

POLITICAL INTERFERENCE IN THE CENTRAL BANK: JEOPARDIZING CREDIBILITY The Argentine Case

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Abstract

By December 2017, the Argentine economy had been experiencing good figures in variables such as GDP, employment, poverty, and inflationary dynamics. However, other variables warned about the process' sustainability (rising current account deficit and high, relatively stable fiscal deficit). According to a part of the literature, this raises the possibility of the economy being in a situation of multiple equilibria, in which expectations play a key role in determining the actual equilibrium. Since, activity stagnated, and country risk began to increase, as did the exchange rate. Was there an event that broke the trend? In this paper, I implement a robust synthetic control strategy to argue that the change of the inflation targets (on December 28th) eroded the credibility of the central bank, signaling that the government was not willing to pursue the fiscal balance as believed. Consequently, this day acted as a coordinator of expectations towards a worse equilibrium than the one in which the economy was.

Keywords: Central Bank independence, credibility, synthetic control, Multiple equilibria.

JEL Code: E43, E58, E61, E63, E65.

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1 Introduction

By December 2017, the Argentine economy had been experiencing a good performance in terms of activity: upward trend in GDP, decline in poverty, unemployment and inflation, downward inflation expectations and exchange rate stability; even the ruling party had won the midterm elections. However, the figures in other variables raised doubts about the process' sustainability: current account deficit on the rise (2.7% of GDP in 2016 and 4.8% in 2017), fiscal deficit at high levels (the primary was 3.8% of GDP and the financial was 5.9%, in 2017) and an accelerated rate of debt taking, although starting from low levels (debt with the private sector had risen from 12.2% of GDP in 2015 to 23.4% in 2017, and external debt from 13.9% to 22.8% in the same period)¹.

After having reached high points in some of the variables mentioned, the trend experienced a marked schism: the situation began to deteriorate sharply, with increases in country risk and in exchange rate. Later, Argentina turned to the IMF for financing, and yet a balance of payments crisis eventually occurred. Undoubtedly, we can ask ourselves many relevant questions about this economic period, but one primarily concerns us: Was there an *event* that broke the dynamics exhibited so far?

On December 28 of that year, a press conference took place, in which, in the presence of representatives of the Treasury, the Central Bank (BCRA, by its acronym in Spanish) and the Chief of Cabinet, a change in the inflation targets set for 2018 was announced². Moreover, the interest rate profile was modified downwards after the announcement. A priori a change in pursuit of greater coordination between fiscal and monetary policy (for reasons that we will detail later), the interference of the Treasury over the will of the BCRA –which had pronounced repeatedly for not modifying the targets, postulating that “changing the target is not having a target”³– implied that the BCRA did not have the autonomy to conduct monetary policy in order to seek the previously proposed disinflationary objective. Therefore, the agents started to think that the government was not willing to pursue the fiscal balance in the way in which it was believed. The result? An immediate rise in inflation expectations, greater than that of the previous fourteen months (Sturzenegger, 2019). Our hypothesis is that this event broke the trend, although other subsequent events may have exacerbated the impact.

To test this hypothesis, we propose an empirical exercise, using the synthetic control method proposed by Abadie & Gardeazabal (2003), Abadie et al. (2010). According to this method, we use data on sovereign spreads to construct a synthetic country which replicates the observed values of Argentina's country risk before the event. Therefore, prior to the event, the trends of both Argentina and the synthetic country's sovereign spreads are similar. To do this, we use different databases on sovereign spreads of Latin American countries and other Emerging Countries. The synthetic constructed acts as a counterfactual and allows us to contrast what would have happened with the spreads in Argentina had the event not occurred. If government bonds are valued relative to the expected value of their returns (i.e. fiscal surpluses), as stated by Sargent (1981), then it would be logical that a presumption that the adjustment would not be of the expected magnitude or that it would be delayed over time, should cause a drop in the price of the bonds and, therefore, a rise in the interest rate.

Using the STATA command *synth_runner* proposed by Galiani & Quistorff (2017), our preferred specification shows a marked divergence, robust and statistically significant at 6%, after a calendar week of the 28D (five observations), in which the spreads of Argentina become systematically higher than those of the synthetic (at approximately 80 basis points or an additional 25%, and then settle at 50 basis points). Focusing on spreads is usual in numerous works that seek to test the hypothesis of the Central Bank or

¹ A substantial literature, which analyzes the phenomena of sudden stops, indicates that situations of this style can lead to balance of payments crisis.

² Hence the designation of “28D”, which we will use from now on.

³ Sturzenegger (2019).

the government's credibility⁴. Furthermore, the Efficient Markets Hypothesis, postulated by Fama (1970), allows us to argue that all relevant information is already included in the asset price, so any unobservables that could influence credibility should be properly included in the sovereign bond yield and therefore allows us to be confident that our estimates will not be biased. Note that we only need the semi-strong form of the efficient market hypothesis.

To attribute the cause of the trend break to the 28D, beyond the proximity in time of the result, we will discard other plausible hypotheses and accompany our presumption with a review of a vast literature that has studied, theoretically and empirically, the benefits of an Independent Central Bank, with autonomy and credibility to operate monetary policy.

Despite the fact that the exercise conducted shows a robust structural change at the end of December 2017, and that there are theoretical arguments to attribute this change to the 28D event, the truth is that we have no way of considering all the preconditions that made it possible, if there were any. In other words, we cannot argue that, for 28D to have a destabilizing effect like the one we believe we find, a series of previous macroeconomic conditions were not necessary to put Argentina in a particularly fragile position. This is to say that it is possible that the previous macroeconomic situation contained elements necessary, although perhaps not sufficient, to generate problems in the future.

For this reason, the point of this paper is not to argue that the Argentine economy would not have suffered a balance of payments crisis at any time, had it not been for 28D; rather, less ambitiously, what we are postulating is that the 28D acted as a disruption, signaling the weak macroeconomic position. In this sense, works such as those of Obstfeld (1996) and Sachs et al. (1996) detail certain macroeconomic conditions that cause a country to find itself in a situation of multiple equilibria, in which the expectations of the agents play a central role in determining the equilibrium reached. Under this lens, we can consider that the 28D would have coordinated expectations towards a worse equilibrium than the one in what the economy was at that time, precisely because it increased the expected probability that there would be a fiscal problem in the future.

The importance of the logical thread proposed here lies in two issues: on the one hand, I provide a new empirical support to the branch of literature that weighs the institutional role of the Central Bank, especially in credibility as an anchor in inflation expectations; on the other, a clear policy recommendation is drawn: it is advisable to limit the interference of other branches of government to the bare minimum in the actions of the Central Bank, especially when the macroeconomic situation may be fragile.

The work is structured as follows: in the section 2 we review the conceptual and empirical literature on Central Bank Independence (henceforth, CBI), credibility and reputation. A historical development of this literature will allow us to understand the virtue of endowing the Central Bank with autonomy in the management of monetary policy. In the section 3 We describe the behavior of certain variables that could induce a particularly fragile situation in Argentina, perhaps enabling an event like the 28D to have negative impacts; in the section 4 we describe some arguments under which the 28D could have been justified, and we give reasons for dismiss them –or, at least, to minimize their importance–. In this way, we can think of 28D as an exogenous shock, unexpected by agents. In the section 5 We carried out the empirical exercise, with its corresponding robustness analysis. The section 6, finally, concludes.

2 Literature: temporal inconsistency and credibility

After the rational expectations revolution, the work of Kydland & Prescott (1977) gave rise to a very extensive and rich literature on the reasons that caused the existence of an inflationary bias on the part of the monetary

⁴See, for example, Christensen (1987); Drazen & Masson (1994); Obstfeld & Taylor (2003), among others.

authority. In that paper, the authors showed how optimal control theory (which was the traditional approach at the time) was not a good way to approach the problem of choice over socially appropriate monetary policy. The reason? What they called “time inconsistency”. The idea is intuitive: choosing an optimal policy today does not imply that tomorrow, *ex-post*, it will not be optimal to change that policy *ceteris paribus*.

To build intuition, let’s imagine that there is a trade-off between unemployment and inflation surprises. Under this assumption, the fact that expectations are wrong regarding the effective inflation rate determines that the unemployment level in that period will be lower. This is:

$$u_t = \lambda(\pi_t^e - \pi_t) + u^*, \quad (1)$$

where u is the unemployment rate, π^e is the expected inflation rate, and u^* is the natural rate of unemployment. The simplest way to rationalize this is the following: the price/wage-setters play first, before knowing the realization of effective demand. Then, the monetary authority, endowed with some discretionary power, can generate an inflationary shock to lower unemployment temporarily. Of course, both excess unemployment and the rate of inflation create disutility for society as a whole. For this reason, it may be useful to think of a social loss function (shared by the monetary authority), of the following type:

$$L_t = a(u_t - u^*) + b(\pi_t)^2. \quad (2)$$

Typically, the monetary authority will seek to minimize that loss function. If the government understands that agents behave rationally, then it must deduce that $\pi^e = \pi$ and hence has an incentive to set $\pi = 0$, thus minimizing the loss function. However, if it could get expectations to coordinate at $\pi^e = 0$, then *ex-post* it would have incentives to generate an inflation surprise equal to $\pi = \frac{a\lambda}{2b}$ in order to low unemployment. However, as the agents are rational, they internalize this government behavior and set *ex-ante* expectations equal to $\pi^e = \frac{a\lambda}{2b}$. Ultimately, the economy ends in an equilibrium in which unemployment equals the natural rate (because $\pi^e = \pi$), but with an inflation rate that results higher than it could be. In other words, setting an inflation rate equal to zero is inconsistent, while consistent policy is suboptimal⁵.

Under this theoretical framework, some conclusions emerge: first of all, a change in the set of current policy rules (perhaps reflecting changes in the relative costs that society weights between unemployment and inflation) determines an immediate change in the way expectations are formed. This will be particularly relevant to our argument, since we will consider the 28D as a modification of the policy scheme perceived by the agents. Secondly, that this result is independent of a potential principal-agent problem. In other words, a suboptimal equilibrium is reached even when both government and society share the same objective function.

What has been described so far is important because the literature that emerged from this moment focused on “good practices” when it comes to monetary policy. Since our argument is that the event of December 28, 2017 constituted a clear violation of what was proposed by that literature, we need to understand it to be able to argue why the 28D could lead to negative outcomes.

The next development was to find if there could be a mechanism that, endogenously, would be superior to the policy of tenaciously sticking to a rule (and thus avoiding the costs of being hand-tied in the presence of very severe shocks). Barro & Gordon (1983) had a criticism regarding the type of models such as the one proposed by Kydland & Prescott (1977): according to them, these models reduced the analysis to a problem in which the agents’ decisions were independent of each other; and not only that, they also considered that the policy choice was exogenous, and once and for all, resulting in the unfailingly aligned expectations around

⁵It is worth noting, as suggested by Calvo (1978), that choosing an optimal policy today, and sticking to this mandate in the future, probably implies not optimizing later, even when the policy could be revised. However, in this case, “such revision will breed distrust on the part of the private sector and might, hence, be counter-productive” Calvo (1978, p. 1422).

this policy. However, they noted that policy decisions are made in a sequential framework in which repeated game theory could be applied. In this context, the monetary authority would have to evaluate how allowing inflationary surprises affects the formation of inflation expectations in the future.

Following their model, let us think that there is a cooperative equilibrium in which $u_t = u^*$, and that private agents set expectations $\pi^e = \pi = 0$ as long as they see zero inflation. Otherwise, they “punish” the policymaker by expecting $\pi^e = \pi^* > 0$ in the next period⁶, which inevitably leads to a non-cooperative (lower) equilibrium in which $u_t = u^*$ and $\pi^e = \pi^* > 0$. In this situation, even in a world without commitment, the central banker could decide endogenously never to surprise, since the benefit from cheating, in terms of unemployment today, would be more than offset by the fact that expectations in the following periods would coordinate to the bad equilibrium of higher inflation. In this scheme, there is a role for the central banker to maintain *reputation/credibility*, obviously depending on his preferences and the term period of his mandate⁷. In this sense, Rogoff (1985) argues that “if the central bank is already controlled by inflation-conscious forces, measures to reduce its independence could raise the time-consistent inflation rate”⁸. In other words, the literature was beginning to show that separating the Central Bank from any inflationary pressure would lead to better balances⁹.

Beyond a certain theoretical consensus, the empirical literature on the subject also developed. Alesina & Summers (1993) found that different measures of CBI were related to lower levels and less variability of inflation, although they did not find any benefit or cost in terms of macroeconomic performance. In other words, the CBI would be a good substitute for tying hands to avoid problems of time inconsistency. Other studies that reached the same conclusion were Alesina (1988), Grilli et al. (1991), Cukierman et al. (1992a), and Cukierman et al. (1992b), among others.

Berger et al. (2001) conclude, reviewing previous empirical works, that the correlation between CBI and low inflation is robust. Geraats (2002) not only notes that the standard practice of central banks had shifted towards greater transparency in policymaking (for example, with much more detailed public information management), but also reviews different studies that find that this greater transparency is beneficial from numerous points of view, especially regarding exchange rate volatility or inflation expectations. Along these lines, Crowe & Meade (2008) find that higher CBI is associated with low inflation rates and, furthermore, that greater transparency leads the private sector to use the information provided by the Central Bank to a greater extent. Bodea & Hicks (2015) find that the CBI is robustly associated with not only a more stable monetary policy but also with greater stability in the demand for money through the reduction in inflationary expectations. de Mendonça & de Guimarães e Souza (2009) detect, in the case of Brazil (1999-2008), that greater credibility implies less volatility in the interest rate required to control inflation. Bordo & Siklos (2015) find that abrupt changes in credibility are associated with “policy errors”.

Cukierman (1994) acknowledges the success of the German and Swiss central bank experiences in achieving price stability, as well as the disinflationary processes carried out by Volcker and Thatcher. In addition, he mentions that, after the strongly inflationary episodes of the 80s, countries such as Chile, Mexico and Argentina sought to give their Central Banks greater autonomy, once they had stabilized prices. He also explains that both the countries of the European monetary system and the former USSR had increasingly turned to institutional systems in which the independence of the Central Bank was a prominent element. In his survey with central bankers and academics around the globe, Blinder (2000) observes that, among policymakers, the credibility of the Central Bank is vital. After the crisis of 2008-2009, Bernanke (2010) (then chairman of the FED) emphasized the need to keep monetary policy independent of any political

⁶Backus & Driffill (1985) note that this model can maintain any inflation rate if the penalty strategy is long enough.

⁷Barro & Gordon (1983) emphasize that in a world where the mandate ends probabilistically the good reputational balance is sustainable.

⁸Rogoff (1985, p. 1180-1181).

⁹See, for example, Cukierman (1994), Nordhaus et al. (1994), among others.

influence, putting the focus on the transparency and prudence of the Central Bank.

In short, not only are there conceptual reasons, well explored in the literature, to think that the CBI is beneficial in anti-inflationary terms, but also the consensus (in theory and in practice) seems to support this view. Taking this conclusion into account, it is reasonable to think that the political decision to modify inflation targets, in an event interpretable as an interference in the autonomy of the Central Bank (as we will see in the section 4.4) brought with it the idea that the government was not committed to the objective of reducing inflation or that the Central Bank did not have the autonomy to carry out an anti-inflationary policy. Therefore, inflation expectations began to rise, with the consequent reorganization of the investment portfolio.

3 Fragility situation: multiple equilibria

As we mentioned in the introduction, we are not in a position to hypothesize that, for the 28D to have negative impacts, there was no need for a series of macroeconomic preconditions that placed Argentina in a particularly fragile situation. Some reasons could be the rising ratio of current account deficit to GDP ($\frac{CA}{PBI}$) and the 2017 credit boom¹⁰; the rapid inflow of capital in the previous two years not accompanied by macroprudential regulations¹¹; or the poor fiscal results in the first two years of government, as suggested by Di Tella (2019). Along these lines, Kaminsky & Reinhart (1999) explain that financial crises happen after episodes in which the activity experiences a boom fueled by the debt intaking and capital influx. Likewise, Rey (2015) emphasizes the need for the use of capital controls or macroprudential regulations (or a combination) to avoid the volatility of global financial cycles, and Acharya & Krishnamurthy (2018) highlight the effectiveness of macroprudential regulations in avoiding *sudden stops*.

Indeed, Argentina had these weaknesses in 2017. Obstfeld (1996) analyzes a currency crisis model in which expectations become self-fulfilling if the fundamental conditions of the economy are located in certain ranges. Although the approach is different, the background is comparable to the Argentine context. In his case, it raises a situation in which the government sells (limited) reserves to fix the exchange rate and there are two types of agents that have domestic currency, which can be sold to the government for foreign currency.

Under this scheme, a very high level of reserves means that agents always find it optimal to maintain their position, because the government can meet all the demand with its reserves; If the reserves were low, the agents always optimize when selling because the reserves are not enough to face the run and therefore there is necessarily a devaluation. The interesting case is that of an intermediate level of reserves: neither type of agent, by itself, can deplete government reserves, but both can do it together if they coordinate. Here, a multiple equilibria situation appears, where if neither agent believes that the other will attack, then they will prefer not to attack and the initial exchange rate will hold. Otherwise, the exchange rate rises, because the reserves cannot cope with the holdings of both agents.

As Obstfeld explains in his model, a seemingly minor random event (a *sunspot*) may move the exchange rate from a position where it is vulnerable only to excessive shocks to one where even a moderate shock would induce authorities to readjust it. According to the author, high levels of public debt may place the economy in this type of position, especially when short-term or variable-rate debt is of significant magnitude.

Similarly, Sachs et al. (1996) study the balance of payments crisis in Mexico in 1994, with a model in which multiple equilibria are also settled with elements of self-fulfilling expectations. The Mexican case is of special interest for what is discussed here: the authors argue that, despite having real imbalances, it was not clear *ex-ante* that Mexico was on an unsustainable path, due to its low debt ratios and a relatively

¹⁰Bussiere & Fratzscher (2006) find that these variables increase the probability of suffering a *sudden stop*

¹¹Agosin & Huaita (2012) find that the best predictor of a *sudden stop* is a capital inflow boom. See Korinek (2011) and Farhi & Werning (2014) for example, on the benefits of macroprudential controls.

conservative fiscal policy. Furthermore, they explain that agents seem not to have expected the crisis, since interest rates did not experience substantial movements prior to the outbreak¹². In this regard, they argue that the turn to bad equilibrium occurred suddenly after the devaluation of 15% in December, in a context in which reserves had been decreasing and net short-term debt had been rising. They state that “in situations with indeterminacy, rumors become all-important and events can become focal points for drastic shifts in expectations”¹³. In particular, they highlight that it was difficult to pass off the December devaluation as a “natural” response to an exogenous shock, something that, as we will see in the next section, is also attributable to the 28D.

It is under this lens that we consider that the 28D would have coordinated expectations towards an equilibrium worse than the one the economy was at that time.

4 Possible (in)justifications for the 28D

This section explores some (possible) justifications for the 28D, from the point of view of the political wing. We will argue, with a combination of literature and assessment of the situation prior to the 28D, that there was no reason for these ideas to justify a change in the monetary policy scheme. In conjunction with section 2, the conclusion will be that the most plausible explanation for the December 2017 breakdown is precisely the loss of credibility as a result of the interference in the autonomy of the Central Bank.

We can identify at least three theoretical reasons that could justify the idea of an episode like the 28D. The first is the search for greater coordination between fiscal policy and monetary policy. From this point of view, the planned path of disinflation threatened against the possibilities of reducing the fiscal deficit. [Sturzenegger \(2019\)](#) explains in detail how much of public spending (pensions, mostly) was indexed to past inflation, so that a rapid reduction in inflation increased spending in real terms. The second, based on [Sargent & Wallace \(1981\)](#), says that the set of policies carried out by the government was *ex ante* inconsistent (with an unsustainable monetary dominance regime over time) and that, therefore, the recognition of these dynamics, putting the BC in a place of direct predisposition before the treasury, should not have caused any change. The third is the readjustment of inflationary targets towards an achievable objective (which supposes, behind, that the systematic deviation of the prepaid targets would imply in itself an erosion of credibility).

Although the first and second points have edges in common and, ultimately, correspond to the same type of empirical testing, there are theoretical differences about the underlying justification in each case. On the one hand, the drive for greater coordination hides behind the idea of reaching a better balance in terms of well-being¹⁴. On the other hand, however, being immersed in a situation of unsustainable monetary dominance¹⁵ generates, according to [Sargent & Wallace \(1981\)](#), inflation today, because agents expect future inflation to be higher and therefore reduce their demand for money. In this world, if the currency dominance regime had been seen as inconsistent, the 28D should have been just a cover change and not a structural one.

Together, these three arguments correspond to the same prediction: the 28D should not have generated any change in the macroeconomic situation. It should even be said that it should have had positive effects. As we will show in the next section, this is not the case. However, it is worth looking at December 2017 and examining more closely the variables that, at that time, could justify the intervention of the Treasury in the policy of the Central Bank. By arguing that these possible explanations did not seem to have been of

¹²Note that these elements were also present in the Argentine case before December 2017: interest rates falling and low debt ratios.

¹³[Sachs et al. \(1996\)](#), p. 266).

¹⁴For example, in the newspaper La Nación (from Argentina) the 28D was discussed as if it had sought a “greater coordination in economic policy”. <https://www.lanacion.com.ar/economia/expectativa-por-la-conferencia-de-prensa-del-equipo-economico-en-casa-rosada-nid2096045/>

¹⁵See, for example, <https://www.cronista.com/columnistas/DES-PA-CI-T0se-profundiza-el-problema-de-las-LEBAC-20170606-0100.html>.

importance, we give force to the idea that the 28D was an exogenous event, unexpected by the agents of the economy.

4.1 Coordination problems and the credibility

The problem of coordination between monetary policy and fiscal policy has been extensively studied¹⁶. The coordination discourse assumes that the objectives of the Central Bank and the Treasury are, to a certain degree, opposed. Typically, as we explained in the section 2, the CB is concerned about maintaining price stability while the Treasury has a greater predilection for the level of activity.

However, the question that is asked by [Blinder \(1982\)](#) is important: suppose there is agreement that it should be coordinated in a certain situation, *who is right?*. The relevance of this inquisition is that the different political-economic preferences could be the result of several reasons, namely: different beliefs about what is best for society; different conceptions about how a certain policy affects the relevant variables; different projections on the economic future or a combination of the three. In other words, coordination makes sense to the extent that the command remains in the hands of the branch that has a correct vision of the economy. Consequently, he deduces that more coordination, in the wrong case, may lead to situations of *lower well-being*.

So, according to this vision, Argentina was in a second-best, product of the lack of coordination between fiscal policy and monetary policy.¹⁷, that could have been corrected by making one of the two give in. What is the appropriate counterfactual, as of December 2017, to evaluate these assumptions? If more coordination was aimed at improving well-being, it means that there were issues that could be improved at this level. To analyze this statement, the immediate thing is to see what was happening to GDP and poverty. Figures 1 and 2¹⁸, show the dynamics of these variables.

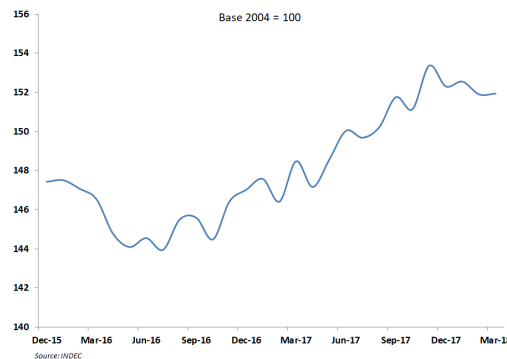


Figure 1: Monthly estimator of Economic Activity (EMAE)

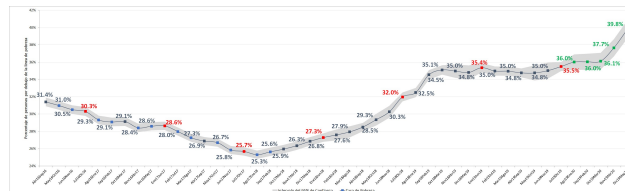


Figure 2: Poverty Rate. The red dots correspond to official data (INDEC).

¹⁶See [Canzoneri et al. \(2010\)](#).

¹⁷See, for example, <http://mercedesdalessandro.com/dos-anos-de-macri-economistas-destacan-el-gradualismo-pero-critican-la-falta-de-coordinacion-dentro-del-gobierno/>

¹⁸Taken from [González-Rozada \(2020\)](#).

The casual analysis of these two series shows an upward trend in GDP throughout 2017 and a trough in the case of the poverty series, around December 2017. The favorable trend exhibited by both series in 2017 does not give much room to believe that the situation required a correction of what an event such as 28D could provide¹⁹. Even formal employment was growing (figure 3) at a rate of 2.3% (well above the estimated 1% at which the Argentine population is growing)²⁰. Blackburn & Christensen (1989) argue that, in any case, the way in which the tension between the Treasury and the Central Bank is resolved is not innocuous: if it is the monetary authority that gives way, then a regime with a little more monetization is given way (and, hence, higher inflation); if, on the contrary, it is the fiscal authority that must make concessions, then inflation can remain contained.

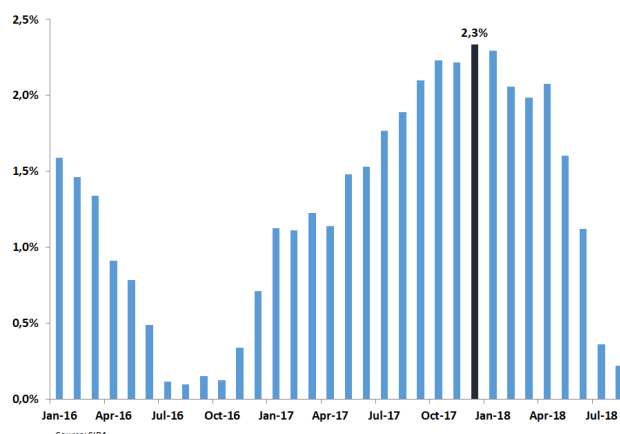


Figure 3: i.a. var (as %) of registered employment

4.2 Macroeconomic inconsistency

An extension of this argument is that coordination problems themselves could erode the credibility of the Central Bank, undermining the path of disinflation. This argument cannot be analyzed without first dwelling in detail on the very concept of “credibility”. Blackburn & Christensen (1989) explain:

*“In general, credibility of monetary policy will depend not just upon monetary policy alone but rather upon the perceived coherence of the overall macroeconomic program, together with the intellectual and political consensus on the economic theory being used and the objectives and conduct of economic policy...”*²¹

According to the authors, the configuration of an inconsistent macroeconomic program, perhaps as a result of coordination problems, creates uncertainty about when these tensions will be resolved. Following Sargent & Wallace (1981), Let us suppose the following situation: in the presence of a fiscal deficit, it is decided to finance this gap via the issuance of bonds that yield a certain interest. However, at some point the repayment of that debt inevitably requires a flow of fiscal surpluses. If this correction does not come, or is delayed in time, the bond issuance policy would become unsustainable, leaving monetary financing as the only alternative. This inconsistency is what gives rise to uncertainty about the future. Barro (1986) explains that both a higher level of spending and a higher level of debt threaten the effectiveness of monetary policy. The latter is particularly relevant for the Argentine case, given the rapid rate of indebtedness between 2016 and 2017. From this point of view, credibility is undoubtedly linked to expectations about the future fiscal path.

¹⁹Of course, one could argue that greater coordination would have resulted in even better figures than those exhibited. However, this does not seem a plausible hypothesis in light of subsequent events.

²⁰The number of private sector wage earners was growing at 1.5 % (data taken from SIPA).

²¹Blackburn & Christensen (1989, p. 4).

Is this approximation adequate to think about the situation prior to the 28D? On the one hand, we should evaluate whether the bond issue, as a result of the contractionary monetary policy, was becoming unmanageable to the point of threatening the intertemporal budget constraint. In this regard, [Sturzenegger \(2019\)](#) shows how the pressure on the monthly renewal of LEBACs (which were the central bank's remunerated liabilities in domestic currency) was decreasing towards December 2017 (figure 4), thanks to a lengthening of the terms, which leads to think that this was not a major problem (at least in the immediate). Moreover, the fact that the inflationary targets were set in line with the issuance to the treasury implied that such issuance was not sterilized, thus preventing inconsistent Sargent and Wallace schemes. Even more relevant, [Sturzenegger](#) argues that the accumulation of Lebac's had as a counterpart the increase in foreign currency reserves²².

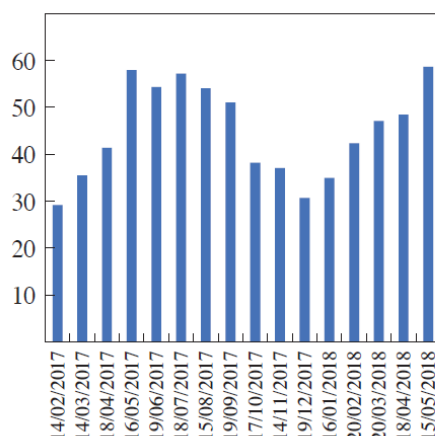


Figure 4: LEBACs / Monetary Base ratio auctioned monthly (as %)

On the other hand, what are the consequences of having a non-credible program? What is the prediction that is consistent with a situation like the one described? [Sargent \(1981\)](#) compares the disinflation processes of Raymond Poincaré in France between 1926 and 1929 and Margaret Thatcher, in the United Kingdom, between 1979 and 1983. According to their analysis, the first case carried out a disinflation without great costs, the product of having a program credible comprehensive, with a reputation for fighting inflation and a strong fiscal position. On the contrary, Thatcher's gradualist program, by dragging on pronounced fiscal deficits, encountered resistance in expectations, with the consequent negative impact on output dynamics and unemployment. [Blackburn & Christensen \(1989\)](#) cite the numbers of this disinflation process and that of the United States: in the first case, inflation fell from 13.4% to 4.6% between 1979 and 1983, while unemployment rose from 5.1 % to 12.4 %; in the second case, for the same period, inflation fell from 11.3 % to 3.2 % and unemployment increased from 5.8 % to 9.6 %. In other words, if Argentina had been in this situation, the most latent prediction would have been that the activity situation was not positive. Not only figures 1, 2 and 3 show the opposite, but figures 5 and 6 reinforce the point.

²²For a discussion on how to accumulate reserves, see [Sosa-Padilla & Sturzenegger \(2021\)](#).

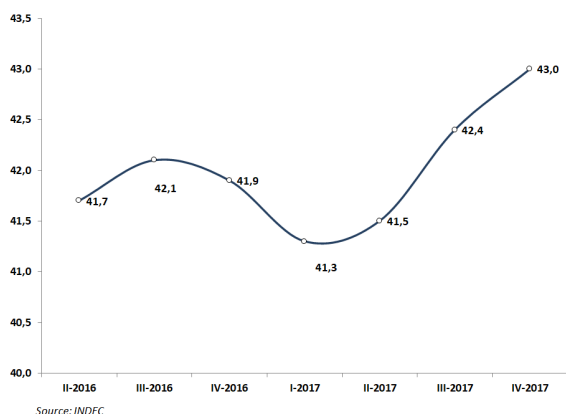


Figure 5: Employment rate (as %)

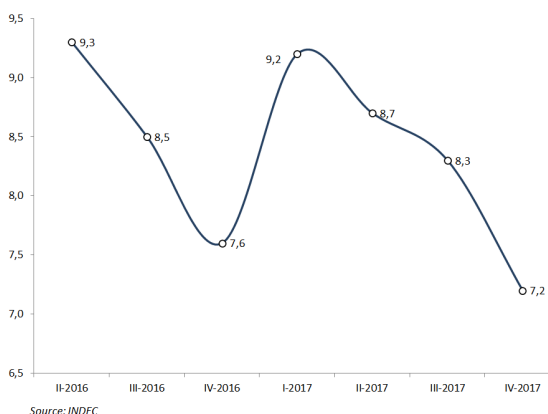


Figure 6: Unemployment rate (as %)

Although there is volatility due to seasonality, both series show that the trend in activity was favorable: in the case of unemployment, all quarters of 2017 exhibited a lower rate than the same quarter of the previous year. At the same time, not only was activity booming, but also inflation expectations²³ one year from now were the lowest since the record had started: that is, inflation was expected to *fall*, even in spite of all the contradictions that could be glimpsed. This leads us to think that, whatever was the reason, the market assigned a certain probability that the intertemporal budget constraint would be met, without resorting to excessive seigniorage. Figure 7, taken from [Sturzenegger \(2019\)](#), shows the point.

d. Expected inflation - 1 year forward

Percent

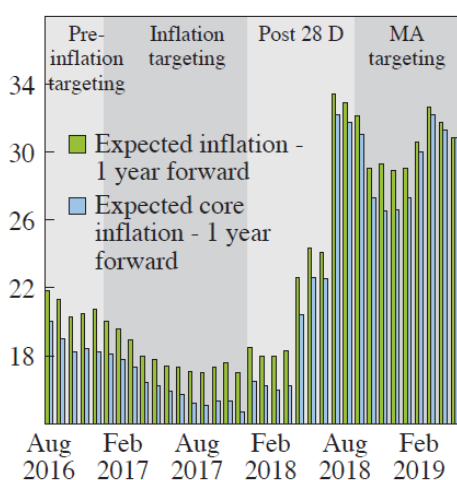


Figure 7

In summary, the dynamics of both economic activity and inflation expectations do not allow us to infer that the situation prior to the 28D was not credible, under the canons of [Sargent \(1981\)](#).

Why, then, does this view seem to be discarded? Two alternative explanations arise. In the first place, it might be thought that there was no intertemporal conflict between monetary and fiscal policy that could affect credibility (although, as we explained in the previous section, a branch of the Sudden Stops literature would say there was). The second, perhaps more accurate, is that, despite the signs of inconsistency, credibility is not so much whether or not there are reasons that could make a policy “not credible”, but rather whether

²³Compiled by the BCRA in the Market Expectations Survey (REM).

the policy is or not *believed* (McCallum, 1984) by the public²⁴. In short, what is relevant would be, as we have been anticipating, the *expectations* that agents have regarding the future actions of the government and the will/ability to correct fiscal imbalances without resorting to seigniorage.

Therefore, Blinder (2000), in his extensive survey, gives us a notion of “credibility”. The responses in the survey reflect consensus that the most important thing in building credibility is maintaining a track record of honesty (of “matching deeds to words”²⁵) and aversion to inflation. In other words, consistency and firmness on a path seem to have benefits when it comes to building credibility; of course, to deviate from these principles, with movements like those of the 28D, would be clearly counterproductive.

4.3 The deviation from the original goal

The third argument that could have justified a change in goals, from the government’s point of view, is that the systematic failure to comply with the proposed objectives would undermine the credibility of the central bank and complicate the disinflationary program, as is being claimed by Di Tella (2019)²⁶. However, Bernanke et al. (1999) explain that the central point of inflation targeting is not so much the proposed target, but rather the way of conducting monetary policy, in a transparent and well-explained manner. Furthermore, they emphasize the role of the target as an anchor of expectations²⁷, which is supported by the fact that both inflation expectations and the first wage negotiations of 2018 were being discussed within the range of the original target (Sturzenegger, 2019).

Blinder (2000), as we mentioned, details that there is an agreement between academics and policymakers that the degree of commitment to price stability is a synonym of credibility. For this reason, he exemplifies, the Bundesbank has always been considered one of the most credible in the world, despite missing its growth target in the amount of money more than 50% of the time. This behavior is not exclusive of developed countries (Sturzenegger, 2019).

Along these lines, Roger & Stone (2005) find, in their review of international IT experiences, that goals are breached approximately 40% of the time, sometimes by long margins and persistently, and that, however, this does not cause changes in the monetary scheme. They reason that the cause of this is the flexibility that the regime allows and, in addition, the transparency and reliability that it provides.

Although there are cases of changes in inflation targets (Indonesia 2005, Brazil 2003 and Turkey 2008), the truth is that in the latter two, the situation does not seem to have improved, but rather the opposite, damaging the Bank’s reputation Central²⁸. Indeed, Kim & Yim (2020) developed a model in which the change in inflation targets, after not meeting the established objective, generates indeterminacy in the equilibrium and can destabilize expectations and the inflation rate, despite seeking the opposite goal.

In sum, these arguments show us that the goal does not seem to be that important in itself: what is relevant would be found in how it regulates and aligns the actions of monetary policy. Again, to these arguments is added what was described in the previous subsections: the dynamics of the variables that one could look at to infer the “credibility” of the government in terms of inflation was, at that time, positive.

²⁴It is worth remembering the work of Sachs et al. (1996).

²⁵As he himself exposes it in Blinder (1998, p. 65), “*In the real world, such credibility is not normally created by incentive-compatible compensation schemes nor by rigid precommitment. Rather it is painstakingly built up by a history of matching deeds to words. A central bank that consistently does what it says will acquire credibility by this definition almost regardless of the institutional structure.*”

²⁶See, for example, <https://www.cronista.com/columnistas/La-tasa-no-lleva-a-cumplir-la-meta-de-inflacion-20171113-0108.html>.

²⁷For a detailed analysis of the benefits of inflation targeting, see Bernanke et al. (2018).

²⁸Sturzenegger (2019) he makes a small account of these cases and concludes that an event like the 28D was *ex-ante* little –if any– auspicious.

4.4 28D

It is difficult to find evidence outside the anecdote to sustain that the event of 28D was indeed a violation of the will of the Central Bank. The press conference in which the change in inflation targets was announced was held by the Minister of Economy, in the presence of the President of the Central Bank, the Secretary of Finance and the Chief of the Cabinet of Ministers. In it, it was ruled that the target of 10% inflation in 2018 (from approximately 25% in 2017) and 5% in 2019, would be replaced by 15% and 10% respectively, postponing a year the original inflation target of 5% at the end of the presidential term.

The BCRA had expressed itself several times negatively about the possibility of changing the original goals, explicitly saying that “changing the target is not having a target.”²⁹ Moreover, In its monetary policy report (IPOM) of October 2017, it had spoken out for increasing the anti-inflationary bias of monetary policy, noting some resistance to the decline of inflation.

Consequently, monetary policy rates had risen in the previous two months (from 26.5% to 28.8%) and then fell in the immediate bidding after the target change, to 27.2%. Likewise, in the same 28D, it was decided to lower the long-term rates of the LEBACs (Sturzenegger, 2019). The following graph illustrates the difference in the fee structure, between the two adjacent tenders:

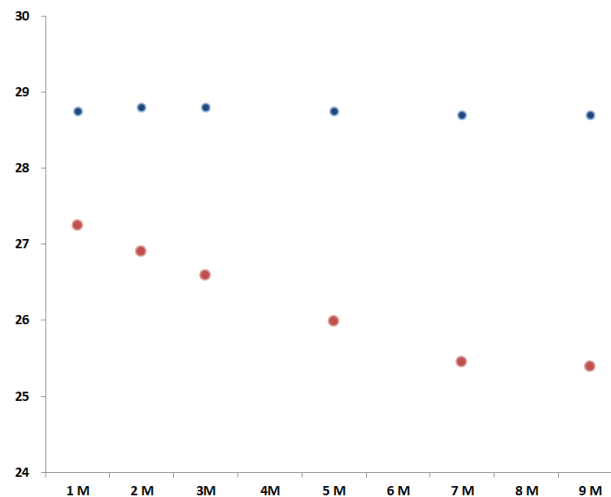


Figure 8: Rate structure pre (blue) and post (red) 28D

The view that the change in the target damaged the reputation of the central was exhibited at the time by some private analysts and by certain media.³⁰

4.5 Comments

In short, it is difficult to argue that the Argentina of 2017 required a profound change in its monetary policy scheme: the economy had been showing dynamism, with a favorable trend in the labor market, the product and poverty. Furthermore, if the agents had been fully convinced *ex-ante* of the existence of a time inconsistency problem like the one described by Sargent & Wallace, the expectation would have been that

²⁹See <https://www.cronista.com/finanzas-mercados/El-Central-insiste-Cambiar-la-meta-de-inflacion-es-no-tener-meta-20170517-0105.html>.

³⁰See, for example <https://www.lapoliticaonline.com/nota/110414-analisis-el-cambio-de-metas-golpeo-la-reputacion-del-central/> the same day the event occurred, or <https://panampost.com/ivan-achanosky/2018/02/03/banco-central-argentina-meta-inflacion/> time after. Another example is <http://www.perfil.com/noticias/economia/sturzenegger-contra-marcos-pena-lo-acuso-de-arruinar-su-gestion.phtml>.

an event like the 28D had no major consequences³¹. In the world of [Blackburn & Christensen \(1989\)](#), on the contrary, that the Central Bank gave in to the treasury would anticipate the turn towards a situation of high inflation. After December 2017, inflation expectations experienced a modest jump, higher than the previous combined increase in the previous fourteen months ([Sturzenegger, 2019](#))³².

There are, then, conceptual arguments to think that, if there were a break in the dynamics of the Argentine economy, it would be the result of the erosion of the CB's credibility, of interference in its room for maneuver, and / or of the recognition that the government was not willing to fight inflation in the way it had promised (with a more aggressive fiscal effort without resorting to monetary financing). However, the final reading of the episode of 28D cannot rule out other hypotheses, such as, for example, that it has indicated that there was a hidden fiscal problem that was more serious than previously thought (and that is why it was necessary to resort to higher inflation and lower interest rates in order to get financing).

Now, to argue that there was indeed a causal break on 28 December, 2017, in the next section we will approach the problem from an empirical point of view.

5 Empirical identification

When analyzing macroeconomic data, as we study causal phenomena, the main difficulty lies in establishing the appropriate counterfactual. The complexity of social phenomena implies that there is no “ subject ” directly comparable to the country being analyzed: it is always probable that there is some unobservable that biases the estimates and confuses the effects sought. In other words, it would be misleading to choose another country as a counterfactual, for example, because there could always exist differences prior to the event in question (that we could not observe or measure) that could potentially explain the phenomenon under study. However, [Abadie & Gardeazabal \(2003\)](#), [Abadie et al. \(2010\)](#) came up with a new method, with the intention of alleviating this problem and studying interventions with added effects: the 'synthetic control'. The methodology is intuitive: build a weighted average from the observation units not affected by the event by using observational data, in order to create a fictitious country that resembles the analyzed country, where resembling implies “similar observables”. That is, an artificial country is constructed which, prior to the moment in which causality is to be analyzed, will behave in the same way (i.e., share the same trend in the analyzed outcome) as the target country. Once the “ synthetic ” is obtained, it is compared how both trends differ (if they do) *after* the event, in order to attribute causality precisely to the event. Our identification will be to build a synthetic for Argentina, based only on daily sovereign debt spreads³³. The advantage of this approach is that the frequency of the data allows us to debug the analysis (as far as possible) of other possible exogenous shocks. In summary, we will try to show a structural change around the 28D and we will attribute it precisely to the event, thanks to all the above argumentation.

5.1 What are and why analyze sovereign debt spreads?

Sovereign debt spreads are the yield spreads (in basis points) between a country's sovereign bonds and bonds, of equal maturity and risk free, such as those of the United States Treasury.³⁴ According to [Remolona et al. \(2007\)](#), these spreads have two components: on the one hand, the expected loss in the event of default, and, on the other, the risk premium intrinsic to each country, which usually explains most of these spreads. In a cross-section regression, the authors find that higher levels of inflation are correlated with higher spreads, via the probability of default.

³¹It is even possible to say that it is possible to think that the impact should have been positive, if we consider that a little more inflation improves the debt situation, for example.

³²See figure 7.

³³Built by JP Morgan, and obtained, in our preferred specification, from *Ámbito Financiero* newspaper.

³⁴See [Hilscher & Nosbusch \(2010\)](#) and works mentioned there to delve into the determinants of sovereign spreads.

Baldacci et al. (2008) find that fiscal variables have great influence in determining spreads, since larger deficits imply greater risk of default, something that also appears in Schuknecht et al. (2009). If government bonds are valued relative to the expected value of their returns (ie fiscal surpluses), as Sargent (1981) says, then it is logical that a presumption that the adjustment would not be of the expected magnitude –or that it would be delayed over time– should cause a drop in the price of bonds and, therefore, a rise in the interest rate. For this reason, looking assets' return would seem to be the appropriate way to test the type of hypothesis that interests us: that the 28D caused a collapse in the credibility of the government and, in particular, marked it as an ill-prepared government to conduct the fiscal adjustment necessary to continue with the disinflationary process.

This is the path chosen by Drazen & Masson (1994), for example. The authors analyze the long-term interest rate differentials for France between 1979 and 1992, to study the credibility of the disinflationary process. They find three stages: the first one where inflation expectations remain high, perhaps inertially, and therefore disinflation has costs in terms of activity, which is reflected in a high rate differential³⁵; a second in which expectations begin to improve, the harshness of monetary policy has its fruits and becomes credible and therefore the rate differential falls; and a third, novel one, in which the costs of disinflation in terms of activity make the current policy path not credible, arguing that a lot of unemployment is not tolerable by the government either, pushing up, again, the differential of interest rates. Analogously, and making a parallel with the Argentine case, our hypothesis is that the 28D was a regression from the second stage to the first.

Another example is Christensen (1987), who studies the credibility of the Danish case (1982-1984) by comparing the observed interest rate with the interest rate predicted by a reduce form model. It concludes, by observing a systematic bias to err, that the policy could be considered credible, because it implied a lower interest rate than that predicted by the model. Obstfeld & Taylor (2003), in their comparison between the periods 1870-1913 and 1919-1925 in USA, analyze the credibility of policy regimes for different countries by looking at sovereign spreads. In another line, close to our argument, Galvis Ciro & de Mendonça (2016) find that greater credibility of monetary policy is associated with lower spreads in the case of Colombia (2004-2015).

In summary, there are reasons, in addition to being a widespread practice, to use the behavior of asset returns as a way to test the credibility/reputation of the government, as well as, interchangeably, the perception that a government may or may not meet its obligations. As we mentioned, the resolution of the bid between the Treasury and the Central Bank, to the detriment of the latter, would seem to have generated the feeling that the commitment to lowering inflation (by adjusting the fiscal accounts) was not going to be in line with what was promised, which, added to the violation of the Central Bank's autonomy, should have caused a rise in country risk. Nonetheless, we still have to argue why our performance-based identification of assets will not be biased by unobservables

Fama (1970) established the Efficient Markets Hypothesis (HME). The concept behind is that asset markets condense all the relevant available information, in such a way that the possibility of arbitrage is eliminated. This means that any relevant unobservables (in the sense that they cannot be measured) should already be included in the price of those³⁶. With this in mind, constructing a synthetic considering only the yields of sovereign bonds would provide us with an adequate counterfactual of the evolution of the yield of Argentine assets, even without any type of arbitrary control that we could add. As we argued, the credibility of monetary policy and expectations about the future fiscal path are already included in the bonds' price: hence, countries that show similar performance (levels or trends) are comparable in this regard. Exemplifying more specifically: two countries whose spreads were falling would reflect greater confidence in future economic performance, with a lower probability of default and a lower associated intrinsic risk.

³⁵ Similar to the experiences of Thatcher and Volcker.

³⁶ A similar argument can be found in Sargent (1973).

5.2 Empirical exercise

We build a database with the EMBI + data prepared by JP Morgan ³⁷, published by the newspaper Ambito Financiero ³⁸ for eighteen countries ³⁹ (where Argentina will be the treated unit and all the others the control group) and we perform the synthetic by matching the spread with moving averages of twenty observations (approximately one calendar month). This means that the synthetic was constructed trying to equalize the average Argentine spread for each month, from July 2017 to December 2017, among a total of 127 pre-event observations. (See the [Appendix](#) for details). All the countries in the sample are emerging countries, that is, they are classified by the market within the same group in economic matters. Therefore, unobservable issues such as institutional quality, strength of democracy, among others, that could be relevant in determining spreads are assimilable. The figures 9 and 10 show the results of our preferred specification. The synthetic obtained is made up of 56% from Ukraine, 36% from Brazil and 8% from Turkey, countries usually compared to Argentina for various reasons ⁴⁰.

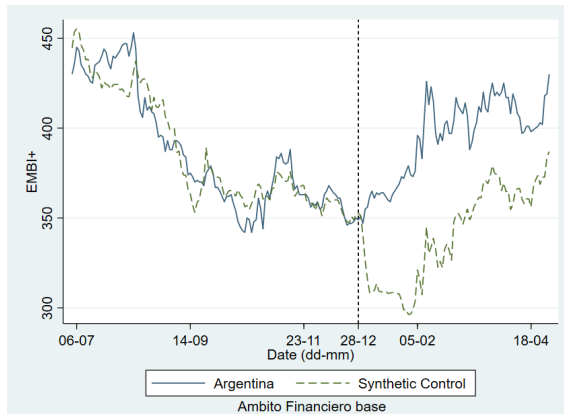


Figure 9: Synthetic control

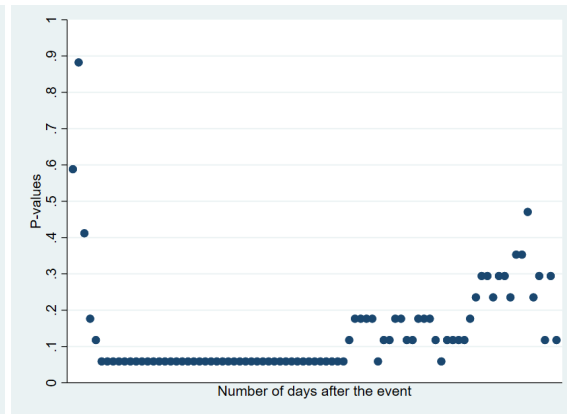


Figure 10: P-values

In this specification, we can observe a notorious change in the Argentine trend just five observations after the event (one calendar week). Using the STATA *synth_runner* package, created by [Galiani & Quistorff \(2017\)](#), we find that the minimum level of significance that leads to the rejection of the null hypothesis (that the Argentine EMBI+ and the synthetic are equal) is 6%. Figure 11 shows how before the event the differences in the spreads of Argentina and the synthetic fluctuated in sign and were null on average. However, after the 28D, Argentina's spreads become systematically higher than those of synthetic (by an average of 50 basis points or an additional 16%).

³⁷I'll use "EMBI+" as a synonym for spreads.

³⁸Accesible at <https://www.ambito.com/contenidos/riesgo-pais.html>

³⁹Argentina, Brazil, Colombia, Croatia, Ecuador, Egypt Philippines, Indonesia, Malaysia, Mexico, Peru, Poland, Russia, South Africa, Turkey, Ukraine, Uruguay and India.

⁴⁰See for example <https://www.cronista.com/finanzasmercados/Bonos-argentinos-rinden-mas-que-los-dos-ultimos-paises-que-acudieron-al-FMI-20190318-0036.html> or <https://www.cronista.com/finanzasmercados/Solo-la-deuda-de-Ucrania-supera-los-rendimientos-de-los-titulos-soberanos-en-dolares-20170324-0055.html>.

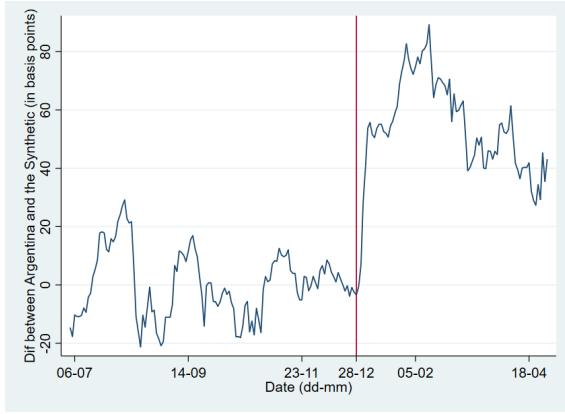


Figure 11: Difference between the Argentine spread and the synthetic spread

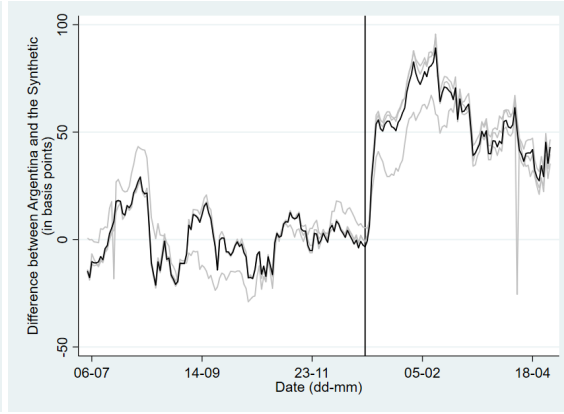


Figure 12: Difference between the Argentine spread and the corresponding synthetic spread.

How can we complement these results to rule out that they are the product of spurious issues? For example, it could happen that the synthetic was highly dependent on some particular control unit. To analyze this potential problem, we carry out the synthetic control by removing, one by one, the countries that compose it. In other words, we carried out the same exercise three additional times, one without considering Brazil, another without considering Turkey, and another without considering Ukraine. The result is shown in figure 12.

As can be seen, the trend is the same in all three cases, despite the fact that the effect is less strong in the pool that does not consider Ukraine (whose weight in the original specification is 56%). This is due to a level issue, not of trend. In addition, a sharp drop in the spread difference is observed on April 9, 2018, due to a peak in Egypt's EMBI (which goes from 371 to 560 to return to 380). In any case, as Egypt does not compose the original synthetic and we understand that this figure is an outlier, we do not believe that it affects the robustness of the argument.

Further, [Abadie et al. \(2010\)](#) propose a placebo exercise on each of the donors in the sample, to assess whether the change identified in the unit treated is not something common to the others. In other words, the same treatment is applied to each of the countries in the sample, moving Argentina to the group of donors (i.e. control), as if each of these countries were the one that had experienced the 28D. Figure 13 shows how Argentina is the only one with a marked change in trend, after the date analyzed. In fact, the ratio between the mean square error of the post-treatment projection and the pre-treatment projection is the highest of the countries in the sample, if we consider the data for January⁴¹.

The brown line corresponds to Ecuador (a country that incurred a loan with the IMF at the end of 2016 for solvency reasons), but since the spread in this case is systematically higher than that of the corresponding synthetic, we cannot argue for a substantial change after the 28D. In any case, excluding Ecuador from the donor pool does not affect the results at all.

⁴¹Later on we will see that at the beginning of February the aversion to global risk began to increase, thus hitting the country risk of emerging countries. You can see figure 22 in the appendix [Appendix](#) for further details.

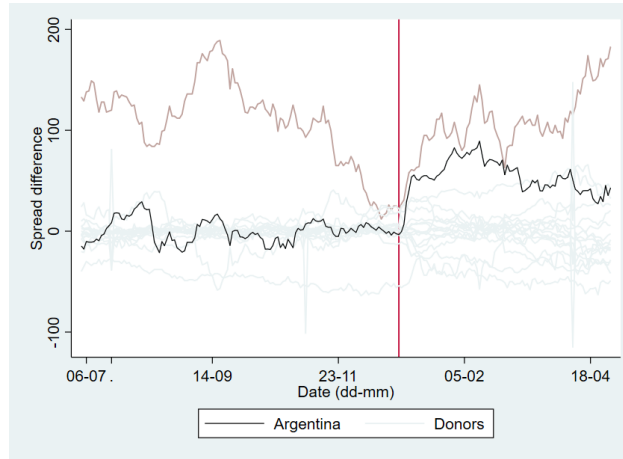


Figure 13: Placebos per control unit

In sum, it would appear that there is evidence of a causal structural change around December 28, 2017. To reinforce this conclusion, we will now do some robustness exercises.

5.3 Robustness check I. Donor pool

Given that the result obtained may depend on the donor pool, a robustness exercise consists of replicating the methodology but with a different base. In this case, we use the base provided by the Central Bank of the Dominican Republic, which has the spreads for 16 Latin American countries⁴². The exercise is shown in figure 14.

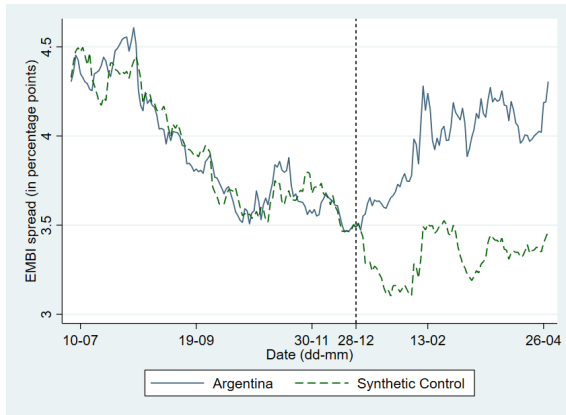


Figure 14: Synthetic control (base of the Dominican Republic CB)

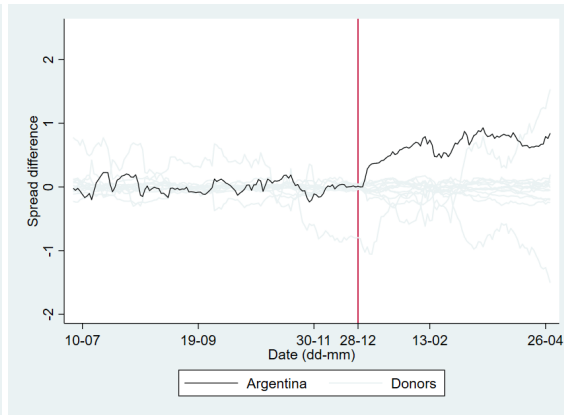


Figure 15: Space placebos (Dom Rep CB base)

The composition of the synthetic, in this case, is as follows: 45% El Salvador, 35% Honduras, 17% Colombia, 2% Ecuador and 1% Venezuela⁴³. It is observed how the trend begins to differ from the fourth observation after 28D, although this time the effect is less (the significance is reached at 13%, and only in observation number 12 (approximately 2 weeks later) reach a significance level of 7%). However, the synthetic estimate in this case follows a similar trend to that of the previous section, thus reinforcing our argument for a structural change around December 28. Figure 15 shows the placebo exercise in which the

⁴²Dominican Republic, Argentina, Bolivia, Brazil, Chili, Colombia, Ecuador, The Savior, Guatemala, Honduras, Mexico, Paraguay, Peru, Panama, and Uruguay. Costa Rica is excluded due to lack of data on certain dates.

⁴³Note how none of the countries matched by the synthetic repeats between specifications.

treatment is applied to each country of the donor pool, to analyze if there is a statistical break on the date in question ⁴⁴. As can be seen, Argentina is the only country that experiences a pronounced change in trend.

Figure 16 shows the differences (in percentage points) between the spreads of Argentina and those of a synthetic mulatto, in which each one is constructed removing one of the countries that make up the original synthetic. The same post-28D dynamics is observed in all specifications: an average trend before the event with no systematic differences and a clear mismatch after the event. However, it is worth clarifying that, by excluding Venezuela, the synthetic has a worse fit, possibly due to level issues, since the trends in all cases remain similar.

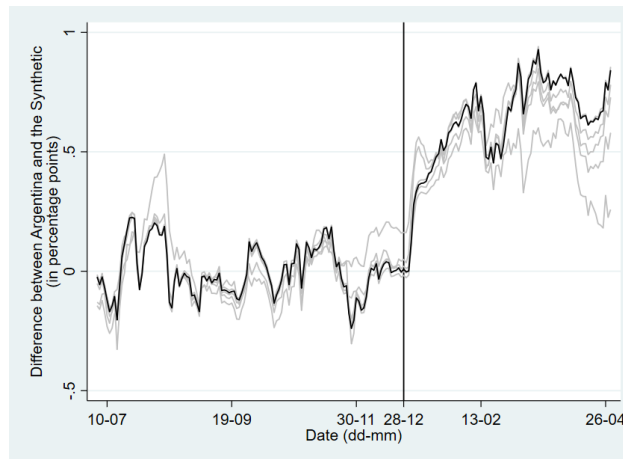


Figure 16: Difference between the Argentine and the corresponding synthetic spread (Dom. Rep. CB base)

5.4 Robustness check II. 13-D hypothesis

A second robustness exercise consists of replicating the exercise but establishing the cut-off date before December 28, as a placebo to test that the result obtained is not a product of chance. What date could serve as an alternative hypothesis? In sections 2 and 3, we explained that the notion of credibility could be linked to the expectations that agents had about the will/ability of the government to obtain fiscal surpluses without resorting to monetary issuance. For this reason, any measure that indicated a certain weakness to meet this commitment could have acted as a trigger for inflation expectations. A date to consider from this perspective is December 13, 2017⁴⁵. That day, the pension reform was debated with serious incidents in the Congress Square. Despite the enactment of the law proposed by the ruling party, such resistance could have cast doubts on the government's capacity to continue on the path of fiscal adjustment⁴⁶. By replicating our methodology, but establishing the cut-off date at December 13, we can test this hypothesis. The figure 17 illustrates the results.

⁴⁴Venezuela is excluded because it is off-axis since no synthetic matches well in this case.

⁴⁵See [Berneman \(2020 forthcoming\)](#).

⁴⁶It is worth remembering the third stage mentioned by [Drazen & Masson \(1994\)](#).

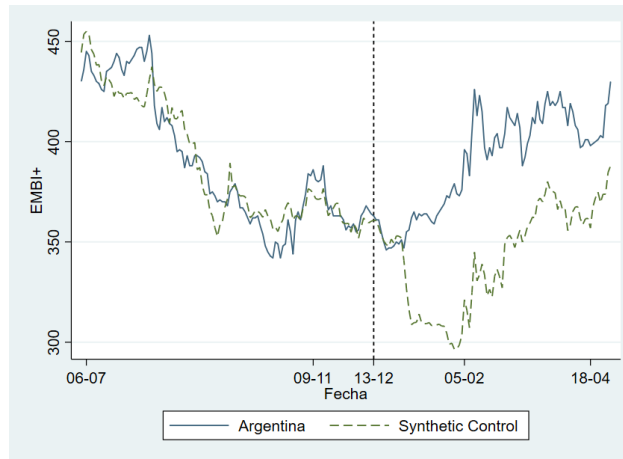


Figure 17: Synthetic Control 13-D.

The calculated synthetic is exactly the same as in the original exercise and, as can be seen, there is no systematic difference in the period between December 13 and December 28, so it is difficult to argue that there has been a structural change on the former date⁴⁷. As the transmission channel of expectations to the interest rate would be the same in this case, we would have expected the divergence to begin around this date, which did not happen.

5.5 Robustness check III. Global Factors

Uribe & Yue (2006), Dailami et al. (2005), González-Rozada & Yeyati (2008), Garcia-Herrero et al. (2006), among others, find that changes in global conditions (either in the international reference rate or in risk aversion) have differential impacts on emerging market spreads. A plausible explanation for the post-December 2017 break, then, would be that there were certain changes in global conditions that differentially affected Argentina, as a result of a weak macroeconomic situation (such as a high rate of debt and a rising current account deficit). Figure 18, which shows the Fed's monetary policy rate, and figure 19, displaying the VIX index (a proxy for global risk aversion), inform us that during the dates analyzed there were no substantial events. The peaks observed at the end of January in the VIX index correlate with an increase in the spreads of both Argentina and the synthetic.

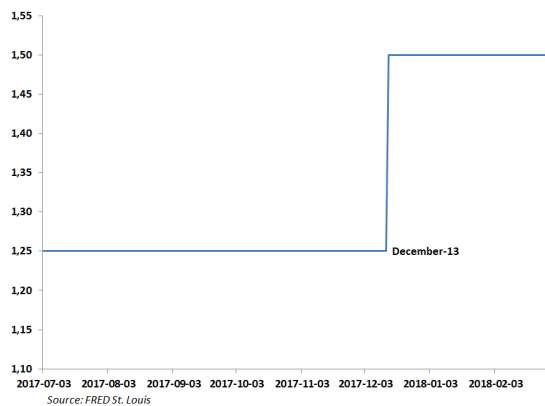


Figure 18: Upper limit to Fed Funds

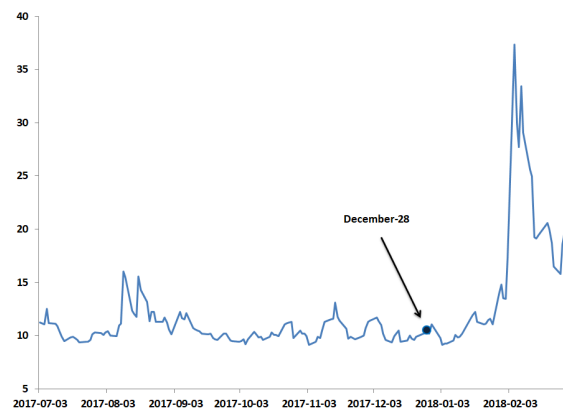


Figure 19: Global volatility index (VIX)

In summary, there does not appear to be any global event that could trigger the trend change observed in

⁴⁷I have tried different dates with similar results. That is, there is no previous date with such a difference between the Argentina and synthetic spreads.

Argentina (and not in other countries), so we are inclined to think that this change came specifically from some event within the context of Argentina.

6 Conclusions

The credibility and reputation of the Central Bank play a key role when conducting monetary policy, especially when it is sought to face a disinflationary process after years of moderate inflation. Thanks to this, the problem of temporal inconsistency to which the policymaker is subject is mitigated. In addition to having a huge literature that links the independence/credibility of the Central Bank with economic benefits in terms of inflation and financial stability (Berger et al., 2001; Crowe & Meade, 2008; Klomp & De Haan, 2009), the standard practice in the world is to have a Central Bank detached from external pressures, with autonomy to take the reins of monetary policy (Blinder, 2000; Cukierman, 2008; Geraats, 2002). Any type of interference on this independence may trigger expectations towards an equilibrium of higher inflation (Rogoff, 1985).

In December 2017, the press conference in which the change in the targets was announced, in clear violation of the will of the Central Bank, implied a readjustment of expectations (either due to an effect on the credibility of the government or by revealing the existence of not a minor fiscal problem) that resulted in an increase in sovereign spreads. This trend break is empirically derived from the synthetic control exercise: with a database of sovereign spreads of emerging and Latin American countries, we found, under different specifications and robustness analysis, that said break is statistically significant at 6%, just a week after the event. At the same time, we rule out that the trend break was due to some global phenomenon: on the dates analyzed, both the Fed Funds rate and the VIX global risk aversion index did not show significant changes. We also discard the alternative explanation according to which the catalyst for the break was December 13 –in the context of the pension reform and the disturbances it generated–, because we did not find trend changes in the EMBI+ between Argentina and the synthetic during these dates.

There does not appear to have been, *ex-ante*, any substantiated justification for the government to make the decision to change monetary policy, subordinating it to the Treasury: economic activity exhibited positive trends in employment, poverty and production, and inflation expectations were cooling down. If the agents had understood that the macroeconomic situation in Argentina was *ex-ante* inconsistent, following Sargent & Wallace, this should have been reflected in a meager performance of activity, even in an upward trend in sovereign debt spreads; in any case, not in a downward trend.

As McCallum (1984) says, the vital thing is to assess whether a policy is believed or not, and not so much whether there are reasons for it to be credible or not. In this sense, it is worth remembering the work of Sachs et al. (1996) regarding the Tequila crisis: although the economic fundamentals could induce a situation of multiple equilibria, the crisis did not materialize (and it is reasonable to think that it had not been anticipated) until a certain event (the 15% devaluation) triggered expectations to a bad equilibrium. Making an analogy with the Argentine case, the situation prior to the 28D suggests that the market ultimately counted on the government to make the necessary efforts to continue on the disinflationary path (which is visualized with the decreasing trend of the pre-28D spreads). This includes the fact that it was known that the Central Bank could not reach the goal for 2018. As we have explained, quoting Roger & Stone (2005), the countries fail to meet their inflation targets around 40 % of the time; even so, they do not modify their economic actions.

In our opinion, by violating the “good practices” of monetary policy, and starting from a context of macroeconomic fragility, the 28D implied an irrecoverable loss of credibility, warning about the lack of will or inability of the government to take charge of the fiscal front the way it was previously believed. That is why actions of this style are highly inadvisable and should not be initiated without taking into account their potential negative impact.

A Appendix

A.1 Synthetic Control Methodology

Let N be the number of countries in the donor pool (i.e. in the control group, in this case 17 countries available in the Ambito Financiero base) and $\mathbf{P} = (p_1, \dots, p_N)'$ a vector ($N \times 1$) of non-negative weights that add up to one, in which the element p_n represents the weighting of the country n in the synthetic of Argentina. Each vector $\mathbf{P}$ produces a different synthetic. As explained in section 4.2, the idea is to build an artificial country that looks like Argentina. In this way, the weights are chosen so that the mean square error in the outcome of interest between the synthetic and the treated country is the minimum possible. This is,

$$\mathbf{P}^* = \underset{\mathbf{P} \in \mathcal{P}}{\operatorname{argmin}} (\mathbf{Z}_1 - \mathbf{Z}_0 \mathbf{P})' (\mathbf{Z}_1 - \mathbf{Z}_0 \mathbf{P}),$$

where $\mathbf{Z}_1$ is a (6×1) vector of pre-treatment values for the average country risk of Argentina (those in column (1) in the Table 1) and $\mathbf{Z}_0$ is a (6×17) vector containing the same variables for the 17 potential controls. Once the weights have been obtained, the synthetic ($\mathbf{Y}_1^*$) is built by simply doing:

$$\mathbf{Y}_1^* = \mathbf{Y}_0 \mathbf{P}^*,$$

where $\mathbf{Y}_0$ is a (211×17) vector with all country risk values for the 17 countries of the donor pool, from July 3, 2017 to April 30, 2018 (values corresponding to business days).

	Average EMBI Argentina (1)	Average EMBI Brazil (2)	Average EMBI Ukraine (3)	Average EMBI “Synthetic” (4)
April 3 to August 1	436.0	276.0	555.1	433.9
August 2 to August 30	420.5	271.9	535.9	420.5
August 31 to September 28	380.1	259.1	466.5	377.1
September 29 to October 27	354.8	241.1	453.7	364.1
October 30 to November 27	370.3	248.4	449.2	366.9
November 28 to December 27	356.9	239.0	437.5	355.2

Table 1: Fit between the Country Risk of Argentina and the Synthetic (Ámbito Financiero Base)

In other words, the value that the synthetic takes at a time t prior to the treatment indirectly depends on all the pre-treatment information, since the weights are chosen to match the average monthly values, in this case. For example, the summary for September 25 is influenced by the average EMBI information for Argentina in December, but not by the information in January.

A.2 Robustness Check IV. Structural break test

We have argued that the 28D meant a structural break in what had been Argentina’s country risk performance. To complement this result, there is a literature on time series, in particular the exercises called “break test on known date” and “estimate of break date” in case of not knowing which one is⁴⁸.

In the first case, the exercise consists of performing a Chow test on whether the Argentine EMBI + and the synthetic one are significantly different on average after 28D. To do this, we run the following regression:

$$y_t = \alpha + \beta D_t + \mu_t$$

⁴⁸See for further details [Stock & Watson \(2015, c.14.7\)](#) and [Enders \(2014, c.4.8\)](#).

where y_t is the difference in country risk between Argentina and the synthetic (i.e. what is shown in the figure 11), D_t is a dummy which takes value 1 after December 28, and μ_t is the error term. The results are shown in the table 2. Indeed, the regression verifies that, after the 28D, the difference between Argentina's country risk and that of the synthetic is statistically significant.

(1) Difference between EMBIs (Argentina - Sintético)	
D	53.71*** (2.082)
Constant	0.129 (1.005)
Observations	211
R-squared	0.787
Robust standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

Table 2: Break test on known date

Although this result is as expected, the truth is that something similar could also be obtained if the exercise were carried out considering dates close to the 28D*. For this reason, to make the analysis more complex, Bai (1997) proposes to infer the break date as follows:

- Different possible break dates are considered $\tau \in [t_0, t_1]$ where $t_0 > 1$ and $t_1 < T$.
- Then, for each of the dates, a regression is estimated between the variable of interest (the difference between the EMBI of Argentina and that of the synthetic one) based on a constant and a dummy that takes a value of 1 if $t \geq \tau$ and the Sum of Residual Squares $S(\tau)$ is obtained for each τ . The inferred break date is the one that minimizes $S(\tau)$.

Following this procedure, the estimated bankruptcy date is January 4, 2018 ($\pm$ one day, with 95% confidence); the Wald statistic takes a value of 450 and is largely significant at 1%.

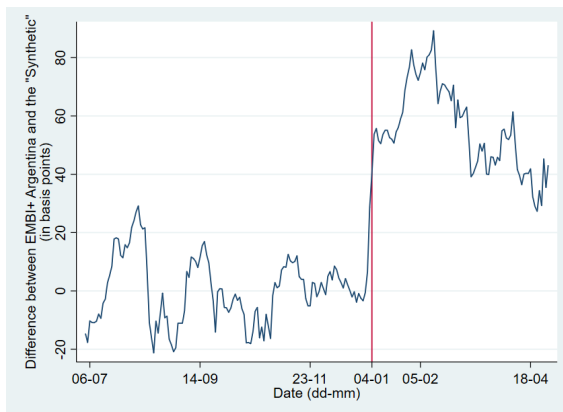


Figure 20: Break test on unknown date

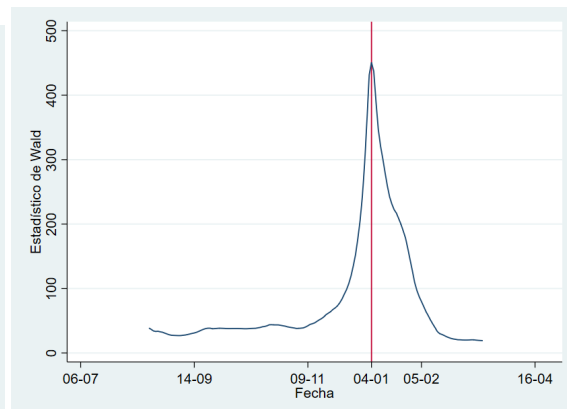


Figure 21: Wald statistic associated, by possible break date

As can be seen, the break date is very close to D-28 but it occurs after the trend of the series is modified. In

*I thank Javier García Cicco for his help with this exercise

sum, both analyzes provide robustness on the presence of a structural break in the trend of sovereign spreads in Argentina.

A.3 Additional tables and graphs

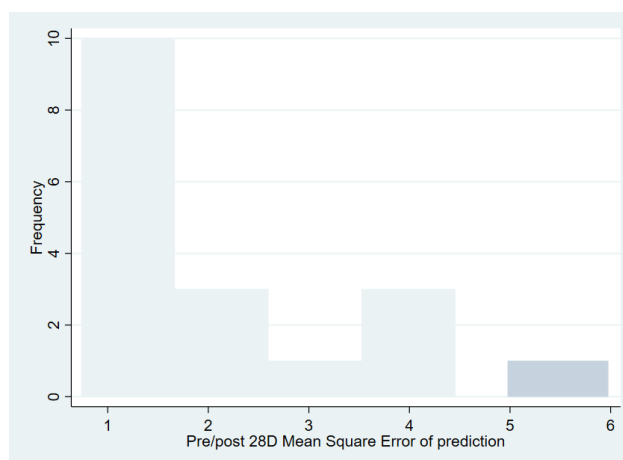


Figure 22: Pre/Post D-28 Mean square error of prediction (Ámbito Financiero Base)

References and Notes

- Abadie, A., Diamond, A., & Hainmueller, J. (2010). Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program. *Journal of the American statistical Association*, 105(490), 493–505.
- Abadie, A. & Gardeazabal, J. (2003). The economic costs of conflict: A case study of the Basque Country. *American economic review*, 93(1), 113–132.
- Acharya, V. V. & Krishnamurthy, A. (2018). *Capital flow management with multiple instruments*. Technical report, National Bureau of Economic Research.
- Agosin, M. R. & Huaita, F. (2012). Overreaction in capital flows to emerging markets: Booms and sudden stops. *Journal of International Money and Finance*, 31(5), 1140 – 1155, <https://doi.org/https://doi.org/10.1016/j.jimonfin.2011.12.015> <http://www.sciencedirect.com/science/article/pii/S0261560611002002>.
- Alesina, A. (1988). Macroeconomics and politics. *NBER macroeconomics annual*, 3, 13–52.
- Alesina, A. & Summers, L. H. (1993). Central bank independence and macroeconomic performance: some comparative evidence. *Journal of Money, credit and Banking*, 25(2), 151–162.
- Backus, D. E. & Driffill, J. E. (1985). Inflation and reputation. *The American Economic Review*, 75(3), 530–538.
- Bai, J. (1997). Estimation of a change point in multiple regression models. *Review of Economics and Statistics*, 79(4), 551–563.
- Baldacci, E., Gupta, S., & Mati, A. (2008). Is it (still) mostly fiscal? Determinants of sovereign spreads in emerging markets. *IMF Working Papers*, (pp. 1–23).
- Barro, R. J. (1986). Recent developments in the theory of rules versus discretion. *The Economic Journal*, 96, 23–37.

- Barro, R. J. & Gordon, D. (1983). A positive theory of monetary policy in a natural rate model. *Journal of political economy*, 91(4), 589–610.
- Berger, H., De Haan, J., & Eijffinger, S. C. (2001). Central bank independence: an update of theory and evidence. *Journal of Economic surveys*, 15(1), 3–40.
- Bernanke, B. S. (2010). Central bank independence, transparency, and accountability. In *Speech at the Institute for Monetary and Economic Studies International Conference, Bank of Japan, Tokyo, Japan, May*, volume 25.
- Bernanke, B. S., Laubach, T., Mishkin, F. S., & Posen, A. S. (1999). Missing the mark: The truth about inflation targeting. *Foreign Affairs*, (pp. 158–161).
- Bernanke, B. S., Laubach, T., Mishkin, F. S., & Posen, A. S. (2018). *Inflation targeting: lessons from the international experience*. Princeton University Press.
- Berneman, N. (2020, forthcoming). El Mito del 28D. *Jornadas Epistemología de la Ciencias Economicas, UBA*.
- Blackburn, K. & Christensen, M. (1989). Monetary policy and policy credibility: theories and evidence. *Journal of Economic literature*, 27(1), 1–45.
- Blinder, A. S. (1982). *Issues in the coordination of monetary and fiscal policy*. Technical report, National Bureau of Economic Research.
- Blinder, A. S. (1998). *Central Bank in Theory and Practice*. MIT Press.
- Blinder, A. S. (2000). Central-bank credibility: why do we care? How do we build it? *American economic review*, 90(5), 1421–1431.
- Bodea, C. & Hicks, R. (2015). Price stability and central bank independence: Discipline, credibility, and democratic institutions. *International Organization*, (pp. 35–61).
- Bordo, M. D. & Siklos, P. L. (2015). *Central bank credibility: An historical and quantitative exploration*. Technical report, National Bureau of Economic Research.
- Bussiere, M. & Fratzscher, M. (2006). Towards a new early warning system of financial crises. *Journal of International Money and Finance*, 25(6), 953–973.
- Calvo, G. A. (1978). On the time consistency of optimal policy in a monetary economy. *Econometrica: Journal of the Econometric Society*, (pp. 1411–1428).
- Canzoneri, M., Cumby, R., & Diba, B. (2010). The interaction between monetary and fiscal policy. In *Handbook of monetary economics*, volume 3 (pp. 935–999). Elsevier.
- Christensen, M. (1987). On interest rate determination, testing for policy credibility, and the relevance of the lucas critique: Some danish experiences. *European Journal of Political Economy*, 3(3), 369–388.
- Crowe, C. & Meade, E. E. (2008). Central bank independence and transparency: Evolution and effectiveness. *European Journal of Political Economy*, 24(4), 763–777.
- Cukierman, A. (1994). Central bank independence and monetary control. *The Economic Journal*, 104(427), 1437–1448.
- Cukierman, A. (2008). Central bank independence and monetary policymaking institutions—Past, present and future. *European Journal of Political Economy*, 24(4), 722–736.

- Cukierman, A., Edwards, S., & Tabellini, G. (1992a). Seigniorage and Political Instability. *The American Economic Review*, 82(3), 537–555 <http://www.jstor.org/stable/2117320>.
- Cukierman, A., Web, S. B., & Neyapti, B. (1992b). Measuring the independence of central banks and its effect on policy outcomes. *The world bank economic review*, 6(3), 353–398.
- Dailami, M., Masson, P. R., & Padou, J. J. (2005). *Global monetary conditions versus country-specific factors in the determination of emerging market debt spreads*. The World Bank.
- de Mendonça, H. F. & de Guimarães e Souza, G. J. (2009). Inflation targeting credibility and reputation: The consequences for the interest rate. *Economic Modelling*, 26(6), 1228 – 1238, <https://doi.org/https://doi.org/10.1016/j.econmod.2009.05.010> <http://www.sciencedirect.com/science/article/pii/S0264999309000947>.
- Di Tella, R. (2019). Comments on Macri’s Macro by Federico Sturzenegger. *Harvard Business School BGIE Unit Working Paper*, (20-025).
- Drazen, A. & Masson, P. R. (1994). Credibility of policies versus credibility of policymakers. *The Quarterly Journal of Economics*, 109(3), 735–754.
- Enders, W. (2014). *Applied econometric time series*. John Wiley & Sons.
- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The journal of Finance*, 25(2), 383–417.
- Farhi, E. & Werning, I. (2014). Dilemma not trilemma? Capital controls and exchange rates with volatile capital flows. *IMF Economic Review*, 62(4), 569–605.
- Galiani, S. & Quistorff, B. (2017). The synth_runner package: Utilities to automate synthetic control estimation using synth. *The Stata Journal*, 17(4), 834–849.
- Galvis Ciro, J. C. & de Mendonça, H. F. (2016). Inflation targeting credibility and sovereign risk: evidence from Colombia. *Applied Economics Letters*, 23(14), 984–990.
- Garcia-Herrero, A., Ortíz, A., & Cowan, K. (2006). The role of global risk aversion in explaining sovereign spreads [with comments]. *Economia*, 7(1), 125–155.
- Geraats, P. M. (2002). Central bank transparency. *The economic journal*, 112(483), F532–F565.
- González-Rozada, M. & Yeyati, E. L. (2008). Global factors and emerging market spreads. *The Economic Journal*, 118(533), 1917–1936.
- González-Rozada, M. (2020). Nowcast de Pobreza <https://twitter.com/MartinGRozada/status/1329055389044920320/photo/1>.
- Grilli, V., Masciandaro, D., & Tabellini, G. (1991). Political and monetary institutions and public financial policies in the industrial countries. *Economic policy*, 6(13), 341–392.
- Hilscher, J. & Nosbusch, Y. (2010). Determinants of sovereign risk: Macroeconomic fundamentals and the pricing of sovereign debt. *Review of Finance*, 14(2), 235–262.
- Kaminsky, G. L. & Reinhart, C. M. (1999). The twin crises: the causes of banking and balance-of-payments problems. *American economic review*, 89(3), 473–500.
- Kim, S. & Yim, G. (2020). Do inflation-targeting central banks adjust inflation targets to meet the target? *Journal of Economic Dynamics and Control*, 113, 103858, <https://doi.org/https://doi.org/10.1016/j.jedc.2020.103858> <http://www.sciencedirect.com/science/article/pii/S0165188920300282>.

- Klomp, J. & De Haan, J. (2009). Central bank independence and financial instability. *Journal of Financial Stability*, 5(4), 321–338.
- Korinek, A. (2011). The new economics of prudential capital controls: A research agenda. *IMF Economic Review*, 59(3), 523–561.
- Kydland, F. E. & Prescott, E. C. (1977). Rules rather than discretion: The inconsistency of optimal plans. *Journal of political economy*, 85(3), 473–491.
- McCallum, B. T. (1984). *Credibility and monetary policy*. Technical report, National Bureau of Economic Research.
- Nordhaus, W. D., Schultze, C. L., & Fischer, S. (1994). Policy games: Coordination and independence in monetary and fiscal policies. *Brookings Papers on Economic Activity*, 1994(2), 139–216.
- Obstfeld, M. (1996). Models of currency crises with self-fulfilling features. *European economic review*, 40(3-5), 1037–1047.
- Obstfeld, M. & Taylor, A. M. (2003). Sovereign risk, credibility and the gold standard: 1870–1913 versus 1925–31. *The Economic Journal*, 113(487), 241–275.
- Remolona, E. M., Scatigna, M., & Wu, E. (2007). Interpreting sovereign spreads. *BIS Quarterly Review*, March.
- Rey, H. (2015). *Dilemma not trilemma: the global financial cycle and monetary policy independence*. Technical report, National Bureau of Economic Research.
- Roger, S. & Stone, M. (2005). On target?: The international experience with achieving inflation targets. *IMF working paper*.
- Rogoff, K. (1985). The optimal degree of commitment to an intermediate monetary target. *The quarterly journal of economics*, 100(4), 1169–1189.
- Sachs, J., Tornell, A., & Velasco, A. (1996). The Mexican peso crisis: Sudden death or death foretold? *Journal of international economics*, 41(3-4), 265–283.
- Sargent, T. J. (1973). Interest rates and prices in the long run: a study of the Gibson paradox. *Journal of Money, Credit and Banking*, 5(1), 385–449.
- Sargent, T. J. (1981). *Stopping moderate inflations: The methods of Poincare and Thatcher*. Technical report, National Bureau of Economic Research.
- Sargent, T. J. & Wallace, N. (1981). Some unpleasant monetarist arithmetic. *Federal reserve bank of minneapolis quarterly review*, 5(3), 1–17.
- Schuknecht, L., Von Hagen, J., & Wolswijk, G. (2009). Government risk premiums in the bond market: EMU and Canada. *European Journal of Political Economy*, 25(3), 371–384.
- Sosa-Padilla, C. & Sturzenegger, F. (2021). *Does It Matter How Central Banks Accumulate Reserves? Evidence from Sovereign Spreads*. Technical report, National Bureau of Economic Research.
- Stock, J. H. & Watson, M. W. (2015). *Introduction to econometrics*.
- Sturzenegger, F. (2019). Macri's Macro: The Elusive Road to Stability and Growth. *Brookings Papers on Economic Activity*, 2019(2), 339–436.
- Uribe, M. & Yue, V. Z. (2006). Country spreads and emerging countries: Who drives whom? *Journal of international Economics*, 69(1), 6–36.