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Milton Friedman's views on the interaction of monetary and fiscal policy

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Abstract. This paper 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 paper explores some of the theoretical arguments Friedman used to defend his new position. Third, the paper 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.
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1. 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 evolution of fiscal and monetary policy through those years; second, some more

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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.

2. 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 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[2]. 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 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."[3] (Emphasis added.)

3. 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 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

[2] 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.)

[3] 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.

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."

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 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.[4] 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.

4. 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, 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.

[4] 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.

5. 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 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.

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

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

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.

6. 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.

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

	MONETARY POLICY	
FISCAL POLICY	**Expansionary**	**Contractionary**
Expansionary	**Case A, China Stimulus 2008-10** **Fiscal Policy:** China's 4,000 bn. yuan fiscal stimulus, lasting two years. **Change in Budget Balance (%)** 2008 2009 2010 2011 -0.2 -1.5 +1.4 +0.3 **M2 Growth (% yoy):** 2008 2009 2010 2011 14.7 29.6 19.5 16.2 **Outcome:** Rapid, strong recovery; inflation hit 6.5%.	**Case B, Reagan Tax Cuts, 1981-86** **Fiscal Policy:** President Reagan Cut Taxes and Raised Defense Spending, 1981-86 **Change in Budget Balance (%)** 1981 82 83 84 85 86 +4.6 -0.9 -1.1 -0.6 -0.7 -0.4 **M2 Growth (year-ave, % yoy):** 1980 1981 1982 1983 1984 8.0 9.0 9.0 11.9 8.4 **Outcome:** 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	**Case C** **Britain's 1931 Budget** **Britain's 1981 Budget** For further detail, see Figure 3.	**Case D** **Japan's Matsukata Deflation, 1881-85 and the "Dodge Line" deflation from 1949** 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.[5] The crucial difference between the US, the UK, Japan and 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.

[5] Japan after 1990 and the Matsukata deflation along with the Dodge Line will be discussed in the section covering Figure 4 below.

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.

7. 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.

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

	MONETARY POLICY	
FISCAL POLICY	**Expansionary**	**Contractionary**
Expansionary	**Case A, Barber Boom, 1971-73** **Fiscal Policy:** Larger deficits Change in CABB (% GDP): 1970 1971 1972 1973 1974 0.2% -1.8% -1.8% -1.3% -1.4% **Monetary Acceleration (M3):** 1970 1971 1972 1973 1974 12.0% 16.3% 21.7% 22.3% 10.9% **Outcome:** Economic boom and 26% inflation led to balance of payments and banking crisis.	**Case B, Global Financial Crisis, 2008-09** **Fiscal Policy:** Big deficits during deep recession. Change in CABB (% GDP): 2007 2008 2009 2010 -0.7% -2.0% -1.6% +1.5% **Monetary Deceleration (M4):** 2007 2008 2009 2010 10.6% 3.7% 1.6% 2.5% **Outcome:** Despite large budget deficits, slow M4 growth meant the recovery was weak and inflation stayed low.
Contractionary	**Case C i, Snowden's 1931 Budget** **Fiscal Policy: Classic** tightening **Change in Budget Balance (% GDP):** 1930 1931 1932 1933 -0.8% -0.9% +1.8% +1.0% **Monetary Acceleration (M3):** 1930 1931 1932 1933 5.0% -3.0% 10.7% 1.5% **Outcome:** Recovery from 1932 **Case C ii, Howe's 1981 Budget** **Fiscal Policy: Tax increases** **Change in Budget Balance (% GDP):** 1980 1981 1982 1983 N/A +1.7 +1.6 -1.7 **Monetary Acceleration (M3):** 1980 1981 1982 1983 17.3 14.0 12.6 13.2 **Outcome:** Economy recovered	**Case D, Post-WW1 Deflation, 1919-22 under Lloyd George** **Fiscal Policy:** Hugely contractionary after wartime expenditures **Change in Budget Balance (% GDP):** 1918 1919 1920 1921 1922 +1.5 +17.8 +7.9 -1.9 +1.5 **Monetary Deceleration (M3):** 1918 1919 1920 1921 1922 24.8 15.3 6.0 -3.4 -9.4 **Outcome:** 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.

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.[6]

[6] 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 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

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.

9. 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 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

government spending or changes in taxes – only determines the division of that spending between the private and the public sectors.

the Bank of Japan, soaking up money from general circulation and thereby controlling inflation. By 1933, Japan had emerged from the Great Depression.

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

	MONETARY POLICY	
FISCAL POLICY	**Expansionary**	**Contractionary**
Expansionary	**Case Ai, Takahashi Reflation, 1931-36** **Fiscal Policy:** Govt expenditure and deficits increased hugely (%yoy): 1931 1932 1933 -5.2 +32.0 +14.0 **Monetary Acceleration:** BOJ buys Govt Debt, Yen devalued 60%. BOJ Holdings of Govt Debt, Yen mn 1931 1932 1933 JGBs 259 565 682 M2 -4.0% +3.6% +5.9% **Outcome:** Japan was the first economy to recover from the Great Depression. **Case A ii. Tanaka plan to "remodel Japanese archipelago", 1972-74** **Fiscal Policy:** Deficits from big infrastructure projects **Change in Budget Balance** (% GDP):** 1970 1971 1972 1973 1974 0.7% -1.0% -0.8% -0.2% -0.8% **Monetary Acceleration (M2):** Jan 71 Nov 72 Apr 73 17.1% 28.5% 27.2% **Outcome:** Asset prices surged, economy boomed, inflation increased to 26% in 1974.	**Case Bi, Deflation of the 1920s** **Fiscal Policy:** 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% **Monetary Deceleration (% yoy):** 1917-19 1920-30 M2 +37.0% p.a. +2.1% p.a. **Outcome:** High unemployment, weak wages, and deflation through 1920s. Inflation: 1917-19 1920-30 WPI +26.4% p.a. -4.4% p.a. Tokyo RPI N/A -5.0% p.a.* **Case B ii. Japan's Lost Decade -- fiscal stimulus programs after the asset bubble burst, 1990** **Fiscal Policy:** Repeated large budget deficits through 1990s **Change in CABB (% GDP):** 1991 1992 1993 1994 1995 1996 -0.2 -0.5 -2.6 -1.1 -1.0 -1.0 **Monetary Deceleration (average % yoy):** 1988-90 1991-97 M2 10.9% p.a. 2.4% p.a. **Outcome:** 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).	

Figure 4. *(continued)*

	MONETARY POLICY	
FISCAL POLICY	**Expansionary**	**Contractionary**
Contractionary	**Case Ci, Pre-WW1 Prosperity, 1902-14** **Fiscal Policy:** After the Russo-Japanese War of 1904-05, austerity lowered Debt/GDP. Govt Debt/GDP: 1905 1908 1913 84% 67% 59% **Monetary Acceleration, 1902-14** (Average % yoy) M2 +9.6% p.a. **Outcome:** Economy was buoyant and inflation at a moderate rate. Wholesale Price Index +2.2% p.a. (1902-14 average) **Case Cii, The 1980s and Asset Bubble, 1985-90** **Fiscal Policy:** Budget balance shifted steadily from -6% (1979) to +2% (by 1991). Change in CABB (% GDP): 1985 1986 1987 1988 1989 +0.6 +0.5 +1.0 0.0 +0.7 1990 +0.2 **Monetary Acceleration (M2):** Dec 83 Dec 87 Apr 90 7.6% 11.5% 13.2% **Outcome:** Despite budget moving to surplus, asset markets and the economy boomed. Inflation increased to 3.9% by January 1991.	**Case Di, Matsukata Deflation, 1881-85** **Fiscal Policy:** After Satsuma rebellion (1877), govt wanted to deflate and return to silver standard at pre-war parity. Level of Govt Debt (Yen Mn) 1876 1877 1878 1881 1884 53.9 238.2 252.4 246.1 241.9 **Monetary Deceleration:** Deflation of paper money to lower price level. Currency issue outstanding (Yen Mn) 1877 1878 1881 1884 1885 139.7 189.2 178.2 152.5 153.0 **Outcome:** Despite high debt levels, inflation turned to deflation. Wholesale Price Index, 1873=100 1877 1878 1881 1884 1885 111 117 162 110 112 **Case Dii, The Dodge Line, 1949** **Fiscal Policy:** Cessation of budget deficits and ban on BOJ funding deficits. Change in Government Debt (Yen Bn) 1946 1947 1948 1949 1950 +65.9 +95.3 +163.8 +112.8 -83.2 **Monetary Deceleration:** End to BOJ financing of government budget deficits. Change in BOJ credit to govt (Yen Bn) 1947 1948 1949 1950 +156.5 +124.9 -40.4 -124.8 M2: 1947 1948 1949 1950 (%yoy) 90.4 89.8 33.3 28.2 **Outcome:** Abrupt decline in inflation. Wholesale prices (% yoy): 1946 1947 1948 1949 1950 +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 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 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[7], 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 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

[7] 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.

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 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).

10. 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 [8] 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; 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

[8] 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.

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 of one pocket of the public and putting it into another pocket?"[9]

[9] Where Carter is Going Wrong: Interview with Nobel Prize Winner Milton Friedman, New York: U.S. News and World Report, Inc, March 7th, 1977.

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