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## Monetary policy and institutions before, during, and after the global financial crisis\*

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#### ABSTRACT

This paper describes the changes that occurred in the conduct and instruments of monetary policy used by major central banks when the crisis hit; discusses the new tradeoffs and controversies engendered by those policy reactions; and speculates about additional likely future changes in monetary policy and institutions. Following a brief account of the evolution of monetary policymaking principles and institutions in the past, the paper deals with the controversial question of how and when to exit a period of large-scale monetary expansion. The paper documents the fact that, in spite of huge monetary injections and historically low interest rates, inflation in the US and in the Eurozone remained subdued, and reports that since the onset of the subprime crisis, there has been a dramatic deceleration in the growth of banking credit in the US. The paper also discusses the tradeoff between the lender-of-last-resort function of the central bank and moral hazard; the consequences of bailout uncertainty for central bank policy; and the particular problems faced by the ECB in the face of a major financial crisis.

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#### 1. Introduction

Economic history suggests that conventional wisdom about monetary policy undergoes substantial changes following major events such as financial panics, depressions and wars. Following long periods of stability, a monetary policy consensus builds up and solidifies, only to be shaken when the next major event materializes. The global financial crisis (GFC) is no exception. It has already shaken some of the conventional wisdom about what constitutes good monetary policy, and is likely to lead to further revisions of the consensus that evolved after the great inflation (GI) of the seventies and, more recently, during the great moderation (GM).

This paper describes the changes that occurred in the conduct and instruments of monetary policy by major central banks when the crisis hit; discusses the new tradeoffs and controversies engendered by those policy reactions; and speculates about additional likely future changes in monetary policy and institutions induced by the crisis. Although the bulk of the paper is descriptive in nature, some of the discussion is prescriptive.

The paper is organized as follows: to provide a broader perspective, Section 2 presents a brief, long-term history of the evolution of monetary policymaking principles and institutions. Section 3 describes the changes in the conduct and instruments of monetary policy during the crisis. Section 4 addresses the controversial question of how and when to exit a period of large-scale monetary expansion deployed to avert an imminent crisis. It documents the fact that, in spite of huge monetary injections and historically low interest rates, inflation in the US and the Eurozone areas remained subdued. This is followed, in Section 5, by a discussion of how the GFC is likely to change monetary policy objectives and instruments, as well as related economic research, in the future. Section 6 reflects on how the crisis might affect future monetary policymaking institutions.

The long simmering subprime crisis in the US degenerated into a full-blown panic in September 2008, when the US government decided not to bail out Lehman Brothers. Similarly, credit default swaps (CDS) on Greek and other weak sovereign European debts shot through the roof whenever political uncertainty concerning governmental bailouts rose. Section 7 discusses the reasons for bailout uncertainty and its consequences for central bank (CB)

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<sup>&</sup>lt;sup>1</sup> I benefited from the comments of Stanley Fischer and of Charles Goodhart. Omer Snir provided efficient research assistance.

policy. Section 8 focuses on the particular problems of the ECB in the face of a major financial crisis.

## 2. A long-term perspective on the evolution of thought on monetary policy and institutions

In their early years, major central banks were expected to inject liquidity into the financial system when liquidity evaporated during financial panics. Such panics often occurred during short periods immediately preceding the Bank of England (BE) decision to temporarily relax the gold standard, due to wars or gold drains. Thornton (1802) and Bagehot (1873) recommended such a lender-of-last-resort (LLR) policy for the BE, provided the liquidity recipients were basically solvent and their liquidity problems were judged to be temporary. In a similar vein, the Fed was originally created mainly in order to prevent financial panics and the associated violent spikes in interest rates and banking failures.

In the aftermath of the great depression and the ensuing Keynesian revolution, the focus shifted, after WWII, to stabilization of the real economy. The downward sloping Phillips curve initially estimated by Phillips (1958) was taken to represent a stable policy tradeoff between inflation and unemployment – and therefore a menu of possible choices confronting monetary and fiscal policymakers (Samuelson and Solow, 1960).

The great inflation of the seventies, followed by Volcker's costly disinflation in the US, reoriented the focus toward price stability and the Friedman–Lucas (Friedman, 1968; Lucas, 1973) view that money is neutral in the long run. Inevitably this led to the conclusion that monetary policy should focus mainly or even solely on delivering price stability in the long run.<sup>2</sup> In parallel, the idea that price stability can be assured via central bank independence took hold during the eighties, subsequently leading to worldwide upgrades in the autonomy of central banks during the nineties.<sup>3</sup> By making it more difficult to use fixed exchange-rate pegs to deliver price stability, the gradual removal of capital controls reinforced the view that this stability should be maintained by granting autonomy to the central bank and by directing it to focus mainly on price stability.

Volcker's disinflation was followed, within several years, by a great moderation in the variabilities of both output and inflation. This moderation, which lasted from the end of the eighties till the bursting of the US subprime bubble in 2008, led to the view that, although monetary policy cannot affect real variables in the long run, it could be used in the short and medium terms to stabilize the real business cycle without endangering the long-run stability of prices. This view was operationalized, in many countries, by means of inflation targeting (IT). Taylor (1993) was probably the first to formulate an explicit IT rule in order to describe the actual policy followed by Greenspan.<sup>4</sup> This rule postulated that the short-term interest rate is a linear function of the output and inflation gaps and of the expected rate of inflation.

In a series of publications during the end of the nineties and the first decade of the twenty-first century, New-Keynesians provided general equilibrium micro foundations for IT monetary rules (Clarida et al., 1999; Woodford, 2003 are prominent examples). In this microfounded version of IT, an independent CB picks the short-term interest rate (taking the structure of the economy and

inflationary expectations as given), so as to minimize a weighted linear combination of the social costs of the inflation and output gaps. Here the first gap is the deviation of inflation from a (low) inflation target and the second gap is the deviation of actual from potential output.

Up to the eruption of the US subprime crisis in 2008, conventional wisdom concerning monetary policy was that: 1. The (real) interest rate is the main policy instrument and a sufficient statistic for the stance of monetary policy. 2. The CB should lean against bubbles to the extent that they push actual inflation away from the inflation target. 3. Under IT, financial stability and prudential considerations took a back seat. One institutional manifestation of this approach was the transfer of financial supervision from the Bank of England to a separate agency – the financial services authority (FSA) – during the second half of the nineties. 4. Relatedly, precious little attention was devoted, at least by mainstream academics, to systemic financial risks.

## 3. How did the GFC alter the actual conduct and instruments of monetary policy?

The GFC reminded monetary policymakers that during a financial crisis, the CB – of all public institutions – has a comparative advantage in swiftly preventing the crisis from becoming a generalized panic that would seriously cripple the financial system. The main reason for this comparative advantage is that financial crises are characterized by sudden huge increases in excess demand for liquidity. Due to its monopoly over the creation of high-powered money, the CB is the choice institution for satisfying this craving for liquidity before it destroys or seriously cripples the financial system.

Following the demise of Lehman Brothers in September 2008, this fact was quickly recognized by Federal Reserve Chair Ben Bernanke who, as a scholar, developed the view that a critical factor in the severity and persistence of the great depression was the collapse of the credit mechanism caused by massive banking failures (Bernanke, 1983).<sup>6</sup> The Fed reacted so vigorously that within six months of Lehman's collapse its balance sheet had more than doubled, putting the yearly rate of expansion of its balance sheet over those six months at an all-time record of 420% per year. By comparison, during the previous nine years the average annual rate of expansion of the Fed's balance sheet was a comparatively small 6.25%. Some observers even argue that since the burst of the subprime crisis, the Fed has been acting as market maker of first resort rather than as the classical Thornton–Bagehot LLR (Humphrey, 2010).

This dramatic policy shift was soon to be followed by a number of operational changes in both the implicit and explicit IT procedures followed during the preceding great moderation years. Within less than six months of the Lehman event, the zero bound on the short-term policy rate became effective, forcing the Fed to supplement interest rate policy by means of quantitative easing programs. In parallel, the conduct of expansionary open market operations shifted to longer term maturities and higher risk securities.

Initially European banks were affected by the US subprime crisis mainly through their international financial linkages with the

<sup>&</sup>lt;sup>2</sup> But this still left the door open for some short-run stabilization of the real economy – particularly so in the face of demand shocks.

<sup>&</sup>lt;sup>3</sup> A recent survey on the evolution and measurement of CBI appears in Cukierman (2008a).

<sup>&</sup>lt;sup>4</sup> Henderson and McKibbin (1993) simultaneously formulated such a policy rule for open economies.

 $<sup>^{5}\,</sup>$  In some countries there were experiments with a monetary conditions index as a means of recognizing that the interest rate affects more than output and inflation.

<sup>&</sup>lt;sup>6</sup> Bernanke took the work of Friedman and Schwartz (1963) as a point of departure, but he stressed credit, rather than money contraction, as the main culprit. Although those two nominal stocks normally move together, this is not necessarily the case during panics and banking failures. Further discussion of the prime importance of credit appears in Sections 3 and 4 below.

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