Beyond Bubbles: The role of asset prices in early-warning indicators - Temas de Estabilidad Financiera

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Asset price bubbles are amongst the most talked-about yet misunderstood topics in economics. Theoretical researchers debate between rational, nonrational or even non-existent bubbles, while empiricists tackle the issue with state-of-the-art econometric tools yielding mixed results.

A bubble is usually defined as the component of asset prices that cannot be accounted for by fundamentals1. A rational bubble arises when agents are willing to pay a higher price than the \fundamental price" because they believe that they can sell the asset at an even higher price in the future (Gurkaynak (2005)). A nonrational bubble is defined as a rapid upward price movement, based on exaggerated beliefs about future outcomes (e.g. company earnings or the impact of a new technology), followed by a collapse (Meltzer (2003)).

Some theorists have also developed behavioral models with rational expectations which allow for explaining price behavior without bubble components. In a nutshell, these models assume expectations are based on imperfect knowledge of future fundamentals, so that investors may overestimate potential income flows (i.e. earnings) and hence asset prices. As agents acquire new information, they correct their initial forecasts, altering their investment/consumption decisions and changing asset prices (Meltzer (2003)).

On the empirical side, tests are usually constructed for rational bubbles, given the relative knowledge of researchers on testing the present value model of asset prices. Nonetheless, results vary and there does not appear to be a general consensus regarding a specific empirical test of bubbles. In fact, there is not even a common agreement on the interpretation of a rejection of the no-bubbles hypothesis; while some argue this is proof of the existence of bubbles others attribute this to a failure of the model in another dimension (e.g. misspecified fundamentals). In the end, the choice between bubble solutions and a misspecified model of price behavior remains a matter of belief. The bottom-line is that even if there is no scientific proof of the existence of bubbles, the current volatility in asset prices worldwide has sprang a newfound interest in the subject.

The typical questions found in the literature usually read something like: How should bubbles be measured? Can they be measured? Are they rational or nonrational bubbles? Do bubbles exist? Are these the most relevant questions for decision-makers? Probably not. Financial instability usually arises from a combination of economic imbalances and not a single event. That is, large increases in asset prices by themselves do not necessarily lead to widespread instability in the financial system. Rather, an increase in asset prices, rapid credit expansions and high levels of investment, occurring simultaneously, could lead to potential problems (Borio and Lowe (2002, 2003)). Thus, the relevant question for policymakers is not whether bubbles exist, but rather if the observed behavior in asset prices, along with other financial and real variables, is indicative of possible future imbalances.

In such spirit, we use information on the most relevant asset prices, credit and investment to construct early-warning indicators of financial distress, as suggested by Borio and Lowe (2002, 2003). The idea behind these indicators is simply to observe the deviation of each series to its long-term trend, and determine whether imbalances occur after such deviations overcome a specific threshold. Although analyzing the deviation of a

variable to its trend is by no means revolutionary (the loans to GDP ratio being one of the most common), analyzing real and financial variables jointly as early warning indicators of financial distress has only become popular more recently. This is mainly due to the fact that although asset prices have made several appearances on historical accounts of financial instability, their empirical relationship with credit and aggregate demand has been less studied.

However, there have been various attempts in identifying the link between asset prices, financial stability and monetary policy. Some authors argue that a responsible monetary policy leads to low inflation, induces stable asset prices and efficient levels of liquidity, reduces investors' uncertainty (by promoting a sounder macro environment) thus allowing for optimum consumption and investment decisions.

On the other hand, some economists have began to realize that financial instability (and large asset price swings) can develop in periods of low inflation. A credible monetary policy results in low inflation expectations, meaning it takes longer for higher demand to translate into prices. As agents' expenditure increases, there is a higher demand for loans and banks increase their lending. Debt-financed spending may lead to a faster rise in asset prices, which does not immediately translate to higher inflation. The inverse is also true. There could be high inflation under a stable financial environment. Under this scenario, a rise in interest rates, consistent with the inflation goal, could lead to financial instability by increasing the burden of outstanding floating-rate debt and most importantly creating significant wealth effects through portfolio-valuation losses caused by the fall in the price of tradable assets (this is especially relevant in markets where balance sheets are marked-tomarket), thus altering investment/consumption decisions. In other words, there is room for important trade-offs between monetary and financial stability.

The above does not mean that policymakers are thus left with their hands tied. In the first place, it would be foolish to overlook that asset prices contain a large amount of information from which policymakers can reap incredible benefits2. On second place, even if there is no consensus on the exact link between financial and monetary stability there does seem to be a convergence on some of the actions that should be undertaken by policymakers to reduce large asset-price swings. In short, these are aimed towards reducing information asymmetries in the market, promoting the long-term structure of certain specific institutional investors' portfolio (e.g. pension funds) as well as the diversification and sophistication of risk management tools. Additionally, they should promote deeper and wider capital markets to increase the universe of financial assets available to investors and encourage a closer monitoring of financial markets.

Both the retrieval of information embedded in asset prices as well as possible policy actions to help move financial markets into a stronger form of market effciency (i.e. more shock-resistant) are crucial to policymakers worldwide. This is even more so in a country like Colombia, because emerging markets which are moving towards a model of financial integration are more vulnerable to the adverse effects that speculative capital flows have on the financial cycle. When there are waves of optimism on the real sector, credit grows spectacularly, there is a tendency to overinvest in physical capital, asset prices hike and consumption soars as well. All this factors lead to higher economic growth and a valorization of domestic assets, increasing foreign investors appetite for the latter. This leads to higher capital inflows, which in Colombia are highly (and positively) correlated with credit (see Villar et al. (2005)), thus exacerbating the business cycle. When expectations change (e.g. due to new information on future fundamentals) and agents correct their initial forecasts, the wave of optimism crumbles, imbalances are corrected abruptly and there are perverse effects both on financial markets and the real economy (Collyns and Senhadji (2003)).

This paper is organized as follows. Section I presented a quick introduction to the subject at hand and its relevance to policymakers. Section II presents an overview of the implications of the latter on monetary policy. Empirical exercises with Colombian data on asset prices, credit and investment as early-warning indicators are

carried out in section III. Section IVconcludes.

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