

Monetary policy challenges over two decades: a view from Argentina

Miguel Ángel Pesce and Germán Feldman¹

Abstract

In Argentina, the quest for macroeconomic stability remains elusive. The experience provides a vivid depiction of how policymaking is shaped not only by policy goals but also by the particular constraints faced by a developing economy. In this chapter, we review Argentina's experience in the last two decades, from the point of view of monetary policy as conducted in an underdeveloped financial system. We first consider the succession of macroeconomic and monetary regimes. We then go on to review challenges such as dollarisation, inflation and shallow financial markets, as well as how they interact. We conclude with lessons from this experience that may be useful not only at the country level but for developing economies at large.

A tale of monetary and FX regimes

Given Argentina's history of macroeconomic volatility, changes in its monetary regime occur more frequently in Argentina than in other countries, and they show different degrees of institutionality (ranging from changes in laws to merely policy decisions). Indeed, just a quick glance at the series of different monetary and foreign exchange regimes the country has had reveals that none of them succeeded in reducing inflation in a sustainable way.

One important factor in this is that the interaction of shallow financial markets and a high degree of currency substitution renders conventional monetary policy much less effective and compromises the sustainability of monetary and FX regimes. While the private sector uses local currency for transactions, it relies on the US dollar (USD) as a store of value. This puts pressure on external accounts – USD supply must not only cater to imports and financing needs, but also to residents' portfolio dollarisation.

This is first illustrated by the currency board or "convertibility" regime in place between 1991 and 2001, which was a response to the high inflation regime of the 1980s and hyperinflation episodes in 1989 and 1990. This arrangement set a fixed exchange rate with the US dollar and full backing of the monetary base with international reserves. It also imposed strict limitations on monetary financing of the public sector. This framework aimed to restore credibility, together with a number of reforms implemented at the same time (deregulation, privatisation and capital account liberalisation).

¹ Central Bank of Argentina (BCRA). For input and comments, we wish to thank Horacio Aguirre, Ariel Dvoskin and staff from the Multilateral Fora and Economic Studies areas at the BCRA. All views expressed are the authors' own.

The currency board was instrumental in drastically reducing inflation, but it left the country without a tool for coping with external shocks. These included the succession of crises that hit emerging market economies (EMEs) such as Mexico, from 1994 onwards, and Brazil in 1999. The latter was particularly relevant for Argentina given its geographic proximity and trade linkages. There is systematic evidence that foreign exchange-based stabilisation programmes are successful in bringing down inflation in the short term but deliver lower growth later on (Calvo and Végh (1999)). More generally, while the exchange rate is a focal point for consumers and businesses in their pricing decisions, fixing it typically leads to real exchange overvaluation and current account deterioration, ultimately harming growth (and fuelling bets against the peg).

On top of the external shocks of the second half of the 1990s, domestic factors also played a role. These included growing fiscal deficits and foreign indebtedness, as well as “hidden” currency mismatches in the financial sector. While financial regulation ruled out currency mismatches in bank’s balance sheets, it did not prevent families and firms from borrowing in foreign currency while generating revenues in local currency (a behaviour prompted by perception of the currency board as “permanent”).

As successive EME crises hit the economy, a period of recessionary adjustment took place from late 1998 onward, accompanied by higher unemployment and poverty. This resulted in the demise of the currency board in January 2002, which involved a currency, banking and debt crisis. In 2002, GDP plummeted by 11.1%, the exchange rate depreciated, with the USD gaining 249% over the local currency, and inflation hit 41%. (This was contained in part by depressed aggregate demand and an unemployment rate at 18%).

The exit from the convertibility regime was traumatic and complex. It involved breaking a majority of the contracts in the economy – most of them dollarised, either de jure or de facto. The ensuing devaluation generated massive negative balance sheet effects and the interruption of the payment chain. The latter was exacerbated by the recession and restrictions on bank deposit withdrawals (imposed in December 2001).

In this context, the monetary regime was changed in response to an emergency. The new central bank charter (passed by Congress) established that the central bank had to report quantitative monetary goals and permitted, albeit within certain limits, a margin for direct monetary financing to the Treasury.

The central bank adopted a managed exchange rate regime, later introducing capital flow management measures (CFMs), including a minimum investment period and a 30% mandatory deposit for portfolio inflows starting in 2005. Together with the impact of the debt default, this meant that Argentina recorded low levels of international portfolio flows in the first decade of the 21st century.

The early years of the century (2003–07) saw fiscal and current account surpluses (primary fiscal surplus of 3%, total fiscal surplus of 1.4% and current account surplus of 3.18% of GDP on average), together with strong growth (8.7% on average). This went hand in hand with burgeoning terms of trade (+30% from 2002 to 2007), international reserve accumulation and lower public indebtedness (the latter following debt restructuring in 2005).

From 2007 onwards, price pressures mounted, with year-on-year inflation once again passing the double-digit threshold to almost 21.5%, as aggregate demand continued to recover. Tensions between growth, inflation and external solvency

resurfaced. At that point, the Great Financial Crisis (GFC) broke out. While Argentina was not directly affected through the financial channel, it faced lower commodity prices and export volumes. In the third quarter of 2008 GDP had grown 6% year on year, but growth fell to 2% in the last quarter and 5.9% in 2009.

To mitigate the impact of the GFC, the government deployed an expansionary fiscal policy. With the deterioration in tax collection due to the recession, the primary fiscal surplus decreased from 2.8% of GDP to 1.4% in 2009 and 1.5% in 2010. After the worst of the GFC had passed, GDP recovered strongly and grew by 10.1% in 2010 and 6% in 2011, averaging 3.4% between 2008 and 2011. However, by 2011 both fiscal and external balances had eroded (with a current account balance of close to –1% of GDP, a primary fiscal balance at 0.2% of GDP and a total fiscal balance at –1.4% of GDP). Moreover, in 2009, after six years of nominal exchange rate stability, the peso began to devalue against the US dollar and cemented inflation in the range of 20–25%.

Portfolio dollarisation of the private sector had accelerated since 2007 (accounting for 4.1% of GDP, on average, for the period 2007–11). This put little pressure on reserves, as there was a current account surplus. In 2011, however, demand for foreign currency increased substantially, alongside a current account deficit. This led Argentina to tighten capital controls to reduce foreign exchange market pressures, while EMEs were validating currency depreciations.

In 2012 the monetary policy framework was changed again. The new charter passed by Congress re established a dual mandate for the central bank; removed the need to set quantitative monetary goals, providing greater flexibility to carry out monetary policy; and eased, to a certain extent, the limits on direct monetary financing to the Treasury, among other aspects. Since then, the central bank has been required to publish its objectives and plans regarding the development of monetary, financial, credit and exchange policies before the beginning of each financial year. If significant changes occur, the bank must disclose their causes and the measures adopted as a result.

During this period, economic policy focused on strengthening domestic demand as a driver of growth. Monetary policy kept, on average, negative real interest rates. In turn, fiscal policy was markedly expansionary, with a total deficit (primary deficit) of 2.6% (0.9%) of GDP on average, largely financed by assistance from Central Bank of Argentina (BCRA) to the National Treasury. The economy alternated between years of growth and years of recession, making it practically stagnant in the medium term (0.37% annual average growth in 2012–15), and inflation solidified in the range of 25–30% per year.

When a new government took office at the end of 2015 and central bank leadership changed, inflation targeting (IT) with a floating exchange rate was adopted. Designed to curb demand-pull inflation instead of the persistent cost-push inflation that was actually occurring, IT entailed aggressively raising domestic interest rates in a context of historically low international interest rates. Meanwhile, in 2016, the country reached an agreement with holdout creditors (creditors that have opted out of debt restructuring since 2005). Argentina regained access to international debt markets while eliminating all CFMs. This policy mix induced significant portfolio inflows in 2016–17.

The liberalisation of foreign exchange controls led to a 40% depreciation of the peso. This, on top of rising utility prices, pushed inflation in 2016 to 39.4%, far from

the initial 25% target (actually, a forecast for the transition towards full-fledged IT in 2017).

Both domestic and foreign market participants were able to buy central bank-issued bills and notes. The same instrument that the central bank used to regulate liquidity in the money market was traded by short-term investors. While this was useful for transmitting changes in policy rates to market interest rates, it increased the volatility in the monetary policy transmission channel and ultimately proved to be destabilising when capital flows reversed. This occurred in September 2018, when the central bank changed its operational procedure to trade liquidity bills only with financial institutions under BCRA regulation and supervision.

The consequences of full capital account openness with high interest rates were dramatic. The current account deficit rose from 2.7% of GDP in 2016 to 4.8% in 2017 and 5% in 2018. Demand for foreign assets accelerated and exceeded 4% of GDP in 2017. Debt in foreign currency increased by 54% between December 2015 and March 2018. Indeed, Argentina led the ranking of emerging countries with the highest volume of sovereign bonds issued in international markets between January 2016 and April 2018 (BCRA (2020a)).

In 2018, with increasing volatility in EMEs and growing concerns around the sustainability of Argentina's public debt, portfolio inflows suddenly reversed, with significant impact on the FX market. Argentina underwent a currency crisis, even after agreeing on a programme with the IMF in mid-2018.

As part of the Stand-By Agreement (SBA) with the IMF, IT was replaced with a monetary base growth control regime and a fiscal consolidation process was established. However, the programme failed to stabilise Argentina's macroeconomic situation, and the crisis deepened. Inflation accelerated to 47.6% in 2018 and 53.8% in 2019. From April 2018 to December 2019, USD gained 196% over the local currency. The GDP lost an accumulated 4.5% in 2018–19 (–3.92% in 2016–19). As a result of instability created by the combination of dollar-denominated debt, a fully open capital account and a flexible exchange rate, the monetary authority reintroduced CFMs (similar to those of 2011–15) in the second half of 2019.

In December 2019, as a new government took office, leadership of the central bank changed again. The money supply control regime was abandoned, and new guidelines for monetary, exchange rate and credit policy were adopted (BCRA (2020b)). Then, the Covid-19 crisis broke out.

The policy response to Covid-19 was heavily conditioned by the situation prior to the shock (an ongoing recession together with lack of access to both foreign private financing since the beginning of 2018 and domestic financing since July 2019). These initial conditions made the conventional trade-offs faced by monetary policy worse, limiting monetary policy space. Fiscal policy measures for dealing with the pandemic amounted to around 5% of GDP. In a very short time span, new direct transfers to households and companies were designed and implemented in order to sustain basic consumption and income flows. As a result, the primary fiscal deficit soared to 6.4% of GDP.²

² In 2017, changes were made to fiscal accounts. As a result, profits transferred by the BCRA to the Treasury and generated by the Sustainability Guarantee Fund (under the National Social Security Administration, or ANSES) cannot be booked as revenues, except for those generated by private assets. In turn, rents collected and paid within the public sector are netted. Therefore, the fiscal result worsened. In this chapter, all official figures in each moment are considered valid.

Limited fiscal space meant that the central bank had to increase financing to the Treasury in order to support household incomes and prevent firms from shutting down. It did so through direct lending and profit transfers to the national government, two channels set forth by its charter. Extraordinary financing reached 7.6% of GDP in 2020 but was transitory, and the central bank toolkit was used to manage liquidity in order to preserve monetary equilibrium. Base money increased in part due to advances and profit transfers from March through July 2020, while the central bank used its own bills and notes to mop up any excess liquidity.

In a context of capital outflows from emerging markets starting in March 2020, the Argentine economy experienced greater financial and exchange rate volatility. The central bank responded by intervening in the foreign exchange market to reduce volatility; CFMs helped to sustain the level of international reserves. The combination of foreign exchange intervention, regulation and interest rate caps was instrumental in enabling liquidity supply to the private sector while providing emergency financing to the Treasury. Without liquidity management and capital controls, short-term monetary policy space would have been much more limited, which would have prevented an effective countercyclical policy response (ie lending interest rates would have been higher and less liquidity would have been available). On the financial front, debt in foreign currency with private creditors (totalling about USD 107 billion) was restructured in 2020, while the local debt market was progressively normalised.

In 2020, GDP collapsed by 9.9%. However, as health measures were relaxed, the economy recovered very strongly, growing 10.4% in 2021. In addition, after having subsided in 2020 to 36.1%, inflation accelerated to 50.9%.

At the beginning of 2022, Argentina reached a new agreement with the IMF to refinance the 2018 SBA, extending the previous maturity schedule by 10 years. The current policy framework follows the guidelines set by the Central Bank of Argentina's Objectives and Plans for 2022. The framework aims to normalise policy following the extraordinary response to the pandemic in order to boost macroeconomic certainty and help consolidate foreign exchange and inflation expectations. It is also embedded in the new Extended Fund Facility (EFF) agreement with the IMF. The latter comprises a multi-year fiscal consolidation, with a path of gradual and sustainable reduction of the primary deficit based on economic recovery, and a monetary policy aimed at gradually reducing inflation through a comprehensive approach combining monetary instruments with fiscal and income policies, wage-price coordination, prudent management of monetary aggregates and sterilisation of any liquidity surpluses.

FX tensions, portfolio dollarisation and inflation

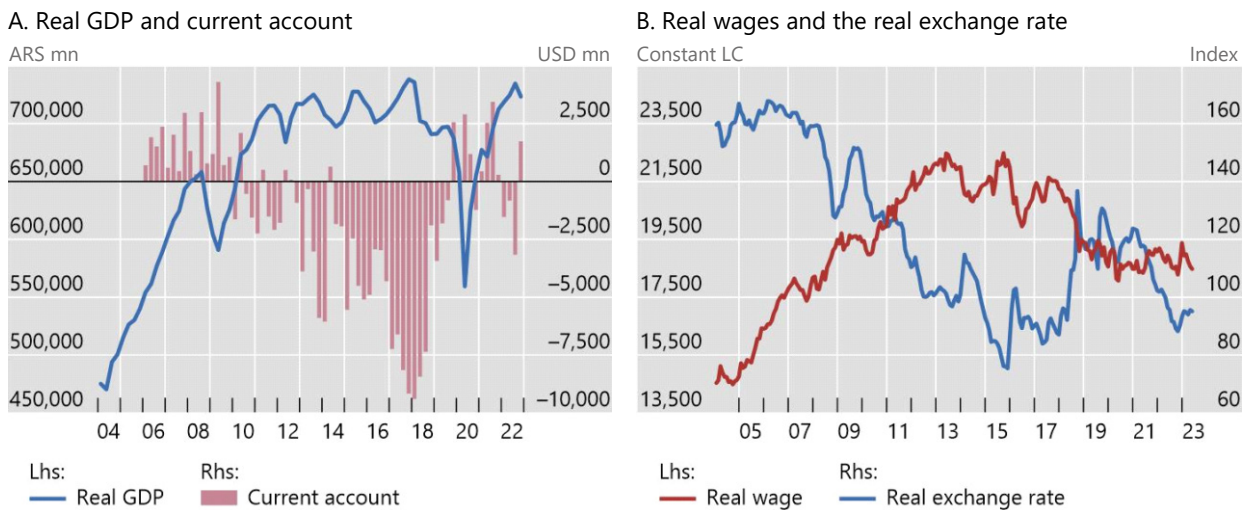
The preceding review shows that sustainable growth and low inflation remain challenges for the Argentine economy. Periods of robust growth and without turbulence have coincided with current account surpluses. However, as doubts about the sustainability of growth arise, the exchange rate appreciates; fiscal and financial tensions develop that end up materializing and weighing on activity and inflation.

Typically, periods of persistent current account deficits are corrected through sharp depreciation or devaluations. Under such circumstances, far from functioning as a shock absorber, devaluations tend to amplify external shocks (Dvoskin and Katz (2021)). Devaluations are inflationary and reduce real wages (Graph 1.A.). This has a negative impact on aggregate demand and therefore on economic activity. Thus, when devaluations correct external imbalances, they do so contractively.

Devaluations and economic growth are negatively correlated (Graph 1.B). In addition, except for the Global Financial Crisis of 2008–2009 and the Covid-19 Crisis, the contractions of the economy coincide with negative current account balances. In 2010–19, the current account deficit was due mainly to deficit in the category “Services, Income” and low or negative trade balances (especially from 2013). On top of the difficulty of accessing external financial markets, this illustrates the problem of structural scarcity of foreign currency in Argentina.

Macroeconomic performance over the past two decades

Graph 1



Source: Central Bank of Argentina.

In keeping with this, a study by the BCRA (2021) on foreign trade elasticities in Argentina finds (a) low price and income elasticities for the country’s exports and (b) high income elasticity and low price elasticity for its imports. In other words, economic growth drives imports, and both exports and imports are relatively less sensitive to changes in the real exchange rate than to growth.

Financial channels of FX depreciation are also very relevant, especially in recent decades. Indeed, these same cycles of growth, devaluation and inflation have tended to encourage the financial dollarisation of the private sector and, therefore, to erode the role of the peso as a store of value (Corso (2021)). Fiscal and monetary interactions play a role, but this should be put in the broader context of growth and current account sustainability. In what follows, we analyse the negative feedback loop between portfolio dollarisation and FX dynamics; and how the latter weigh on inflation performance.

FX disruptions and portfolio dollarisation³

Disruptive FX depreciations are linked to portfolio dollarisation in Argentina. Exchange rate “jumps” associated with local currency depreciation have led the domestic private sector to implement adaptive mechanisms, shaping portfolio decisions. Even when short-term vulnerabilities in the monetary-FX regime are not evident, a fraction of the demand for store-of-value assets will be biased towards USD-denominated instruments. This can occur even when expected real returns on

³ This section draws on Corso (2021) and Corso and Sangiácomo (2023).

assets in pesos are higher than those on USD assets in the short term. In other words, the demand for foreign assets has also become “structural”. Behind these private sector decisions, there are medium- and long-term investment holding horizons in which agents face uncertainty regarding the characteristics of the monetary-exchange regime. This means, among other things, that they will tend to assign a non-zero probability to an episode of exchange rate disruption (Corso and Sangiácomo (2023)).

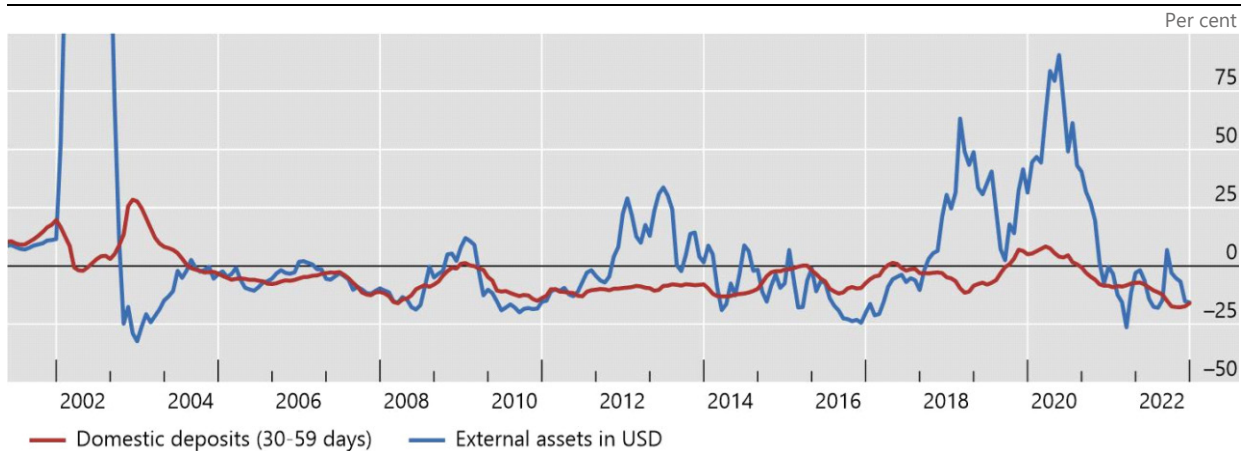
Assuming that real ex post returns are a relevant element of agents’ information set when forming expectations on returns, recurring exchange rate disruptions could bias positively the perceived probability distribution for dollar-denominated assets. In other words, higher exchange rate volatility could be associated with a bias “to the right” of the real returns of foreign assets. High devaluation pass-through resulting from the presence of real dollarisation implies that exchange rate jumps are associated with negative average real returns for peso-denominated assets.

Evidence from the last 20 years

The evolution of real returns on dollar-denominated assets and fixed-term deposits in pesos in the last 20 years is representative of Argentina’s monetary history. Graph 2 shows the evolution for the period 2001–22 of the annual accumulated ex post real returns (in local currency) of a fixed-term deposit of 30–59 days and of a foreign asset denominated in US dollars.

Real effective returns: peso time deposits versus external assets

Graph 2



Source: Central Bank of Argentina.

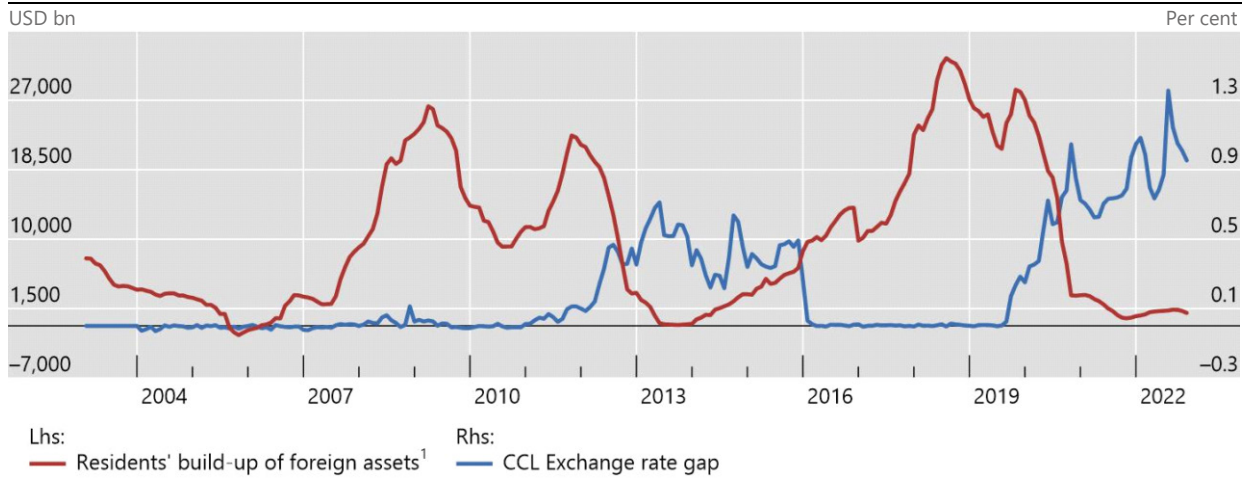
Real returns on USD assets feature “volatility clusters” associated with exchange rate jumps. Five such clusters can be identified. The first episode that stands out is the currency crisis of 2001–02. The second is the currency devaluation and interest rate increase associated with the impact of the Global Financial Crisis. The third is the period of restrictions on capital flows that runs from the end of 2011 to December 2015. The fourth is the period of exchange rate disruptions in 2018–19, and the fifth is the recent period of restrictions on flows.

Such perceptions of risk are reflected in portfolio dollarisation (ie the accumulation of net foreign assets by the private sector; see Graph 3). Except for in a couple of periods (eg during re-intermediation following the 2001–02 crisis and when tight CFMs have been in place), the annual accumulated net flow of FX assets has

been positive throughout virtually the entire sample, reaching an average of around USD 10 billion.

Net foreign asset accumulation by the private sector and FX rate gap

Graph 3



¹ 12-month cum sum.

Source: Central Bank of Argentina.

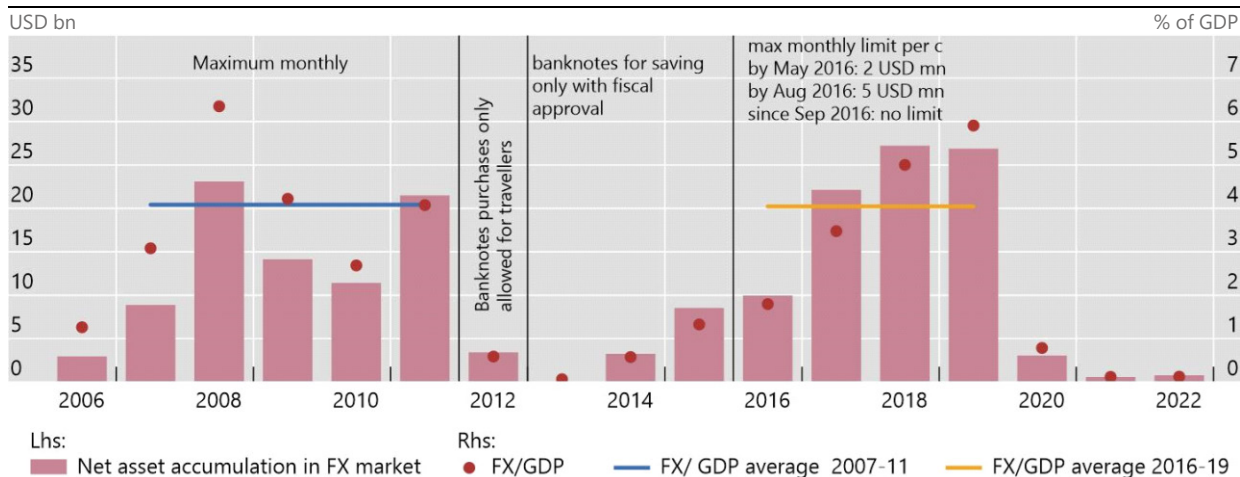
In economies where monetary and FX regime changes are frequent, agents face greater difficulties in identifying the right signals on which to base portfolio choices. In such circumstances, under a specific monetary regime, they may even interpret certain “news” as indicating a greater probability of regime change, even when authorities believe no fundamental condition for the stability of the regime has changed. In volatile macro-financial contexts, this identification becomes even more difficult, and expectations will be closely linked to agents’ conjectures (based on experience).

Indeed, if positive returns on domestic currency assets are not perceived as sustainable, they alone are not enough to encourage de-dollarisation. An example of this is the experience of 2016–19. The establishment of an IT scheme with real interest rates that were, in principle, positive was far from promoting a reduction in the demand for foreign currency. As described in Section 1, non-compliance with targets, exchange rate appreciation, and the growing and significant current account deficit and external debt contributed to agents’ perception that the regime was not sustainable and led them to take advantage of the accumulation of foreign assets within the framework of full liberalisation of the capital account. In contrast, with twin current account and fiscal surpluses in 2003–07, dollarisation actually decreased.

In turn, the experience of 2012–15 shows that merely implementing tight CFMs does not solve the dollarisation problem, and it may generate additional tensions: CFMs must go together with a set of policies to restore external sector soundness and positive real returns in local currency. Indeed, during that period, the controls were effective in causing foreign asset demand to collapse, but this was accompanied by a growing gap between the official and “parallel” exchange rates (Graph 4).

Net accumulation of external assets by the non-financial private sector and CFMs

Graph 4



Source: Central Bank of Argentina.

Inflation and exchange rates

Several econometric exercises show that exchange rates and inflation are highly correlated. In other words, the pass-through of the exchange rate to prices is very high. Recent estimates by the central bank (see BCRA (2020b)) suggest it is close to 36%, much higher than the average for the region. This reflects the role of the exchange rate as a determinant of domestic prices, firstly because it increases the costs of imported inputs and secondly because it rapidly increases the sales price – and therefore the profitability – of tradable goods and services produced by our country, whose international prices are set on the world market (Remember that Argentina is a small economy, ie it takes international prices as exogenous.). Finally, through competition, higher profitability in the tradable sector eventually also has an impact on the prices of non-tradable goods and services. Thus, in Argentina, the exchange rate has a positive impact on average profitability and a negative impact on real wages (Dvoskin and Feldman (2018) and Dvoskin et al (2020)). In other words, in a small and open economy like Argentina, distributional conflict generates a spiral among the nominal exchange rate and money wages. This will be more intense, ceteris paribus, the greater the capacity of workers to defend real wages and firms to prevent profit margins from falling (García Cicco et al (2022)).

All of these mechanisms help to explain inflation inertia, which, as we will see below, is a very important driver of inflation in Argentina. Inertia refers to those formal and informal mechanisms for adjusting nominal contracts to past inflation in order to prevent inflation from falling (or not falling fast enough), even when the shock that generated the inflationary acceleration (for instance, a devaluation or a rise in international commodity prices) has disappeared. Indeed, behind these indexing mechanisms (which are, in general, incomplete) are the attempts of different social actors to protect themselves from the negative redistributive effects of inflation. This price-wage spiral once again shows the capacity of workers to defend themselves against the initial increase in general prices⁴ and the subsequent increase in prices

⁴ Argentina’s constitutional and legal regime establishes the free negotiation of wages between business chambers and labour unions. This gives workers an institutional tool for preventing the deterioration of their salaries under inflationary conditions.

by employers to avoid a decrease in average profitability once nominal wages have reacted.

In summary, it is not surprising that inflationary expectations are fundamentally anchored to exchange rate expectations and that FX depreciations generate inflationary shocks that tend to spiral. This is not to deny, of course, the role of monetary policy in helping to determine such expectations – the point here is that a key dimension through which it operates is through the FX-expectations-wages link.

Inflation over two decades: an econometric analysis⁵

We now turn to an analysis of long- and short-run decomposition of inflation in Argentina between 2004 and 2022. The variables involved are the consumer price index in its core or underlying version, nominal exchange rate, wages, activity, amount of money, interest rate for deposits in domestic currency, international energy prices, international food prices and foreign producer price index (for details, see the Annex).

In the long run, almost 80% of price behaviour is associated with nominal wages, while the remaining 20% depends on the nominal exchange rate (see equation [1] in the Annex). This long-run influence of money wages on prices is somewhat higher than that in other Latin American countries: it is 72% in Brazil, 70% in Colombia and Uruguay, 60% in Mexico and 48% in Chile (García Cicco et al (2022)). There is also a negative relationship between the real wage and the real exchange rate: persistent real depreciations have been associated with lower real wage levels on average, and vice versa.⁶ This is not found in other Latin American countries, and it may help explain why devaluations feed the persistence of inflation in Argentina, because they lead to high nominal wage demands to protect the real wage, which in turn end up feeding back into inflation.⁷

The other long-run relationship links real money balances, economic activity, the interest rate and the exchange rate, and can be interpreted as the long-run transactional money demand (see equation [2] in the Annex). The influence of monetary aggregates on inflation through this channel is less direct. If the general price level were to rise in order to eliminate a potential excess of money supply, this rise could be the result of “excess demand” in the goods market, due, for instance, to tighter labour market conditions. Since the economy during the sample period usually worked under conditions of less-than-full employment, excess-demand inflation may not seem to be a plausible direct mechanism for Argentina; still, money may have an indirect effect on inflation through FX depreciation.

We go on to examine the short run, decomposing 12-month core inflation rate into a persistence and a contemporary component (see the Annex). In turn, inflation persistence is disaggregated into its own persistence and the persistence of the other determinants, and the contemporary component is also disaggregated into a “news” and a residual component. The different terms of the decomposition include the nominal exchange rate, wages, activity, monetary factors (money balances and interest rate), external factors (international energy and food prices and the foreign producer price index), the nominal exchange rate gap (the difference between the

⁵ This section draws on BCRA (2023).

⁶ Since the estimated coefficients sum to one, the long-run relationship shows a necessary negative relationship between real wage and real exchange rate.

⁷ Historically, wage earners faced negative distributive shocks every time there was a discrete jump in the exchange rate. Between 1930 and 2018, strong external crises occurred in 1931, 1948, 1971, 1975, 1981–82, 1989, 2002 and 2018.

official exchange rate and the exchange rate that emerges in financial markets through the sale and purchase of bonds denominated in foreign currency) and, finally, deviations from the long-run relationship previously described.

As anticipated, the exercise shows that persistence (or inertia) has been a very significant determinant of core inflation since 2005. Moreover, relative to own persistence, the persistence of the rest of the explanatory variables has increased over time, reaching a contribution of 48 percentage points by the end of 2022 (Graph 5). On the other hand, news about inflation (exchange rate, wages, external factors, among others) played a relatively minor role during the period under analysis. However, in 2022, news on inflation gained momentum, accounting for 27.4 percentage points of accumulated inflation for 12 months (Graphs 5.A and 5.B).

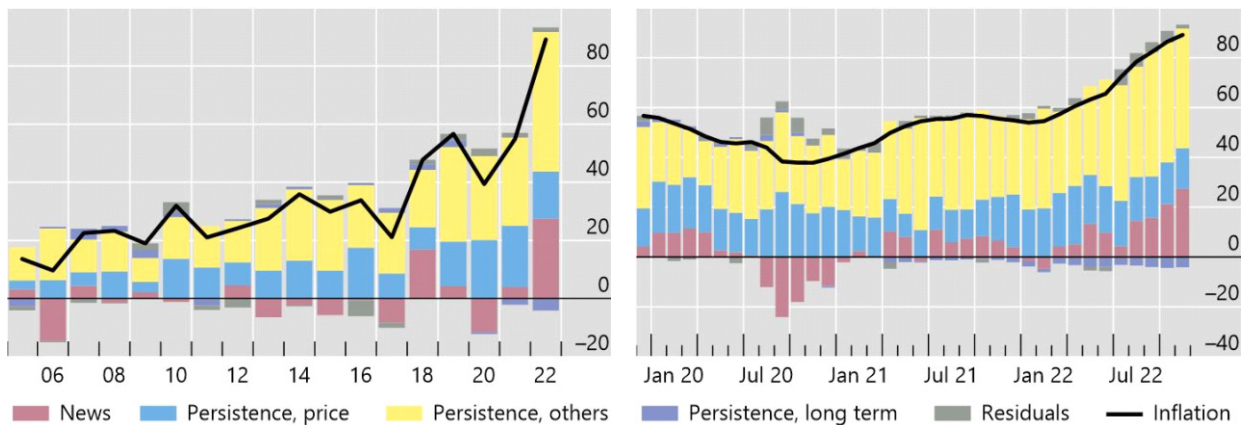
Inflation: year on year decomposition

In per cent

Graph 5

A. Period: 2005-22¹

B. Period: Dec 2019-Nov 2022²



¹ Annual data. ² Monthly data.

Source: Central Bank of Argentina

Given the relevance of persistence in the inflationary process, we additionally decompose the component into its constituting factors. During the last three years, inflation persistence itself (lagged inflation) and the persistence of wages and of the exchange rate gap are the most relevant factors in overall inflation persistence (Graph 6). Persistence due to money growth is relatively low (except in 2019 and certain months in 2020), and the role played by activity in explaining inflation persistence is subdued. Recently, wages played a growing role in inflation persistence (18.5 percentage points). The persistence of the exchange rate gap has gained traction since mid-2021 (19.8 percentage points; see Graph 6.B), while “own” inflation persistence has lost some share (16.2 percentage points) since June 2022.

Finally, a brief comment about the role played by news on external factors: in 2021–22 it added to inflation, including higher international prices after the outbreak of the war in Ukraine. Moreover, international prices are likely to have played a non-trivial role in domestic inflation indirectly, through their effect on both wages and the residuals, given their possible link to higher inflationary expectations (“forward-looking elements”) not captured explicitly in the econometric exercise. As mentioned in the previous section, in a context of high inflation, expectations tend to be linked more strongly to exchange rate dynamics and the risks of a discrete devaluation. For that reason, post-pandemic monetary policy is committed to

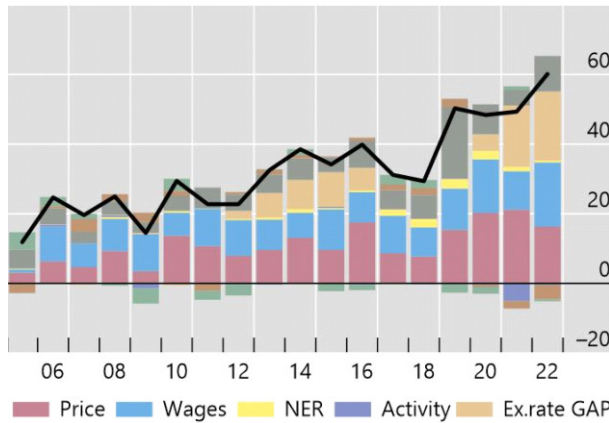
creating conditions that ensure positive real returns on domestic assets in order to anchor expectations and limit portfolio dollarisation.

Inflation: persistence decomposition

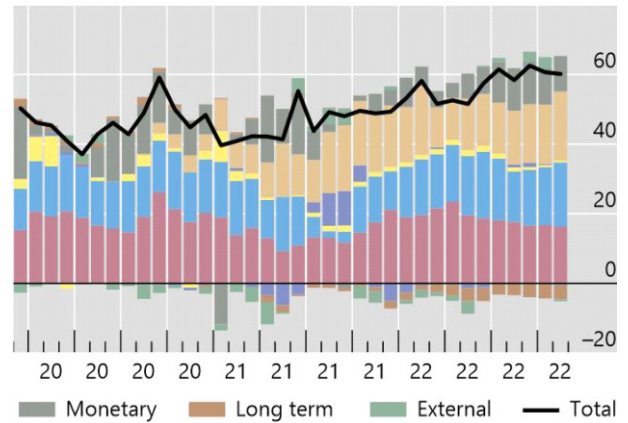
In per cent

Graph 6

A. Period: 2005-22¹



B. Period: Dec 2019-Nov 2022²



¹ Annual data. ² Monthly data.

Source: Central Bank of Argentina

FX disruption, volatility and low financial market development⁸

The mirror image of portfolio dollarisation is an underdeveloped domestic financial market that is basically bank-based and mostly transactional in nature. The degree of financial market development has an impact on the design and implementation of monetary policy in Argentina. Low financial market development means that maturity transformation is carried out to a very limited extent.

In its conventional form, monetary policy influences private sector decisions through intertemporal substitution. This allows policymakers to regulate aggregate demand and, through the impact on the output gap, inflation dynamics. Inflation expectations are formed based on this monetary policy impact, so interest rate announcements influence inflation expectations.

However, under low financial intermediation, interest rate changes have a subdued impact on consumption. In shallow financial markets, maturity decisions may be compressed to, say, less than a year, with scarce long-term credit to speak of. In Argentina, the average maturity of the most representative lines of loans to companies ranges from less than two months to one year. This in turn lessens the influence that monetary policy may have on aggregate demand through credit. Short bond maturities also constrain the transmission from short-term to long-term interest rates. Finally, the menu of instruments available for open market operations is limited as well. Episodes of debt default by the Treasury have led to the use of central bank-issued securities to carry out such operations.

⁸ This section and the following one draw on Carrera et al (2020).

Rather than intertemporal substitution through financial intermediation, private sector decisions are about currency substitution. In other words, consumers and companies are making decisions not so much about whether to save or lend at shorter or longer terms (and in which instruments) as about saving in either the local or a foreign currency. Financial decisions about the currency used tend to dominate those about the tenor.

Under these conditions, the exchange rate channel of monetary policy becomes more important. Changes in monetary policy rates may have an impact on inflation expectations, but this is exerted through their effect on exchange rate dynamics. The role of the exchange rate in expectation formation stands out in estimated Phillips curves for Argentina in different periods (D'Amato and Garegnani (2009), Krysa and Lanteri (2018)), where the coefficient for the exchange rate is systematically higher than that of the output gap. DSGE models of the Argentine economy also reveal the fundamental role of the exchange rate in inflation dynamics. While pass-through is endogenous and dependent on the monetary policy stance, ERPT coefficients in Argentina continue to be four to eight times higher than in other Latin American countries. These results are in line with the econometric evidence provided in Section 2.1, where the role of the exchange rate in inflationary processes also stands out.

Currency factors also have a financial stability dimension. As savings decisions are not so much about how to smooth intertemporal consumption over time, but about how to allocate wealth in local or foreign currency, exchange rate swings may have a much greater impact on financial stability than could be expected. The relationship between savings in local currency and FX volatility provides a clear illustration. For instance, the sum of time deposits and private non-financial sector holdings of central bank bills shows a negative correlation of 72% with nominal exchange rate volatility during 2016–19 (a period when the public could hold CB bills, so they reflected private sector savings decisions, in addition to time deposits).

For the reasons just outlined, FX intervention policy becomes a relevant monetary policy tool. In a relatively small foreign exchange market like that of Argentina, very small movements can become easily amplified. This reinforces the motivation for central bank intervention when such movements are unrelated to economic fundamentals.

Recent experience also indicates that the use of the interest rate as the only policy tool, together with full capital mobility, leaves the economy exposed to sudden stops of capital flows, with adverse consequences for price and financial stability. This is compounded by the high portfolio dollarisation in the Argentine private sector as a consequence of a history of macroeconomic crises. In this light, capital flow management measures have become part of the macroprudential policy package, as they can prevent excessive risk-taking in the currency market and limit negative spillovers from the financial system to the economy at large.

More generally, an integrated monetary policy approach (Agénor and Pereira da Silva (2019)) contemplates the use of standard tools (such as interest rates) with foreign exchange intervention and macroprudential policy, including capital flow management measures. Such an approach may be called for given one or more of the following conditions: nominal exchange rate movements have a strong impact on inflation or inflation expectations, real exchange rate variability distorts consumption and investment decisions, portfolio shifts between local and foreign currency-denominated assets have an impact on financial stability, and financial and foreign exchange markets are underdeveloped. Indeed, models estimated and calibrated for

the Argentine economy suggest that the optimal policy mix includes interest rate policy, foreign exchange intervention and capital flow management measures (Escudé (2015)).

Lessons and concluding remarks

This chapter has analysed how the interaction of external restrictions and monetary and fiscal policies has entailed disruptive exchange rate episodes that play a crucial role in inflationary dynamics. FX disruptions lead to defensive behaviours that involve financial dollarisation and prevent the consolidation of the peso as a store of value, undermining the development of the domestic financial market. For its part, the low depth of this market reduces the effectiveness of monetary and exchange policy instruments, exacerbating the nominal instability that feeds back into the vicious circle.

Thus, the creation of lasting conditions that make it possible to ensure sustainable price stability remains a key challenge.

To achieve this goal, policies can be identified to address real economy factors on one hand and financial aspects on the other. The former aim to deal with the structural causes of external constraints in Argentina. Basically, the conditions necessary to avoid a chronic current account deficit without depending on luck regarding the terms of trade require a transformation of the economy's productive structure and advancement of public policies that promote sectors with the capacity to export more complex goods and services and substitute imports. Obviously, developing and consolidating this type of policy is an arduous, long-term process which transcends a government term and therefore requires broader political consensus regarding the development of the country.

In the next few years, energy, mining and knowledge-based services are expected to contribute to export growth by over 70%; they currently amount to around 20% of foreign sales. According to prospects from the Plan for Productive, Industrial and Technological Development 2030, energy and mining exports have the potential to rise from less than 10% of exports in 2021 to around 30% in 2030, thus adding to almost half of export growth by that date (accounting for over USD 46 billion). This is expected to be boosted by shale oil and gas exports (mainly related to the Vaca Muerta site and the construction of pipelines to connect it with seaports) and the deployment of lithium, copper and green hydrogen projects. In turn, it is projected that service sectors will add an additional 24% to export growth based on tourism recovery after the pandemic and the growing dynamism of knowledge-based services. Indeed, Argentina has positioned itself as a major regional player in software and information technology services, audio-visual products and professional services. This can be leveraged by specific incentives for investment and exports implemented by law (*Ley de promoción de la economía del conocimiento*) in the global context of growing demand for digitalisation.

When it comes to financial aspects, monetary, exchange rate and financial policies play a leading role. Based on the review of the different macroeconomic regimes that have been implemented one after another since the 1990s in Section 1 and the analysis in Sections 2 and 3, there are certain policy lessons we can learn. A first lesson is to avoid fast and disruptive deregulation of capital flows; this is much like navigating in uncharted waters. Liberalisation, sectoral allocation of inflows

through the financial system and the subsequently destabilising role of short-term inflows are but a few issues associated with a sudden opening-up of the capital account (McKinnon and Pill (1996), Montiel (1998), IMF (2012)).

A second insight has to do with exchange rate regimes. “Corner” systems, such as hard pegs or full flexibility, always tend to start off promisingly, appearing to be the perfect match for a liberalising shock. However, as imbalances mount, they bring on specific problems that are hard to correct. This is especially the case when these regimes are combined with fully fledged capital account liberalisation that opens the way for carry trades and, ultimately, sudden stops.

A third lesson concerns financial system regulation and “hidden” currency mismatches. In the 1990s, banks in Argentina treated local and foreign currency deposits and credit almost exactly the same, based on the implementation of a one-to-one peg with the US dollar. Meanwhile, the banking system tripled, in terms of GDP, in only five years. Apparently, banks were not exposed to currency mismatches; they accepted US dollar deposits and lent in the same currency. Borrowers, however, were heavily exposed to currency mismatches, which proved disastrous in the 2001–02 crisis. Once an adverse shock to competitiveness occurred, devaluation was unavoidable. A growing current account deficit, with growing foreign indebtedness as its counterpart, became unsustainable. In turn, banks realised that most borrowers had income in local currency only. This produced a large-scale and costly financial crisis.

In fact, a key difference between the currency board regime and the 2016–19 experience was the regulation of the banking system. In the most recent episode, the central bank kept strict limits on currency mismatches and government financing, and also restricted differential liquidity requirements by currency. Thus, the banking sector was basically unaffected by the crisis. When the current account deficit proved unsustainable in 2018 and capital flows suddenly reversed, the ensuing devaluation affected asset markets but not the banking system.

Fourthly, the development of the domestic capital market and local currency bond markets is fundamental in order to channel domestic savings and finance real investment. However, it is not a silver bullet for financial stability and financial sector development. In the episode starting in 2016, significant development of local currency bond markets was undertaken in order to diversify currency risk. A key novelty was the heavy involvement of international hedge funds in this market. In a context of extremely demanding inflation targets, the central bank used high interest rates as its main instrument for curbing inflation expectations, attracting hot money funds.

Short-term foreign investors such as hedge funds conducted carry trades using peso-denominated central bank bills and notes. But after April 2018, financial conditions worsened globally, and they sold off their positions in peso instruments and, subsequently, foreign currency bonds. The magnitude of the sudden outflow of foreign funds was such that it could only be processed in a disruptive way by the small domestic market.

Although the involvement of foreign hedge funds in local currency bond markets was useful in diversifying currency risk, it also introduced a direct channel of transmission from the global financial cycle to domestic policy conditions. EME governments and central banks have the same counterparties in both local and foreign currency markets. Thus, decisions made at hedge fund head offices based on exogenous shocks or internal preferences are channelled to both markets. In other

words, the participation of these actors in local currency bond markets increases interconnectedness and ultimately lessens the autonomy of monetary policy.

Finally, if the experiences of complete liberalisation of the capital account have shown that it can aggravate macroeconomic volatility, exchange controls and the regulation of capital flows alone are not enough to reduce nominal instability. These measures should be considered complementary to policies whose objective is to restore the robustness of the external sector, develop the local capital market and foster positive real returns on assets in pesos, so as to make positions in local currency attractive.

References

Agénor, P-R and L Pereira da Silva (2019): Integrated inflation targeting – another perspective from the developing world, BIS and CEMLA, February.

Calvo, G and C Végh (1999): “Inflation stabilization and BOP crises in developing countries”, in J Taylor and M Woodford (eds), *Handbook of Macroeconomics*, vol 1, Amsterdam, pp 1531–1614.

Carrera, J, H Aguirre and M Raffin (2020): “Financial market development, monetary policy and financial stability in an emerging market economy”, in Bank for International Settlements (BIS) (ed), “Financial market development, monetary policy and financial stability in emerging market economies”, BIS Papers, no 113, December, pp 39–53.

Central Bank of Argentina (BCRA) (2020a): Foreign exchange market, debt and build-up of foreign assets 2015–2019, March.

——— (2020b): Monetary Policy Report, November.

——— (2021): Monetary Policy Report, February.

——— (2022): Monetary Policy Report, March.

——— (2023): “Inflation and labour markets: the view from Argentina”, note for the BIS Emerging Markets Deputy Governors’ meeting, Basel, March.

Corso, E (2021): “Dolarización financiera en Argentina: un análisis histórico de una restricción vigente”, Central Bank of Argentina, *Ensayos Económicos*, no 77, August, pp 72–101.

Corso, E and M Sangiácomo (2023): “Financial de-dollarization in Argentina. When the wind always blows from the East”, Central Bank of Argentina Working Paper Series, no 106, January.

D’Amato, L and L Garegnani (2009): “Studying the short-run dynamics of inflation: estimating a hybrid New-Keynesian Phillips curve for Argentina (1993–2007)”, Central Bank of Argentina Working Paper Series, no 40, April.

Dvoskin, A and G Feldman (2018): “Income distribution and the balance of payments: a formal reconstruction of some Argentinian structuralist contributions – Part I: Technical dependency”, *Review of Keynesian Economics*, vol 6, no 3, July, pp 352–68.

Dvoskin, A, G Feldman and G Ianni (2020): “New-structuralist exchange-rate policy and the pattern of specialization in Latin American countries”, *Metroeconomica*, vol 71, no 1, February, pp 22–48.

Dvoskin, A and S Katz (2021): "El tipo de cambio como amortiguador y amplificador de shocks: un análisis de los canales de transmisión y la caja de herramientas de política en economías pequeñas y abiertas", Central Bank of Argentina Working Paper Series, no 97, December.

Ericsson, N (1995): "Testing exogeneity: an introduction", in N Ericsson and J Irons (eds), *Testing Exogeneity*, Oxford University Press.

Escudé, G (2015): "The possible trinity: optimal interest rate, exchange rate, and taxes on capital flows in a DSGE model for a small open economy", Central Bank of Argentina Working Paper Series, no 63, August.

García Cicco, J, L Garegnani, M Gómez Aguirre, A Krysa and L Libonatti (2022): "Regularidades empíricas de la inflación en Latinoamérica", Central Bank of Argentina Working Paper Series, no 101, May.

International Monetary Fund (IMF) (2012): "The liberalization and management of capital flows: an institutional view", *Policy Papers*, 14 November.

Johansen, S (1988): "Statistical analysis of cointegration vectors", *Journal of Economic Dynamics and Control*, vol 12, nos 2–3, June–September, pp 231–54.

——— (1992): "Testing weak exogeneity and the order of cointegration in UK money demand data", *Journal of Policy Modeling*, vol 14, no 3, June, pp 313–34.

Johansen, S and K Juselius (1990): "Maximum likelihood estimation and inference on cointegration – with applications to the demand for money", *Oxford Bulletin of Economics and Statistics*, vol 52, no 2, May, pp 169–210.

Juselius, K (2006): *The cointegrated VAR model: methodology and applications*, Oxford University Press.

Krysa, A and L Lanteri (2018): "Estimación del producto potencial y de la brecha del producto, para Argentina: aproximaciones a partir de un filtro multivariado y del método de la función de producción", Central Bank of Argentina Working Paper Series, no 80, August.

McKinnon, R and H Pill (1996): "Credible liberalizations and international capital flows: the "overborrowing syndrome"", in T Ito and A Krueger (eds), *Financial deregulation and integration in East Asia*, NBER, pp 7–50.

Montiel, P (1998): "The capital inflow problem", Economic Development Institute, World Bank.

Urbain, J-P (1992): "On weak exogeneity in error correction models", *Oxford Bulletin of Economics and Statistics*, vol 54, no 2, May, pp 187–207.

Annex: Econometric methodology

To document the long-run relationship, we perform a cointegration analysis using the system-based procedure of Johansen (1988), Johansen and Juselius (1990) and Juselius (2006). In addition to identifying these cointegrating relationships, an assessment of exogeneity or weak endogeneity is performed, analysing which of the system variables respond to deviations from the long-term relationship(s) (see Johansen (1992), Urbain (1992), Ericsson (1995) and Juselius (2006)).

The variables involved are the consumer price index in its core or underlying (*IPC*) version, nominal exchange rate (*E*), wages (*W*), activity (*Y*), amount of money (*M*), interest rate for deposits in domestic currency (*i*), international energy prices (energy), international food prices (food) and foreign producer price index (PPI). The long-run relationships found for Argentina between 2004 and 2022 are:

$$IPC = 0.80 \times W + 0.20 \times E \quad [1]$$

$$M - IPC = 1.19 \times Y - 1.53 \times i + 0.31 \times E \quad [2]$$

The “weak exogeneity” tests indicate that *IPC* and *W* respond to deviations from the long-run relationship of equation [1] and *M – IPC* and *E* respond in the case of equation [2].

To examine the short-run regularities, we decompose the cumulative inflation rate (π) over *h* periods (in this case 12 months) into persistence (*P*) and a contemporary (*C*) component (see García-Cicco et al (2022) for a detailed methodological description).

$$\pi = P + C \quad [3]$$

Persistence (*P*) of inflation can be disaggregated into its own persistence (*Pp*) and the persistence of the rest of the determinants (*Po*).

$$P = Pp + Po \quad [4]$$

The contemporary component (*C*) is also disaggregated into the news (*N*) and residual (*R*) components.

$$C = N + R \quad [5]$$

The news refers to the part of the observed contemporary change in a variable that cannot be explained either by its own past or by the effect of the rest of the determinants considered. This would be the case when wages rise due to a change in labour market legislation. The residual component includes the effect of possible omitted variables (for example, assumptions about inflationary dynamics not explained by the past and present) and measurement errors, among others.

Again, we focus on core inflation, and the different terms of the decomposition include the nominal exchange rate, wages, activity, monetary (money balances and interest rate), external (international energy and food prices and the foreign producer price index), the nominal exchange rate gap (the difference between the official exchange rate and the exchange rate that emerges in financial markets through the sale and purchase of bonds denominated in foreign currency) and, finally, deviations from the long-term relationship described by equation [1].⁹

⁹ The deviations from the long-run relationship described in equation [2] are not included in the exercise because, according to weak exogeneity tests, core inflation does not respond to correct

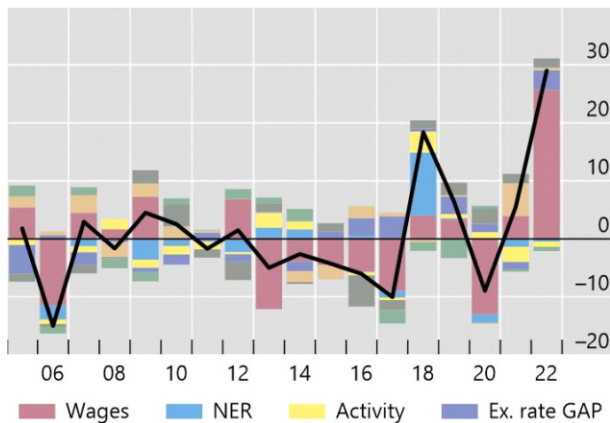
The exercise is based on the analysis of three groups of graphs. The first one shows a black line with the dynamics of inflation and a set of bars that indicate the contribution of each of the three components – persistence, news and residuals – for the whole sample from 2005 to 2022 (Graph 5.A) and for the subperiod initiated by the pandemic (December 2019–November 2022) (Graph 5.B). The second group of graphs examines the role exerted by the persistence of the different variables involved (Graphs 6.A and 6.B), while the third group measures the weights of news and residuals (Graphs 7.A and 7.B).

Inflation: contemporary component decomposition

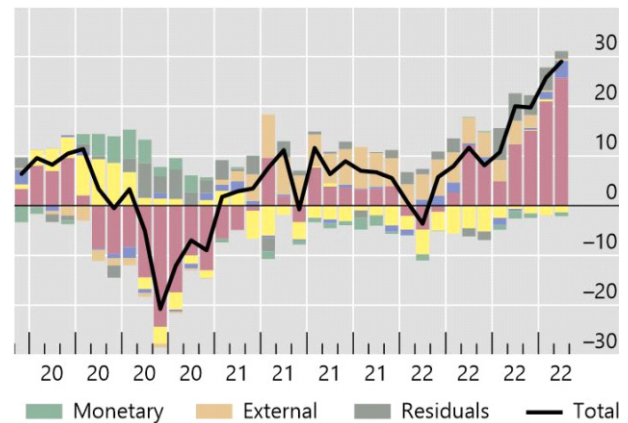
In per cent

Graph 7

A. Period: 2005-22¹



B. Period: Dec 2019-Nov 2022²



¹ Annual data. ² Monthly data.

Source: Central Bank of Argentina

those deviations (the adjustment coefficient of the corresponding equilibrium correction term is not significant).