

¿How can Macro-Prudential policies or frameworks for financial stability be designed to preserve the credibility of monetary policy to keep inflation low?

Reflections from a commodity exporting, small open economy

By

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- 1. The set of macro-prudential policy tools must be an integral part of the general Central Bank's policy strategy.** This strategy typically comprises inflation, output and payment system stability objectives, as well as policy instruments like short term interest rates, foreign exchange intervention, other forms of liquidity management at different maturities, LOLR facilities, and “regulatory” measures such as reserve or liquidity requirements and limits on some (net) asset positions of financial intermediaries.
- 2. Including payment system stability and the stabilization of output beyond the usual 1-3 year period within the policy objectives ensures a contribution of Central Bank policy to overall financial stability.** Maintaining payment system stability implies an adequate functioning of ordinary liquidity facilities (repo, OMOs) and LOLR facilities, as well as a supervisory and regulatory framework that considers the degree of interconnectedness and systemic importance of the participants. Stabilization of output at long horizons implies monitoring the behavior of aggregate financial variables that may signal the buildup of imbalances associated with large and persistent booms and busts. Occasionally, the prevention of such excessive output cycles requires the adoption of policy packages that may include several of the abovementioned instruments.
- 3. In general, the policy actions required to guarantee price and financial stability are consistent.** That is, large increases in leverage, bank credit and financial mismatches often occur at the same time as high aggregate demand growth and inflationary pressures, and vice versa. Thus, the episodes that involve conflicts between the financial and price stability objectives of the Central Bank are fairly rare and financial stability-related measures do not typically pose a risk for the credibility of the inflation target.

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4. **Nevertheless, occasionally the policy actions required to preserve financial stability may not be compatible with price stability. Here, there may be risks for the credibility of a low inflation target.** This may happen either before or during a period of financial stress, and may lead to what has been called "financial dominance" of monetary policy (e.g. Hannoun, 2012). *Before* an episode of financial stress, it is possible that financial aggregates will show an increasing probability of future large imbalances while at the same time macroeconomic factors (such as favorable supply shocks or exchange rate movements) drive inflation below its target. In this situation, measures to restrain leverage may counter the fulfillment of the inflation target, while measures to prop up inflation (e.g. lower interest rates) may feed into higher leverage.
5. **During a period of financial stress, the need to provide ample liquidity for prolonged periods and, eventually, support the credit supply in the economy may hinder the ability of the Central Bank to deal with inflationary pressures derived from supply shocks or external factors.** Again, during times of financial stress credit supply reductions and an exacerbated risk aversion are usually associated with negligible inflationary demand pressures. However, supply shocks or demand impulses resulting from the terms of trade or external growth may endanger the possibility of reaching the inflation target, creating a policy dilemma for the Central Bank, and harming the credibility of monetary policy.
6. **The design of the Central Bank policy framework could significantly reduce the probability and seriousness of these conflicts.** Some key principles of this design follow.
7. **First Principle: Avoid pro-cyclical monetary policy.** The best way a Central Bank may reduce systemic risk is to avoid creating or reinforcing the conditions in which financial imbalances build up. A clear public inflation target and a commitment to a substantial degree of exchange rate flexibility are of the essence in this regard. They allow the Central Bank to contain aggregate demand in a favorable external environment and, especially, they prevent the creation of pro-cyclical credit that characterizes peg or quasi-peg regimes. In a period of poor external conditions, monetary policy may be loosened and credit does not have to contract. Under this light, the interest rate is the prime "macro-prudential" policy instrument.
8. **Furthermore, exchange rate flexibility minimizes the emergence of currency mismatches.** The volatility of the exchange rate discourages FX indebtedness by both private and public agents with local currency denominated assets and revenues. This strengthens financial stability by limiting the adverse effects of depreciation on the balance sheets of domestic firms and households. Hence, the risk of "financial dominance" is reduced and the credibility of the inflation objective is better preserved.

9. **Interestingly, this increases the ability of the Central Bank to float and to pursue a counter-cyclical policy as the fear of the negative impact of depreciation diminishes (virtuous circle).** A similar consequence follows from systematically achieving the inflation target. The credibility that it builds limits the effect of depreciation on inflation expectations thus reinforcing, in turn, the Central Bank's ability to float.
10. **Second Principle: Beware of leverage, anyway.** Even in economies with floating exchange rates, ample liquidity in international markets or reduced global risk aversion may induce higher demand for local financial assets, which pushes up residents' leverage. At the same time, the urge to raise interest rates may be dampened by the appreciation of the local currency and its effect on domestic prices. In this situation, when leverage and expenditure are exceeding their estimated sustainable paths, it might be necessary to complement the interest rate instrument with other macro-prudential measures. For example, in 2006-2007 the financial system in Colombia sharply shifted its portfolio away from government bonds and into loans to consumers and firms. As a result, *real* growth rates of credit reached 32% and the transmission of hikes in policy interest rates to lending interest rates was delayed. This endangered both price and financial stability. Consequently, marginal reserve requirements on domestic deposits and an unremunerated reserve requirement on foreign indebtedness were imposed in order to curb total (local and foreign currency) indebtedness and to accelerate the transmission of policy rate increases.
11. **Third principle: Use a panoramic view of the economy and the financial system to identify systemic risk.** This includes the identification, assessment and ranking of the most important systemic risks. Moreover, several studies have shown that the behavior of credit variables and asset prices can be reliably used as signals of the building-up of financial imbalances (see, for instance, Borio, Drehmann and Tsatsaronis, 2011). For emerging markets economies, Tenjo and López (2010) show that the behavior of capital inflows provides additional valuable information for the construction of early warning models of financial systemic risk. Consequently, within Banco de la República there is a permanent research agenda committed to the early identification of unsustainable credit and asset prices surges, and to incorporate financial intermediation into macroeconomic analysis and forecast models.
12. **Additionally, Central Banks may exploit the information they have as managers of key financial infrastructures such as Large-Value Payment System and Central Securities Depository.** The recent financial crisis unveiled the urgency of exploiting non-traditional information sources and developing new approaches to information analysis. Balance sheet data has proved to be lagged, fragmentary and lacking in comparability (BIS, 2011), which has increased attention to financial infrastructures as supplementary sources of information (Uribe, 2011). In order to fully exploit these new sources of information new approaches to information analysis are required too. Several authors have pointed out the convenience of implementing methodologies able to capture the complexity

inherent to financial systems, with network analysis being highlighted as a promising alternative (European Central Bank, 2010; Tumpel-Gugerell, 2009; Haldane, 2009; Garrat et al., 2011). Banco de la República has begun to use such approaches (León et al. 2011; León and Machado, 2011; Cepeda, 2008)

13. **Fourth Principle: Promote the safe and efficient functioning of payment systems, as well as to enhance the oversight of financial institutions and infrastructures.** Banco de la República has implemented several functional features that promote earlier settlements, optimize liquidity management and provide adequate access to intraday liquidity facilities of the Central Bank. In addition, in 2007 the local FX clearing house that allows the “exchange-for value” of US dollars for Colombian pesos started its operations. This played a key role in the smooth navigation of our FX market intermediaries in the turbulent waters of the international crisis. Furthermore, as in the Third Principle, network theory and intraday payments scenario and simulation methods are being used at Banco de la República to identify systemically important financial institutions in the local markets (León and Machado, 2011; León et al., 2011) and to analyze intraday liquidity sources (Bernal et al., 2011; León and Machado, *forthcoming*).
14. **Fifth Principle: Have adequate instruments and facilities in place to provide liquidity support in a period of financial stress.** This involves ordinary and emergency liquidity facilities (for a wide arrangement of collateral) in order to face liquidity shocks both in domestic and foreign currency. The existence of such facilities is crucial to limit *ex-ante* the spread and contagion of disturbances to sub-sectors of the financial systems the same way that bank runs are contained by the traditional LOLR windows. In addition to the facilities themselves, the holding of a sufficiently large cushion of international reserves or access to a source of international liquidity (like the FMI’s FCL in the case of Colombia) is key for dealing with external shocks and restraining their spread and intensity. In the absence of all these mechanisms, the severity of a crisis or a period of financial stress will be greater and so will the risk of “financial dominance” of monetary policy be.
15. **Sixth Principle: Deal with the moral hazard that may be created by the expectation of a bail out or a provision of unlimited liquidity.** Although the LOLR facilities may be set up only for solvent institutions and include restrictions on the admissible collateral and punitive interest rates, moral hazard may still be an important source of concern. As the recent experience in advanced economies shows, the credibility of a commitment not to bail-out perceived systemic markets and institutions may be very low and this leads to a moral hazard problem. Thus, it becomes necessary to design adequate regulation to limit *ex-ante* excessive risk-taking by financial intermediaries. Assessing each institution’s contribution to systemic risk (part of the Fourth Principle) should serve the purpose of creating the right incentives for institutions caring about the risk they pose to the financial system and to avoid moral hazard; several proposals have surged, including capital charges to too-connected-to-fail institutions (Chan-Lau, 2010) and systemic liquidity risk insurance (IMF, 2010), which should be further explored as they

could induce institutions to internalize the costs associated with their contribution to systemic risk.

- 16. Seventh Principle: Liquidity or reserve requirements are useful instruments to address moral hazard.** In the same fashion, the perceived external liquidity guarantee provided by a large cushion of international reserves requires regulation that constrains the size of banks' currency mismatches. For example, in addition to the common limits on the net foreign asset position of financial intermediaries, in Colombia we impose a restriction with respect to the maturity mismatch of foreign currency assets and liabilities; namely, any foreign asset must be funded by a liability in the same currency and with a maturity longer or equal than that of the asset. In addition, we impose limits on the *cash* foreign net asset positions of banks in order to mitigate counterparty risk in FX derivative operations. Inadequate regulation of the moral hazard problem might create the conditions for future stress and "financial dominance" of monetary policy.
- 17. Eight Principle: Avoid loading Central Bank's balance sheet with risky assets as the mess is cleaned up.** Large increases of low-quality assets on the Central Bank's balance sheet may lead, at some point, to the expectation of a monetary financing of the losses associated with those assets. If money demand does not grow fast enough, such financing may be expected to come in the form of a higher inflation tax, thereby weakening the credibility of the inflation objective. When possible, the bad quality assets should be absorbed by the Government and the related losses should be paid with (future or current) taxes.
- 18.** To summarize, Banco de la República, Colombia's Central Bank, plays a primary role in mitigating systemic risk. Avoiding a pro-cyclical monetary policy contributes to preventing financial imbalances from building up and to adequately judging the risks. Its function as Central Bank also places it in a privileged position to identify systemic vulnerabilities, which demands more and better data sources and analytical methods. Likewise, its participation in the development and oversight of financial infrastructures and its role as provider of liquidity facilities (repos, OMOs and LOLR) turns it into a central element in the financial stability network. Naturally, all of the Bank's actions require the complementary work of the financial regulator and supervisor, as well as the deposit insurance agency, which are institutions that, since their beginning (i.e., Financial Superintendency) or shortly after being set up (i.e., FOGAFIN) have been separate from the Central Bank in the Colombian case.

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