

## Chapter 20: Macroeconomic Policy: Outcomes and Instruments

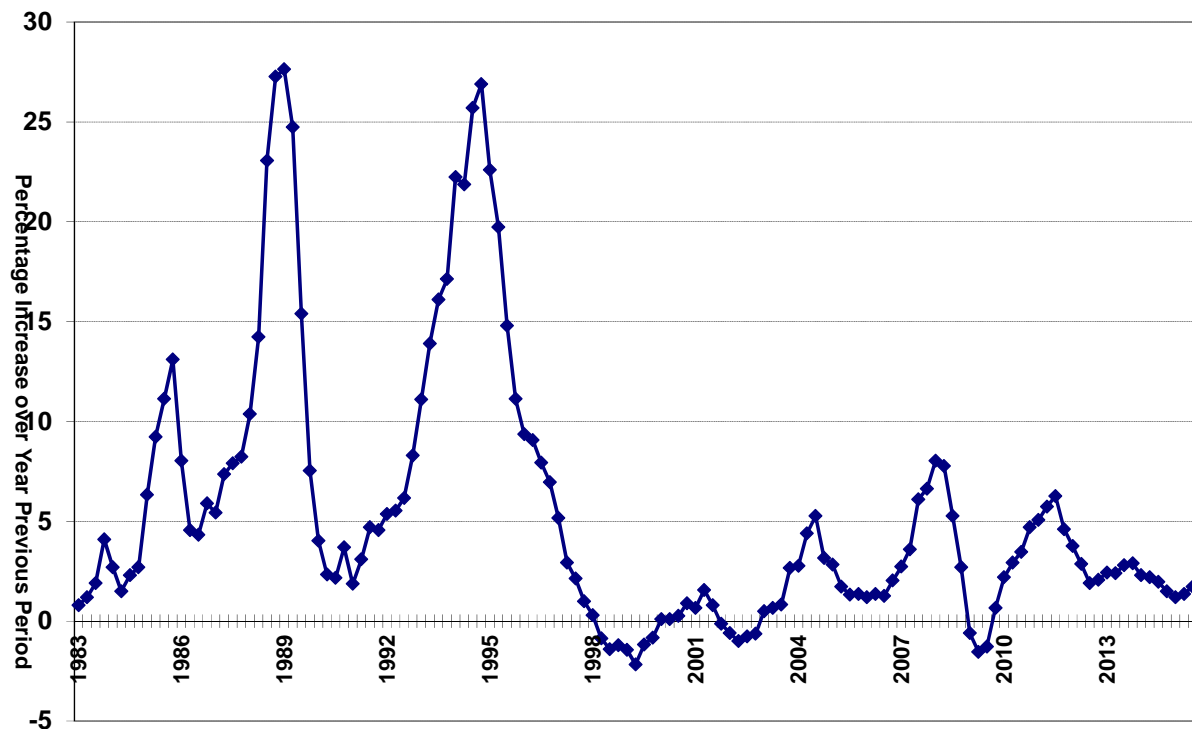
This chapter describes and analyzes the ways in which China has used macroeconomic policy to manage the overall level of aggregate demand. The previous two chapters described the fiscal and financial sectors, but with an emphasis on how those institutions were used to channel financial resources from one sector to another (from households and businesses to government, and from savers to investors, respectively). By contrast, this chapter is primarily concerned with the way those same institutions are used to influence the overall money supply, the level of aggregate demand, and indirectly the level of overall economic activity.

Macroeconomic policy can only influence the level of overall activity in the short run. Over the long term, the level of activity is determined by the long-term changes in capital, technology, and institutions—that is, by the supply side of the economy. While macroeconomic policy can have some effect on the supply side of the economy—and thus on the level of activity in the long-term—this effect is indirect (for example, successful macroeconomic policy-making may stabilize investors' expectations, and increase the capital stock in the long run). The direct short run impact of macroeconomic policy is on the demand side of the economy only. At best, macroeconomic policy can hope to keep demand growing at a rate as close as practically possible to the long-run growth potential of the economy. This chapter is therefore concerned with the Chinese economy in the short-run (defined as less than two years), focused predominantly on the demand side of the economy.

The basic indicators of China's long run macroeconomic policy record are quite good. Macroeconomic policy has been extremely successful in maintaining rapid growth, and China has not experienced a recession since 1990. As Figure 20.1 shows, the last of several serious bouts of inflation was ended in 1997, and was followed by two episodes of deflation (falling prices) in the early 2000s, lasting a total of 43 months. Since that time, overall inflation has remained moderate, inching upward but only broaching the regime's target inflation ceiling of 5% during three relative brief episodes. However, alongside this extraordinary record we must consider the evidence of a series of asset-market bubbles and evidence of rapid creation of large and potentially unsustainable debt burdens. There have been three stock market bubbles since 2000 and repeated housing bubbles. Meanwhile, after policy-makers resolved a serious and expensive debt burden after the turn of the century, loose credit policy once again led to a serious debt burden after the Global Financial Crisis in 2009. It appears that China has followed an extraordinarily active pro-growth macro policy. China has followed the most Keynesian policy of all major economies. Incipient economic downturns have been met with subtle and not-so-subtle adjustments in fiscal and monetary policy, in an effort to maintain growth momentum. While this approach has indeed succeeded in maintaining rapid growth, it may also reveal a bias toward overly expansionary policy that has created some of the side-effects that critics of

Keynesian policy fear. Aggressively expansionary monetary policy, in particular, is implicated in increasing debt which may threaten the stability of the overall financial system.

**Figure 20.1 Consumer Inflation (1983-2015Q3)**



This chapter first examines the appropriate level of aggregate demand that macroeconomic policy-makers should target. It then introduces the instruments, or policy levers, that are at the disposal of macroeconomic policy-makers. With these tools in mind, the chapter then describes the main macroeconomic events of recent years. Subsequently, the chapter delves deeper into the nature and effectiveness of the instruments available to policy-makers. The material becomes slightly more technical, but the overall argument is straightforward: as China's economy becomes more sophisticated and more open, the previous reliance on quantitative versions of monetary policy becomes less effective, and there is a greater need to shift to interest rate versions of monetary policy. This shift is necessary, but also difficult. The People's Bank of China is engaged in this shift of tools right now, but still faces major challenges.

## ***20.1 Targeting Aggregate Demand***

What is the appropriate level of aggregate demand? Most economists believe that macroeconomic policy should achieve two fundamental objectives: price stability and the full employment of resources.

### **20.1.1 Price Stability**

Price stability typically means low inflation, usually interpreted as around 1-2 percent annually. Higher inflation has numerous costs, particularly because high inflation has a tendency to accelerate, and because the sense of insecurity it creates makes it extremely unpopular in most countries. This is certainly the case in China, where hyperinflation in the late 1940s made the Chinese population very averse to inflation. Deflation (declining prices) is arguably even worse for macroeconomic management than inflation: deflation causes households to defer purchases (as they wait for lower prices in the future), which creates downward pressure on the economy, and it interferes with the use of monetary policy instruments discussed below. Since deflation is so harmful, zero inflation is not considered desirable: it is simply too close to deflation for comfort. Moreover, low inflation may be better than zero inflation because it makes it easier for businesses to smoothly adjust prices, facilitating the continuous on-going adaptations of individual price relationships necessary in a market economy. Thus, an inflation rate around 1 to 2% is considered “just right,” not too hot and not too cold.

### **20.1.2 Full employment of Resources**

Full employment of resources means that actual output is at or near maximum potential output. However, it is not easy to measure “potential output” in any economy, and this is particularly true in an economy like that of China, undergoing rapid structural and institutional change. In practice, most countries evaluate full utilization of resources by monitoring two indicators: the (labor) unemployment rate and the growth of total output compared some judgement of the economy’s potential growth rate. We discuss these in turn. The most desirable labor unemployment rate will never be zero. A certain amount of frictional unemployment is necessary if people are to change jobs occasionally and have adequate time to search for good job matches. Therefore, full employment does not mean zero unemployment. For example, in the US, the Federal Reserve Board in March 2015 considered that unemployment in the US of 5.0% to 5.2% would be consistent with full employment.<sup>1</sup> Chinese policy-makers clearly keep a sharp eye out for signs of increased unemployment. However, because Chinese labor markets are segmented (Chapter 8), and employment and unemployment statistics are especially weak, there is no single or specific unemployment rate that can be meaningfully monitored by policy-makers.

Different economies have different potential growth rates, based on their labor force growth rates, investment rates, and rates of technical change and productivity improvement. In general, developed countries have much lower potential growth rates than developing countries: for example, the IMF estimates that developed country growth in advanced countries was 1.3%

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<sup>1</sup> [http://www.federalreserve.gov/faqs/money\\_12848.htm](http://www.federalreserve.gov/faqs/money_12848.htm). Note that the US Fed does not reduce full employment to a single number. Federal Reserve Board Chair Janet Yellen has stated many times that labor markets are multi-dimensional and cannot be captured in a single statistic.

annually in 2008-14, and 6.5% in large developing countries (including China).<sup>2</sup> The central bank of each country operates with an evaluation of their economies' potential growth rates: for example, in developed economies, Japan about 0.5% per year; Germany, 1.2-1.3%, and the US, about 1.5% in 2015.<sup>3</sup> China's potential growth rate is clearly much higher than in these developed economies, and may be around the 6.5% average of large developing countries. But what is the potential growth rate? In an economy like China, in which growth is high, the growth of potential output is also rapid. Maintaining full employment therefore means maintaining a pace of demand growth that it is appropriate to the rapid growth of potential output. Given the rapid structural, institutional and behavioral changes associated with development and economic transition, the true level of potential output is not easy to determine. Clearly China's economy was capable of more than 10 percent annual growth for decades, but this was achieved on the back of rapid employment growth, high investment, and rapid institutional change and productivity growth. All economists agree that China's potential growth has declined since about 2010, but there is no agreement about what the current potential growth rate is (estimates range as high as 8% and as low as 4%). Thus, macroeconomic policy-makers have an extremely difficult task trying to determine the "right" growth rate.

### **20.1.3 The Trade-off Between Price Stability and Full Employment**

Particularly in the short run, there is a trade-off between the two objectives of macroeconomic policy. High or rising inflation indicates that aggregate demand is growing too rapidly, exceeding the growth of potential output. In this case, contractionary policies—a higher interest rate, reduced supply of credit, or a smaller fiscal deficit—are required to reduce the growth of aggregate demand. High or rising unemployment indicates that aggregate demand has fallen below potential output. In this case, expansionary policies—lower interest rates, increased credit supply, or a larger fiscal deficit—are required to increase the growth of demand. Of course, monetary policy-makers would prefer to be in the middle, in the "sweet spot" where there is neither high inflation nor high unemployment. However, in the real world economies are constantly changing, and there will be positive and negative "shocks" that knock the economy out of this sweet spot. As a result, in the short run, policy-makers will sometimes choose to adopt expansionary policies that fight unemployment even at the cost of creating unwanted inflation; or contractionary policies that fight inflation at the cost of creating unwanted unemployment.

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<sup>2</sup> IMF, World Economic Outlook, April 2015, pp. 73-75, 83. Note that the IMF in 2015 expected potential growth to increase slightly to 1.6% for advanced economies during 2015-20, but fall slightly in large developing countries to about 5.2%.

<sup>3</sup> Bank of Japan estimate cited from Japan Policy Forum, accessed at <http://www.japanpolicyforum.jp/en/archives/economy/pt20150116090048.html>; Germany from Deutsche Bundesbank, Monthly Report April 2012, p. 27, accessed at <https://www.bundesbank.de/>. In the US, the Federal Reserve Board does not publish its own estimates of potential growth, but relies on those from the Congressional Budget Office. These are conveniently available at Also <https://research.stlouisfed.org/fred2/series/GDPPOT/>.

Macroeconomic policy-makers must perform a constant balancing act, trading off unemployment and inflation in the short-run, in order to stay in a stable middle zone that is consistent with long-run price stability and sustained vigorous growth. This is a challenging task in the best of circumstances. Debates over macroeconomic policy are typically debates over how to handle this trade-off. One group of monetary economists argues that in the short run, central banks should only target price stability. In their view, once the market accepts the central banks credible commitment to price stability, expectations of price stability will be firmly anchored, there will be less uncertainty, and it will be easier for the economy to reach its maximum output potential. Another group argues that the central bank should target both price stability and full employment, but should do so in a way that is relatively transparent and mechanical. This group advocates so-called “Taylor rules” where the central bank adjusts interest rates automatically in response to deviations from pre-announced target inflation and unemployment rates. This group believes that central bank commitment to a clear behavioral rule like the Taylor rule will provide most of the benefits of credible commitment, providing more predictability and less uncertainty and contributing to growth.

These arguments are important. At the present time, they may appear to have less applicability to China. In general, such arguments tend to be less convincing in periods of exceptional economic change or unusual disruption. In China, given the rapid pace of structural and technological change; major institutional changes in the financial system; and the impact of large and unanticipated shocks from outside, it is inconceivable that the central bank would not have recourse to *ad hoc* and discretionary interventions in the economy. Chinese monetary policy will not become rule-bound or focused only on price stability any time in the near future. However, these arguments have influence in the thinking of Chinese central bankers. They certainly think in terms of shocks to price stability and full employment, and over the long term they would like to move China to a position where the central bank has a long-term credible commitment to price stability. Policy stability and credibility is one of their long-run objectives.

#### **20.1.4 Stabilization Policy**

Macroeconomic policy is sometimes called “stabilization policy,” This term emphasizes that even when policy-makers have achieved price stability and sustainable growth, their policies will constantly be disrupted by various “shocks.” The global financial crisis, emanating from the US in 2008-9, was an external shock of unprecedented size. Chinese policy-makers, like policy-makers all over the world, were forced to react by adopting strongly expansionary policies (both monetary and fiscal). China’s reaction was especially vigorous, increasing the fiscal deficit quickly and pumping a massive amount of bank credit into the economy. Shocks can be either negative or positive. On the demand side, the nature of the response to a shock is relatively easy to determine: policy-makers should respond to a negative demand shock with a shift toward expansionary policies, and they should respond to a positive demand shock with a shift toward contractionary policies, to keep the economy from overheating. Shocks can also occur on the supply side: for example, a positive shock occurs when productivity jumps unexpectedly, or a

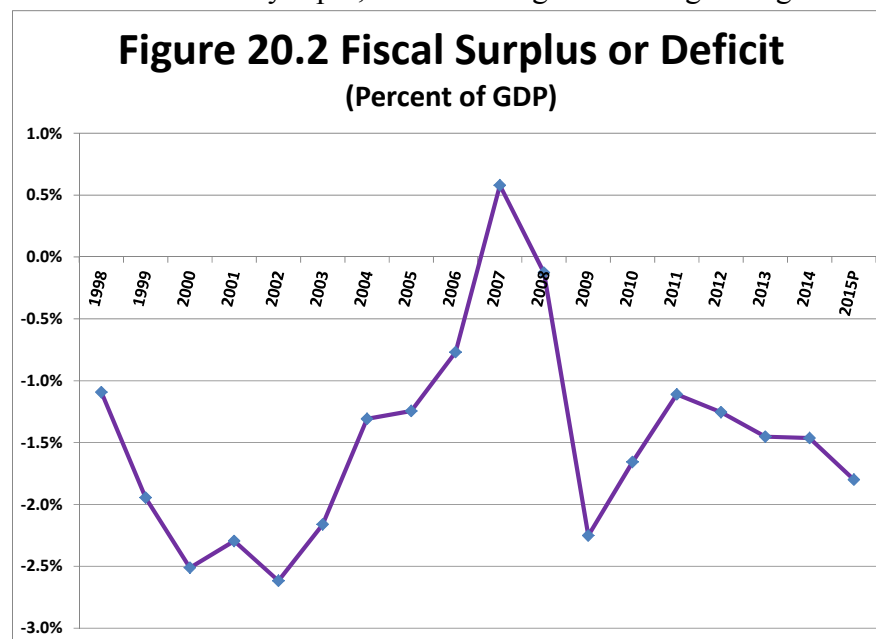
negative shock when the price of a key input such as oil jumps. In these cases, stabilization policy is even more difficult, because even the direction of change may be uncertain. An oil shock, for example, slows the economy but increases inflation; while a positive productivity shock may increase growth rate while lowering inflation. In both cases, the proper response is uncertain, and depends substantially on whether or not policy-makers believe that growth potential in the medium term has changed.

## 20.2 The Major Forms of Macroeconomic Policy

In this section we examine the major types of macroeconomic policy and briefly characterize their use in China. We discuss the major forms of macroeconomic policy in general terms. Later, in Section 20.5, we will discuss specific instruments of macro policy.

### 20.2.1 Fiscal Policy

A fiscal deficit adds directly to aggregate demand by increasing government purchasing above government tax revenues. Figure 20.2 shows that the largest fiscal deficits were run in 2000-2, 2009 and projected in 2015. These were years in which economic growth was considered to be too slow and/or unemployment too high. Conversely, the surplus in 2007-8 was a policy reaction to extremely rapid, over-heated growth and growing inflationary pressures. China uses

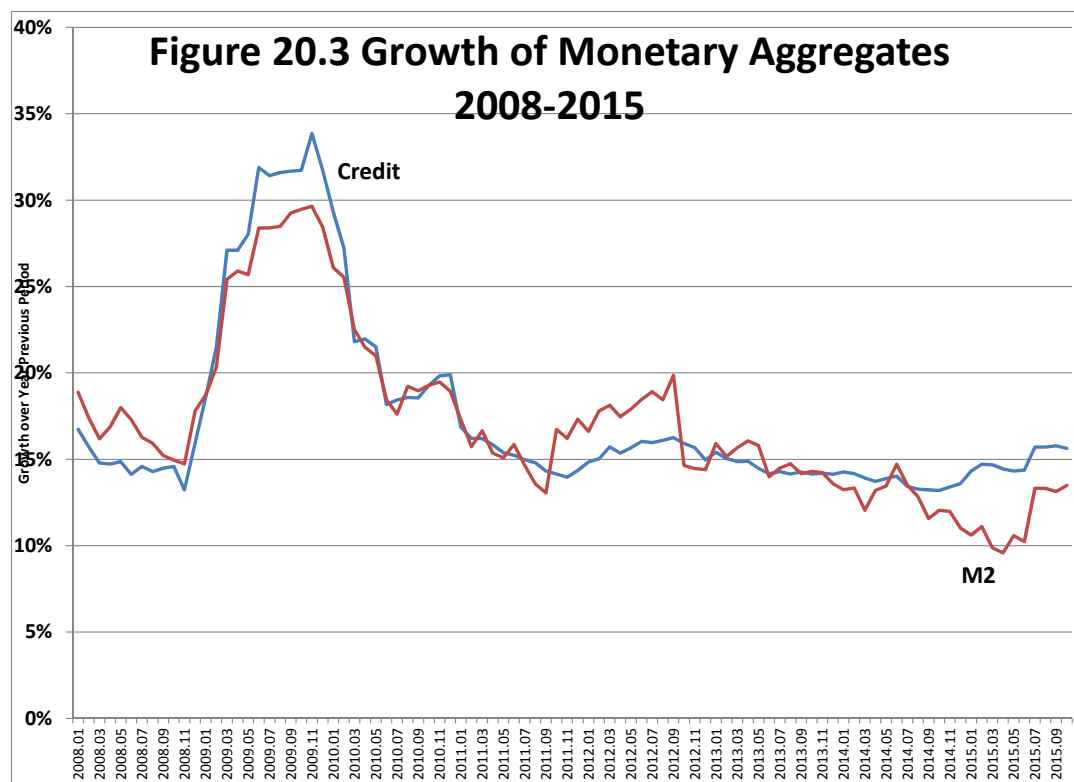


fiscal policy to carry out stabilization policy, and it is enacted fairly promptly. It is worth noting that in developed countries, fiscal policy works largely through the operation of “automatic stabilizers.” That is, when the economy is sluggish, tax revenues decline and outlays for unemployment and disability increase, automatically increasing the deficit through legal entitlements. Moreover, cumbersome legislative processes required for new spending programs means that active fiscal policy is rarely timely or prompt. China’s fiscal policy conditions are

quite different, at least on the expenditure side. China does not have sufficient social safety net and entitlement spending for outlays to increase much in times of recession. Instead, China's fiscal policy is more dependent on discretionary choices about investment, and in China these decisions can be made quickly. Not only is legislative approval not required, but large ongoing investment programs give policy-makers much more discretion. In both cases of large fiscal deficits shown in Figure 20.2, acceleration of existing investment programs was a key part of fiscal stimulus policy. In 2000-2002, construction of the national expressway network was accelerated, and in 2009, construction of the high-speed rail network, in both cases to provide . In that sense, it shares something with monetary policy.

### **20.2.2 Monetary Policy**

Developed economies typically manage monetary policy through instruments that affect interest rates, which then determine the overall demand for money and credit. As discussed in Section 20.5, because interest rates in China have been rigid and ineffective in controlling credit demand, the central bank has generally managed monetary policy through quantitative instruments that affect the overall supply of credit directly, and thus the money supply as well. Figure 20.3 shows that RMB credit has generally grown at about 15% over the past several years, but spiked much higher in 2009. Credit growth over 30% in 2009 was the most important component of China's response to the Global Financial Crisis in that year. The monetary response was about four times as big as the fiscal impulse described in the previous section. Growth of M2 (the broadest monetary aggregate) follows credit growth closely, with a few exceptions. Credit determines the available supply of money, but holders of money balances make decisions about the form in which they hold money that also affect the growth of M2.



### 20.2.3 Exchange Rate Policy

Under conditions of a fixed exchange rate and a closed (or partially closed) capital account, the exchange rate is a powerful macroeconomic policy tool. These conditions describe China during most of the post-1978 period.<sup>4</sup> When the value of the RMB is set lower, increased demand for exports expands aggregate demand. An increase in the net surplus (i.e., exports minus imports) is an addition to overall demand. Moreover, a fixed exchange rate policy requires the central bank to increase its holdings of foreign exchange when market forces would otherwise cause the currency to appreciate. When this occurs, the central bank has to create domestic currency (RMB) in order to purchase the foreign exchange: if no other steps are taken, this adds to the money supply and increases demand, as described in the previous section. Thus, from 2005 through 2008, when China ran really large trade surpluses (over 4% of GDP each year), this had macroeconomic consequences. This was a highly stimulative policy that added to growth but also created inflationary pressures.

### 20.3 China's Macroeconomic Record, 1978 through 2015.

We are now in a position to tell the story of China's macroeconomic performance since 1978 in a slightly more detailed fashion.

<sup>4</sup> As stated by the "impossible trinity" theorem, if a country has a fixed exchange rate and an open capital account, it cannot exercise monetary policy autonomy.



### **20.3.1 Macroeconomic Policy through Economic Transition**

Effectively managing macroeconomic policy during the transition to a market economy is demanding and difficult. Fiscal policy and monetary policy are both subject to extraordinary challenges: price controls have allowed inflationary pressures to build and these explode into the open as prices are de-controlled; budgetary revenues typically collapse and control over credit is often lost. Policy-makers initially lack the tools for modern monetary and macroeconomic management. The result is often hyper-inflation. In the transitional economies of Eastern Europe and the former Soviet Union experience prolonged high inflation plus extreme macroeconomic instability that contributed to large recessions. The real value of household savings was wiped out by high inflation. Generally speaking, China managed to navigate around the largest macroeconomic pitfalls. To be sure, the first twenty years of economic transition were marked by significant macroeconomic cycles: three inflationary cycles occurred through the mid-1990s. However, hyperinflationary episodes were quickly controlled; household financial savings were protected by paying “inflation supplements” to holders of time deposits; and, most importantly, expectations about the future during the initial transition period were not plagued with the extreme uncertainty that follows from serious macroeconomic disruption. Relative macroeconomic stability was an important component of China’s successful economic transition.

### **20.3.2 Shift to a Modern Monetary Policy Management Regime**

Even a cursory glance at Figure 20.1 reveals a clear difference in China’s inflation performance at the end of the 1990s. Inflation became lower and less variable after 1996. The average quarterly inflation rate dropped from 10.1% (1983 through 1996) to 2.0% (1997 through 2014), while the standard deviation of the inflation rate dropped from 7.8 percentage points to 2.4 percentage points. This was a major achievement. China launched into a new macroeconomic policy regime.

What happened to create this shift? During the mid- to late-1990s, China established a true central bank—the People’s Bank of China (PBC)—and gradually built the instruments of modern monetary policy management. After the last of the inflationary cycles was tamed in 1997, the PBC began to carry out a systematic set of monetary policies. In other words, the reforms of the banking and monetary system carried out between 1995 and 1997 under Zhu Rongji achieved a substantial payment—in terms of a more stable macroeconomic environment—within a few years. This does not imply that macroeconomic policy-making after the turn of the century was not without problems. In the first place, the PBC does not have formal or de facto independence, so that major macro policy decisions have had to be explicitly approved by top politicians. (The PBC is by far the most important central bank in the world that does not possess independent status.) Comparative work has consistently found that central bank independence is associated with lower inflation. In fact, China’s record post 1997 shows a gradual increase in inflation from a small negative number to a peak of 8% in the first quarter of

2008. In a broad sense, this probably reflects the politicization of monetary policy decisions and a bias toward excessively expansionary policies. Indeed, at the end of 2007 there was a dramatic shift in policy in the face of accelerating inflation: China let the RMB appreciate significantly for the first time, and tightened monetary policy. These moves were followed by the bursting of the stock market bubble (in late 2007) and a correction in the housing market that was underway by 2008. However, these policies and responses were soon overshadowed by the arrival of the Global Financial Crisis.

### 20.3.3 Response to the Global Financial Crisis

After the collapse of the American investment bank Lehman Brothers in September 2008, a massive shock rippled out from New York to threaten the entire global financial system. The shock was propagated to countries around the world by both financial and real effects, as many ordinary transactions became paralyzed and global trade declined. Governments around the world responded with vigorous stimulus programs, but no country's program was larger or more decisive than that of China. Particularly striking was that both the fiscal and monetary responses were vigorous. First attention was given to a dramatic "4 Trillion RMB" (USD \$580 Billion) investment stimulus plan announced in November 2008. Though this was labeled fiscal policy, it was in fact only partially funded from budgetary sources. See Table 1.

**Table 1: Stimulus Package Investment Plan - Composition**

	Initial Plan (3 Trillion) Nov. 2008	Revised Plan (3 Trillion) March 2009	First Tranche (100 Billion) Dec. 2008	Second Tranche (130 Billion) Feb. 2009
Transport and Power Infrastructure (Railroad; road; airport; electricity grid)	60%	50%	25%	21%
Rural Village Infrastructure	12%	12%	34%	24%
Environmental Investment; Natural Areas	12%	7%	12%	8%
Affordable Housing	9%	13%	10%	22%
Technological Innovation & Structural Adjustment	5%	12%	6%	12%
Health and Education	1%	5%	13%	13%

Although attention initially was focused on the fiscal investment plan, it was soon dwarfed by a flood of credit. The initial stimulus investment plan had called for an increase in fiscal outlays of just under 2% of GDP per year. The "excess" (above-normal) lending in just the first half of 2009 was equal to 14% of GDP. Putting these together, and adding a few smaller fiscal policy impacts, gives a total Chinese stimulus effort in 2009 of 19-20% of GDP. This is extremely large, proportionally one of the largest stimulus packages in the world. Although there is no consistent methodology for computing the size of stimulus policies in different countries, for comparison, the US fiscal stimulus package was evaluated at about 9% of GDP (although the monetary stimulus of the Federal Reserve Board was probably several times larger). China's promptly formulated and delivered and proportionately very large stimulus

response was an important part of the global response that knocked down the spreading global crisis in the second quarter of 2009.

#### **20.3.4 How was China able to respond promptly and effectively to the Global Financial Crisis?**

The context within which Chinese macroeconomic policy operates is different from other market economies. The key role of investment in the high growth phase of the economy is distinctive; so is the fundamental role of local governments in managing local economies and planning investment programs. As a result of these two distinctive features, China was relatively well positioned to quickly ramp up investment spending. (Note that developed market economies have difficulty in making fiscal policy *promptly*, so that the effects on the macroeconomy occur in a timely fashion; China was able to sidestep this problem.) Most local governments—and some central government enterprises or departments—have a queue of projects they would like to finance, “on the shelf.” When the word comes, they can initiate these projects very quickly.

Other features of the Chinese system contributed to the rapid macroeconomic response. Once top leaders had decided on an ambitious stimulus response, they used political channels to communicate the urgency of the situation to base-level officials. An urgent and still unpublished Communist Party document (No. 18 of 2008) was sent to encourage officials to “make every second count.” Since most of the banking system was still state-owned (Chapter 19), lending officials were also receptive to political suggestions that they carry out a “relaxed” credit policy and lend freely to investment projects so long as those were supported by local governments. The China Development Bank rapidly expanded its lending, in some cases with subsidized interest rates. Alternately stated, the latent politicization of the Chinese economy was revived and supported an extreme re-politicization of the financial markets and investment decisions.

This context is essential to understanding some of the other aspects of the stimulus response. Because local governments were crucial actors in this stimulus, the institutional restraints governing local finances were relaxed. Some 200 billion RMB in formal local borrowing authority—managed by the central Ministry of Finance—was authorized for the first time. Local governments were encouraged to set up investment companies—so-called local government funding vehicles—that could directly borrow from banks and even issue corporate bonds. The local government funding vehicles (LGFVs) had existed previously, but generally had operated under pretty tight restrictions.

#### **20.3.5 Macroeconomic Policy since the Global Financial Crisis**

As Figure 20.3 shows, the extremely rapid growth of credit and money supply during the GFC was brought under control within a year or two. However, since that time, money and

credit have continued to grow at about 15% and there has never been a major withdrawal of liquidity from the system. Given that the real economy growth rate has been declining, and inflation has been modest, this means that monetary policy has been relatively loose. Moreover, as Chapter 19 described, financial innovation has meant that non-traditional forms of credit have grown very rapidly, so total credit supply has grown more rapidly than 15%. In some sense, then, China's macroeconomic policy has still not been "normalized" since the GFC. This is also true in other leading economies: the US underwent three rounds of quantitative easing and then maintained interest rates at zero for seven years after the GFC (movement above zero is expected in December 2015). The central banks of both Japan and the EU have maintained aggressive easing policies through the end of 2015. A similar judgment may be made for China, although the picture there is complicated by the significant build-up in debt, discussed later.

### **20.3.6 Evaluation of Recent Macroeconomic Policy**

Chinese macroeconomic policy has had a strong pro-growth orientation since the turn of the century. That pro-growth orientation, particularly in the face of the GFC, may have given Chinese policy an excessively expansionary orientation. We can see this in the slow but steady increase of inflation between 2000 and 2008, although depressed global demand means inflationary conditions effectively disappeared after the GFC. If inflation is not a serious issue right now, what might be the problems created by this macro-economic orientation? There are two: soft budget constraints and debt build-up.

#### **20.3.6.1 Soft Budget Constraints and the Politicization of Investment Decisions**

How could it be that debt would be taken on to initiate new investment projects in the most uncertain period of a major economic crisis? We would not expect private actors to behave in that manner. Private investment demand would drop in the face of reduced external demand and increased uncertainty. The fact that the expansion of credit was eagerly taken up by borrowers obviously reflects the fact that these borrowers were not ordinary business units; they were political entities, units of government. Therefore, their objectives and incentives were quite different from ordinary private businesses. Local governments have "soft budget constraints," meaning that they do not have to cover outlays from current revenues. They can borrow money without necessarily having to pay it back. Local governments, like SOEs, do not have to bear the risk of their investment decisions. Local government officials move on, being rotated to other jobs and promoted, staying in place on average 4-5 years. If projects go bad, they don't pay any costs, except some slight reputational cost. That means investment demand is "insatiable," there is "investment hunger."<sup>5</sup> The response to the GFC triggered this insatiable investment demand, but at the cost of reinstating, at least temporarily, the "soft budget constraint."

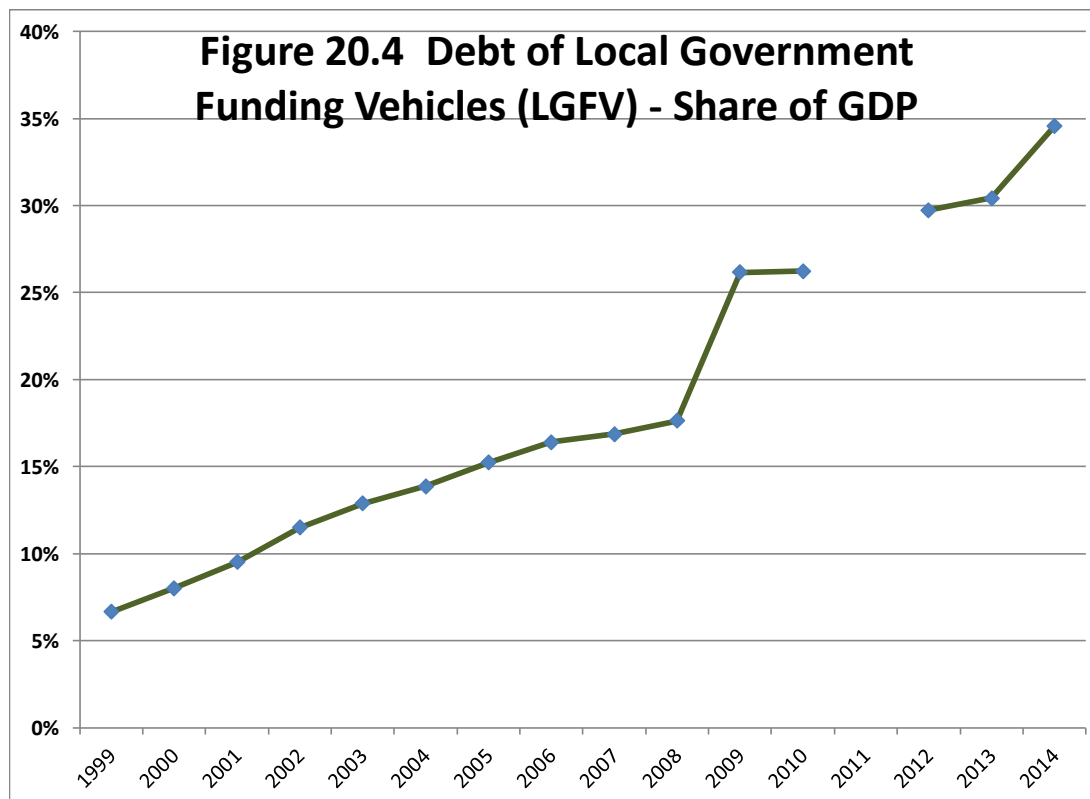
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<sup>5</sup> Concept developed by Kornai. This concept will *probably* have shown up in chapters 13 and 19.

The earlier period of Chinese macroeconomic policy, from the early 1980s until 1997, had been marked by significant macroeconomic cycles. Arguably, these cycles were linked to the existence of soft budget constraints among state-owned enterprises and local governments. When authority was decentralized, local units with soft budget constraints tended to over-spend their resources. This caused “booms” and imbalances that eventually had to be corrected by vigorous central government action. One interpretation of the shift in macro-economic policy regime that occurred after 1998 is that macroeconomic stability was purchased by hardening budget constraints. In the late 1990s, banks were put on a strict regime and demanded more from their clients. Massive down-sizing of the state sector ensued. Presumably this corresponded to a hardening of budget constraints for both banks and enterprises. This achievement then underlay the shift to a new, more stable macroeconomic regime that we described above. This achievement was partially lost during the GFC. By encouraging local governments and state firms to borrow freely, and more-or-less freeing them of the consequences of bad investment choices, policy-makers inevitably reinstated the soft budget constraint to some extent.

#### **20.3.6.2 Increased Debt**

China came into the GFC with very low government debt, indeed, almost none. After the vast run-up in the GFC, China is now at a medium debt level. As one might imagine, pushing billions of dollars worth of loans out the door as rapidly as possible creates a substantial risk of creating bad debt. As discussed in Chapter 19, the build-up of debt in the Chinese system is a source of instability and heightened risk for the Chinese economy. Clearly, this is a direct consequence of using credit policy to increase outlays of a quasi-fiscal character. The result has been a substantial build-up of local government debt (see Figure 20.4). Note that while local government debt jumped up in a discontinuous fashion in 2009, it has continued to grow ever since (even scaled to rapidly growing GDP). By the end of 2014, officially acknowledged local government debt was equal to 35% of GDP. Thus, the institutional characteristics of the Chinese system made it easy to quickly “open the spigot,” but it has not been so easy to quickly close the spigot once opened.



### 20.3.6.3 Legacies

The 2009 Stimulus Program thus has an extremely complex economic legacy:

- ON the one hand, the 2009 Stimulus Program buffered China from the impact of the Global Financial Crisis, and helped lead the world out of recession.
- However, stimulus policies were maintained much too long, creating excess liquidity. Which in turn led to:
  - A re-politicization of the economy, and a continuation of soft budget constraints;
  - A debt problem: substantially indebted local government-sponsored corporations, or “Local Government Funding Platforms.”
- The build-up of debt (ultimately enforced by political commands) distorts the process of de-regulation which is moving the economy away from the bank-dominated (and repressed) financial system.

In short, there is a large financial overhang from the stimulus program.

## 20.4 Fundamentals of Monetary Economics

### A. The central bank creates base money.

- The central bank directly creates “base money” or “high-powered money.”
  - Base money = Currency in circulation (cash) + Commercial Bank deposits with Central Bank.
- “Base money” is a LIABILITY on the Central Bank’s balance sheet, offset by ASSETS
  - Central Bank assets = Gold and foreign exchange + Central Bank lending to Commercial Banks + Central Bank lending to Government.
- To oversimplify, base money is created when (a) the central bank lends to the economy and (b) buys foreign assets.

### B. Commercial banks and the money multiplier.

Commercial banks—financial intermediaries—create money, too. However, they do so by lending out base money, and thus “multiplying” the amount of money in circulation.

The money multiplier depends on the Required Reserve Ratio:

For commercial banks, the rule is that:

$$R / \text{Bank Deposits} \geq rr$$

Where R is Commercial Bank deposits with the Central Bank, the main component of Base money (or “high-powered money”); and rr is the required reserve ratio.

Banks want to loan out as much as they can, so they will try to get as close to the reserve ratio (rr) as is prudent. Therefore, re-arranging terms:

$$\text{Bank Deposits} \leq R / rr$$

If the rr is .05, total commercial bank deposits (the main component of M2) will be twenty times official reserves; if the rr is .2, commercial bank deposits will be five times official reserves.

### C. Central Bank policy instruments.

So the Central Bank can influence the money supply through three policy instruments:

- Changing the supply of base money by buying and selling Treasury Bonds (open market operations);
- Changing the supply of base money by raising or lowering the official interest rates (the “discount rate”) at which commercial banks can borrow from the central bank; or

- Changing the money multiplier, by changing reserve requirements.

The reserve ratio is like the fulcrum of a lever; a crude but powerful instrument. China is probably the only major economy in the world where economists watch the rrr and speculate about changes in the rrr on a weekly or monthly basis.

## **D. Relation between Money and Inflation**

It is a simple identity that the supply of money, multiplied by the number of times it is used in a year equals the nominal value of all transactions undertaken that year.

$$MV = PT$$

Money X Velocity of Circulation = Price Level X Volume of Transactions

Re-arranging terms and taking growth rates, the increasing in the price level equals the increase in the money supply, times the increase in velocity (if any), divided by the growth of real output.

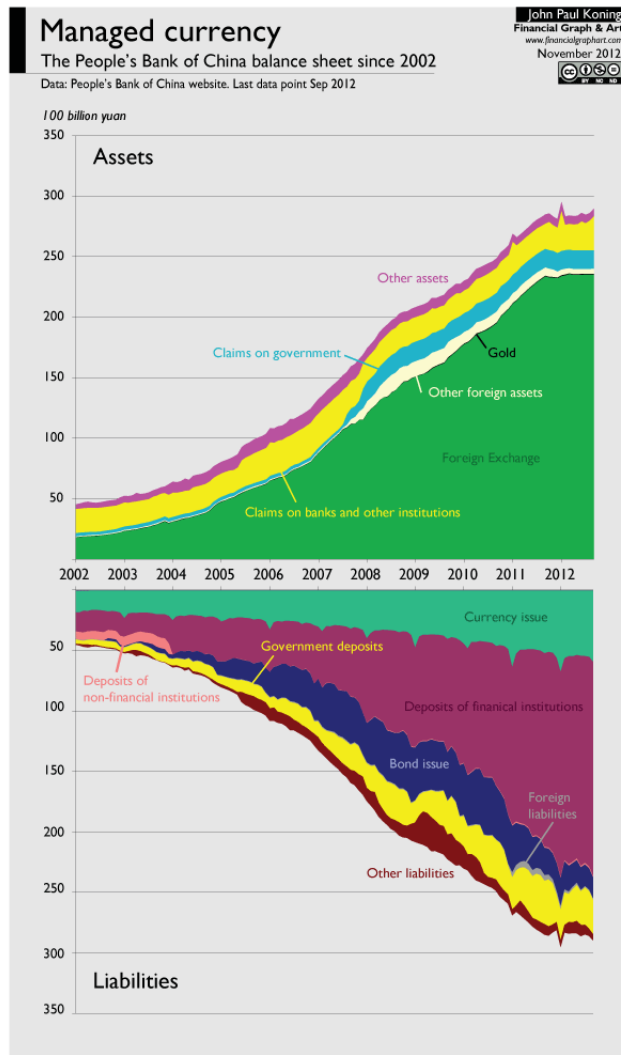
### ***20.4.1 Applying the Monetary Framework to China***

Declining velocity, consistently and over the long term. Not mysterious at first, but a little bit later. Alternately stated, the money supply has consistently grown faster than nominal GDP, but inflation has remained low. This is something of a paradox.

The central bank, like any institution, has a balance sheet in which assets are equal to liabilities. The central banks' liabilities are assets for the population: money (a claim on the resources of government) is the most important central bank liability. When the central bank accumulates assets, it prints money to pay for those assets. Thus, assets and liabilities increase together, and are always equal (by definition).

Base money creation has been dominated by accumulation of foreign exchange reserves. This means that reserve accumulation has driven the growth of the money supply.





How have the monetary authorities coped with this? There are three basic choices:

- A. Do Nothing: Rapid increase in the domestic money supply will lead to inflation.
- B. Sterilize by Selling Bonds: **STERILIZE** Definition: Withdraw high-powered money so that money multiplier doesn't kick in. This is effective, but it will push up long-term interest rates.
- C. Semi-sterilize by Raising Reserve Requirements.
  - 1) Commercial banks are required to deposit a greater share of *their* deposits with the PBC;
  - 2) Money multiplier is reduced.

- 3) Bank profitability is reduced; it's easier to maintain interest rate controls; government influence is increased; and financial repression is a risk.

They chose “C.” From 2002 through the end of June 2008, PBC raised the reserve requirement from 6% to 17.5%.

Each choice has costs and benefits; no single obvious best policy (no right answer). One thing for certain: You cannot use one instrument (monetary policy) to achieve two different objectives (fixed exchange rate *and* price stability). Something must be sacrificed. This is a reflection of the “impossible trinity” or the exchange rate policy trilemma. You cannot simultaneously have a fixed exchange rate, and open capital account, and monetary policy autonomy.

Overall, rapid accumulation of foreign exchange reserves has made management of monetary policy in China more difficult. Central bankers have had to struggle to control overall and long-term growth of the money supply, while also trying to match year-to-year money supply growth with the needs of the economy. This has been a formidable challenge.

### ***20.4.2 Monetary Policy Instruments***

A review of the previous discussion quickly reveals that China has relied primarily on quantitative monetary policy instruments of the past two decades. These include raising (and lowering) the commercial bank reserve requirement; controlling lending directly through quotas and informal guidance; and buying and selling bonds. These have been used with great effectiveness, but these cause distortions and are generally considered to be less efficient than indirect (interest rate) instruments.

The PBC is strongly committed to moving away from quantitative instruments and to interest rate instruments are part of the broader program of financial reform and opening.

## **20.5 Discussion and Conclusion**

Since China tamed its most extreme inflationary cycles in 1997, during the 18 year period from 1997 through 2015, China has managed to maintain a relatively low inflation rate and an extraordinarily rapid growth rate. Thus, macroeconomic policy performance has been quite good. China achieved this performance by following a kind of “super-Keynesian” policy, adapting promptly to most shocks, and using government action to keep investment high. This policy can be tracked through three major macroeconomic shocks during this period, two

negative and one positive. The first negative shock came in 1997-98, and was a combination of domestic and internationally propagated shocks. Domestically, the contractionary impact of down-sizing the state sector (discussed in chapters 8 and 13) was just being absorbed when the full force of the Asian Financial Crisis hit, beginning in late 1997. The second negative shock came ten years later in 2008-9 during the global financial crisis. In both cases, macroeconomic policy-makers responded with Keynesian stimulus, although the magnitude was far greater in the second, more serious, case. In between these two shocks came a major positive productivity shock: during 2003-4, China's entry into the World Trade Organization caused a rapid expansion of exports while the increase in competition led to a dramatic improvement of productivity throughout the traded goods sectors. This shock was further propagated by the extremely positive international economic conditions that prevailed from 2003 through 2008. Management of the positive shock was less successful than that of the negative shocks.

### ***20.5.1 Adapting Monetary Policy to Secular Slowdown***

As described through this book, China for the past several years has been undergoing a transition out of the “miracle growth” phase and to a more moderate growth path. This means that the growth of potential output from year to year is quite different from what it was in the past. Potential output used to grow 10% or more in a single year, whereas in 2015 potential output is probably growing in the 6% to 8% range. This shift of growth trajectory counts as a “shock,” but it is an unusual shock with many of its own characteristics. On the one hand, the changes in potential output growth happen quite gradually. Slowdown in labor force growth, for example, has extended over more than a decade. So in some respects it ought to be possible to smoothly adjust macroeconomic policy to the “new normal.”

However, on the other hand, past experience of other miracle economies indicates that this slowdown is far more difficult to deal with than might initially appear. First, as the economy has just gone through a period of dramatic success, it is hard for policy-makers to see, measure, and accept the fact that growth potential has suddenly diminished. (On the contrary, they see capabilities expanding, living standards improving, they can imagine new breakthroughs.... ) Typically, then, policy-makers wait too long to adapt to changing economic conditions.

### ***20.5.2 Adapting Macroeconomic Policy to an Indebted Economy***

There is often a build-up of financial problems as policy-makers try to sustain rapid growth for as long as possible. This was true in Japan in the early 1990s (a different phase, true) and Korea in the late 1990s. It is certainly true in China today. Debt management requires a whole set of additional policies that make macroeconomic steerage much more difficult.

### ***20.5.3 Adapting Macroeconomic Policy to a more Open Economy***

We described above the desire of the PBC to shift away from reliance on quantitative instruments and toward an interest-rate driven policy. This is significantly influenced by the

desire to have tools that are effective in a more open economy, particularly one with a more open capital account. This creates a whole set of new challenges coping with global interest rates and capital inflows and outflows.

China has done a good job adapting macroeconomic policy instruments to an increasingly marketized environment. Overall, the transition from socialism was made with only moderate episodes of inflation, maintaining social stability and fairness. However, this process is only partially completed and there are many new challenges. An interesting question can be raised: Is it possible that Chinese macroeconomic policy simply looks good because of the favorable dynamic features of the Chinese economy? Because Chinese households have a high saving rate, because there is lots of unincorporated business, because the capital account is closed and above all because of rapid growth. As a result, even a not very distinguished monetary policy may have performed fairly well.

Ma Guonan (2015), “A Compelling Case for Chinese Monetary Easing,” *Bruegel Policy Contribution*, Issue 2015/06 (April).