



BANCO CENTRAL
DE LA REPÚBLICA ARGENTINA

Speech of Federico Sturzenegger, governor of the Central Bank of Argentina, at the 16th RAMP Executive Forum for Policy-Makers and Senior Officials, organized by the World Bank

It is a pleasure for me to be here today, in order to discuss our views on this world of incipient policy normalization. But I will not talk too much specifically about normalization itself. It will happen, though the specifics are still too uncertain. This week at the Fund meetings, for example, I saw scenarios with 9 hikes in the FED policy rate over this year and next. But most people did not believe that was the most likely scenario. Yet, whatever form monetary policy normalization takes, certainly such a move will have ample repercussions on the rest of world. The same will be the case with the fact that the US is increasing its budget deficit at a time of high expansion and record low unemployment. It seems all too natural to think that this will deteriorate US' s current account deficit. What will the consequences of that be? Will it be then that we will see a full-fledged trade war? Sorry if I start on this candid tone, but the world ahead of us, though starting from a strong and promising recovery, appears to be plagued by significant uncertainties.

In this dynamic world, one interesting topic to focus on for emerging economies is that of reserve management. I would like to share with you some lessons I have learned from being Governor of the Central Bank of Argentina over the last two years. This issue seems to me particularly pressing today, given the scenario of monetary policy normalization that the conference invites us to reflect upon. Our international reserves are one of our best insurances against any possible volatility in capital markets, so “being prepared to navigate the policy normalization” for Argentina means, at least partially, to manage smartly our reserves.

I understand that the topic of reserve management is going to be touched in a series of panels and is the main concern of Marcelo Giugale, to whom I owe the invitation to speak here today. It is also a topic in which we have been very active, but on which we have spoken little. So it is a welcomed opportunity to talk about this issue today.

It is perhaps a good idea to give you a brief background on recent developments in Argentina. As we took over from the previous government, our international reserves were reaching very low levels. In fact, what we called net reserves, that is, our reserves net of our obligation in foreign currency, were negative. A difficult situation in which we had also to face the challenge of lifting capital controls.

To make things worse, the previous government had sold USD futures for about the equivalent of a third of the monetary base at off market prices. As you can notice, we not only inherited a very weak balance sheet at the Central Bank, but we also had a huge amount of liabilities maturing in the very short term.



The context was also quite peculiar. President Macri had campaigned on the basis of lifting the exchange rate controls implemented in Argentina over the precedent four years. The parallel exchange rate at the black market was trading 1.5 times over the fixed official rate, so everybody was expecting a large depreciation of the official exchange rate. As a result, the transition between governments dwindled exports to zero, as boats piled along the Parana River waiting for the unification of the exchange rate regime to occur, prior to embarking their products.

This situation called for swift action. But we were convinced that a smooth opening of the exchange rate controls was possible. During the previous ten years, Argentines had done nothing else than hoard billions of foreign assets as a result of the lack of trust in their government. The result was that Argentines had an excess supply of foreign currency, not the opposite. Thus, we believed, the opening of the exchange rate controls would be less traumatic than most of the people thought. And, in fact, when we implemented it, a few days after taking office, the transition was very smooth. Almost immediately the exchange rate started to float, settling at an intermediate level between the previous official and black-market rates.

After this big step, however, Argentina was still in default and with very limited access to international debt markets. So the second big step was that of normalizing Argentina's relation with its creditors. This happened in April 2016. However, during the remainder of the year, capital flows remained very small. The third change occurred at the beginning of 2017, when the government released the remaining capital controls (in particular, a four-month stay period) and it was then when capital flows really began normalizing.

The resolution of the holdout issue, plus the normalization of capital flows, provided much more room to invest Central Bank reserves. As a result, there was an important increase in returns. During the first two years the Central Bank of Argentina was able to increase by 60 basis points the spread relative to US Treasuries in its USD-denominated portfolio.

Just to give you an idea about the income that a country misses when it stays in default, 60 basis points per year in the long run, accrued in a reserves' portfolio with our size, means a NPV of around USD 7 billion. An amount that, as we continue to increase our reserves and returns, could certainly end up exceeding the USD 10 billion paid by the National Government to reach the agreement with the holdouts. In short, just the improved income at the Central Bank justified, on its own, the cost of an agreement with the holdouts.

Now, with the perspective of the normalization of the economy, expected sustainable growth, a floating exchange rate and ample room to invest our assets, we first tackled the question of what would be the optimal amount of reserves.

As two seasoned master craftsmen of reserve currency management wrote 2 years ago, *"...central bankers have found that, when market sentiment turns negative, the only correct answer to 'How much reserves do we need?' is 'More'(...) Reserves are now supporting the foreign currency exposures of the whole economy, whether public or private, and whether contractual or contingent (...) The list of responsibilities that are potentially covered by reserves is like a child's wish list at Christmas..."*¹.

Over time reserves were transformed from a financial exchange rate management tool to a creditworthiness confidence-building tool, performing a central role in the policy toolkit of most economies, as they reduce the likelihood of balance of payments pressures.

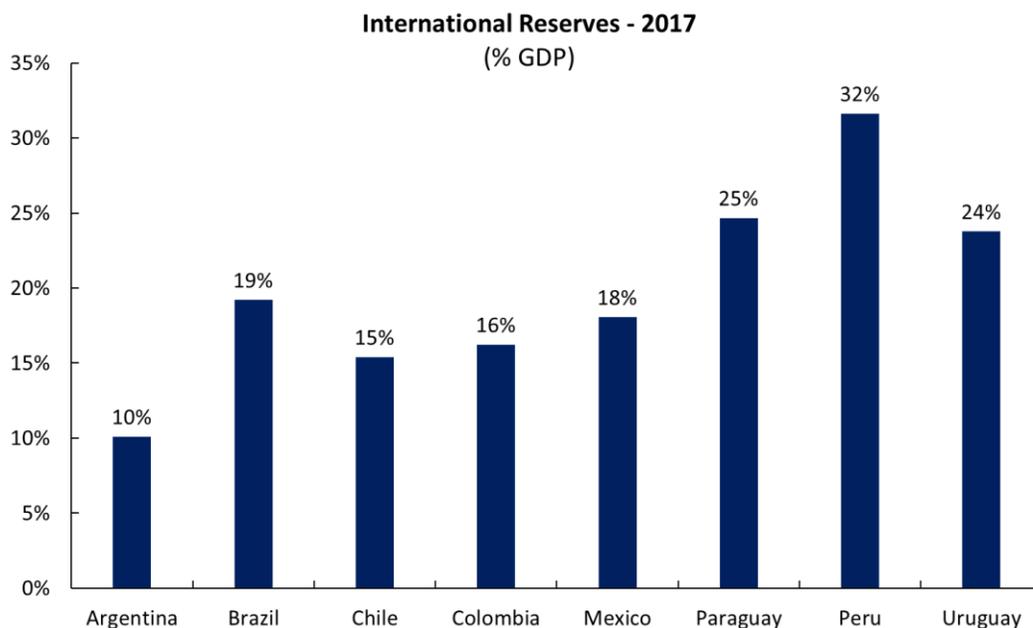
¹ Smith, G. and Nugée, J. (2015): "The changing role of central bank foreign exchange reserves", OMFIF, September.



In a paper in 2011², the IMF proposed different metrics to address the optimal level of reserves for precautionary purposes. According to it, and depending on the exchange rate regime chosen by each country, reserve adequacy should be at least 100-150% of a composite metric which covers three different kind of potential shocks: an external drain or sudden-stop in external financing (both in fixed income and equity markets), an internal drain (i.e. the risk of capital flight), and the potential loss that could arise from a drop in external demand or a terms of trade shock. They suggest the following coefficients:

- **Fixed:** 30% of Short-Term Debt + 15% of Other Portfolio Liabilities + 10% of M2 + 10% of Exports
- **Floating:** 30% of Short-Term Debt + 10% of Other Portfolio Liabilities + 5% of M2 + 5% of Exports

Nevertheless, these metrics do not appear to be strongly influencing countries' actual reserve holdings. While, according to the IMF, the average range covered by the three-traditional metrics for EM countries is nearly 15 percent of GDP, we found that Latin American countries typically held a larger amount of reserves. But as we were coming from a much lower level, we decided on a 15% objective as our first objective in reserves accumulation. As I said, that would just be enough to put us at par with the country in the region with the lowest level of reserves. This made sense as a first stepping stone.



Source: IFS (IMF).

The combination of the need to accumulate reserves, plus the fact that the government had an excess supply of dollars, as it was financing abroad its gradual fiscal convergence, implied a natural agreement by which the Central Bank would buy these excess dollars to the Treasury, sterilizing afterwards the pesos issued by issuing short-term Central Bank debt. As a result, reserves experienced a sharp recovery. The market understood this arrangement and, and while we kept the possibility to sell reserves if needed, these silent interventions were not

² [International Monetary Fund \(2011\): Assessing Reserve Adequacy.](#)



viewed as disruptive of our floating exchange rate system. I guess because it was understood that we did not time these purchases, so they were not contingent on the level of the exchange rate.

Having established the size of reserves, we moved to the issue of return. In terms of reserves management, my first compulsion was to increase dramatically their return, moving our investments into liquid but riskier assets. This view faced the tenacious and professional resistance of the staff of the Bank, and led to many interesting discussions, which they always won. In fact, of course I did not want to push things too much.

The main concerns of the staff were in first place liquidity and, second, having a sufficient buffer to be able to supply any potential need arising from the Treasury's external debt payments, in order not to force them to go to the market for large and concentrated purchases that could be disruptive of our nascent floating regime. They also did not want large swings in assets prices that required the need of uncomfortable expectations, particularly if next visit to Congress is around the corner.

These are simple ideas and most central banks apply them. But then I asked how did we choose our assets specifically in regards to their hedging properties for our cash flow. I tend to remember from grad school those equations in optimal consumption theory where the whole idea of optimal consumption was to invest in instruments that provided a higher return when your marginal utility was high. In common words, we needed to invest in assets that yielded the highest returns at the time when we most need them.

Yet when I tried to review some analytical frameworks to think this issue and asked for best practices to analyze which would be the best assets that could be used to enhance the hedging properties of reserves, I found, to my surprise, that there were few available frameworks at hand to use.

It is true that, sometimes, countries have natural hedges that reduce the need for a sophisticated investment strategy. For example, Argentina produces soybean, which tends to increase in price when the crop falls. This year we suffered our worst drought in 50 years, and, according to our best forecasts, the harvest of soybean will decrease 28% in relation with expected at end-2017. As Argentina is an influential producer of soybean in the world, its price increased nearly 7% since last December, reducing the damage caused by the drought to our exporters. This type of ideas may explain why some countries, particularly commodity economies, find little incentive to buy insurance or buy assets that provide hedging against this kind of shocks.

But in many cases, this is patently suboptimal. For example, let's think about a central bank of an oil-producing country. It should not be indifferent to the covariance between its reserves portfolio and the oil price. If it were running its strategic asset allocation decision, between two assets with the same expected risk and return, it should be selecting the asset having the lowest correlation with the oil price. Or it is surprising the minimal usage of climate related instruments to hedge against climate shocks. New Zealand has probably the most explicit mechanism for hedging, by choosing a currency composition of reserves that matches the net import in each currency. But all in all this still remains an underdeveloped area.

Caballero and Panageas³, analyzed more than 10 years ago the (uncontingent) reserves management strategy typically followed by central banks, concluded that the strategy of

³ Caballero, R. and Panageas, S. (2004): "Contingent Reserves Management: An Applied Framework", NBER Working Paper No. 10786, September.

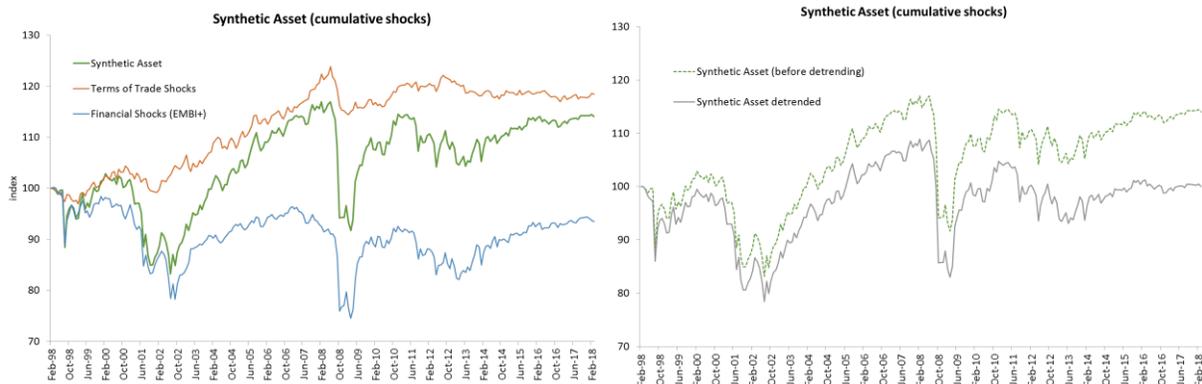


immobilizing large amounts of “cash” to insure against jumps in volatility and risk-aversion was clearly inferior to one in which portfolios may include assets that are negatively correlated with external shocks.

Some work has been done and published with regards to the investment and hedge of sovereign wealth funds. Nevertheless, very few discussions are found in the landscape of central banks.

With all this framework in mind we started to work in the Central Bank of Argentina to develop and build a strategic asset allocation model to optimize the allocation of our portfolio in a different risk/return framework, one where risk is not limited to the volatility of financial assets but expanded to include the volatility in the reserves’ portfolio in relation to external shocks.

The way we addressed this issue was to embed in the process of optimization a synthetic asset that emulates the shocks from external sources that affect the country’s wealth. We focused in the two most common sources of external volatility for Argentina (and Latin American economies, as well): real terms of trade shocks and financial shocks, and we included the impact of them in our asset allocation decision. We quantified these shocks into a time series of cumulative wealth shocks and constructed a synthetic asset proportional to the size of our foreign exchange reserves, which we then detrended to avoid biases and expected returns different than zero in order to focus only in the correlation of this synthetic asset with our financial assets’ portfolio.



We ran our optimization model placing a 50% weight in the synthetic asset (that was scaled to foreign reserves size), and the remaining 50% in investable financial assets, controlling risk tolerance in our financial assets’ portfolio through a Conditional Value at Risk limit. Therefore, we forced the efficient frontier to be satisfactory in the trade-off between expected return and risk, but also in terms of the diversification and hedge provided to our external shocks.

Another important step that we took to improve our strategic asset allocation framework was the development of a forward-looking model to project expected returns and distributions. Here we used work already done by the BIS⁴, being able to change our framework to a factor-

⁴ BIS Asset Management Asset Allocation Module (BAAM), developed by the BIS Asset Management Unit to support public investors such as central banks and international organizations in their strategic and tactical asset allocation decisions.



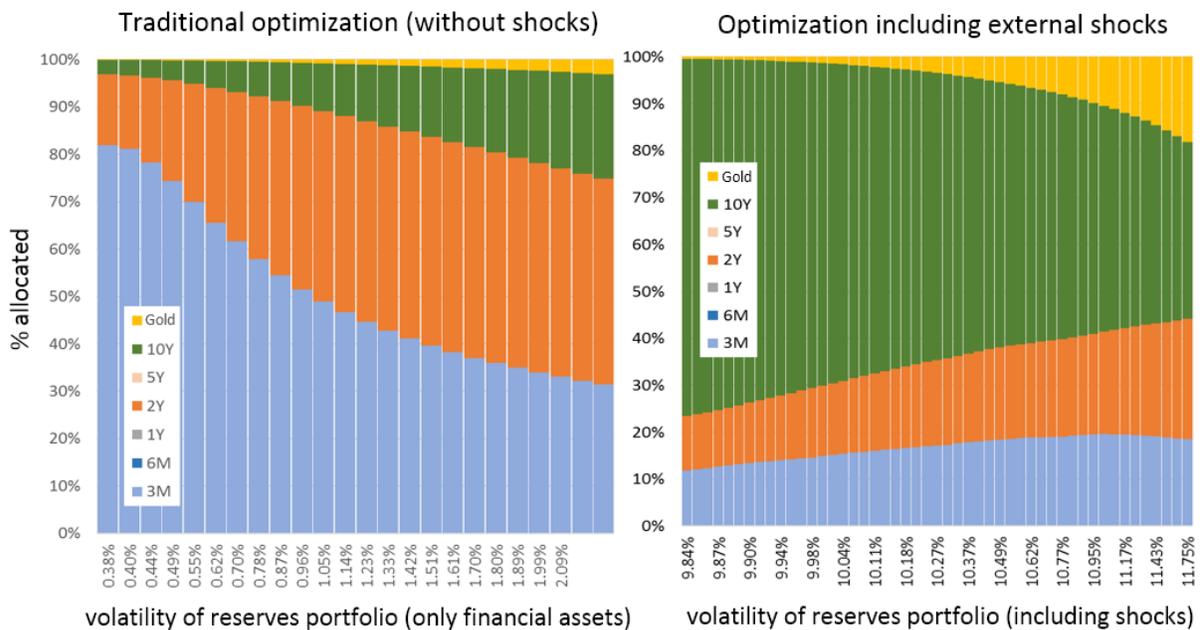
based approach, where expected returns and distributions supporting our asset allocation decision are based on a comprehensive assessment of the underlying risk factors.

This factor-based approach is separated into three phases: factor projection, return projection and portfolio construction. During the factor projection phase, yield curves are constructed with growth, output gap and inflation as inputs, and backtesting is used to help us to find linkages between different sovereign business and monetary policy cycles. Factor projection is then used to estimate the asset's expected returns, distributions and covariances, and the efficient frontier is obtained through optimization techniques, like resampling.

Although the general idea is very straightforward, empirical or practical implementations are rare. In fact, we have only timidly started moving to the recommendations of this broader optimization. Central banks prefer to focus on their own balance sheet, probably because they prefer to avoid having any headline or reputational risks.

However, once you start to consider hedge properties, your asset allocation decision might drastically change. An efficient portfolio in terms of the hedge provided does not mean that is efficient within the traditional risk/return framework, and it is probably not.

Efficient portfolios per duration bucket



Let me share with you some of the results. A conservative approach to minimize the portfolio variance has a very high proportion of assets in 3M treasuries, allocating there about 80% of holdings, with the remainder 20% split between 2Y, 10Y and gold reserves. Yet when we try to build a portfolio that minimizes risk considering the shocks faced, the composition changes dramatically. 3M treasuries fall to about 10%, another 10% is taken up by 2Y treasuries, with the bulk of the assets, up of 70%, going into the 10Y bond. It makes sense: the 10Y bond will likely provide a more powerful hedge to a sudden stop, thus the result. The drawback is that the



value of your financial assets will have more volatility and even negative returns, depending on the hedge ratio, when there is some positive shock for the overall economy (i.e. an increase in commodity prices or a higher growth in the US economy).

Therefore, once you start to think about the volatility of your reserves' portfolio both in terms of the volatility of your financial assets but also in terms of the volatility from external shocks, the covariance of your financial assets with external shocks starts to play a significant role. Needless to say you really need to have an extremely good communication policy to explain what you are doing and why.

It is here where I think the World Bank (WB) could help and provide a better advice to many countries. First, building this conceptual framework that improves the hedging strategies in reserves allocation, very much in the way I have just described. Second, by putting on the shelf new instruments, which, though liquid, should have the correlation properties that countries need. Having access to these tools would be a great improvement to our decision set. The World Bank has another advantage. As a respected Multilateral Organization (MO), Central Banks have a much larger leeway to operate and experiment with instruments sold by it, considering that the WB is a MO that we know is squarely concerned with the well-being of its country affiliates. It will also allow Central Bankers to better communicate and build trust with their populations as to the strategies that are being followed, and help explain when and *ex-ante* rational policy becomes sour *ex-post*.

Let me say that if the Conference concludes that the process of monetary policy normalization will proceed quicker than expected and have large impact on asset prices, we need to think harder than ever how we are going to deal with this volatility and better prepare our economies. In the case of the Central Bank, it is in the investment of our reserve assets where we can make a significant difference. Again, I think the WB has the credibility to help us build these protective shields.

As we can see, there is still a wide range of opportunities and innovations ahead. Let's explore them.