Are unconventional monetary policies bad for banks?

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The potential side-effects of unconventional monetary policies have received more and more attention as short-term interest rates in many advanced economies have been kept close to zero for growing periods of time. During the acute phase of the crisis, central banks' actions helped banks to withstand the financial turmoil. In the short term, they may have increased intermediation spreads by lowering short-term rates. Over time however, too easy monetary policies may reduce banks' profitability as the yield curve flattens and risk premia are reduced, and encourage more risk-taking. As former Federal Open Market Committee member Jeremy Stein put it in February 2013, "a prolonged period of low interest rates, of the sort we are experiencing today, can create incentives for agents to take on greater duration or credit risks, or to employ additional financial leverage, in an effort to *reach for yield*." Also, with low interest rates, banks may prefer to roll over loans to non-viable firms rather than declaring them non-performing and registering a loss in their income statement, a behavior often referred to as "evergreening." The overall effect of unconventional monetary policies on banks' profitability and risk is therefore theoretically unclear.

This paper discusses the results of various empirical analyses trying to shed light on this question. It is based on a chapter of the IMF's April 2013 *Global Financial Stability Report* analyzing the risks to financial stability of very easy monetary policies, and on a working paper co-written with Kenichi Ueda that focuses on the effects of unconventional monetary policies on banks.

Let us first define what we mean by unconventional monetary policies (UMP). Those indeed include very different measures that carry different potential risks (table 1).

The first policy is the prolonged period of low interest rates. While policy rate cuts are typically conventional policy measures, the prolonged period of zero-interest rate and the forward guidance often associated with it are something of a less conventional nature. Low interest rates for a long period of time can weigh on banks'

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net interest margin, encourage them to search for yield by taking more risk, or reduce incentives to clean their balance sheets by for instance provisioning or writing-off non-performing loans.

The second type of policy, quantitative easing, consists of direct purchases by central banks of government bonds to reduce term spreads when the policy rate is at or close to the zero lower bound. The risk here is that banks may become dependent on the liquidity provided in this way by central banks with possible ensuing delays again in balance sheet repair.

Table 1: Risks from unconventional monetary policies

Type of policy	Examples	Associated potential risks for banks
Prolonged period of low interest rates	US Federal Reserve Bank Bank of Japan European Central Bank (forward guidance)	Pressure on the profitability and solvency of financial institutions Excessive risk taking ("search for yield") Evergreening, delay in balance sheet repair
Quantitative easing	US Federal Reserve Bank Bank of Japan Bank of England	Dependence on central bank financing
Indirect credit easing	Bank of England (FLS) ECB (LTRO) Bank of Japan	Dependence on central bank financing Delay in balance sheet repair Distortion in credit allocation, possibly weakening underwriting standards
Direct credit easing	US Federal Reserve Bank (MBS) ECB (CBPP) Bank of Japan (ETF, REIT)	Distortion to price and market functioning

Source: Adapted from Table 3.5 of the Global Financial Stability Report, April 2013.

Note: CBPP = Covered Bonds Purchase Program; ETF = Exchange Traded Funds; FLS = Funding for Lending Scheme; LTRO = Long-Term Refinancing Operation; MBS = Mortgage-Backed Securities; REIT = Real Estate Investment Trusts.

Finally, credit easing is about central banks either providing liquidity to banks to promote bank lending (indirect credit easing) or directly intervening in credit markets through purchases of corporate bonds or mortgage-backed securities (direct credit easing). In both cases, there is a risk of distortions in the allocation of credit, possibly weakening underwriting standards (if borrowers are able to get loans for which they would otherwise not qualify), with potential adverse effects on the performance of loans and on future bank health.

We use three complementary approaches to assess the effects of those policies on banks. The first approach is an event study, which is based on the idea that any effect of unconventional monetary policies on bank soundness (including bank default risk and performance) should be immediately be reflected in changes in bank stock prices and bond risk premia at the time of the announcement of new measures. The second approach furthers the understanding of the channels of impact of UMP on banks, by relating indicators of monetary policy to balance sheet measures of bank's health, including profitability, risk taking and the status of balance sheet repair. The third approach considers the possible rise in interest rate risk in banks, which is a potential consequence of the prolonged period of low interest rates.

The event study analyzes the effect of UMP announcements on bank stock prices and bond spreads. To accurately gauge those effects, we use the surprise component of policy announcements. This is because the expected element should not affect market prices at the time of announcement as it should be already priced in. In particular, we use the change in the one-year-ahead three-month futures rates as the surprise measure, so as to capture both the contemporaneous part of a monetary policy announcement (reflected in the target policy rate change) and any expected developments for near-term future rates (focus of the forward guidance and quantitative easing). However, this measure may also reflect expectations of economic conditions a year later, which are affected by current monetary policy (an endogeneity issue). Besides, downward changes in the one-year ahead futures rate are potentially limited once the policy rate hits the zero lower bound (a measurement problem). We therefore also propose a new way to measure the surprise component of monetary policy announcements by comparing the number of news articles on monetary policy three days before and after each policy announcement.

For (almost) all monetary policy announcement dates between January 2000 and October 2012, we regress daily bank stock returns and daily changes in the spread between bank bond yields and government bond yields on our measure of monetary policy surprises. We find that bank stock prices are not affected by a surprise easing of monetary policy in the United States, but that they are in the euro area and in the United Kingdom. The absence of significant result for the United States is consistent with previous studies. For example, English, Van den Heuvel, and Zakrajšek (2012) find a positive effect on bank stock prices of interest rate cuts,

but a negative effect of a steepening of the yield curve. The negative relationship in the euro area and the United Kingdom may seem more surprising. A possible explanation is that an unexpected announcement of a large monetary easing operation may be seen as a signal that the central bank has a pessimistic view of the economic conditions, thereby triggering a drop in stock prices.

We do however find a significant negative effect of monetary policy surprise on bank credit risk in the medium term. The economic magnitude of that effect is not negligible. Between 2007 and 2013, the policy rate in the United States came down by about 5 percentage points. Assuming that the cumulative easing from interest rate cuts, quantitative easing and forward guidance is "equivalent" to 6% in interest rate terms, the impact on credit spreads would correspond to a 60 basis points increase. According to Ueda and Weder di Mauro (2013), this 60 basis points funding cost increase is equivalent to a downgrade of almost 3 notches in the credit rating scale used by most credit rating agencies. We find no evidence of different effects of UMP compared to those of conventional interest rate cuts.

The second approach to investigating the effects of UMP on banks uses bank balance sheet data to measure financial health. Whereas the event study looked at *market perceptions* of bank soundness and risk, this approach relies on panel regressions to directly relate various measures of bank profitability, risk and efforts toward balance sheet repair, to monetary policy variables. We consider three policy variables: (i) the difference between the policy rate and the rate computed from a Taylor rule (a measure of the stance of monetary policy in terms of the interest rate); (ii) the number of periods during which this difference is negative over a 5-year period, to capture the effect of the prolonged period of low rates; and (iii) the ratio of central banks' assets/GDP to capture the effects of quantitative easing and credit easing. The regressions are estimated on quarterly data for 614 US banks over the period 2007–2012. The results need to be interpreted with caution for at least two reasons. First, some central banks' actions since 2007 have been partly in response to problems in banks, so they may not be truly independent. The estimation method we use (system GMM estimator by Arellano-Blundell-Bond-Bover) partially alleviates the issue. Second, besides the influence of UMP, banks balance sheets have been affected by other factors, like fiscal policies and financial reforms, which cannot be fully controlled for, raising a risk of omitted variable.

As mentioned in the introduction, the expected effects of UMP on bank profitability are theoretically ambiguous. On the positive side, low interest rates reduce bank funding costs whereas policies supporting asset prices have positive valuation effects. On the negative side, however, prolonged periods of low rates and the ensuing flattening of the yield curve compress bank interest margins. The empirical results reflect these ambiguous effects. We do not find any statistically or economically significant effect of the monetary policy variables on the net interest margin.

In the short term, low interest rates are associated with higher return on assets, but the effect of a prolonged period of low rates is negative.

Theoretically, the effect of UMP on bank risk-taking is less ambiguous than the effect on profitability. On the asset side, low interest rates increase the demand for riskier assets, yielding higher returns, while on the liability side, they decrease the cost of debt, thereby encouraging leverage. Unfortunately the results of the empirical analysis are not as clear-cut. We find that low interest rates are associated with a decrease in the risk-weighted assets ratio in the short term but that a prolonged period of low rates seems to increase risk. At the same time, longer periods of low interest rate are also associated with a higher equity ratio (so a lower leverage).

Finally, we look at the effects of UMP on balance sheet repair by banks. On the asset side, balance sheet repair implies removing toxic assets and writing off bad loans. When interest are very low, banks can however rollover existing loans or even extend new loans to nonviable firms at nearly zero cost. On the liability side, banks can take advantage of lower term premia to extend the maturity of their debt and reduce the risk of maturity mismatches. The empirical analysis finds evidence of these two effects. We proxy banks' efforts towards balance sheet repair by two measures: the first one is the ratio of provisions for possible losses on loans to total loans. The second one is the share of short-term debt in banks' total borrowing. Banks' loan loss provisions decline with the expansion of central banks' balance sheet and this can suggest a risk of evergreening. Yet an alternative view is that with UMP supporting economic activity, existing loans become more viable and hence need fewer provisions. On the liability side, we find a decrease in the short-term debt ratio when central banks' assets increase. So banks do seem to take advantage of lower term premia to extend the maturity of their debt.

The last part of the analysis looks at changes in interest-rate risks in banks. There are two main channels through which banks are affected by increases in interest rates: the spread between lending and borrowing rates, and the value of fixed-income securities on their balance sheet.

There may also be indirect effects on loan performance. These effects can work in opposite directions, and the sign of the overall effect depends on things such the maturity structure of banks' balance sheets and other factors.

The "repricing gap" is the cumulative amount of interest-sensitive assets repricing within one year less the amount of interest-sensitive liabilities scheduled to reprice within one year. It is negative if interest-sensitive liabilities exceed interest-sensitive assets. According to this measure interest-rate risk looks contained, at least for the largest US banks. The average gap for US banks is slightly positive, so banks could actually gain from a rise in interest rates.

Yet banks still hold very large volumes of government securities whose value would drop if interest rates rise. Bank holdings of government debt have generally increased since the beginning of the crisis, making them potentially more vulnera-

ble to valuation changes. In 2012, the Bank of Italy thus reported that a 200 basis points increase in interest rates would cost Italian banks 7.7% of their capital through a combination of increases in net interest earnings and a fall in the value of their government bond holdings.

In conclusion, we do not find evidence of an immediate deterioration of bank health. Unconventional monetary policies have generally improved bank soundness, by for instance buying time for banks to recapitalize (i.e. increase their equity ratio). The results of the panel regressions on bank risk and efforts toward balance sheet repair are indeed rather benign. But risks are likely to rise the longer very accommodative policies remain in place. The event study indeed showed some evidence of increased credit risk and reduced profitability, as did the panel regressions. Finally, the holdings of government bonds by banks in some countries could raise challenges for the exit.

In 2013, the Global Financial Stability Report (GFSR) was recommending to be alert to possible emerging risks in banks. The analysis was based on data up to 2012. We now have two more years of data and things may have changed. Policy makers should in particular make sure that risks do not increase outside the traditional banking sector. This requires vigorous risk-based supervision and robust data provision. There may also be scope for targeted micro- and macroprudential policies. The GFSR again identified specific measures that could prove helpful to contain credit risk and funding challenges for banks, such as robust capital requirements, improved liquidity requirements, and well-designed dynamic forward-looking provisioning. Bank supervisors should ensure that banks repair their balance sheets and strengthen their capital and liquidity buffers while unconventional monetary policies are still in place. And when exit time comes, the changes in policy should as much as possible be gradual and predictable to avoid market disruptions.

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