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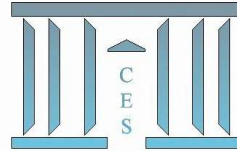
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Central Banking after the Crisis: Brave New World or Back to the Future? *Replies to a questionnaire sent to central bankers and economists*

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Central Banking after the Crisis: Brave New World or Back to the Future?

Replies to a questionnaire sent to central bankers and economists

ABSTRACT

To what extent has the current financial crisis challenged the pre-crisis consensus on central banking? Has the crisis caused a paradigm shift in central banking or is it only a temporary alteration, which will be followed by a comeback of the pre-crisis ‘science’ of monetary policy? This paper provides a snapshot of the current state of central banking doctrine in the aftermath of the crisis, using data from a questionnaire produced in 2011 and sent to central bankers and economists for a report by the French Council of Economic Analysis to the Prime Minister. The results of our analysis of the replies to the questionnaire are twofold. First, we show that the financial crisis has led to some amendments of pre-crisis central banking. We highlight that respondents to the questionnaire agree on the *general* principle of a ‘broader’ view of central banking extended to financial stability. Nevertheless, central bankers and economists diverge or give inconsistent answers about the *details* of implementation of this ‘broader’ view. Therefore, the devil is once again in the details. We point out that because of central bankers’ conservatism, a return to the status quo cannot be excluded.

JEL Classification: E44, E52, G01, G18

Keywords: Central banking, Financial crisis, Financial stability, Macroprudential, Financial supervision architecture

1 Introduction

The current financial crisis has forced central bankers to be innovative, inevitably challenging pre-crisis central banking. The goal of this article is to evaluate to what extent pre-crisis central banking has been shattered, and to gauge its reform. To probe the debate around the evolving role of central banks, we used the questionnaire developed in the report ‘Central Banks and Financial Stability’ by the French Council of Economic Advisors to the Prime Minister (Betbèze et al., 2011)¹. This international questionnaire was sent to 200 central bankers and economists from 16 countries around the world in February 2010. Answers were published in the report in April 2011 (all questions and answers are reported in the appendix giving details about the questionnaire).

This type of survey has become commonplace. In the central banking literature, Cukierman (1992:386) and Cukierman et al. (1992) addressed a questionnaire to central bankers about central bank independence, a crucial question at the beginning of the 1990’s. Later, Blinder (2000) sent to both central bankers and economists a questionnaire about the topical question of the end of the 1990’s: ‘central-bank credibility’. De Haan and Waller (2004), De Haan et al. (2004) and De Haan et al. (2005) extended Blinder’s survey to the question of transparency, but their questionnaire was sent to economists only. The International Monetary

¹ This report is available at <http://www.cae.gouv.fr/Banques-centrales-et-stabilite-financiere.180.html>

Fund regularly conducts questionnaires about specific concepts like transparency (IMF, 2000).

Central banks also routinely employ questionnaires. The European Central Bank (ECB) utilizes bank lending surveys, surveys on access to finance by SMEs, household and consumption surveys, and the *ECB Survey of Professional Forecasters* was launched in 1999 to study expectations. The Federal Reserve Bank of Philadelphia has carried out a similar survey of professional forecasters since 1990. The Fed also publishes a battery of surveys on the opinions of senior financial officers and senior loan officers on bank lending practices, terms of business lending and consumer finances. The Bank of England (BoE) has asked GfK NOP for questionnaires about the general public's attitudes with respect to inflation and monetary policy since 1999. It has also conducted the questionnaire by Mahadeva and Sterne (2000), giving an accurate portrait of pre-crisis central banking, though it has been sent only to central bankers and mainly focuses on the policy framework.

In the context of the current financial crisis, questionnaires deal with the new questions raised by central banking: how to encourage a more thorough interaction of central bankers and academics regarding monetary policy modeling (Bussière and Stracca, 2010), macroprudential policy (IMF, 2011) and stress tests (IMF, 2012). But these questionnaires are sent only to central bankers, and study only few narrow specific fields of central banking in depth.

Our analysis of the questionnaire in this article contributes to the post-crisis central banking literature in three ways. First, following Blinder (2000), our questionnaire was sent to both central bankers and economists, contrary to most of the literature which usually only considers one of the two groups. Secondly, it extends previous literature that was narrowed down to specific aspects of central banking and so covers a large spectrum of central banking areas. Its 57 questions investigate six major aspects of central banking: 1) The Great Moderation and financial instability; 2) Central banking institutional design; 3) Financial stability; 4) Monetary policy (transmission channels, strategy, instruments); 5) The international dimension; 6) The economic science and art of central banking. Thirdly, our questionnaire has the advantage of giving a clear snapshot of the state of the art of central banking in the midst of a raging debate full of confusion. The questionnaire aims to tackle the following questions: what lessons of the crisis can be drawn for central bank policies (Cukierman, 2011)? Has the crisis caused a change in central banking? Up to the point of generating a new monetary policy paradigm? Or in accordance with folk wisdom, are central bankers characterized by significant conservatism? Are we back to the future as suggested by Masciandaro (2012)? Or on the contrary, are economists more reform-minded, with a greater preference for change? To answer these questions, we analyzed the questionnaire with two guidelines. First, we inspected convergences and divergences *between* central bankers and economists. The objective was to identify the post-crisis consensual and dissensual aspects of central banking, and more generally the aspects of central banking that will or will not be able to change after the current financial crisis is over. Secondly, we tracked inconsistencies in the answers of each category of respondent in order to spot the lack of consensus or clarity on the future of central banking.

The answers to the questionnaire indicated some convergences of central bankers and economists on the idea that a large sector of central banking has been affected by the financial crisis. Part of the pre-crisis consensus has proven to be misleading or insufficient in the face of the crisis. In particular, the crisis has revealed the limits of the 'narrow' view of central banking, which mainly focused on price stability, and recommended 'benign neglect' regarding financial stability. Central banking is still alive and well though, with a flourishing number of new avenues of research. The questionnaire signalled some changes, with an evolution towards a 'broader' view of central banking. This new view has been enlarged to

give more room mainly to financial stability. However, on the basis of replies to the questionnaire, it is far from obvious that a paradigm shift in central banking is happening. The answers also stress some persistence of central banking doctrine. The questionnaire shows some divergences between economists and central bankers, who appear to be more conservative while economists have a stronger preference for change. Central bankers' ambivalence – having a strong incentive to change due to the crisis, but still remaining attached to the pre-crisis consensus – surfaces with answers that are often inconsistent from one question to another. Despite the crisis, a status quo in central banking cannot be ruled out. In accordance with these mixed results, the rest of the article is organized as follows: based on respondents' converging answers, section 2 highlights the aspects of 'central banking orthodoxy challenged by the crisis', and suggests possible future avenues for central banking reform. Tracking divergences and inconsistencies in respondents' answers, section 3 points out a risk of 'going back to the pre-crisis status quo' in central banking. Section 4 provides a conclusion.

2 Central banking orthodoxy challenged by the crisis

According to a growing body of literature, the crisis has shaken the foundations of the pre-crisis consensus on central banking (Goodhart, 2010b; Borio, 2011) and '*poses serious challenges to the conventional, pre-crisis views and approaches of central banks and other financial supervisors*' (Bernanke, 2012). Our questionnaire offers complementary evidence and a more accurate portrayal of these challenges to central banking theory. The answers signal the first steps towards a paradigm shift to overcome pre-crisis central banking limits. In this section 2, we analyze these limits and the premises of changes in three key areas: macroeconomic environment, operational framework and institutional design of central banking.

2.1 A not so 'high-power' central bank

In the public opinion, the crisis has turned central banks into the key institutions to solve the crisis, while central bankers admit weakness in the face of financial instability. In sharp contrast, before the crisis, central banks were not so popular, despite central bankers' and economists' feeling powerful, confident that monetary policy had robust theoretical foundations and was becoming more and more a 'science' (Clarida et al., 1999). This contributed to the belief that monetary policy had become effective in stabilizing the economy. The answers to the questionnaire illustrate this belief: central bankers (57%) and academics (69%) remain convinced that monetary policy was one of the causes of the 'Great Moderation' (question 1.1). They seem to believe that monetary policy was effective enough to control its economic environment. However, the crisis has challenged the pre-crisis 'science' and belief in the effectiveness of monetary policy.

Incomplete 'science'. Questionnaire answers provide some evidence that the financial crisis has created a structural breakdown, at least amongst economists, in the belief in the 'science' of monetary policy: 55% of economists claim that the financial crisis has shown the failure of modern economic theory, while 56% declare that the financial crisis is also the crisis of economic theory (question 6.1.2). Indeed, central banking theory developed rapidly during the Great Moderation, but not in the area of financial stability, which was neglected. The Great Depression and the Japanese 'lost decade' were considered as exotic episodes that did not challenge the core of central banking. More generally, monetary and credit factors were peripheral in macroeconomic models. Despite claiming to be Neo-Wicksellian, New Keynesian models à la Woodford (2003) did not include the credit cycle and the related leverage cycle that were among the roots of the financial crisis. This explains why 89% of

central bankers and economists consider that central banks' forecasting models should be supplemented by an analysis of monetary and financial conditions (sub-question 6.2.2). More radically, 59% of academics answer that DSGE models should be rejected (question 6.2.1).

Benign financial instability? Central bankers and economists were convinced that price stability was a sufficient condition for financial stability, and if ever the latter had a spillover effect on the real economy, monetary policy would clean it up. Central bankers were supposed to control financial instability using little or no trade-off with price stability. Financial instability was considered as a second order issue, financial crisis being relegated to the thin tail of the probability distribution, and was supposed to have a limited and temporary impact on the real economy. This is in fact a leftover from the old dichotomy between the real economy and the financial economy. One of the underlying reasons for this view was the efficient market hypothesis. In this financial environment, the central bank has no strong reason to regulate financial instability since financial markets were supposed to converge to equilibrium. Endogenous financial instability was supposed to be moderate. This overly optimistic view explains why 91% of central bankers and academics admit that the Great Moderation led them to underestimate both financial risks taken at the micro-level by market participants and their macro implications for systemic risk (question 1.2). In the pre-crisis central banking theory, the procyclical effects of risk perceptions and attitudes towards risk were insufficiently integrated. As a result, a major mechanism of the financial crisis was left out. The questionnaire answers provide evidence that central bankers now pay more attention to financial instability.

2.2 Shifts in the operational framework

The financial crisis has shed light on the limits of the pre-crisis consensus on the monetary policy 'strategy' of inflation targeting. Questionnaire answers give some indications of a change towards a 'broader' view of central banking in dealing with financial stability. 92% of central bankers and 91% of economists do think that the crisis has changed both the goals and instruments of monetary policy (question 2.1).

2.2.1 Goals and targets

Broadened mandate: back to the past. As seen in section 2.1, questionnaire answers indicate that during the Great Moderation too much focus on price stability led to insufficient attention to financial stability and systemic risk. The literature was in fact recommending a hierarchical, lexicographic or unique mandate with priority to price stability. In formal terms, the weight of the goal of financial stability in the central bank loss function was close to zero. This mandate was a sign of historical short-sightedness. It neglected the fact that financial stability is a historical goal for central banking as illustrated by the original mandate of the Fed - created in 1913 to prevent financial instability - as well as by lessons from the 'Great Depression'. Such lack of foresight has been reduced since the crisis: 86% of central bankers and 73% of academics consider that the goal of price stability should be complemented by one of financial stability (question 2.2).

No 'divine coincidence'. Moreover, 54% of central bankers and 56% of economists consider that more power should be given to central banks to make them able to secure both monetary and financial stability (question 3.5.1). These answers implicitly mean that, contrary to the pre-crisis consensus, there is no 'divine coincidence'. Price stability is not enough to ensure financial stability; price stability is a necessary but not sufficient condition. *De facto*, mandates have been enlarged to include financial stability, notably at the Bank of England, and central banks put more emphasis on financial stability on their websites. The absolute priority of price stability seems to be questioned; the mandate of central banks needs to be broadened. The increased responsibility of the Bank of England regarding financial stability in the *2009 Banking Act* is a good example of an institution which has always been seen as a

model of institutional design. The ‘broader’ view of central banking requires the role of central banks to be significantly enlarged. In formal terms, the central bank loss function is augmented from a financial stability argument, a ‘financial gap’.

Limits to targeting strategies. The crisis has also revealed the limits of the pre-crisis strategies used to deal with financial instability, mainly indirectly, by adjusting the operational definition of the goal of price stability. A popular strategy of adapting inflation targeting to financial crisis and the zero lower bound (ZLB) on the nominal interest rate was to define price stability in terms of price level rather than inflation (Eggertsson and Woodford, 2003). Price level targeting has not been practiced during the current financial crisis; in fact, 85% of central bankers and 54% of economists consider it should not be preferred to inflation targeting (question 4.2.2).

2.2.2 Instruments

The ‘clean-up afterwards’ and the separation principles questioned. The so called ‘Jackson Hole consensus’, ‘benign neglect’ vis-à-vis financial instability also seem to be questioned. These strategies consist in using the interest during the financial *bust* to ‘mop-up’ but not during the boom, i.e. ‘clean up afterwards’ (CUA), as stressed by Mishkin (2011a). This view has now changed, according to the answers to the questionnaire. 85% of central bankers and 88% of academics consider that low interest rates were too low, due to the absence of response to the risk of financial instability, and that this could have caused the crisis (question 1.5). A majority of them recognize that low interest rates also lead to a risk of excessive asset price increases (question 4.3.2). In formal terms, the interest rate rule can no longer permanently have a zero response coefficient on financial stability (Bask, 2012). The Taylor rule should be augmented with financial stability, as underscored by answers to question 4.4.1: 77% of central bankers and 57% of academics consider that the policy rate should react to credit and asset bubbles. In the end, the crisis may have changed views on the integration of asset prices in the monetary policy strategy, going from the domination of the CUA strategy to the rehabilitation of the ‘leaning against the wind’ (LAW) strategy defended initially by the Bank of International Settlements (Cecchetti et al., 2000; 2002).

More generally, the current crisis also provided a test of the ‘separation principle’ underlying the CUA. According to this principle, the European Central Bank (ECB) claimed that, due to the separation of the two goals of price and financial stability, separate instruments should be used for each goal. In this view, the interest rate should not target financial stability, which should be regulated by prudential policies. The current financial crisis has shown that the action of the lender of last resort is not necessarily enough to fight financial instability if it is large and persistent - a scenario that was not envisaged in the pre-crisis consensus. Interest rate actions are also required to contain financial stability, as illustrated by the severe interest rate cuts by the Fed during the current crisis. The separation principle seems to be questioned, since 64% of central bankers and 59% of academics estimate that financial stability involves both monetary policy and prudential supervision (question 3.1.1)

New instruments required for financial stability. Questionnaire answers indicate that for most economists and central bankers the financial crisis has led to changes with respect to the goals and instruments of monetary policy (question 2.1). First, because during the crisis the interest rate instrument was aimed not only at price stability, but also at financial stability. With one instrument for two goals, the standard Tinbergen principle is not complied with. A new instrument is required for the goal of financial stability. The second reason is that the interest rate instrument was not sufficient to cope with financial instability, since the zero lower bound was quickly reached. This fact was recognized by 75% of central bankers and 53% of economists, who consider that interest rate is not the most efficient tool to ensure financial stability (question 4.4.3). Evidence of this limitation on the interest rate is the massive use of unconventional monetary policies during the crisis. In this respect, central

bankers have been uncommonly innovative, far from Rogoff's view of conservative central bankers. The Mundell assignment principle recommends using prudential instruments to achieve the goal of financial stability. This leads to the last reason: central bankers are now ready to be strongly involved in prudential policy and need instruments in this area. According to answers given to the questionnaire, 62% of central bankers and 66% of academics declared that the central bank should go beyond providing liquidity every day and playing the role of lender of last resort. It should be involved in micro-prudential supervision (question 3.2.1). These answers suggest that central banks were insufficiently connected to the authorities in charge of banking and financial stability, as was the case in the dominant British model in which the Financial Stability Authority (FSA) was independent of the central bank (Masciandaro et al., 2012).

From micro-prudential to macro-prudential supervision. The traditional micro-prudential tool is challenged by a post-crisis consensus calling for supervision to be enlarged to a macro-prudential perspective (De Haan et al., 2012). According to 86% of central bankers and by 89% of economists the central bank should play an important role in macro-prudential policy (question 3.3.1), in accordance with the emerging consensus in the academic literature (Blinder, 2010; Masciandaro, 2012). 73% of central bankers and 80% of economists support the new responsibility given to the ECB in macro-prudential policy (question 3.6.2). This new view is consistent with an increasing part of the literature that proposes that central banks should play a key role in this area². It is also consistent with reality, since central banks became key actors in macro-prudential policy by virtue of their acute knowledge of the financial system. The new macro-prudential approach should consist in more thorough supervision of systemic institutions according to 86% of central bankers and 77% of academics (question 3.5.2). The emerging role of macro-prudential supervision does not mean that the micro-prudential dimension has been abandoned - these policies are complementary. However, 54% of central bankers and 62% of academics consider that banks' stress tests are not the best way to move towards a convergence of micro-prudential and macro-prudential regulation (question 3.4.1).

2.2.3 Transmission channels

According to questionnaire answers, there is a consensus that (financial, systemic) risks were underestimated during the Great Moderation (question 1.2). Consequently, the link between low interest rate policies (question 1.5) and systemic risk was neglected. The impact of accommodating monetary policies on the risk aversion of financial market participants was not taken into account. Of second magnitude before the crisis, the 'risk-taking channel' (Borio and Zhu, 2012) is now considered as one of the main monetary policy transmission channels by 54% of central bankers and 63% of academics (question 4.1.2). This channel means that low interest rate policies can give market participants an incentive to take more risk – i.e. Keynes' optimistic animal spirits - thereby increasing the probability of a systemic risk. It is now commonly admitted that low interest rate policies can contribute to credit and financial booms. The 'risk-taking channel' is consistent with the new 'broader' view of central banking that emphasizes the central banks' natural responsibility for financial stability.

This new transmission channel is renewing the interest for the theoretical framework developed by Keynes, and Minsky (1986). The risk-taking channel has resurrected phenomena theorized by Minsky (Goodhart, 2010a), such as the 'financial fragility' hypothesis, 'the paradox of tranquillity' and 'Minsky moment'. These hypotheses have been more recently developed at the Bank of International Settlement as the 'paradox of credibility' of monetary policy (Borio and Lowe, 2002).

²Bank of England (2009), de Larosière (2009).

2.3 Central banking institutional design

As we have seen in sections 2.1 and 2.2, the financial crisis has challenged the standard monetary policy theory and strategy. There is also a debate about the reform of the pre-crisis central banking institutional framework (see Masciandaro et al., 2012). Questionnaire answers provide some useful information on this matter.

Monetary and financial authorities: should they be separated? Before the crisis, a principle of separation was largely applied, causing a decoupling of the responsibilities for price stability and financial stability. In this framework, monetary policy focuses on price stability, while financial stability does not need to be one of the central bank's tasks (Blinder, 2010). The result could be two separate institutions, one for each goal, as in the United Kingdom where responsibility for price stability was given to the Bank of England, while that for financial stability was given to the FSA. According to our questionnaire, only 31% of central bankers and 27% of economists maintain the doctrine of fully separate institutions after the crisis, while respectively 54% and 69% of them recommend some cooperation between the monetary authorities and prudential supervisors (question 2.4). The creation in December 2010 of the European Systemic Risk Board chaired by the European Central Bank - which includes European prudential authorities, as well as representatives of the EU commission - was approved by 60% of central bankers and 75% of economists (question 3.3.2). Since the separation principle has been questioned, the separation of the two goals of price stability and financial instability into two separate institutions is challenged. Authorities in charge of price and financial stability need to cooperate.

Institutionalizing global central banking coordination. During the last decade, because price stability was seen as a sufficient condition for macroeconomic stability and efficient markets were supposed to generate little negative international spillover, national macroeconomic stability was also seen as a sufficient condition for international macroeconomic stability. This could be regarded as the triumph of the 'own house in order' doctrine in the international monetary field.

On the contrary, the financial crisis has shown the international dimension of central banking and prompted new forms of international cooperation among central banks, in particular to provide liquidity to banks, restore confidence in financial markets and play the role of lender of last resort. Examples of such cooperation are provided by the coordinated actions of six central banks in cutting down their interest rates on October 8, 2008 just after the Lehman Brothers collapse, along with the liquidity swap lines initiated in December 2007 by the Fed for several central banks.

The case for coordination of actions as lenders of last resort generally comes from the openness of our economies and the high interconnectedness of financial institutions (Chan-Lau et al., 2012). In a highly globalized world, in which markets are tightly integrated, country- or regional-specific monetary policies are bound to be inadequate. The financial stability policy (liquidity injection) in one country can have spillover effects in other countries. As global financial markets are highly interdependent, liquidity and financial stability become a global common good, and new forms of implicit international lenders of last resort are required. The existence of domino effects and all the subsequent 'spillover' effects are well accepted. The consensus on this international coordination is large: 82% of central bankers and 62% of economists think that major central banks should take into account the impact of their action on world liquidity (question 5.2). On top of that, 92% of central bankers and 80% of economists consider that central bank operations as lenders of last resort need to be coordinated (question 5.5).

The case for coordination of action to tackle financial bubbles is identical: because of the openness of our economies and the tight interconnections between financial institutions, if a central bank chooses to use macro-prudential tools in order to limit credit developments

among other things, financial intermediaries can substitute external funding for domestic funding. Accordingly, without coordination macro-prudential policy may not be efficient. This is the reason why some economists have asked for the creation of an International Monetary Policy Committee (Eichengreen *et al.*, 2011), among other proposals. Analytically, this calls for a shift to a ‘broader view’ equivalent to that which has already occurred in bank supervision, from a micro- to a macro-prudential perspective, towards a more global approach to monetary policy. Questionnaire answers give evidence of such a change: 50% of central bankers and 60% of economists (question 5.4) consider that central banks should lean against the wind of financial bubbles in a coordinated way.

Central bank independence revisited. The ‘broader’ view of central banking highlighted in the questionnaire promotes more goals, increased responsibility and power to the central banks, particularly in the domain of financial stability. As a result, the question of central bank independence should be raised not only with respect to politicians, but also with respect to financial players. Some authors (see Blinder, 1997) have pointed out that institutional design should organize the independence of central banks vis-à-vis financial markets. This idea is widely supported in the answers to our questionnaire. According to 85% of central bankers and 75% of economists, central bank autonomy is as important for financial stability as it is for price stability (sub-question 2.3).

But from the institutional and political economy viewpoints, this greater role and power given to central banks must lead to an increase in central bankers’ accountability with respect to elected bodies and civil society. The institutional design theory for price stability - based on the principal-agent approach à la Walsh (1995) and calling for a credible incentive structure of accountability - should also prevail for financial stability. From the political economy point of view, the trade-off between central bank independence and accountability calls for a new balance between independence and accountability to alleviate the democratic deficit and secure the democratic legitimacy of the central bank’s role in financial stability.

3 Going back to the pre-crisis status quo?

As seen in section 2, the financial crisis has challenged pre-crisis central banking orthodoxy. However, this does not necessarily mean that central banking foundations will be renewed. Answers given to the questionnaire provide evidence that there is a convergence of opinions towards a consensus on the general principle of putting more emphasis on financial stability. As usual though, the devil is in the details. There are also many divergences of opinion about the implementation of this increased focus on financial stability. Divergences appear with contrasted answers from central bankers and economists. Moreover, answers given by both types of respondents (central bankers and economists) are not always consistent from one question to another. Based on the study of these inconsistencies in their answers, this section 3 shows that the status quo is likely to prevail in the doctrine of central banking.

3.1 Sticky theoretical foundations

3.1.1 Central bankers

During the ‘Great Moderation’, central bankers believed they could be complacent about financial instability (Mishkin, 2011b:30). As seen in section 2.1, they now admit that this stable macroeconomic environment had caused them to underestimate financial risks. Since they claim the ‘Great Moderation’ is over, they should consider that we are now in a time of greater volatility and therefore pay more attention to financial stability. Paradoxically however, only 38% of them consider that we are entering an era of financial instability (question 1.3). Does this mean that central bankers see the ongoing financial crisis as an

exogenous and temporary shock alone, in contrast to endogenous financial instability *à la* Minsky? Without drawing hasty conclusions, this casts doubt on how important they believe the financial instability they will have to face, and thus on their willingness to openly address the issue.

3.1.2 Economists

As seen in section 2.1, economists are prompt to highlight the weakness of modern economic science. When asked if the efficient markets framework should be jettisoned (question 6.3.2) a majority of the economists (52%) said yes. Accordingly, they should reject the main economic hypothesis of rational expectations. However, a majority (55%) of them disagree that the latter should be replaced by the animal spirits assumption (question 6.3.1). Economists are not necessarily inconsistent, but instead probably believe that the alternative theoretical framework is not well developed enough to replace the old one.

3.1.3 Economists *versus* Central Bankers

Our analysis shows that central bankers' and economists' views on the renewal of central banking theory are slightly different. Central bankers are closely bound to the *pre*-crisis mainstream theory, while economists are more critical about the mainstream theory even if they do not give strong support to alternative theories. This leads to a paradox in answers to the questionnaire: central bankers are more prompt to defend existing economic 'science' than economists themselves!

Absolutely all central bankers refuse the idea that the financial crisis is due to the failure of modern macroeconomics (question 6.1.2). They also reject the idea that the economic crisis is a crisis of economic theory (sub-question 6.1.2), contrary to a majority of economists. Similarly, when asked if the DSGE class of models used by central banks and economists are fundamentally flawed, 82% of central bankers answer that DSGE models are useful, a conclusion on which only 36% of economists agree (question 6.2.1).

Last, to the question 'do you think central banking will continue to be more an art than a science?' (question 6.4.2), a large majority (70 %) of central bankers consider that central banking will remain an art helped by science³. Meanwhile, 60% of economists believe that central banking will definitely be an art. Here again, it seems that central bankers are more prompt than economists to defend the usefulness of the mainstream theory in conducting monetary policy.

The central bankers' commitment to the theory may surprise more than one. However many central bankers not only come from academia but participate in the science. Theory is a crucial ingredient of their communication. Since central bankers are independent, the theory offers them a way of justifying decisions and actions which is necessary to build their legitimacy. Consequently, any theoretical change would be costly in terms of communication and credibility. Nonetheless, central bankers have been very innovative since the beginning of the crisis, much more than theoreticians.

3.2 Persistence of the pre-crisis strategy

General strategy. For most respondents, the crisis has changed the views of central bankers and academics with respect to the goals and instruments of monetary policy. Inconsistently though, 83% of central bankers want to keep their inflation-targeting strategy unchanged (question 4.2.1). In sharp contrast, 79% of economists call for change and thus are more consistent – or less conservative - than central bankers in their answers. Another sign of conservatism about inflation targeting is the consensus on keeping the level of the inflation

³Answers range from central banking will be "banked by scientific temperament" to central banking will be "based on science".

target unchanged. Indeed the Blanchard et al. (2010) proposal of increasing the inflation target from 2 to 4% to address the problem of financial instability was rejected by 86% of central bankers and 55% of academics (sub-question 4.1.1).

Dealing with financial stability. How to explain that even forced by the financial crisis to focus more on financial stability, central bankers have kept inflation targeting and the financial stability management principles that go with it (Jackson Hole consensus, CUA, etc.)? A possible reason why central bankers continue to favour the ‘clean’ strategy is that 62% of them claim they do not create moral hazard when they play their role of Lender of Last Resort by helping systemically-important institutions (question 3.5.3). 60% of the economists hold the opposite view, as they indicate their preference for the competing LAW strategy (see question 4.4.3).

One consequence of these contradictory views is inconsistent answers from central bankers about, for instance, the danger of an overly accommodating monetary policy for financial stability. On the one hand, (in section 2, questions 1.5, 4.4.1 and 4.4.2) they agree that low interest rates may cause a bubble and so would be inclined to avoid it. On the other hand, central bankers hesitate when asked (question 4.4.2) whether a central bank should always choose the lowest interest rate consistent with its definition of price stability, or rather choose a higher rate in the presence of a bubble? 80% say yes to the first part of the question and surprisingly 80% also say yes to the second part. It is surprising that the majority of central bankers answered "yes" to both. If we assume that the issue has not been misunderstood, then it shows a great degree of confusion regarding the monetary policy strategy to achieve financial stability. This can be interpreted as a double language, sometimes recognising the failure of previous strategies (separation principle, CUA), sometimes not. More generally, these ambiguous answers may be interpreted as a sign of the lack of willingness to take financial stability into account.

Are the financial stability goal and channels still neglected? Despite the crisis, the financial stability goal seems to remain a second order question. Even if at first central bankers (like economists) approve of the financial stability goal as a complement of the monetary stability goal (question 2.2), 62% of central bankers (compared to 48% of the economists) answer that if they aim at both monetary and financial stability, monetary policy will be endangered (sub-question 3.5.1).

Regarding transmission channels, central bankers again give inconsistent answers, which suggest they neglect the risk-taking channel. 54% of them admit the importance of the risk-taking channel (question 4.1.2), but in answers given to other questions (see above question 4.4.2), they implicitly reveal that they do not take into account the implications of the risk-taking channel for interest rate policy.

Unconventional policies. Central bankers are also ambiguous in their assessment of unconventional monetary policies. They are only 29% (compared to 62% of economists) in saying these policies solve the ‘zero bound’ issue (question 4.3.1). This seems to be paradoxical at first glance, since central bankers have in practice used extensively unconventional policies since the beginning of the crisis. There are at least two possible interpretations of such a paradox. First, central bankers could have realized that these policies are not enough to overcome the ZLB problem. Second, as they judge the financial shock to be temporary, they see these policies as temporary and do not want to rely on them in their communication. They will therefore soon be back to conventional policies to regulate financial instability. As for economists, they seem more optimistic about unconventional policies, probably because they have theorized them and because they could consider, not without reason, that central bankers have in fact followed their recommendations.

Moreover, 50% of central bankers consider that unconventional policies pose a risk to price stability (compared to 31% of economists) in the medium/long run (question 4.3.3). This view

is not fully consistent with the facts; there is no empirical evidence yet that unconventional policies have generated – or will generate - hyperinflation. However, this view is consistent with the hypothesis that central bankers believe these policies should be temporary.

3.3 No consensus on the optimal institutional design

As pointed out in section 2 and in sharp contrast with the pre-crisis consensus, both central bankers and economists now seem in favor of a greater involvement of central banks in both macro- and micro-prudential supervision (questions 3.3.1 and 3.2.1). In light of these replies, the institutional separation between micro- and macro-regulation agencies does not appear to be the preferred institutional design. Only 42% of central bankers and 46% of economists approve of central banks being in charge of systemic oversight, while specialized agencies deal with institution-specific supervision (question 3.4.2). In contrast, the opposite institutional design, i.e., the two prudential policies (micro and macro) under the same roof of the central bank, is not the new consensus either. Only a third of central bankers and economists are in favour of a single agency for prudential policy (question 3.4.2). Note also that the abstention rate of central bankers (25%) for this last question is among the highest. Abstention was also very high for question 3.6.2 ('Is it a good thing that the ECB has been granted macro-prudential supervisory prerogatives?'), even though the majority of central bankers and economists answered yes. The optimal post-crisis macro-prudential institutional design still appears to be unclear as also stressed in the literature (Cukierman, 2011). This blurred vision of central banking design in the area of the financial stability highlights deep questions raised in the literature: the fear of concentrating too much powers in the hands of the central bank (Buiter, 2012); the persistent doubt about the central bank ability to assume a micro-prudential mission (Eijffinger and Masciandaro, 2011; Boyer and Ponce, 2011); the difficulty for the central bank to preserve its independence in assuming a financial stability mission because of the highly political nature of the latter (Blinder, 2012).

Additional proof of this lack of clear vision is that, although central bankers seem to subscribe to a greater involvement in prudential activities, they are only a small majority (55%) that 'believe that the countries where the central bank is involved in prudential oversight fared better during the crisis' (question 3.2.3). Only 32% of economists gave an affirmative answer to this question. The answer appears to be contradictory to the economists' position of recommending greater involvement of central banks in supervision (question 3.2.1), while admitting it does not necessarily work in practice.

At the European level, a majority of answers agree with the need for a new supervisory framework in Europe to deal with risks of financial stability as well as monitoring individual banks (question 3.6.1). However, only 40% of the answers saw the European System of Financial Supervision (ESFS) as a 'first best' solution (question 3.6.3). The ESFS, proposed in 2010, is comprised of an EU-wide body to look for systemic risk and a second body to examine individual companies – including national regulators and three EU regulators for the securities, banking and insurance-and-pension sectors. In other words, there is no consensus about the optimal European model of supervision.

3.4 International cooperation: only in times of crisis?

At the start of the financial crisis, monetary authorities implemented innovative unconventional policies and, as seen in section 2, there are some signs of change for more international cooperation among central banks. Yet in the details, central banks still seem unclear about exactly how they will deal with the international consequences (positive and negative externalities) of unconventional policies and with the goal of financial stability. The old 'own house in order' doctrine may prevail in the future.

The wide agreement on the idea that major central banks should take into account the impact of their decisions on global liquidity, stressed in section 2 (question 5.2), should logically be

accompanied by a broad consensus on the risk of negative externalities caused by unconventional policies. This does not seem to be really the case though. On one hand, 52% of economists believe that there is a risk of mutual inconsistency in national approaches, but on the other hand, 83% of central bankers deny this problem (question 5.1). Then when asked if monetary chaos is a risk (sub-question 5.1), the same 52% of economists give an affirmative answer, while once again a large majority of central bankers (75%) consider that there is no risk. Finally, to the question ‘Should major central banks coordinate their action as lenders of last resort?’ (question 5.5), almost all central bankers (92%) give an affirmative answer. When asked the same question about tackling asset price bubbles (question 5.4), only one central banker out of two considers coordination to be a better solution.

These answers cast doubt about central bankers’ willingness to take the international scope of their decisions into account, and indicate a free riding behavior problem. Nevertheless, this seems consistent with central bankers’ view that financial instability and unconventional policies are temporary.

Question 5.3 about exchange rates gives another illustration of central bankers’ preference for the *status quo*, rather than going further in international coordination. To the question ‘In what circumstances are coordinated interventions by major central banks on the forex market desirable’, a large majority of central bankers and economists answer that they are but only in the case of extreme events (78% and 61% respectively). Last, only 17% of economists answer that interventions should take place regularly, while none of the central bankers agree. Notice that *laissez-faire* (floating exchange rate) was well accepted before the crisis, while regular interventions were seen as non standard policy even if many countries did in fact intervene on the forex market due to the ‘fear of floating’. On the one hand, the widespread answers of economists illustrate the intensity of the debate among central bankers. On the other hand, the zero vote by central bankers indicates some taboos and their preference for the consensual answer. This can be seen as a conservative bias.

4 Conclusion

As often, the devil is in the details. Economists and central bankers answering to our questionnaire agree on a new broad principle for central banking: more attention to financial stability. There are some signals of such a move from a narrow to a broader view of central banking. But respondents disagree about details of implementation of the reform: which goals, which instruments, which institutions... Answers about how to reform the central banking show some divergences, and often even some inconsistencies, in respondents’ views of the future of central banking.

Several of these inconsistencies are worth mentioning since they constitute the currently unsolved questions that could rank at the top of the agenda of future research on central banking.

As an initial illustration of these discrepancies, economists and central bankers see low interest rates as a factor in the housing bubble, but remain convinced that a central bank must choose the lowest interest rate consistent with its definition of price stability and should not choose a higher rate in the presence of a bubble. Another example is that economists and central bankers admit that the financial crisis has changed central banks’ goals and instruments and that the price stability objective must be complemented by a financial stability objective. At the same time though, a large majority of central bankers remain opposed to a change in the quantitative definition of price stability (in contrast, more than half of economists would be favourable) and very hostile to a revision of the inflation-targeting strategy (once again, unlike a large majority of economists, who would be in favour of it). The lesson that can be drawn is that central bankers have no clear preferences, and differ from

economists, on the future monetary policy strategy (conduct and choice of the instrument) enlarged to financial stability.

As additional inconsistency, central bankers and economists are convinced that central banks should be involved in prudential supervision, but without distinction between micro- and macro-prudential supervision. This leads to a rather confused picture of who is in charge of supervision and how the central bank should be involved (micro- and/or macro- prudential involvement). The lesson is that central bankers and economists have no clear view on the institutional design of a new central banking enlarged to financial stability.

As a consequence, the wind of change maybe will not blow strong enough to overthrow the pre-crisis central banking. There is an obvious risk of status quo in central banking theory and practice. In the near future, we could see the persistence of the inflation targeting mainstream in which financial stability is a simple contribution of central bankers, not a goal *per se*.

The scenario of the status quo in central banking seems plausible as central bankers' answers exhibit a more 'conservative' bias than those of economists. This conservatism could explain the striking result of the questionnaire of recurrent inconsistencies in central bankers' answers, notably in the domain of financial stability. To be more precise, these inconsistencies could stem from two opposite forces: change *versus* conservatism. First, as central bankers want more power, they agree to be vested with a mission of financial stability. It is not unreasonable to suggest that they need to be involved in financial stability because they realized during the crisis that, contrary to their pre-crisis opinion base, price stability and monetary policy did not in practice have the positive effect they expected on financial stability. This would be the brave new world of central bankers. As an opposite force, they are attached to the pre-crisis theories where financial stability was a second order question - theories that were the foundations of their credibility and legitimacy. This force is an incentive for central bankers to consider financial stability as a temporary issue confined to exceptional and abnormal periods and calls for a return to pre-crisis principles. Central bankers' conservatism is an expected result from the literature (Rogoff, 1985); in particular during crisis because central bankers are cautious in the face of uncertainty (Brainard, 1967).

In economists' replies they appear to be less conservative than central bankers. However, they do not seem reformists enough to avoid the *status quo* and impose a paradigm shift in central banking. Economists also are not fully consistent; they recognise the flaws of economic theory, but few are ready to replace the hypothesis of rational expectations by that of animal spirits and only a small majority agrees to abandon the theory of efficient markets. Economists may sail less on the wind of reform than the wind of doubt, as emphasized by their pessimism about the usefulness of their science for central banking: 60% of them estimate that central banking will continue to be an art and only an art, not a science. A last lesson of the analysis of the questionnaire is that the new financial stability oriented central banking needs for theoretical foundations. The 'science' of central banking remains to be reinvented.

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Appendix

The questionnaire was sent to around 200 recipients: economists, central bankers and supervisors. Economists are academics that have been chosen as well known and famous experts working specifically on monetary policy or financial stability. This choice is close to Blinder (2000) selecting ‘*academic economists who specialize in monetary economics or macroeconomics*’ and comparing central bankers’ and academics’ views, as a good way to take the measure of the distance between the ‘art’ and ‘science’ of central banking.

The rate of return was about 25% with 46 respondents from around the world (a total of 16 countries plus the euro zone represented by the European Central Bank). Among the 46 respondents, 31 are economists and 15 are central bankers (responding supervisors were too few to form a separate category of participants). Central bankers were naturally well distributed among the 16 countries because a person generally responded on behalf of their institution (except for two in Japan). French (12), American (10) and British (4) economists are the most represented among questionnaire participants (table 1).

Table 1: Distribution of respondents by categories (central bankers /economists) and by countries

	All		Central bankers		Economists	
	Number	%	Number	%	Number	%
Australia	2	4	1	7	1	3
Canada	1	2	0	0	1	3
China	1	2	1	7	0	0
Czech Republic	1	2	1	7	0	0
Euro Area	1	2	1	7	0	0
France	13	28	1	7	12	39
Germany	1	2	1	7	0	0
India	1	2	1	7	0	0
Israel	1	2	0	0	1	3
Italia	2	4	1	7	1	3
Japan	2	4	2	13	0	0
Korea	1	2	1	7	0	0
Mexico	2	4	1	7	1	3
Sweden	1	2	1	7	0	0
Turkey	1	2	1	7	0	0
United Kingdom	5	11	1	7	4	13
United States	10	22	0	0	10	32
Total	46	100	15	100	31	100

The representativeness of the sample may be questioned since 61% of interviewed people come from only 3 countries: United States, France and United Kingdom. In the details, the problem of representativeness is less pregnant for central bankers than for economists. The distribution of central bankers is more balanced across countries since one person is generally responding on the behalf of the institution (except two in the case of Japan). For economists, one can hope that the diversity of opinion among them should mitigate the country bias.

A last concern on questionnaire expressed in the literature is that central bankers’ responses to the questionnaire are ‘subjective’ and even can be biased. Central bankers may do not respond what they personally think, but give an official view representative of the central bank. Or they may also respond what is expected from them, not what they really think (Cukierman *et al.*, 1992). For these reasons, some authors prefer to rely on their own independent analysis instead of information provided by central bankers via questionnaires. But our questionnaire has the major advantage of dealing with areas of central banking where information cannot be obtained via central banks publications and requires to be asked to central bankers.

Table 2: replies to the questionnaire (in %, by categories)

		All respondents	Central bankers	Economists	
1. Financial instability and the 'Great moderation'					
1.1. Did the "Great Moderation" reflect improved monetary policy? Structural factors? Both? Neither (was the "Great Moderation" an illusion?)	• Only improved monetary policy	7	14	3	
	• Only structural factors	14	21	10	
	• Both	65	57	69	
	• An illusion	12	7	14	
	• N/A	2	0	3	
	Number of participants	43	14	29	
1.2. Did the "Great Moderation" contribute to misperceptions about risks?	• Yes	91	91	91	
	• No	9	9	9	
	• N/A	0	0	0	
		Number of participants	33	11	22
			56	54	57
1.3. Is the "Great Moderation" over?	• No	39	38	39	
	• N/A	6	8	4	
		Number of participants	36	13	23
			60	38	70
			38	54	30
1.4. Are we entering an era of amplified credit cycles and financial instability?	• No	3	8	0	
	• N/A	40	13	27	
		Number of participants	40	13	27
			87	85	88
			13	15	12
1.5. Were unusually low interest rates a factor in the housing bubble and therefore ultimately the bust?	• No	0	0	0	
	• N/A	38	13	25	
		Number of participants	38	13	25
			92	92	91
			8	8	9
2. Institutional Design					
2.1. Has the crisis changed both central banks' tasks and their toolkit?	• No	0	0	0	
	• N/A	36	13	23	
		Number of participants	36	13	23
			78	86	73
			20	14	23
2.2. Should the central bank's price stability objective be complemented by a financial stability objective?	• N/A	3	0	4	
		Number of participants	40	14	26
			83	92	78
			17	8	22
			0	0	0
2.3. Do you think that the central banks' ability to take actions to assure price stability while sustaining economic prosperity depends heavily on their independence from political pressure?		Number of participants	36	13	23
			79	85	75
			18	8	25
			3	8	0
			33	13	20
2.4. Should monetary authority and supervisory roles be separated or does cooperation create beneficial synergies?	• Separation	28	31	27	
	• Cooperation	64	54	69	
	• N/A	8	15	4	
		Number of participants	39	13	26
			39	13	26
3. Financial Stability					
3.1. Financial stability goal					
3.1.1. Do you believe that the goal of financial stability is part of prudential supervision or of both prudential supervision and monetary policy?	• Of both	61	64	59	
	• Only of prudential supervision	37	36	37	
	• N/A	2	0	4	
		Number of participants	41	14	27
			18	4	14
3.1.2. Would you characterize the measures to be taken to stabilize the financial markets as mostly concerned with prudential supervision? Mostly concerned with monetary policy? Both at the same time? A stronger linkage between the two?	• Mostly concerned with prudential supervision	9	2	7	
	• Mostly concerned with monetary policy	20	9	11	
	• Concerned by both	10	4	6	
	• A stronger linkage between the two	7	1	6	
	• N/A	39	13	26	
		Number of participants	39	13	26
			64	62	66
3.2. Microprudential supervision					
3.2.1. In pursuit of financial market stability, should central banks go beyond liquidity provision (overnight and as lenders of last resort) and be involved in micro-prudential supervision of banks? How?	• No	29	31	28	
	• N/A	7	8	7	
		Number of participants	42	13	29
			97	100	95
			0	0	0
3.2.2. When micro-prudential supervision is not part of the mandate of the central bank, should the latter be in close contact with the bank's supervisor?	• No	3	0	5	
	• N/A	33	11	22	
		Number of participants	33	11	22
			42	13	29
			97	100	95

If yes, how?	Solutions cited : <ul style="list-style-type: none"> • regular meetings • interlocking directorship • data sharing • common workshops and research findings sharing • advisory opinion of Central Bank • information sharing • other comments 	7	2	5
		6	3	3
		3	1	2
		2	0	2
		1	0	1
		9	8	1
		5	2	3
3.2.3. Do you believe that those countries where the central bank is involved in prudential oversight fared better during the crisis?	<ul style="list-style-type: none"> • Yes • No • N/A 	40	55	32
		50	27	63
		10	18	5
	Number of participants	30	11	19
3.3. Macroprudential supervision				
3.3.1. Should the Central Bank play an important role in macroprudential supervision?	<ul style="list-style-type: none"> • Yes • No • N/A 	88	86	89
		7	0	11
		5	14	0
	Number of participants	41	14	27
3.3.2. If yes, would you favour a systemic risk council, presided over by the ECB, for the euro zone, as described in the Larosière report?	<ul style="list-style-type: none"> • Yes • No • N/A 	70	60	75
		23	20	25
		7	20	0
	Number of participants	30	10	20
3.4. Articulation between micro and macro-prudential				
3.4.1. Stress tests: Are bank 'stress tests' the most promising way to join the macro- and micro prudential perspectives to create a stronger supervisory framework?	<ul style="list-style-type: none"> • best solution • good but not the best • bad solution • N/A 	29	38	24
		59	54	62
		9	8	10
		3	0	5
	Number of participants	34	13	21
3.4.2. Should micro-prudential and macro-prudential regulation be done by separate agencies? Should central banks be in charge of systemic oversight while specialized agencies deal with institution-specific supervision?	<ul style="list-style-type: none"> • Separation between micro- and macroprudential • No separation, only one agency • N/A 	45	42	46
		38	33	39
		18	25	14
	Number of participants	40	12	28
3.5. Systemic risk and moral hazard				
3.5.1. To assure both monetary stability and financial stability, do central banks need more powers?	<ul style="list-style-type: none"> • Yes • No • N/A 	55	54	56
		32	31	32
		13	15	12
	Number of participants	38	13	25
Is there a risk such powers will have a negative impact on the conduct of monetary policy?	<ul style="list-style-type: none"> • Yes • No • N/A 	53	62	48
		39	31	43
		8	8	9
	Number of participants	36	13	23
3.5.2. If central banks are to play a key role in dealing with systemic risk when applying a more macro-prudential approach, do you think they also need to have closer oversight of systemically significant institutions?	<ul style="list-style-type: none"> • Yes • No • N/A 	81	86	77
		19	14	23
		0	0	0
	Number of participants	36	14	22
3.5.3. Conversely, did central banks create moral hazard by putting too much focus on systemically-important institutions?	<ul style="list-style-type: none"> • Yes • No • N/A 	52	38	60
		48	62	40
		0	0	0
	Number of participants	33	13	20
3.5.4. Should Governments play a leading role in crisis resolution? Should they declare insolvent companies with weak capital or investor confidence, replace managers, remove the bad assets and require shareholders to take losses?	<ul style="list-style-type: none"> • Yes • No • N/A 	77	77	77
		23	23	23
		0	0	0
	Number of participants	35	13	22
If yes, how?	Solutions mentioned: Governments should... <ul style="list-style-type: none"> • declare insolvent companies with weak capital • replace managers • remove the bad assets • require shareholders to take losses • advise but do not manage directly 	12	4	8
		8	2	6
		6	2	4
		10	3	7
		2	0	2
3.6. Europe				
3.6.1. Do the 'systemic risks' revealed by the financial crisis highlight the need for a new supervisory framework in Europe to assess financial stability risks as well as policing individual banks?	<ul style="list-style-type: none"> • Yes • No • N/A 	83	70	89
		14	20	11
		3	10	0
	Number of participants	29	10	19
3.6.2. Is it a good thing that the ECB has been granted macro-prudential supervisory prerogatives?	<ul style="list-style-type: none"> • Yes • No • N/A 	77	73	80
		6	0	10
		16	27	10
	Number of participants	31	11	20
3.6.3. Do you see the new European Union system (one EU-wide body to look for systemic risk and a second body - comprising national regulators and three new EU regulators for the securities, banking and insurance-and-pension sectors - to examine individual companies) as a 'first best' solution?	<ul style="list-style-type: none"> • Yes • No • N/A 	41	40	41
		50	50	50
		9	10	9
	Number of participants	32	10	22
4. Monetary Policy : channels/strategy/tools				
4.1. Channels				
4.1.1. Does the promise by central banks to deliver price stability in the medium term offer a crucial element in confidence?	<ul style="list-style-type: none"> • Yes • No • N/A 	95	93	96
		5	7	4
		0	0	0
	Number of participants	37	14	23

Is a change in the quantitative definition of price stability currently used a necessity?	<ul style="list-style-type: none"> • Yes • No • N/A 	32	14	45
	Number of participants	68	86	55
		0	0	0
		34	14	20
4.1.2. Monetary policy and risk taking by financial intermediaries are linked (RTC: risk taking channel). In recent years, has this risk-taking channel become a major monetary policy transmission mechanism?	<ul style="list-style-type: none"> • Yes • No • N/A 	59	54	63
	Number of participants	28	38	21
		13	8	16
		32	13	19
4.2. Strategy				
4.2.1. After the crisis, should the inflation targeting strategy, the ECB and Fed strategies be revised?	<ul style="list-style-type: none"> • Yes • No • N/A 	56	8	79
	Number of participants	42	83	21
		3	8	0
		36	12	24
Along which lines?	Solutions cited :			
	financial asset prices targeting	9	0	9
	real estate asset prices targeting	5	1	4
	more flexible strategy giving more importance to output	3	0	3
	to raise the inflation target at 4%	3	0	3
	to give importance to credit development	3	0	3
	to ensure Government solvency	1	0	1
to take into account global and domestic imbalances	1	0	1	
4.2.2. Could price-level targeting be an improvement over inflation targeting?	<ul style="list-style-type: none"> • Yes • No • N/A 	19	0	29
	Number of participants	65	85	54
		16	15	17
		37	13	24
4.3. 'Zero lower bound' and exit strategy				
4.3.1. Did unconventional monetary policy solve the 'zero lower bound' issue?	<ul style="list-style-type: none"> • Yes • No • N/A 	49	29	62
	Number of participants	31	43	24
		20	29	14
		35	14	21
4.3.2. Do you think the current low level of interest rates is fuelling too strong a price rise in other asset classes?	<ul style="list-style-type: none"> • Yes • No • N/A 	63	54	68
	Number of participants	34	38	32
		0	0	0
		35	13	22
4.3.3. Do non-conventional measures and their lagged effects raise concerns over price stability of goods and services in the medium/long term?	<ul style="list-style-type: none"> • Yes • No • N/A 	37	50	31
	Number of participants	58	42	65
		5	8	4
		38	12	26
... Over assets prices bubbles?	<ul style="list-style-type: none"> • Yes • No • N/A 	34	50	27
	Number of participants	63	50	68
		3	0	5
		32	10	22
4.3.4. Would a transitory increase in the quantitative definition of price stability currently used by most central banks be useful to facilitate the exit strategy?	<ul style="list-style-type: none"> • Yes • No • N/A 	29	8	39
	Number of participants	63	83	52
		9	8	9
		35	12	23
4.4. Asset prices				
4.4.1. Should the central bank key interest rate respond to asset price bubbles and credit booms?	<ul style="list-style-type: none"> • Yes • No • N/A 	63	77	57
	Number of participants	34	23	39
		2	0	4
		41	13	28
	• Number of mentions of 'the interest rate is a blunt tool'	5	2	3
4.4.2. Should a central bank choose the lowest interest rate consistent with its definition of price stability? Or choose a higher rate in the presence of a bubble? Or other instruments?	<ul style="list-style-type: none"> • the lowest interest rate consistent with its definition of price stability • No • N/A 	55	80	42
	Number of participants	45	20	58
		0	0	0
		29	10	19
	<ul style="list-style-type: none"> • higher rate in the presence of a bubble • No • N/A 	57	80	44
	Number of participants	39	10	56
		4	10	0
	28	10	18	
	Number of citations :			
	• both (!)	6	6	0
	• Other instruments	11	3	8
	– regulatory measures	4	1	3
4.4.3. Can monetary policy tame credit cycles?	<ul style="list-style-type: none"> • Yes • No • N/A 	67	50	75
	Number of participants	33	50	25
		0	0	0
		30	10	20
Are instruments such as transitory tighter collateral standards and more stringent banking prudential ratios more adequate?	<ul style="list-style-type: none"> • Yes • No • N/A 	61	75	53
	Number of participants	35	25	40
		4	0	7
		23	8	15

5. International policies				
5.1. Will formulating monetary policy become a more chaotic process, with sharp differences between national approaches?	<ul style="list-style-type: none"> • Yes • No • N/A 	49	42	52
		49	58	44
		3	0	4
	Number of participants	37	12	25
Is there a risk of mutual inconsistency in policy frameworks?	<ul style="list-style-type: none"> • Yes • No • N/A 	41	17	52
		57	83	44
		3	0	4
	Number of participants	37	12	25
Is currency chaos a risk?	<ul style="list-style-type: none"> • Yes • No • N/A 	42	17	54
		53	75	42
		5	8	4
	Number of participants	38	12	26
5.2. Should major central banks take into account the impact of their interest rate decisions on global liquidity?	<ul style="list-style-type: none"> • Yes • No • N/A 	69	82	62
		25	18	29
		6	0	10
	Number of participants	32	11	21
5.3. In what circumstances are coordinated interventions by major central banks on the forex market desirable?	<ul style="list-style-type: none"> • Never • Regularly • Rarely, except in times of extreme volatility 	22	22	22
		11	0	17
		67	78	61
	Number of participants	27	9	18
5.4. As many asset prices tend to correlate globally, would central banks' interventions to try pricking a bubble be more effective and/or less costly if they were coordinated?	<ul style="list-style-type: none"> • Yes, more effective and less costly • No, not necessary • N/A 	56	50	60
		34	42	30
		9	8	10
	Number of participants	32	12	20
5.5. Should major central banks coordinate their action as lenders of last resort?	<ul style="list-style-type: none"> • Yes • No 	84	92	80
		16	8	20
		32	12	20
	Number of participants	32	12	20
Number of mentions	<ul style="list-style-type: none"> • Political obstacles • Institutional obstacles 	5	0	5
		3	0	3
		3	0	3
	Number of participants	3	0	3
6. The science and the art of central banking				
6.1. Macroeconomics				
6.1.1. Do you agree with Paul Volcker's following statement: «I'm not aware of any large contribution that economic science has made to central banking in the last 50 years or so»?	<ul style="list-style-type: none"> • Agree with Paul Volker • Disagree with Paul Volker • N/A 	31	17	40
		69	83	60
		0	0	0
	Number of participants	32	12	20
6.1.2. Is the financial crisis due to the failure of modern macroeconomics?	<ul style="list-style-type: none"> • Yes • No • N/A 	36	0	55
		61	100	41
		3	0	5
	Number of participants	33	11	22
Is the economic crisis a crisis of economic theory?	<ul style="list-style-type: none"> • Yes • No • N/A 	34	0	56
		66	100	44
		0	0	0
	Number of participants	29	11	18
6.2. Models and their use				
6.2.1. Are 'Dynamic Stochastic General Equilibrium Models' used by central banks and economists fundamentally flawed?	<ul style="list-style-type: none"> • Yes • No, it is useful • N/A 	45	18	59
		52	82	36
		3	0	5
	Number of participants	33	11	22
6.2.2. Are economic forecasting models used by central banks useless as they cannot capture financial shocks and bubbles?	<ul style="list-style-type: none"> • Yes • No, it is useful • N/A 	31	17	38
		64	75	58
		6	8	4
	Number of participants	36	12	24
Should central banks accompany their model-based economic forecasts with an analysis of monetary and financial conditions?	<ul style="list-style-type: none"> • Yes • No • N/A 	89	92	87
		6	0	9
		6	8	4
	Number of participants	35	12	23
6.3. Rational expectations and financial markets efficiency				
6.3.1. In economic modelling, must the assumption of animal spirits replace that of rational expectations?	<ul style="list-style-type: none"> • Yes • No • N/A 	33	18	41
		55	55	55
		12	27	5
	Number of participants	33	11	22
6.3.2. Should the entire efficient markets framework be jettisoned?	<ul style="list-style-type: none"> • Yes • No, despite its limitations • N/A 	48	40	52
		48	50	48
		3	10	0
	Number of participants	31	10	21
6.4. Art versus science				
6.4.1. At the end of the day, do you think central banking will continue to be more art than science?	<ul style="list-style-type: none"> • An art • A science • An art help by science • N/A 	50	30	60
		3	0	5
		47	70	35
	Number of participants	0	0	0
Number of participants	30	10	20	