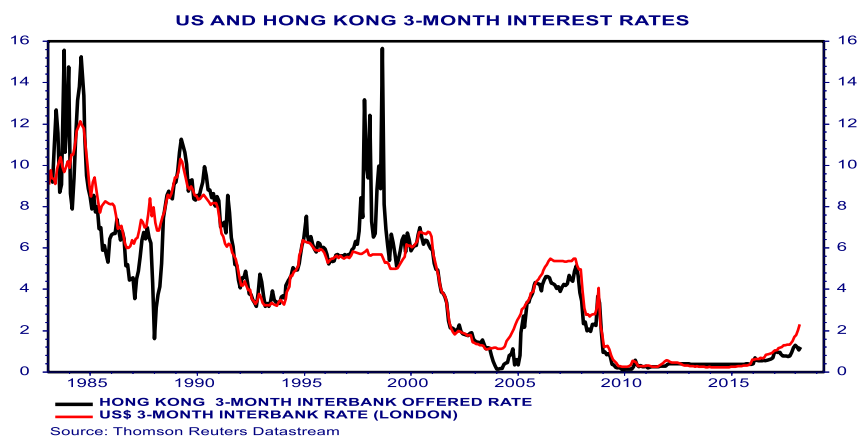


**Figure 7.** *Hong Kong's Aggregate Balance has moved broadly in parallel with US bank balances at the Fed*

Nevertheless, for the first time since the 7.85 CU level was set up in 2005, the weak side CU was at last triggered by sales of HK\$ by the banks to the HKMA for US\$ on April 12, 2018. Since then there have been numerous such episodes, resulting in cumulative sales of US\$ 6.5 billion by the HKMA against purchases of HK\$ 51.3 billion by the banks (up to April 18). This reduction in the amount of HK\$ in the banks' settlement accounts is now gradually raising HK\$ interest

rates (including HIBOR, see Figure 5) in exactly the way intended.

Clearly there is still a long way to go in terms of reducing the HK\$ 1.3 trillion expansion of Hong Kong's monetary base since 2008. This brings us to the second question: why doesn't the HKMA accelerate the process by intervening within the convertibility band to sell US\$ or buy HK\$?



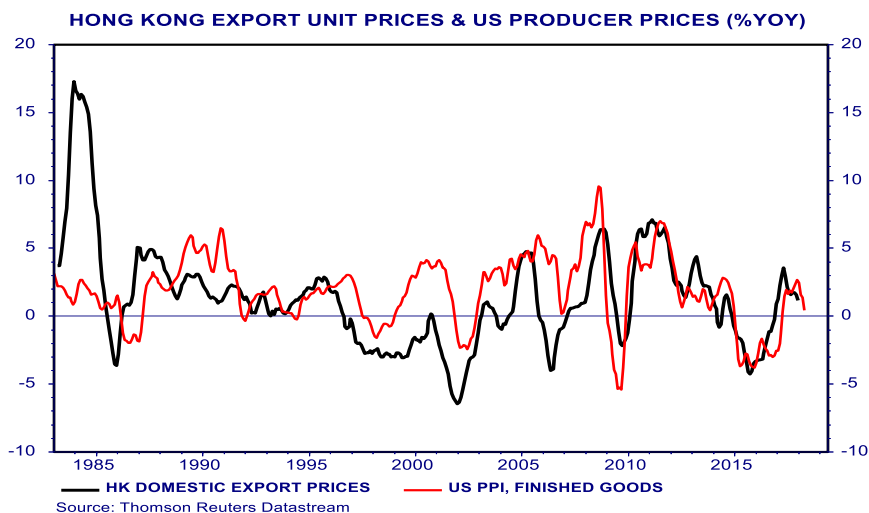
**Figure 8.** *Past episodes of interest rate deviation with US rates have prompted HKMA intervention*

The HKMA unquestionably has the powers to intervene within the convertibility bands. After all, from time to time it provides liquidity and then withdraws it – for example in the case of IPOs. This is done on the basis that the drain on the money market on each occasion is a known quantity of HK\$ that can be supplied and then withdrawn after payments for the new shares have been settled.

However, intervention in indeterminate amounts to adjust interest rates would definitely be a discretionary action that is not in accordance with the “rules” of the post-1998 currency board mechanism. Market participants will soon start to think that the HKMA is targeting interest rates rather than the exchange rate band. Even worse, given the

motivation of the Mainland investors in Hong Kong (i.e. not based on short term interest rate differentials), such intervention might not succeed in any case. The HKMA could then be buying HKD but inflows could continue, keeping rates low and the property market strong.

Moreover, in the past (2006-08), the HIBOR-LIBOR gap at times exceeded 150 basis points (1.5%), so the current gap of less than 100 basis points (1%) is not unusually large by historical standards (see also Figure 6).



**Figure 9.** *In the long run, a fixed exchange rate implies broadly similar inflation in economies with pegged rates*

Discretionary intervention implies that the HKMA engages in a never-ending game of trying to outguess the market. This could easily result in a loss of long term credibility. In my view it is better for the HKMA to preserve and enhance the HKMA's credibility by observing the "rules" of the currency board system. The best way to do that is to operate the 7.75-7.85 band mechanism based on transparent rules that everyone can understand, responding only at the 7.75 and 7.85 Convertibility Undertaking points,

and not intervening on the basis of its own discretion between those points.

## Summary & Conclusions

The triggering of the weak side CU for the HK\$ is a sign of normality returning to the operation of the Hong Kong Currency Board, not a sign of weakness or a threat to its integrity. Like the US Fed, the HKMA has experienced a massive increase in the size of its balance sheet since 2008, and the balance sheets of both should be expected to decline in size during 2018-19.

For various idiosyncratic reasons, HIBOR rates have recently lagged behind US\$ LIBOR rates.

However, the move in the HK\$ rate to 7.85 is now enabling a reduction of the HKMA's balance sheet and a normalization of interest rates in Hong Kong.

Given the Convertibility Undertakings at HK\$7.75 and 7.85 it is best for the HKMA not to intervene within the CU zone to accelerate interest rate normalization, but to allow market forces to operate unimpeded.

# 7

## **History Rhymes – A Comparison of China Today with Japan in the 1920s**

### **Introduction**

**T**he Chinese currency has been depreciating fairly continuously since January 2014 when it peaked at a value of CNY 6.04 against the US dollar. Today it trades at 6.87, a depreciation of 12% from its peak.

At the same time, China's external balance of payments has become significantly weaker, with a substantial decline in the current account surplus relative to GDP since 2010, and more recently persistent private sector capital outflows requiring the central bank both to intervene to stabilise the value of the currency, and to tighten controls on capital outflows.

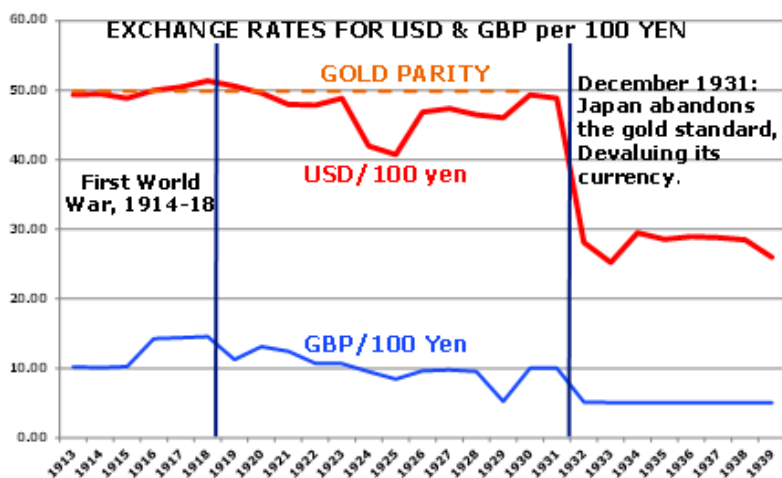
The question is: how long will the Chinese Yuan (CNY or RMB) continue to depreciate, and how long will the Chinese authorities be willing to run down China's huge stock of exchange reserves?

For a clue to the answers it is useful to consider some interesting parallels between the economic experience of

Japan in the 1920s and the recent experience of China. Based on that historical episode from Japan in the 1920s, it seems likely that China's problems on its external accounts, and the consequent implications for the currency, could continue for several more years.

## Japan's External Disequilibrium in the 1920s

From 1897 until 1931 the Japanese monetary system was based – at least formally - on the gold standard. The gold parity (shown by the gold dashed line in Figure 1) was set equivalent to US\$49.85, meaning that 100 Japanese yen could be exchanged for a certain weight and fineness of gold which in turn could be exchanged for essentially an equivalent, fixed amount of US\$ (USD). In modern terminology we would say that the yen was fixed at US\$ 49.85 for 100 Japanese yen (JPY), or very close to JPY 2 per USD.



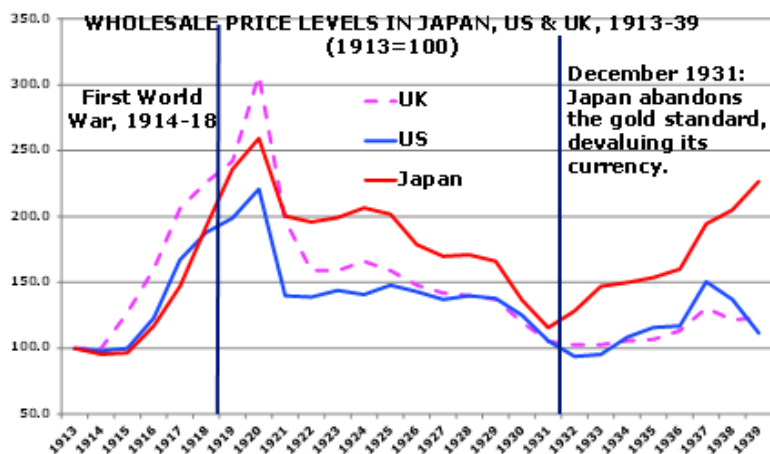
**Figure 1.** *The Japanese Yen was Overvalued Through Much of the 1920s*

Japan entered the First World War Japan in August 1914 as an ally of Britain with the aim of taking over German-

controlled territories in the Asia-Pacific. By now an industrialised economy, Japan was able to sell all kinds of goods – including war materials – to several participants in the conflict. The result was a steep increase in foreign earnings, and upward pressure on the currency.

However, under the rules of the gold standard (which Japan maintained until September 1917, when the US also left the gold standard), Japan could not permit its currency to appreciate, and instead allowed the foreign currency inflows to translate into faster money and credit growth, which produced considerable inflation. As a result, after the war was over, Japan found itself with an internal price level that was too high, at prevailing exchange rates, to be competitive. Consequently, throughout the 1920s there was downward pressure on the exchange rate which the Bank of Japan helped to absorb with sales of gold. Therefore while the US (in June 1919) and the UK (in April 1925) returned to the gold standard at their pre-war parities, Japan chose not to do so until January 1930. Ultimately, after struggling with an overvalued exchange rate for just over a decade, the Japanese authorities abandoned the attempt to restore or maintain the pre-war fixed parity with gold, and devalued the currency in December 1931. From then onwards until April 1949 the Japanese currency was essentially on a paper standard.



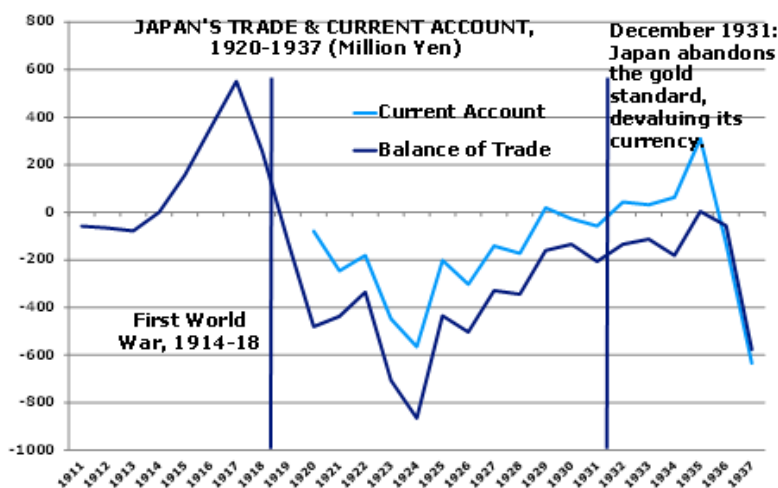


**Figure 2.** Domestic price levels in Japan were too high at the pre-war, fixed Exchange rate

During the First World War price levels in the UK, the US and Japan increased dramatically. Not surprisingly the UK led the way (Figure 2), but American and Japanese prices followed with a lag of about a year. After the war ended, prices continued to rise until the abrupt and deep recession of January 1920 to July 1921 (based on NBER cycle dates for the US). Thereafter price levels in all three countries fell steeply, but they fell less in Japan than in either the US or the UK, leaving the Japanese economy attempting to compete at the pre-war exchange rate but with a price level that, in 1922, was 41% higher than US prices, and 23% higher than UK prices.

Inevitably this meant that Japan suffered continuous trade deficits and capital outflows during the 1920s, which in turn meant the Bank of Japan was selling gold, thereby slowing the rate of growth of money and credit, and deflating the economy. However, a series of financial and natural disasters such as the bank runs of 1922, the Great Kanto Earthquake of September 1923, and the Showa

Financial Crisis of 1927 forced the authorities to ease financial conditions periodically, further delaying the international adjustment of the economy. The contradiction between the need for internal deflation to restore competitiveness and restoring growth was only resolved when Finance Minister Takahashi Korekiyo, following the British example of September 1931, ordered the abandonment of the gold standard and the devaluation of the Japanese yen in December 1931. This effectively lowered the Japanese price level (in foreign currency terms) to a level that was at last internationally competitive.

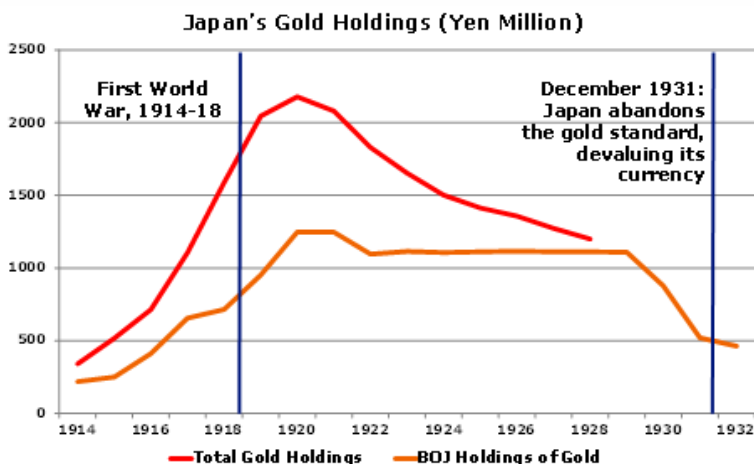


**Figure 3.** After the surplus of the First World War, Japan's trade and current accounts slumped in the 1920's

Under the gold standard “rules of the game” countries were obliged to monetise net inflows, so large trade or current account surpluses translated into rapid monetary expansion while large trade or current account deficits had the opposite effect. Of course there were capital flows that might offset or reinforce the trend, but capital flows were substantially smaller in the gold standard era. Consequently

we may obtain a reasonably clear idea of the pressures on the Japanese monetary system simply by reviewing the trends on the trade and current accounts of the balance of payments.

Between 1913 and 1918 Japan's exports quadrupled. As Figure 3 shows, Japan's trade account moved to a trade surplus of 551 million yen in 1917. However, it completely reversed over the next seven years to 1924 when the trade deficit hit 866 million yen. This was the direct effect of prices in Japan being too high or uncompetitive at the pre-war fixed exchange rate. Gradually as prices fell and domestic demand weakened the trade balance began to improve between 1925 and 1931, but the depressed state of agriculture, the high levels of unemployment, and the political and social instability put pressure on the authorities to ease monetary conditions from time to time. Finally in December 1931 Finance Minister Takahashi's devaluation of the yen created the conditions for the current account to shift to surplus and the economy started to expand more vigorously.



**Figure 4.** *Japan's Gold Holdings Directly Reflected the External Trade Accounts*

Thanks to the huge surpluses on Japan's external accounts during and immediately after the First World War, Japan's stock of gold increased enormously (Figure 4). From a level of 341 million yen in 1914, Japan's total gold holdings<sup>1</sup> increased to a peak of 2,178 million in 1920, but from then onwards they fell continuously through the entire 1920s until Japan abandoned the gold standard in December 1931, by which time the Bank of Japan's holdings had fallen to 519 million yen. In simple terms, this steady loss of reserves directly reflected the overvaluation of the yen against other currencies, and the relatively weak competitive position that Japan found itself in throughout the decade. The deflationary pressure that the monetary squeeze imposed also explains the slow growth of Japanese economy during this decade, and the growing social and political unrest that blighted Japanese politics during the 1920s.

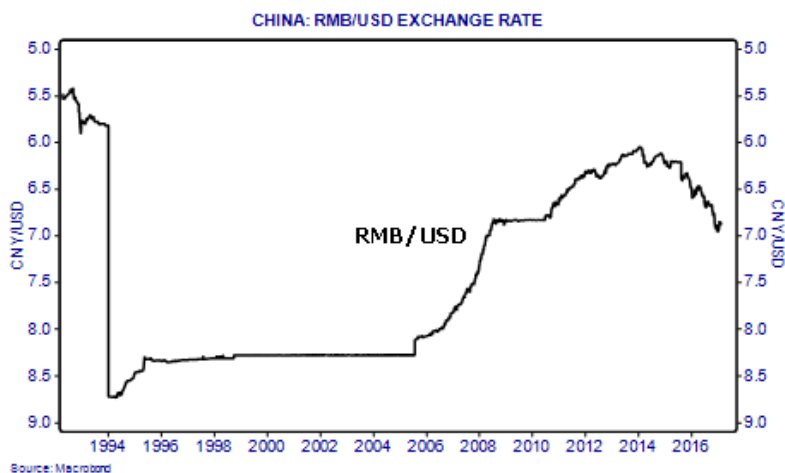
## **China's Domestic and External Disequilibria since 1994**

Turning to the Chinese parallels with Japan, after the devaluation of the Chinese RMB and the unification of the country's external exchange rates<sup>2</sup> under then vice-premier

<sup>1</sup> During this period Japan's gold reserves were held both by the Bank of Japan and by the Ministry of Finance (for the government), both at home and abroad. To obtain the full picture of the impact of the overall balance of payments on the stock of reserves, and hence on domestic money and credit, it is important to add the holdings of both official institutions. Nowadays governments and central banks hold reserves mostly in the form of foreign exchange, while gold holdings only form a residual part of total official reserves. Consequently, in a modern economy changes in gold holdings seldom play a significant role in influencing domestic monetary and financial conditions.

<sup>2</sup> Prior to December 1994 China maintained an official exchange rate that was frequently devalued and allowed only limited access for commercial trade. The system was buttressed by extensive foreign exchange controls. Consequently there were much higher (weaker) black

Zhu Rongji in 1994, China maintained a fixed exchange rate against the US dollar until July 2005 (see Figure 5). Effectively the country was now on a fixed US dollar standard, just as Japan had been on the fixed gold standard for most of World War 1. The undervaluation achieved in

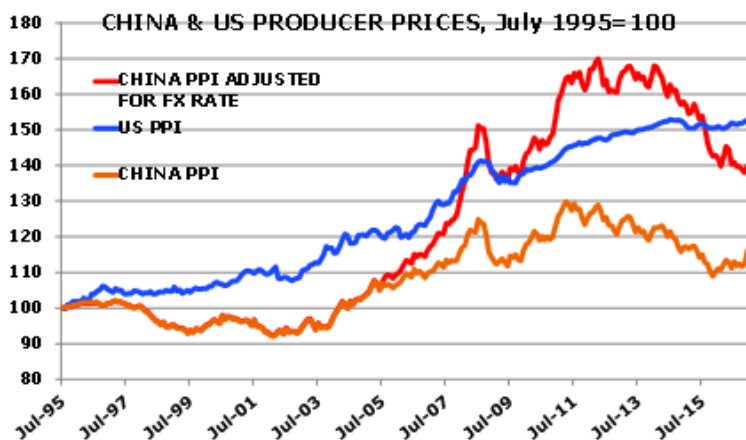


**Figure 5.** *From July 2005 China appreciated the RMB. However, from 2014 the RMB has been depreciating*

1994 together with the subsequent dramatic double-digit growth rate of the Chinese economy and rapidly growing productivity soon translated into substantial external surpluses. The People's Bank initially aimed to deal with the inflows through the issue of sterilization bonds, starting in September 2002. However, this was not enough to prevent excessive growth of money and credit, and consequently the authorities embarked on a policy of sustained increases in bank reserve requirement ratios (RRRs) and gradual appreciation of the Renminbi (RMB) from July 2005. Even

market rates, together with another rate for FECs (Foreign Exchange Certificates) used by foreigners. The effect of the 1994 reform was to unify all these rates at the black (free) market rate.

so, the external surpluses on current account continued throughout the period of currency appreciation, which was only reversed from 2014. The recent RMB depreciation along with the steady reduction of China's stock of foreign exchange reserves is highly reminiscent of Japan's experience between 1920 and 1931.



**Figure 6.** *RMB appreciation and rising domestic prices gradually made China less competitive*

If China's producer prices are set equal to US producer prices in July 1995, roughly 18 months after the RMB devaluation, we can plot their relative progress until July 2005 when the RMB was revalued upwards. This comparison is shown in Figure 6 above by the brown line (China) and the blue line (US). It is clear that at least on this measure China was gaining competitiveness over most of the period 1995-2005. However, to obtain a fair comparison from July 2005 onwards the Chinese price level must be adjusted by the appreciation of the RMB. This is shown by the red line in the chart.

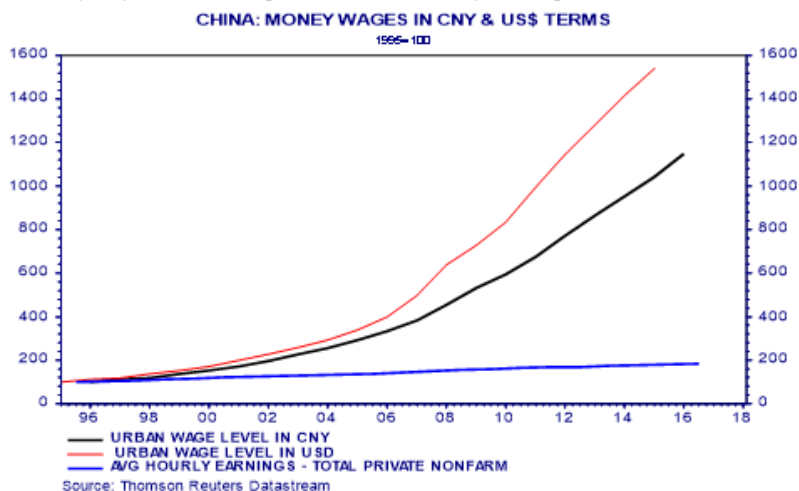
Prior to the Global Financial Crisis (GFC) of 2008-09 the adjusted Chinese price level only briefly exceeded the US

price level, but, following a pause when the RMB was held steady against the USD in 2008-10, the adjusted Chinese producer price level began rising, exceeding the US producer price level by as much as 15% by April 2012. This was the result of further RMB appreciation, which resumed after June 2010 until February 2014, together with the effect of higher inflation in China prompted by the RMB 4.5 trillion fiscal and monetary stimulus policy of 2008-2010.

Today the overvaluation of China's producer prices -- expressed in US dollar terms -- has reversed, thanks not only to the depreciation of the RMB since 2014, but also thanks to four and a half years of declining Chinese producer prices between February 2012 and September 2016. However, it is not clear that these two price indices, even adjusted for currency movement, constitute an accurate assessment of relative competitiveness.

One reason why the foregoing price comparison may not be a satisfactory way to compare competitiveness is that a large portion of the Chinese producer price index is accounted for by the price of imported raw materials which are mostly set in international commodity markets, whereas the US index of producer goods is mainly comprised of finished goods prices that are set mostly by domestic demand. For a better measure of relative competitiveness it would be desirable to employ a price index that combined labour costs with internationally traded goods prices, but such an index is not readily available.

## 7. History Rhymes – A Comparison of China Today with Japan in the 1920s



**Figure 7.** *Chinese wage levels have soared over the past decade, especially compared with US wage levels*

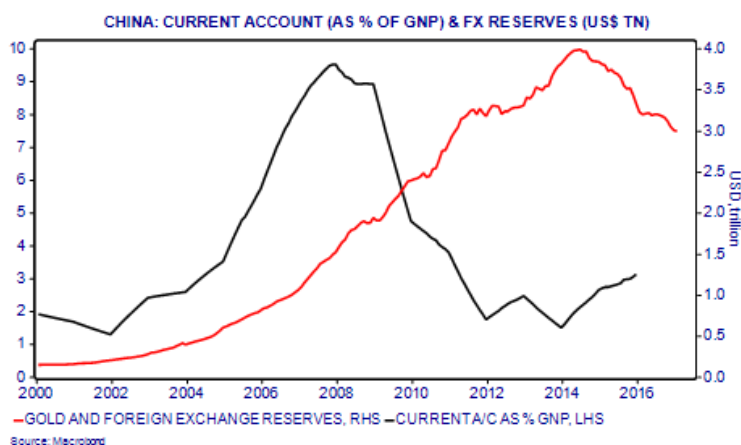
However, we can compare the relative movement of US and Chinese labour costs over the period since 1995. As Figure 7 above shows, Chinese labour costs (the black line) have soared by comparison with US labour costs (shown in blue), even before adjusting for currency movements (the red line). On a superficial level, it is clear that China's cost base has risen hugely compared to the US, and hence the country's relative competitiveness must have been significantly eroded. But the Balassa-Samuelson theory tells us that, given the much greater increases in Chinese productivity compared with the US productivity over the period, Chinese labour costs could have outstripped US labour costs without eroding Chinese competitiveness as much as is indicated in the chart. The question is, how much could Chinese labour costs have risen relative to US labour costs without undermining competitiveness? Given the primitive nature of these data, and the difficulty of gauging the contribution of Chinese labour costs and productivity to



overall costs and competitiveness, it would be naïve to expect a definitive conclusion.

Returning to more solid data, China's external surplus on current account, although still positive, weakened from 9.5% of GDP in 2007 to just 1.5% in 2013 and 3.1% in 2015 (as shown in Figure 8). More recently as China's private sector capital accounts have shifted from net inflows to net outflows the overall balance of payments has weakened and the People's Bank (the central bank) has been intervening in the foreign exchange market -- not to keep the RMB from rising, but to limit its depreciation.

In essence this is analogous to the role of the Bank of Japan in the 1920s after Japan's external surpluses disappeared and the country started experiencing current account deficits and downward pressure on the currency. A key difference is that whereas in the 1920s the Japanese authorities were continuously trying to restore the pre-war fixed exchange rate, today China has no such commitment to any particular exchange rate. This should enable China to achieve equilibrium between its internal price level and prices overseas much sooner.



**Figure 8.** *After a period of large surpluses and rapid reserve accumulation, China's external accounts have weakened*

However, there are two problems with this view. First, China allowed the external surpluses to build for so long that its countervailing strategies (such as sterilization and sustained appreciation of the currency) created large and intractable distortions in the economy – principally massive excess capacity in many basic industries and heavy indebtedness, both of which will take a long time to overcome. Second, there are distinct limits to China's willingness to allow the exchange rate to depreciate. Together the scale of China's problems, plus the record of the Japanese experience in the 1920s, suggest that resolving China's problem of external disequilibrium will take much longer than just a year or two.

## Summary & Conclusion

During the First World War Japan experienced large surpluses on its external accounts which, via monetary expansion, drove up its prices to an uncompetitive level compared with other leading economies such as the US and the UK. Similarly, following China's devaluation of the RMB and exchange rate reunification of 1994, and the adoption of a fixed rate against the USD, China gradually built up huge external surpluses, which continued even after the 2005-14 appreciation of the currency.

For Japan in the 1920s the result of the overvaluation was a decade of financial crises, slow growth, agricultural depression and deflation. Only in December 1931 did the authorities finally abandon the fetish of returning to the pre-war exchange rate, and devalue the yen, allowing Japan's external accounts to return to equilibrium.

Based on the above analysis, China today is faced with essentially the same set of choices as Japan in the 1920s. These can be set out as two broad, polar extremes:

- One option is to maintain the current USD fixed exchange rate (or a stable index level against a currency

basket), preserving the status quo in the domestic economy – i.e. widespread state ownership of large-scale enterprises, state direction of credit, and extensive capital and financial controls. Such an adjustment path would imply a long, slow disinflation (relative to foreign economies) with a persistent rundown in the stock of foreign reserves.

- The second option is to move much more quickly to external equilibrium, allowing the external exchange rate to fall in line with market forces, to lift a whole range of controls while re-structuring the state-owned sector and thereby ending the distortions that have built up over the past two decades. Such a strategy would enable China to emerge as a far more market-oriented economy, able to make adjustments to external competitive or technological challenges more rapidly in the future.

In practice, China appears to be adopting a middle road somewhere between these two polar extremes. My view is that China will choose a path closer to the first option (preserving controls, maintaining the state-owned sector, managing the exchange rate and running down the reserves) than the second (free market) option. An intermediate or middle road between the two options will inevitably imply conflicts between means and ends, but it will nevertheless be preferable, from an official Chinese standpoint, to adopting the first option alone.

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# 8

## **Why Negative Rates are Not a Solution For Japan or the Eurozone**

### **Introcucon**

**T**he BoJ has now been conducting QE for just over three years, while the ECB has been conducting QE for just over one year. In neither case can the results be said to be satisfactory. Section 1 of this article explains why these two central banks have achieved far less success than either the Fed or the BoE, and Section 2 reviews the balance sheet data that offers evidence of their failed QE policies. Section 3 spells out why the QE strategies pursued by the BoJ and the ECB have led directly to negative interest rates, and why in turn negative rates are not a solution to the problems of the Japanese and Eurozone economies. Section 4 concludes.

### **Two Types of QE Policy**

Among the major developed economies (US, UK, the Eurozone and Japan) two different types of QE have been

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conducted in recent years, targeting securities held by different holders (see Figure 1).

Two Types of QE Operation		
Central Bank	Targeted Securities	Main Sellers
Federal Reserve	1. Mainly long-dated USTs; some T-Bills 2. Mortgage Backed Securities	Non-Banks
Bank of England	1. Long-dated Gilts 2. Commercial paper	Non-Banks
Bank of Japan	1. JGBs, Finance Bills	Banks
	2. ETFs, J-REITs	Non-Banks
ECB & Euro-area National Central Banks	1. Sovereign Debt	Banks
	2. Corporate Bonds (from June 2016)	Non-banks

Figure 1. Two Types of QE Implemented, Targeting Different Holders

The QE operations conducted by the Fed and the BoE have largely been successful (1) because they were targeted at the purchase of securities from non-banks, (2) they therefore increased the stock of money or purchasing power held by firms and households directly by injecting new deposits into the banking system, and (3) because these new deposits were not accompanied by the creation of new loans, they were consistent with a reduction in private sector leverage.

By contrast, the QE operations conducted by the BOJ and the ECB have had much less success (1) because they were targeted largely at the purchase of securities from banks, and as a result, (2) they did not increase the stock of money or purchasing power held by firms and households, and (3) were not consistent with any reduction in private sector leverage.

To restore economic growth and raise inflation closer to the target area of 2% in both Japan and the Euro-area, policy-makers need to achieve two sets of results. First they need to encourage and ensure the repair of private sector balance sheets since spending will not resume normal or potential growth rates unless excess leverage is eliminated. Second, the economies need to be re-liquefied, or provided with additional purchasing power, but without adding to leverage.

In my assessment, there are two rules for central banks to follow when designing a QE programme.

**First**, the central bank should only buy securities from **non-banks**. The reason is that the primary purpose of doing QE is – or should be -- to expand the money supply. If the central bank buys securities from banks, there can be no assurance that the money supply will increase. However, if it buys securities from **non-banks**, this guarantees that new deposits will be created, expanding the money supply. Of course, if firms or households are de-leveraging or repaying debt, the central bank may need to conduct even larger scale asset purchases to counter any reduction of deposits due to the repayment of debt.

**Second**, the central bank should buy only long term securities. This is only partly to bring down yields at the longer end of the curve – thereby flattening the yield curve. Nevertheless, many commentators, including officials at the BOJ and ECB, believe – mistakenly, in my view - that the primary purpose of QE is to lower long term rates. See for example p. 2 of the BoJ's Assessment, May 2015). More importantly it means the central bank's portfolio is not eroded by selling or running down its holdings. As a result the volume of funds injected into the economy can remain stable for a long period of time.

The Bank of Japan has repeatedly broken both these rules; the ECB has mostly violated the first rule. By contrast, when

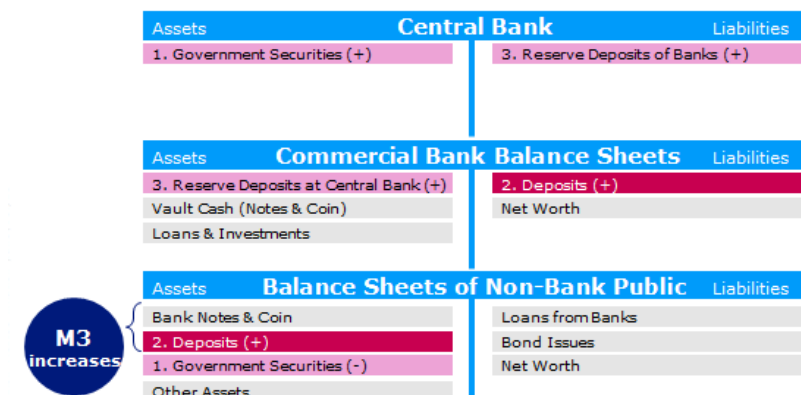
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the Bank of England announced its QE programme in February 2009 it said explicitly that the Bank would buy gilts with longer maturities (10-15 years) precisely so that these purchases would be from non-banks (as UK banks typically do not hold long-dated gilts due to the capital risk). In doing so it guaranteed the success of its programme. “The aim of the policy was to inject money into the economy in order to boost nominal spending and thus help achieve the 2% inflation target.” (BOE Quarterly Bulletin, 2011 Q3). The Federal Reserve, for its part, mostly bought long-dated securities (US Treasuries and Mortgage Backed Securities), but there was a period during QE2 when the Fed acquired shorter dated Treasuries which then started to mature. To prevent the Fed’s balance sheet from shrinking and to maintain the effectiveness of QE, the FOMC decided to replace its shorter term securities with longer dated securities in 2011-12 (before the start of QE3). The operation was officially named the Maturity Extension Program, but more popularly known as “Operation Twist” after the famous episode in the 1961 when the Fed had attempted to twist the yield curve by changing the maturity composition of its portfolio. Under QE3 the Fed purchased exclusively long-dated securities.

To explain the difference between the Bank of England (or Fed) operations on the one hand and the BOJ (or ECB) operations on the other it is helpful to review the impact of their QE transactions or asset purchases on the balance sheets of the banks and the non-bank public.



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**Figure 2.** *A Well-Designed Asset Purchase Plan – Liquidity Enhancing*

The numbers in Figure 2 relate to the paired transactions set out in the T-form balance sheets above.

1. The central bank purchases government securities from **non-bank** entities. Non-bank entities (e.g. insurance companies, pension funds, individuals, or foreigners) sell government securities to the central bank.

2. The sellers receive new deposits from the central bank in settlement of their sale. The sellers deposit their newly acquired funds in commercial bank deposit accounts.

3. The banks deposit the payment drafts they receive from the sellers of government securities with the central bank. Banks' holdings of deposits (reserves) at the central bank are increased by an amount which exactly matches the central bank's initial purchase.

Note that after these transactions both sides of the central and commercial banks' balance sheets have expanded, with increases in assets matched by increases in liabilities, and, crucially, the broad money supply (e.g. M2, M3 or M4) held by the non-bank public has expanded. Although the balance sheets of the non-bank public have not increased, they have become more liquid as government securities have been

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replaced with new deposits. The key point about this series of transactions is that the money in the hands of the non-bank public has now increased, and, given that interest rates are likely at the zero bound, the holders will almost certainly wish to spend the proceeds either on new investments such as corporate bonds, equities, real estate or commodities, bidding up their prices. Such purchases will kick-start the portfolio re-balancing process.

Note also that the money supply has increased without any addition to bank loans. The counterpart asset corresponding to the new deposits on the books of the banks is the new reserves at the central bank. This means that the stock of money has increased relative to other assets held by non-bank entities, and that the non-bank private sector is in a better position to repay loans or other debt previously incurred. In other words, implementing this brand of QE assists the private sector to de-leverage.

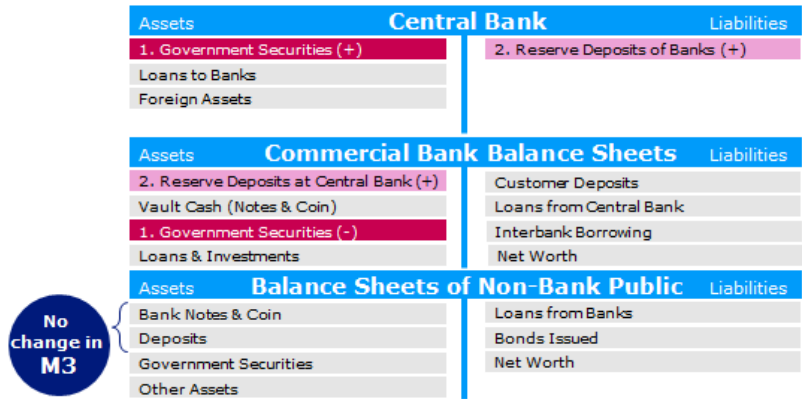


Figure 3. An Asset Swap Operation – Non-Liquidity Enhancing

Next consider the effects of the type of QE conducted by the BOJ or ECB. Once again the numbers in Figure 3 relate to the paired transactions set out in the T-form balance sheets.

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1. The central bank purchases government or other securities from the commercial banks. Commercial bank holdings of securities decline; central bank holdings increase.

2. Commercial banks receive a credit from the BOJ or ECB for their sale of securities; reserve deposits of banks at the central bank increase.

Note that after these transactions the central bank's balance sheet has expanded, with increases in central bank assets matched by increases in liabilities, but the commercial banks' balance sheets have not expanded. Essentially there has been an "asset swap" conducted between the central bank and the commercial banks (exchanging government securities for reserve deposits on the books of the banks), but no impact on the non-bank public.

Now consider a variant of these transactions – the ECB's LTRO (Long Term Refinancing Operations) and Targeted-LTRO programs. In both cases the commercial banks submit collateral (e.g. securities held in their asset portfolios) to the central bank in exchange for loans (new liabilities for the banks). The central bank's intention was to encourage new lending by the commercial banks. In practice, however, Euro-area banks typically substituted the new, cheaper funding from the ECB for inter-bank or other sources of funding, increased their holdings of reserves, and reduced their total loan portfolio (see Figure 4).

In the QE case commercial banks merely undertook an asset swap; they now held less government securities, but more reserve deposits at the central bank. In the LTRO case it was a combination of asset and liability swap; they borrowed funds from the central bank, and reduced their obligations to private sector lenders, while simultaneously taking the opportunity to shift the composition of their assets towards more reserves and less loans. In both instances, the balance sheets of the non-banks were unaffected. The key

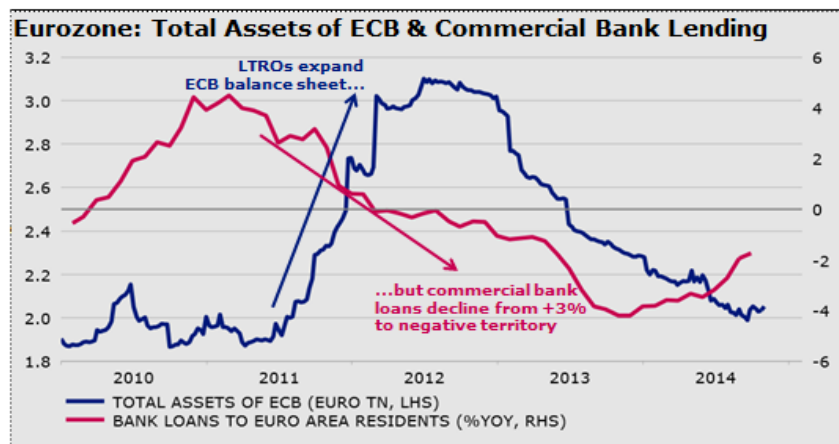
point is that under this style of QE or LTRO, the money supply (M2, M3 or M4) or purchasing power in the hands of the non-bank public has not increased.

Moreover, given the starting point of risk aversion by the banks and by firms and households, there can be no assurance that – even after these operations -- the banks will expand their lending or that any new deposits will be created. Equally, new investment or consumption spending is unlikely to follow. Even if banks were to expand their lending, this would be accompanied by a parallel increase in leverage by firms or households – the opposite of the balance sheet repair process that policy-makers should be seeking to achieve.

In short, comparing the two types of asset purchase operation, only purchases of securities from non-banks are consistent with both balance sheet repair and enhanced liquidity in the hands of firms and households. As mentioned earlier, in Britain banks generally do not hold long-term gilts because the capital risk is too great. In buying long-term gilts the BOE was therefore buying assets from non-banks, and avoiding an “asset swap”. Essentially it was creating new deposits, or injecting new money into the hands of households and non-bank firms, and hence into the broader financial system, thereby creating more rapid money growth in the UK — just as the Fed did in the US. Alternatively, the Fed and the BOE were offsetting or preventing what might otherwise have been a monetary contraction, such as occurred in the US in 1931-33.

## **Developments on the Balance Sheets of Eurozone and Japanese Banks**

We now turn to the implementation of balance sheet expansion and QE operations by the ECB and BOJ, and their impact or lack of impact on the respective banking systems.



Source: Datastream as at 17 October 2014.

**Figure 4.** *The Failure of the ECB's LTRO plan, 2011-14*

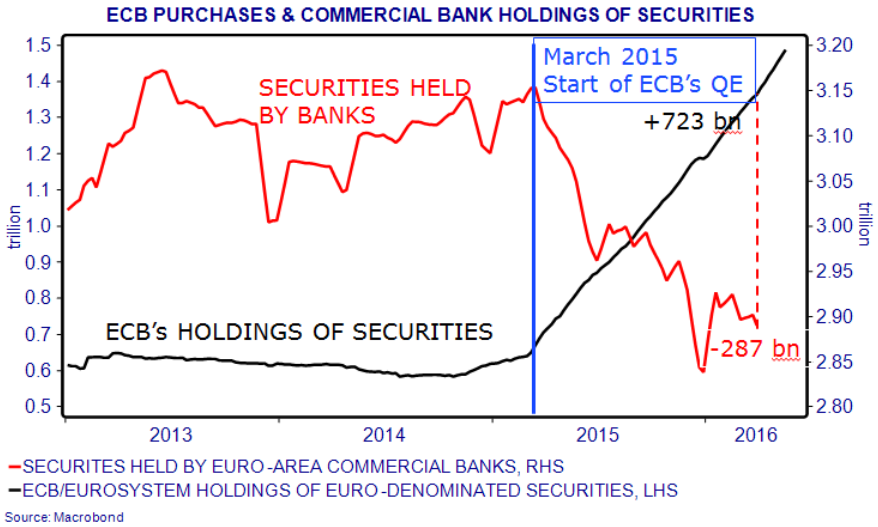
The ECB's LTRO program initiated in 2011, soon after Mario Draghi took over as President from Jean-Claude Trichet, and the more recent Targeted-LTRO programme are two good examples of the failure of central bank balance sheet expansion (a) when done in an environment of risk aversion, and (b) when the central bank's asset purchases or loans target only the commercial banks. As shown in Figure 4, the long-term refinancing operations (LTROs) in 2011-12 increased the ECB's balance sheet from two trillion to three trillion euros, but lending by commercial banks decreased from a growth rate of 3.2% year-on-year in September 2011 to -4.0% by September 2013. On this simple measure, therefore, LTROs did not work. Of course it could be claimed that the contraction of euro-area bank balance sheets would have been even greater without the LTROs, but equally asset purchases from non-banks would have guaranteed an increase in commercial bank deposits, helping to offset private sector de-leveraging.

As explained above, unlike the BOE or Fed asset purchases from non-banks, LTROs were basically a

combination of “liability swap” and “asset swap”: on the liability side the ECB made loans to banks (against collateral), but the banks reduced their borrowing from other sources, while on the asset side banks reduced their lending but increased their holdings of reserves at the central bank.

We now need to show that most of the asset purchases by the ECB or by the BOJ have in fact been from commercial banks. Figure 5 shows the decline in government securities held by euro-area banks and the simultaneous increase in ECB holdings of such securities. During the period between March 2015 (when the ECB’s QE program started) and mid-May 2016 the ECB’s portfolio of securities increased by Euro 723 billion, while the portfolio of securities held by commercial banks decreased by Euro 287 billion. However, while the ECB’s was largely conducting a buy-and-hold strategy, the commercial banks were not only selling to the central bank, but were also replenishing their holdings regularly (e.g. at government auctions) in the market. We therefore cannot compute the aggregate sales by banks from the monthly balance sheet data of outstanding monthly holdings. All we can say is that at least 40% of ECB purchases (287/723) were from commercial banks.

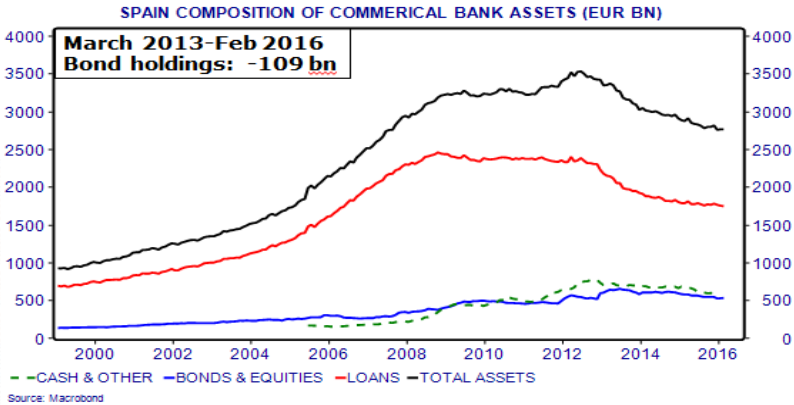
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**Figure 5.** *The ECB's Asset Purchases Reduced Commercial Bank Holdings of Government Debt*

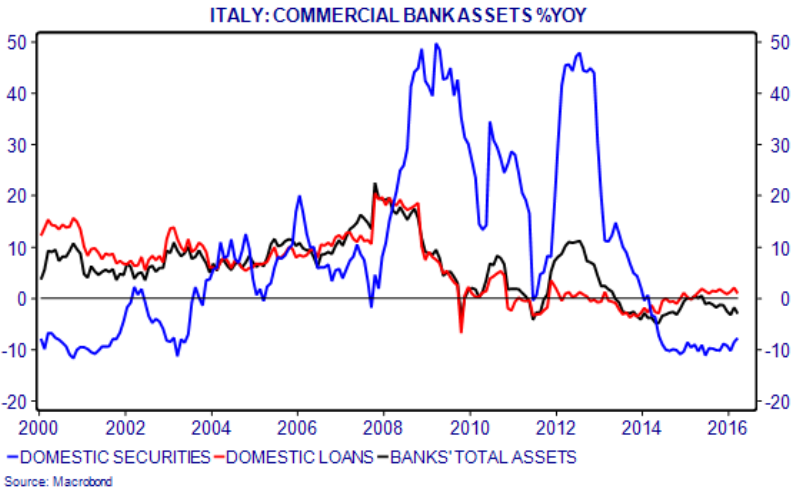
Turning from the aggregate euro-area data to country-specific data, Figure 6 shows that the balance sheets (total assets) of the Spanish banks are still shrinking. Meanwhile, their loans and holdings of securities – their two major asset classes – are also still declining. Between March 2013 and April 2016 holdings of securities have declined by EUR 109 billion (or 17%), and by EUR 47bn (or 8.8%) since March 2015 when the ECB started its QE operations. Together these facts illustrate the argument above that the ECB's QE program has not been adequately stimulative, and has not enabled or encouraged banks in some Eurozone economies to grow their balance sheets.

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**Figure 6.** *The Contraction of Bank Balance Sheets in the Eurozone Needs to be Reversed*

Similarly, Figure 7 sets out the data for the Italian banks, this time in year-on-year rate of change form. Again, commercial bank holdings of securities are falling, although much more rapidly than total bank assets. Loan growth is marginally positive.



**Figure 7.** *ECB Buying Securities Mainly from Banks: Italian Bank Holdings of Securities Falling*



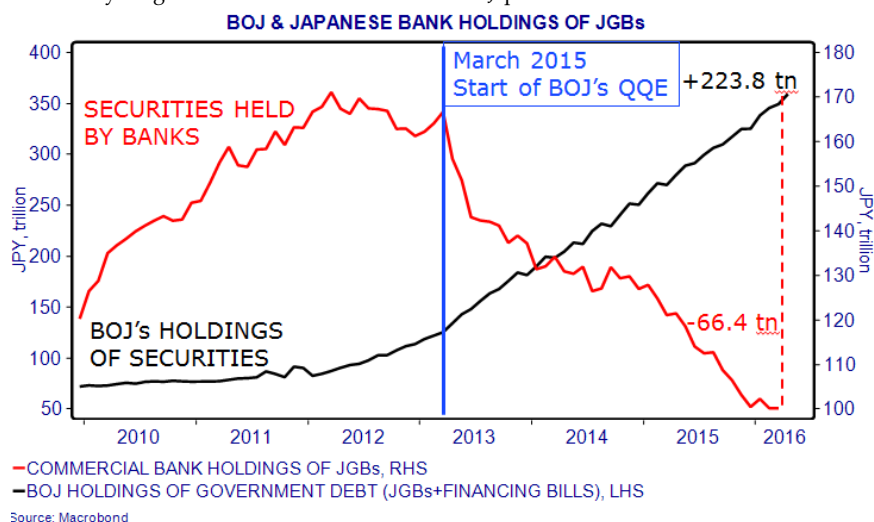
The risk aversion of Italian banks is shown in Figure 7 by (a) the slump in bank lending (in red) to corporate and household customers since October 2008, and (b) the rise in holdings of securities 2008-10 and again in 2012-13 (in blue). In parallel with the Spanish banks, holdings of securities at Italian banks have declined by EUR 170 billion (or 17%) since their peak in August 2013, and by EUR 45bn (or 5.2%) since March 2015 when the ECB started its QE operations.

Given the way the ECB is conducting QE, prospects for any acceleration in Eurozone M3 will depend on how successful the ECB is in generating bank lending in individual economies. However, in view of regulatory pressures on the banks combined with their own risk-aversion, it seems highly doubtful that the current approach will successfully enhance M3 growth. Even if it did encourage bank lending, the end-result would be higher leverage in the Italian non-bank sector.

IMF data shows that nearly 18% of Italian banks' loans were doubtful or non-performing in 2015, implying an urgent need for a proper clean-up of the Italian banking system. Such a clean-up is going to get harder in a much tougher regulatory environment from 2016 as the EU bail-in rules take effect, meaning the Italian government will no longer be permitted to bail out the banks. Instead equity and bondholders must bear the first losses, converting debt to equity if required. Although a deal has been struck with the EU allowing the Italian government to guarantee the securitisation of bad loans, it remains to be seen if this will be enough.

Turning to the Bank of Japan, there are two main reasons why the expansion of the BOJ balance sheet has not translated into faster growth of M2 or M3 and banks' balance sheets.

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**Figure 8.** *BOJ Buying Securities Mainly from Banks; Bank Holdings of JGBs have Declined by JPY 66 trillion since March 2013*

First, instead of targeting non-bank holdings of Japanese government securities for purchase, the BOJ has purchased a considerable amount of these securities directly from the banks. As shown in Figure 8 Japanese commercial banks' holdings of JGBs fell from Yen 166.6 trillion in March 2013 to 100.2 trillion in February 2016, a decline of 66.4 trillion. In other words, in respect of a total BOJ balance sheet expansion amounting to 223.8 trillion since March 2013, between one quarter and one third is accounted for by commercial bank sales of JGBs. Banks have exchanged holdings of JGBs for increased reserve or current account deposits at the BOJ. There has simply been an asset swap. This does not increase the money supply in the hands of firms or households.

Second, a large proportion of the monthly purchases has been in the form of Financing or Treasury Bills (or "*tegata*"), again mainly purchased from the commercial banks. Since these are short-term securities they have to be continuously rolled over on maturity to maintain the expansionary effect.

For example, in the fiscal year ended March 2015, while purchases of JGBs amounted to Yen 96.6 trillion and largely remained on the balance sheet, T-Bill purchases amounted to 101.8 trillion but only showed up as an outstanding balance of 49.7 trillion.

## Why Poorly Designed QE Programs Have led to Negative Rates

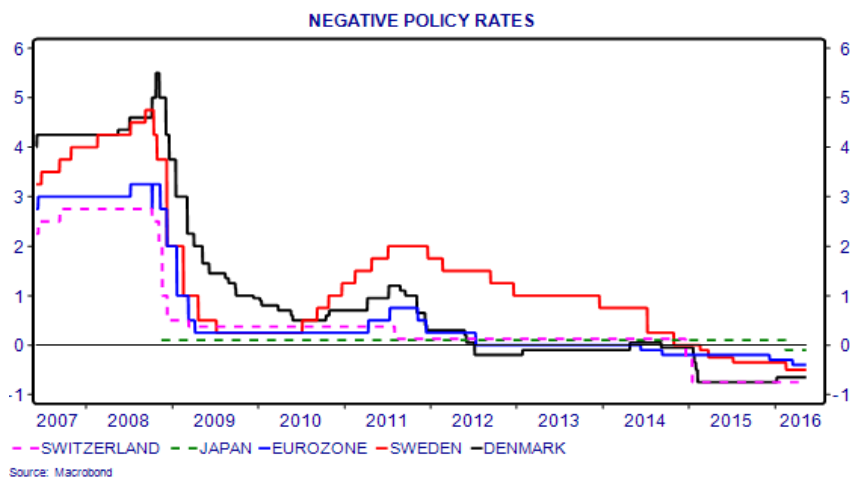
It is no coincidence that the two main areas which are experiencing negative interest rates, sub-par growth and near-deflation – i.e. Japan and the Eurozone (plus the three euro-linked economies of Sweden, Denmark and Switzerland) – are also the economies where the two major central banks have implemented flawed versions of QE.

The fundamental problem is that the ECB and the Bank of Japan are trying to implement QE through the normal credit creation channels of the banking system. But these traditional transmission channels are not working – either because banks are risk averse and do not wish to lend, or because households and firms are still significantly leveraged and do not want to borrow. In these circumstances, the policy of relying on ever lower interest rates cannot be assured of success, even if rates are negative. Given that the standard transmission system for monetary policy through the banking system is broken, central banks need to circumvent the banks if they are to create new deposits and new purchasing power, restore normal economic growth, and return to 2% inflation and normal levels of interest rates.

The right way to do this is not to focus policy on ever-decreasing interest rates, but instead to create money directly by purchases of securities (or indeed any other asset) from non-banks – thereby creating new deposits in the hands of firms and households. Although they did not

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explicitly articulate their policies in this way, this is in effect what the Fed and the Bank of England did in 2008-13. In other words it would be better for the BoJ and the ECB to focus on the quantitative effects of QE, not the interest rate effects. To put it differently, QE is (or should be) about expanding purchasing power in the economy or money in the hands of the non-bank public, not lowering rates and hoping the banks will expand lending.



**Figure 9.** Major Central banks in Japan and Europe have Adopted Negative Policy Rates

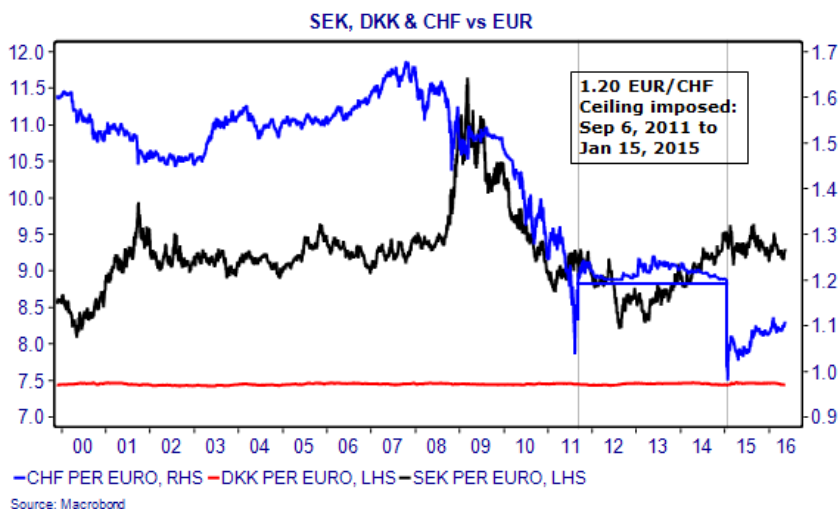
Currently there are five economies employing negative policy rates: Japan, the Eurozone, and the three euro-linked economies of Denmark, Switzerland, and Sweden. The first major economy to implement negative rates was Denmark in 2012, followed by the Eurozone in 2014. Next Switzerland and Sweden followed suit. Then in January 2016 the Bank of Japan introduced negative rates.

In essence, the central banks of these economies charge the commercial banks for reserve deposits held at the central bank, although in some cases only a part of these balances is subject to negative rates (or penalty charges). The

conventional motivations for the policy are twofold: first, to stimulate economic growth (based on the view that lower nominal rates will somehow encourage higher spending), and second to deter capital inflows and currency appreciation. Japan and the Eurozone fall into the first camp, while the two Nordic countries and Switzerland fit the second. This means that almost a quarter of the world's GDP is produced in economies with negative rates.

Central bankers appear to believe that if banks face a charge on their deposits at the central bank they will be induced to hold lower reserve deposit balances, and somehow "lend out" some those funds. But there are two fundamental fallacies here. First, banks do not lend out reserves. Second, the total volume of reserve deposits is set by the central bank, not by the commercial banks. If the central bank buys more assets (e.g. via foreign exchange intervention or under a QE program), total reserve deposits will rise, and conversely if the central bank sells assets, total reserve deposits will decline. Assets and liabilities must match. Although individual banks can reduce their reserve balances, collectively they cannot reduce the aggregate reserve balance. The reduction in any one bank's balances (e.g. to pay for a security) will be matched by the increase in another's (the seller's) balance.

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**Figure 10.** *In Switzerland, Sweden and Denmark Negative Rates Result from Pegging to the Euro*

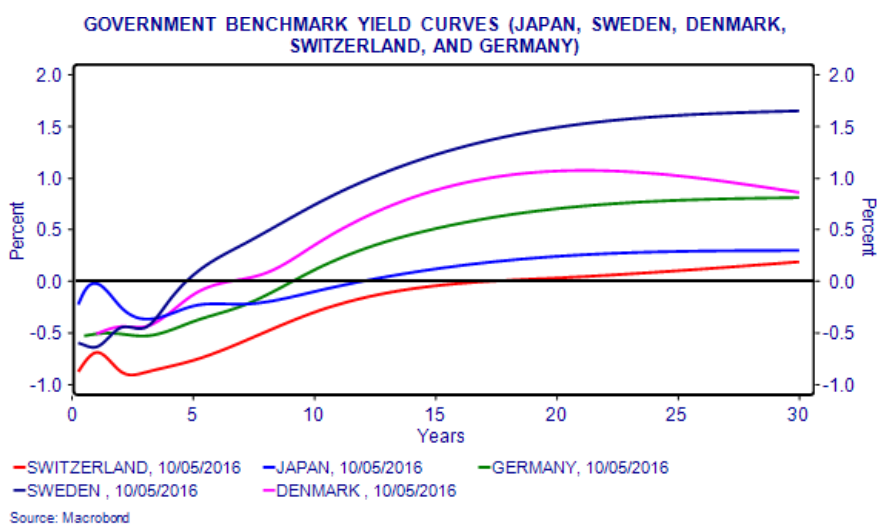
The Danish Krone (shown in Figure 10 in red) is explicitly pegged to the euro at DKK7.46 with a trading band of 2.25% on either side, which means that Denmark imports the monetary policy of the ECB. If there is a threat of DKK appreciation – as there was in 2012 and 2015 -- then Denmark must cut its interest rates below those of the ECB. This is in essence why Denmark became the first country in Europe to move to negative rates.

In Sweden there has been a floating exchange rate since 1992 when the Riksbank was forced to break its fixed peg with the Deutschemark. However, monetary policy is aimed at keeping inflation at a targeted 2%, virtually the same inflation target as the ECB's, which means in effect that the two currencies have to move together in broad measure. Therefore many in the markets see the Swedish Krone (shown in black in Figure 10) as a de facto managed exchange rate regime. From the inception of the single currency in 1999 the Swedish currency was relatively stable against the Euro until 2008 when it depreciated to 11.65 in

## 8. Why Negative Rates are Not a Solution For Japan or the Eurozone

March 2009 and then recovered from mid-2009 and through 2010. Since 2011 the SEK has traded in the range 8.30-9.60, a wider range than in 2002-07, but nonetheless a trading range.

The Swiss franc has also had to be managed against the euro. While it remained fairly stable until 2007 there was little problem, but after the outbreak of the global crisis in 2007-08 the CHF was widely viewed as a safe haven, and appreciated strongly, eventually forcing the Swiss National Bank to impose a ceiling of 1.20 euros per CHF in September 2011. However, when the ECB was contemplating the adoption of QE in late 2014 and the euro started falling steeply, the SNB abandoned the 1.20 ceiling on January 15, 2015.



**Figure 11.** *Negative Policy Rates and Expectations of Deflation have Created Negative Bond Yields*

The traditional orthodoxy has been that if banks introduced negative rates on deposits, depositors would shift their money from deposits into physical cash. So far, however, this kind of large-scale shift has not occurred, at least at current levels of interest rates.

Nevertheless, the knock-on effect of negative policy rates, low inflation expectations and weak credit demand is that yield curves have become negative for the affected economies at the short end of the curve.

Also in Denmark there has been the remarkable situation of mortgage holders being credited with interest payments by their bank (albeit offset by some “fees”). In Switzerland most banks have resisted passing on negative rates to their depositors. However one bank, Alternative Bank Schweiz AG, is charging clients for holding their money on deposit. In Germany insurance companies are feeling the pinch. According to the Bundesbank, “some [insurance] companies need to generate investment returns of more than 5% to survive” (Wall Street Journal, March 25, 2015), which implies serious doubts over the sustainability of their business models in the current environment. A shift into riskier assets is prevented by Solvency II rules that act as a major constraint on the types of asset they can acquire. In Japan the adoption of negative rates in January 2016 caused a spike in the price of 40-year JGBs as insurance companies and pension funds have shifted their portfolios to take on greater risk, in this case added duration risk.

## Summary & Conclusion

Central bank purchases of assets or securities from commercial banks are far less effective in expanding the money supply or purchasing power in the economy than purchases from non-banks. Not only do purchases from non-banks directly expand the volume of deposits, and thereby expand the money supply, but they also do this without adding to leverage.



Unfortunately, for institutional or other reasons, both the BOJ and the ECB are still concentrating much of their asset purchases on financial instruments held by banks rather than by non-banks, effectively undermining or diluting the effectiveness of their QE programs. The failure of these programs to restore normal growth and inflation has led, inexorably, to the adoption of negative interest rates in Japan and the Eurozone, and also in those economies such as Denmark, Sweden and Switzerland whose currencies are closely pegged to or managed in relation to the euro.

Negative rates are a fundamentally misconceived strategy because they aim to induce banks to increase lending and expand their balance sheets by adding to leverage in the non-bank private sector. In an environment of risk aversion by lenders and borrowers the policy of reducing interest rates to negative levels will not necessarily expand money and purchasing power, and could simply lead to even lower rates by putting pressure on banks (through reduced net interest margins) to contract their balance sheets still further.

By far the best policy would be for the ECB and the BOJ to redesign their QE programs to purchase securities from non-banks rather than banks. This would guarantee faster money growth, ensure the escape from deflation, and eliminate the need for helicopter money.

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## 8. Why Negative Rates are Not a Solution For Japan or the Eurozone

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