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DOLLARIZATION AS AN EFFECTIVE COMMITMENT DEVICE: THE CASE OF ARGENTINA

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Dollarization as an Effective Commitment Device:

The Case of Argentina

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Abstract

One of the main reasons to dollarize is to eliminate high, persistent, and volatile inflation. However, to be effective, dollarization must generate sufficient credibility, which in turn depends critically on whether its expected probability of reversal is low. In other words, whether it is an effective commitment device (ECD). Argentina once again faces high, persistent, and volatile inflation. With a looming presidential election politicians and academics are evaluating several options to stabilize prices and put the economy on a path of sustained growth. However, because of acute institutional anomie, which makes non-contingent rules under domestic jurisdiction easily reversible, even the best-intentioned policymakers cannot generate sufficient credibility. The country remains trapped in stop-go cycle of reforms that accelerates its economic decline. The root of the problem can be traced back to populism, which heightened time-inconsistency and then destroyed the formal and informal mechanisms that could have moderated it. With acute institutional anomie, an ECD requires surrendering discretion in monetary affairs to a foreign jurisdiction. The paper explores whether dollarization can fulfill such role in Argentina in current circumstances given the country's history of reform reversal. The evidence suggests that, in the long-run, the strongest insurance against reversal is the support of the electorate, but in the short-run, institutional design can play a critical role.

Keywords: Foreign Exchange Rate Regimes, Dollarization, Monetary Policy, Time Inconsistency, Institutional Anomie, Argentina.

JEL Codes: B27, E5, E31, E52, E58, F31, F32, F45, K40, N16, O24.

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Dollarization as an Effective Commitment Device:

The Case of Argentina

> *Once credibility has been lost, economists don't know much about how to restore it.*
>
> Finn E. Kydland (2004)
>
> *Far from running away from the cause of the trouble– the feeling his men had that by destroying the ships he had cut off their retreat and left them to conquer or die– he dwelt on it. He told them how they would now have to fight not only for God and King as ever, but for dear life as well.*
>
> Salvador de Madariaga, Hernán Cortés (1925)

1. Introduction

Fifty years ago, in testimony to U.S. Congress, Milton Friedman argued that "the whole reason why it is an advantage for a developing country to tie to a major country is that, historically speaking, the internal policies of developing countries have been very bad. U.S. policy has been bad, but their policies have been far worse. There are no gyrations in American monetary policy which can hold a candle to the gyrations which have occurred in Argentinian domestic monetary policy. So, the whole reason why tying to a major currency would be an advantage to Argentina is that precisely that it would prevent them from following bad domestic monetary policies. They would have less of an adjustment problem simply because our policy will prove to be more stable than theirs (1973, p.127)."

In this respect, not much has changed in Argentina since. As an inflationary cycle that started in 2002 accelerates and a presidential election looms, economists and policymakers are

exploring a variety of options to achieve lasting price stability.[2] Official unilateral dollarization is one of the options being proposed, at least by one of the leading presidential candidates. This in turn has prompted a renewed debate among academics about its advantages and disadvantages (see Nicolini, 2021 and 2022; Ocampo and Cachanosky, 2022; Uribe, 2022a and 2022b; and Sturzenegger, 2023).

The idea of adopting the dollar as legal tender is not new. In the late 19th century, one of its most enthusiastic proponents was W.S. Jevons (1875). At the beginning of the 20th century several countries in Central America adopted the dollar as legal tender and kept it until World War II (Helleiner, 2003, 2005). In the early 1970s Friedman (1972) recommended dollarization as the best option for a developing country trying to escape the curse of high and volatile inflation. However, it was not until the late 1990s that dollarization started to be seriously considered in policymaking and academic circles (see US Congress 1999a and 1999b).[3] The debate about its cost and benefits was to a great extent prompted by the announcement of Argentina's President Carlos Menem in early 1999 that his government was considering adopting the dollar as legal tender (Hanke and Schuler, 1999).

The terms of this debate can be summarized as follows. On the cost side, dollarization entailed: 1) loss of seigniorage; 2) loss of lender-of-last-resort capabilities; 3) loss of exchange rate policy as a shock absorber; and 4) inability to reduce the value of public debt in domestic currency via devaluation or inflation. In turn, the benefits included: 1) reduction in transaction costs, 2) convergence of domestic inflation towards world inflation; 3) elimination of currency risk, which reduces domestic interest rates; 4) potentially lower country risk premium and a

[2] In the case of Argentina, the analysis of inflation as cyclical phenomenon yields valuable insights. Saboin-Garcia (2018) originally applied the idea to hyperinflation and Ocampo (2021a, 2023) extended the concept to link inflationary cycles, populist cycles, and commodity cycles.

[3] A search of journal articles and working papers that have the word "dollarization" in their title, abstract or keywords in the IDEAS/RePEc database suggests research interest peaked between 2001 and 2009 and then gradually declined.

more favorable environment for investment and growth due to lower and more stable inflation and interest rates; 5) elimination of the currency mismatches in the country's balance sheet; and 6) a reduction of roll-over risks of public debt. A more detailed discussion of these issues can be found in Hanke and Schuler (1999), Velde and Veracierto (2000), Berg and Borensztein (2000), Alesina and Barro (2001), Calvo (2001), Calvo and Reinhart (2002), Chang and Velasco (2001), Dornbusch (2000), Eichengreen (2001), Antinolfi and Keister (2001), Grubben, Wynne and Zarazaga (2001), Guidotti and Powell (2002), Karras (2002), Levy Yeyati and Sturzenegger (2002), Jacome and Lonnberg (2010), Lindenberg and Westermann (2012) and White (2014).

The costs and benefits of dollarization are related to two implementation issues that were also debated: 1) whether certain ideal pre-conditions are necessary for dollarization to be viable and successful, and 2) whether in countries with a long history of high, persistent and volatile inflation, dollarization is an effective commitment device (ECD), i.e., a mechanism that can credibly resolve the time-inconsistency problem of economic policy, as described by Kydland and Prescott (1977), Calvo (1978, 1994 and 2000) and Barro and Gordon (1983).

Regarding the need for pre-conditions, on one camp were those who argued that adopting the dollar as legal tender only made sense in the presence of fiscal equilibrium, trade openness, limited public indebtedness and flexible labor markets. On the other side were those who argued that dollarization did not require any ideal pre-conditions. In fact, one of the key reasons for a developing country to adopt the dollar as legal tender is a demonstrated inability to attain such pre-conditions. In other words, if ideal pre-conditions can be achieved, there is no need to dollarize. However, as Gruben, Wynne and Zarázaga (2001) warned, it would be a grave mistake to believe dollarization could provide "a painless substitute for other much needed but perhaps painful economic reforms" and therefore recommended implementing it "with all other complementary reforms" (pp. 4,7). We now have more evidence to address this issue. Ecuador's government dollarized in January 2000 with a substantial budget deficit and during

the Correa administration (2007-2017) followed an expansionary fiscal policy. However, during this period the annual inflation rate averaged 3.8%.

Sargent (2013) argued that high, volatile, and persistent inflation is "always and everywhere a fiscal phenomenon, in which the central bank is a monetary accomplice." If we accept this premise, then it would seem logical to conclude that dollarization cannot be an ECD. According to this pessimistic view, dollarization cannot solve the time-inconsistency problem; it can only transfer it to the fiscal authority. It is worthwhile noting that the same argument can be made against central bank independence (Castellani and Debrun, 2005).

If dollarization is an ECD, as Goldfajn and Olivares (2000) pointed out, the debate about its advantages and disadvantages can be summarized as "a choice between flexibility and credibility." Chang (2000) pointed out that it was very difficult to settle this debate, "partly because the word "credibility" has been employed in many different senses and partly because there has been virtually no success at quantifying the size of the potential credibility gains."

What was absent in the debate was any discussion of the different ways in which dollarization could be designed and implemented to be more effective as a commitment device. In theory, there are N possible ways to dollarize an economy and not all of them have the same expected probability of being reversed (or financially degraded). In theory, the "optimal" dollarization scheme is the one that minimizes such probability (see Cachanosky, Ocampo and Salter, 2023).

Since in modern economies bank deposits account for 80% of the money supply, the banking system is the most obvious "Achilles heel" of any dollarization scheme. For example, in Argentina, checking and savings accounts represent approximately 72% of M2. Even if dollarized, any fractional reserve banking system with a high ratio of inside money to outside money and deteriorating asset quality would be unstable and prone to bank runs. For example, in Argentina currently, credit to the public sector (including the central bank) accounts for approximately two thirds of aggregate credit (in 2022 credit to the private sector was less than 8% of GDP). Even if the economy were to be dollarized, a bank run could lead to a massive

financial crisis and, possibly, forced de-dollarization. Therefore, to be an ECD, dollarization must, among other things, be designed to not only ensure financial stability, but also to minimize the degree of "crowding out" and to prevent the political system from using bank reserves to finance persistent budget deficits. As Romero and Sandoval (2019) pointed out in their review of the Ecuadorean experience, under a dollarization scheme it is advisable to eliminate "any tool of monetary policy" (p.8), which basically means eliminating the central bank.

The relevance of all the above considerations depends on the rationale for adopting the dollar as legal tender (Alesina and Barro, 2001a, p.384). If a country's decision to dollarize is driven by trade considerations, openness and factor mobility would be relevant pre-conditions, but, by definition, the effectiveness of dollarization as a commitment device would be less important (or irrelevant).[4] On the other hand, if the objective is to achieve lasting price stability, which is the case in Argentina, the effectiveness of dollarization as a commitment device is key. In fact, it would be a necessary condition to generate sufficient credibility to drastically reduce inflation.

Twenty years ago, the costs of dollarization were by and large identifiable and quantifiable, while the benefits remained "to be demonstrated (Chang, 2000, p.11)". The only economy in Latin America that had a sufficiently long track record using the dollar as legal tender was Panama, a small economy that for most of its history had been an economic dependency of the United States and therefore not a useful comparable.[5] We now have a substantial, although far from complete, dataset to re-evaluate many of the above issues.[6]

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[4] In fact, in this scenario, signing a trade-agreement with the USMCA would probably be an equally effective commitment device.

[5] The modern literature on dollarization has not fully explored the dollarization experience of many countries in Central America, which in the first half of the 20th century had adopted the dollar as legal tender (See Helleiner, 2003 and 2005 and Schuler, 2005).

[6] Since the nationalization of the canal in 1999, Panama regained its economic autonomy and has become a thriving regional banking center and trade hub. Its experience since then is relevant to address the issues discussed in this paper.

The objective of this paper is twofold. First, to revisit the early 21st century debate on dollarization given the available evidence. Second, to assess whether in the context of Argentina's history and the current macroeconomic and political environment dollarization can be an ECD.

2. Time-Inconsistency Disease and Institutional Anomie

When it comes to dollarization, the key issue is whether it is a "solution" for countries with long history of high, persistent, and volatile inflation such as Argentina, Nigeria, Venezuela, or Zimbabwe. These countries have a long history of failed stabilization plans. A permanent feature of the political system leads to frequent policy or reform reversals (including reversal of Convertibility in Argentina and of dollarization in Zimbabwe). On one hand, policymakers, even if well intentioned, cannot fulfill their policy promises, i.e., they are unable to be temporally consistent.[7] As a result they have no credibility. On the other hand, policymakers have no recourse to any formal or informal mechanisms to convince the public that they will not reverse their policies in the future and thus generate credibility for their policies today.

Such countries suffer from time-inconsistency disease and acute institutional anomie. As we shall see, they are two sides of the same coin. Institutional anomie is one of the reasons why governments cannot resolve the "commitment problem."

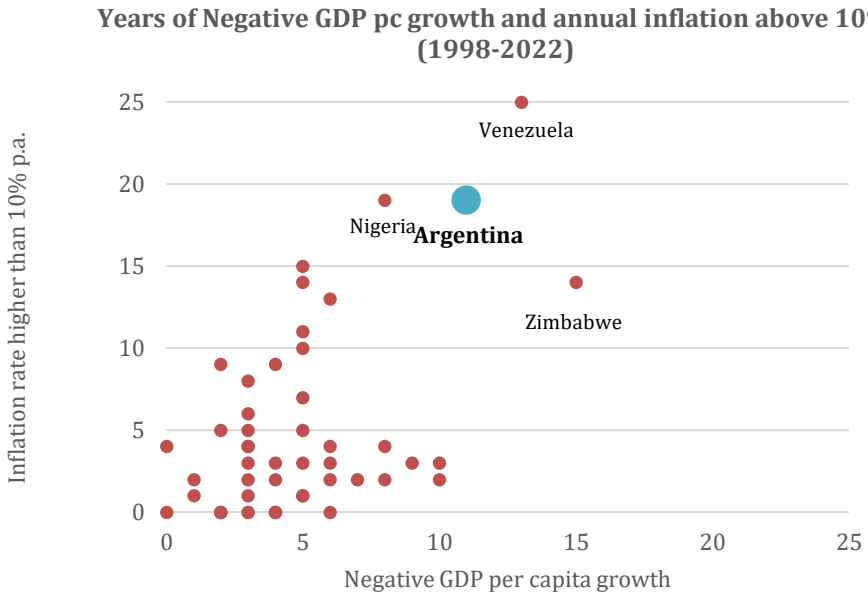
Time Inconsistency Disease

Kydland (2004, 2008, 2014) coined the term "time-inconsistency disease" to describe a situation in which policymakers are persistently unable to resolve the time-inconsistency problem. In other words, countries that suffer from this disease have no credibility and no ECD.

[7] It is important to note that there are several key dimensions to the time-inconsistency problem depending on how the policy "game" is framed and who are its "players", e.g., government versus private agents, national government versus regional or provincial governments, governments versus foreign creditors (private bondholders and the IMF) and current government versus future government.

Under such circumstances, Rogoff's (1985) prescription for solving time-inconsistency – appoint a conservative and independent central banker that retains a certain degree of flexibility– is not realistic alternative. Consequently, inflation may require policymakers to "tie their own hands" with a currency board or currency union (Calvo, 2000, p.4).

In Kydland's view, the main symptom of time inconsistency disease is vanishing credibility and a persistent inability to recover it. The practical effects of this can be visualized in the graph below, which shows for the last quarter of a century, the number of years in which a country had negative GDP per capita growth (horizontal axis) and an annual inflation rate above 10% (vertical axis). The sample includes 49 emerging market economies as defined by the IMF (excluding members of OPEC in the Middle East). Within this sample, in only 22% countries both criteria were met for an aggregate of ten years. Only eight countries had an annual inflation rate higher than 10% over an aggregate of 15 years. Argentina, Zimbabwe, and Venezuela are clear outliers, closely followed by Nigeria.



Of the three countries that dollarized in the 21st century, only two –Ecuador (2000) and Zimbabwe (2009)– seem to have been suffering from time inconsistency disease. Therefore, their experience is very relevant to the discussion.

In Ecuador, dollarization was accompanied by several structural reforms that were reversed under the presidency of Rafael Correa (2007-2017). However, dollarization survived despite several serious demand and supply shocks (and attempts by Correa to reverse or degrade it). The annual inflation rate since 2000 has averaged 4.8% and GDP per capita has grown at annual rate of 1.25%, which in a regional context, is an average performance. This compares to a 36% inflation rate with no growth from 1980 until 1999. Persistent popular support suggests that in Ecuador dollarization was successful not only economically but also politically. Zimbabwe, which in early 2019 reversed its decade old dollarization, provides a counter example. The country's economy has been in a slump for three years and its inflation rate is one of the highest in the world. The experience of Ecuador, El Salvador and Zimbabwe suggests that different levels of democratic development explain whether dollarization can serve as an ECD.

A potential cause for persistent time-inconsistency is the prevalence of hyperbolic discounting among a majority of voters (Thaler, 1981; Laibson, 1997). If electoral democracy works relatively well, it is likely that politicians will act in accordance with the preferences of a majority of voters and that the political process will favor fiscal profligacy, particularly in the form of higher public consumption expenditures. It is also likely that politicians will adopt policies that promote private consumption expenditures at the expense of private investment (see Drometer, 2006; Bisin, Lizzeri and Yariv, 2015). In Latin America such policies have been traditionally associated with populism (see Dornbusch and Edwards, 1991). A recent study confirms that European populism is also characterized "by short termism, the denial of intertemporal budget constraints, the failure to evaluate the pros and cons of different policy options as well as trade-offs between them (Andersen et al, 2017, p.53)." This suggests that by magnifying an economy's structural imbalances (monetary, fiscal, relative prices, exchange

rates, etc.), populism exacerbates the "time-inconsistency disease". A high, volatile, and persistent inflation is one of its clearest symptoms.[8]

As Kydland also pointed out, time-inconsistency disease can be difficult to cure. Only a strong commitment device can restore the credibility of policymakers. But this is in some ways tautological. Chronic time-inconsistency disease can only exist if formal or informal commitment devices are not available. Under such circumstances, even the best-intentioned politicians pay the cost of past misdeeds and lack credibility.

Institutional Anomie

The inability of policymakers to commit to a policy rule is related to another condition that has been seldom explored by economists: anomie. The term dates to ancient Greece but was popularized in the late 19th century by French sociologist Emile Durkheim. Etymologically, it is derived from the Greek word *anomos*, which means lawlessness. In sociology it is defined as a social condition defined by a breakdown of moral values, standards or rules required for constructive social interaction. Argentine jurist Carlos Nino (1992) expanded the concept of anomie and defined it as "massive recurrent illegality", or a situation in which most of the population lives "outside the law."

Nino distinguished between institutional and social anomie. The former concerned the Executive and government officials, while the latter the general population. According to Nino, "dumb" social anomie occurred when non-compliance with existing rules led to collective results that were inferior to those achievable with compliance. Waldmann (2004) argued that the anomic State was common throughout Latin America. In his view, there was no contradiction between anomie and State power.

[8] A history of recurrent sovereign debt defaults is also clear evidence of "time-inconsistency disease".

> State weakness has two complementary aspects: on the one hand, [in Latin America] the State has never been able to impose itself on central aspects of national sovereignty (monopoly of tax collection and force) against the groups of society and individuals that dispute those rights. On the other hand, it has never been able to restrain or discipline its own members and organs, this being partly the consequence and partly the cause of the aforementioned. It's not just ordinary citizens who don't have much respect for the laws, but government officials themselves. States violate them [the laws] regularly (Waldmann, 2004, p.112).

When acute institutional anomie prevails, the Executive Branch it not only does not enforce the law but breaks it when it suits its purposes. In other words, when existing laws constrain its behavior, the Executive Branch either ignores them with impunity or "forces" Congress to change them. This can only happen when *de jure* separation of powers is not operational.

Populism exacerbates time inconsistencies while at the same time destroys or degrades the institutional devices that could help to moderate or eliminate them. In other words, it renders toothless any commitment device under domestic jurisdiction. Chronic time inconsistency and acute institutional anomie are two sides of the same coin, a legacy of persistent populism. Institutional anomie is rarely engendered by occasional bouts of populism. Rather it tends to be a consequence of chronic populism (i.e., successful populism).[9]

Argentina: A Paradigmatic Case

Not surprisingly, Argentina is the paradigmatic case of this condition. Since 1945, in the forty years in which electoral democracy prevailed, populism prevailed two thirds of the time. Kydland (2004) believed Argentina was the paradigmatic case of time-inconsistency disease.

[9] Since 1945, in only 40 years Argentina's presidents were elected by a majority vote and two thirds of the time followed populist policies.

In his view, its origins could be traced to "past hyperinflations, devaluations, deposit freezes and defaults on government obligations". Time inconsistency disease could also explain the country's poor growth performance in the post war era. As mentioned earlier, hyperbolic discounting is one of the factors that may explain time-inconsistency disease. In a recent study of 61 advanced and developing countries, Argentina was an outlier in terms of impatience (Ruggeri et al., 2022). Plenty of past and present anecdotal evidence as well as public opinion surveys suggest that short-termism is deeply rooted in Argentine history and culture (Shumway, 2005; Aguaysol, 2021).

With respect to institutional anomie, Nino (1992) argued that the country suffered an "institutional imbalance" due to the gradual absorption of Congress' normative and legislative prerogatives by the Executive Branch (p.73). In his view, this partly explained Argentina's economic decline since 1945. Waldmann (2004, 2005) agreed that in Argentina social and institutional anomie were particularly strong.

Results from *Latinobarómetro*'s surveys indicate that Argentina has the lowest percentage of respondents who consider judges to be law abiding. In comparison, Uruguay, a country that has a similar GDP per capita, level of education and culture, the differences are significant. Rhodes and Streb (2014) provided further evidence of the judicial impunity of government officials in Argentina.

From the following list could you tell me who do you think are the ones that abide by the law or do you think nobody abides by the law?

Category	Average 17 Latin American Countries	Average Southern Cone	Uruguay	Argentina
Civil servants	7.9%	7.6%	12.3%	6.9%
Legislators	5.6%	5.2%	9.9%	6.4%
Judges	8.8%	8.1%	12.9%	6.6%
Entrepreneurs	6.3%	5.6%	7.7%	6.4%
Politicians in general	5.1%	4.4%	7.9%	6.9%
Police	10.0%	8.9%	12.8%	7.8%
Military	10.7%	10.0%	11.6%	8.6%
Members of your family	17.9%	21.7%	17.5%	25.1%
Nobody	26.6%	26.2%	4.5%	17.3%

No response	2.8%	2.7%	3.0%	7.9%

Source: Latinobarómetro.

These findings are also confirmed by indices of judicial and legislative constraints on the Executive published by The V-Dem Institute. As can be seen in the table below, such indices are significantly lower in Argentina than in any of its neighbors. Interestingly, during the 1900-29 period, the opposite was true, at least with respect to the Judiciary. Constraints on the Executive were also higher than today, which suggests institutional anomie can be cured.

	Legislative Constraints on Executive				**Judicial Constraints on Executive**			
Period	Arg	Bra	Chi	Uru	Arg	Bra	Chi	Uru
1900-29	61%	16%	65%	66%	87%	52%	64%	84%
1930-42	62%	1%	67%	53%	81%	47%	65%	80%
1943-45	20%	0%	64%	84%	78%	46%	68%	82%
1946-55	35%	65%	66%	84%	41%	54%	66%	85%
1956-83	30%	29%	46%	51%	56%	44%	53%	59%
1984-99	68%	81%	80%	89%	66%	86%	85%	89%
2000-20	74%	85%	96%	90%	69%	90%	95%	93%

Source: V-Dem Institute.

The *Latinobarómetro* (2020) surveys also confirm that Argentina also has a relatively high degree of social anomie:[10]

How much do your fellow countrymen abide by the law?

	Average 17 Latin America Countries	**Average Southern Cone**	**Argentina**
Very much	5.3%	3.8%	0.9%
Somewhat	10.0%	14.9%	10.0%
A little	62.9%	64.2%	64.1%
Not at all	21.9%	17.2%	25.0%

Source: Latinobarómetro.

[10] Argentina in fact exhibits the most extreme values when it comes to compliance and non-compliance.

Interestingly, these surveys also confirm that social anomie was less intense in the late nineties. When asked to evaluate how conscious their countrymen are in fulfilling their obligations under the law, responses in Argentina had the lowest percentage of those who are conscious and the highest percentage of those who are not.

The cultural roots of social and institutional anomie can be traced back to the colonial period. Throughout the Spanish colonial empire, the practice of "revering but not obeying the law" became institutionalized (see Fernandez and Monteserin, 2014). During his visit to Argentina in 1833, Charles Darwin observed the anomic nature of the country's inhabitants:

> "Police and justice are quite inefficient… [Argentines] seem to think that the individual sins against the government and not against the people… Nearly every public officer can be bribed. The headman in the post-office sold forged government franks. The governor and prime minister openly combined to plunder the state. Justice, where gold came into play, was hardly expected by anyone." (1839, p.171).

Darwin also noted that these attitudes were related to *caudillismo* (the cult of the strongman), another legacy of the Spanish conquistadors, which in turn, is a key ingredient of populism (see Ocampo, 2018). In a populist regime, the will of the leader (who supposedly incarnates the "will of the people") supersedes any written or unwritten norms or laws. In this sense, populism can be viewed as a regression to a more primitive form of political and social organization: the law of the strongest.

One factor may explain why institutional and social anomie manifested themselves more strongly in Argentina than in other former Spanish colonies. Buenos Aires was not only the capital of the Viceroyalty of the River Plate but also the center of contraband in South America. This left an indelible mark on the culture of its inhabitants:

> Society is brought up to disregard the law; an idea so dominant and ingrained that after a short walk it became a feeling, it became ingrained, perverting the intelligence and morality of the *porteño*.[11] The worst thing about it is that the historian cannot condemn it; a supreme necessity excuses and justifies everything; they [the *porteños*] were forced to foster a pernicious germ that will continue to weaken Argentine society. This explains why they have always preferred men to laws and leaders to ideas (García, 1900, p.208).

Juan Bautista Alberdi, who drafted the country's first constitution, warned that a century of effective enforcement would be necessary to completely eradicate the legacy of the colonial period (Alberdi, 1854, p.57). During the second half of the 19th century, thanks to strong institutional development, Argentina successfully neutralized its effects.

This virtuous institutional evolution culminated with the electoral reform of 1912, which extended the voting franchise. Unfortunately, the election of Hipólito Yrigoyen to the presidency in 1916 reinvigorated *caudillismo*. It is a tragic ironic that Yrigoyen, a champion of electoral reform, would be responsible for reintroducing a cultural trait inimical to liberal democracy. The military coup that ousted him in 1930 marked the end of a virtuous process of development that had transformed Argentina from a backward pastoral country into an economic powerhouse and strengthened the quality of its institutions. During the thirties the stage was set for the emergence of populism, which in many ways incarnated many institutional and cultural features of the colonial system. All that was needed was a catalyst, which World War II provided.

The ascendancy of Juan Perón to power through a military coup in June 1943 firmly established *caudillismo* as a permanent feature of Argentine political life. Thanks to the decisive influence of his wife Eva Duarte, Peronism also institutionalized nepotism, clientelism and

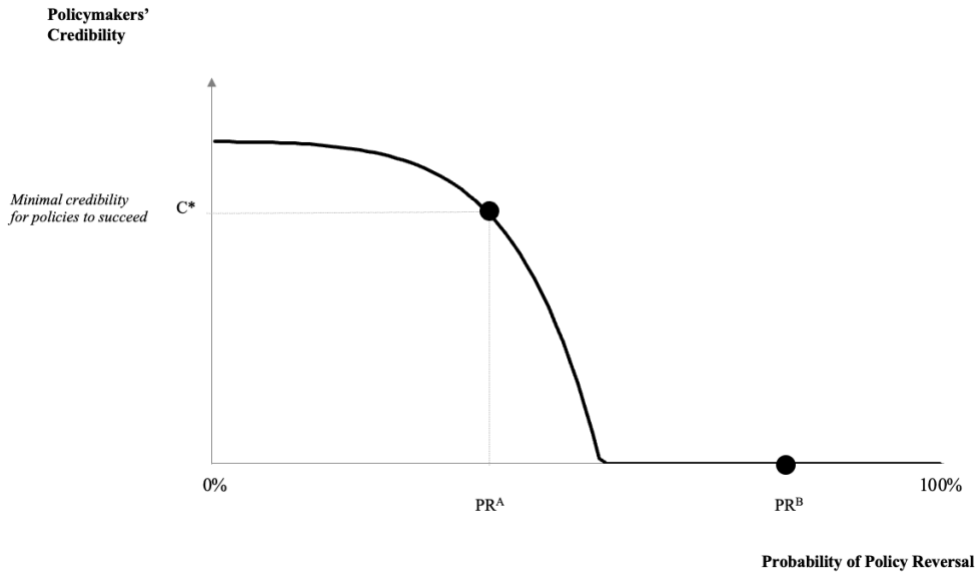
[11] *Porteño* is a native of Buenos Aires.

patrimonialism, vices that were also prevalent during the colonial period. In essence, Perón reinstated many institutional features of the Spanish colonial system and reinforced and promoted cultural values that sustained the regime (Ocampo, 2018). As populism became endemic, anomie gradually coagulated into Argentine culture. A vicious cycle of economic stagnation, financial crises, social frustration, and institutional and cultural degradation followed. Entrenched interests and a weak political system with perverse incentives made populism path dependent. Argentina proves that persistent populism exacerbates the time-inconsistency problem.

3. Dollarization as an ECD: Theory and Evidence

For countries that suffer from chronic time-inconsistency disease and acute institutional anomie, the macroeconomic cost of monetary sovereignty increases because no ECD exists under local jurisdiction. Under such circumstances, even the best-intentioned and best-designed stabilization plans –even if approved by a broad majority in Congress– cannot generate the minimum credibility required for success.

Credibility as a Function of Probability of Reversal



The above graph illustrates this point. For policies to be successful they must have a minimum credibility of C*. Policymakers in developing countries suffering from chronic time-inconsistency disease and acute institutional anomie the expected probability of reversal is too high. They are stuck in a sub-optimal position, PR^B, and therefore have no way of generating sufficient credibility.

Friedman (1972) made the case that, under such circumstances, dollarization (accompanied by the elimination of the central bank) was the best course of action available to policymakers to eliminate inflation. Anticipating the dollarization debate that would take place decades later, Fischer (1982) recognized that "a government that could not control itself might want the discipline of using a foreign money" (p.296). Although, there was "no absolutely guaranteed way of providing discipline for governments determined to avoid it", the discipline imposed "by use of a foreign money is greater than that imposed by fixity of the exchange rate, which is greater than that imposed under a flexible-rate system. This is, therefore, a serious argument for use of a foreign money" (p.300).

One potential ECD for countries that face hyperinflation or high, persistent and volatile inflation is some form of external enforcement.

> In many countries… the combination of economic, social, and political disorder, as well as institutional weaknesses, is such that credibility problems plague not only the economic authorities themselves but also the economic policymaking institutions. The widespread existence of credibility problems confronting national governments suggests that achieving the needed commitment technology solely from domestic sources will often be difficult or infeasible (Santaella, 1993, p.589).

In the 1920s, several European countries resorted to this option with relative success (see Santaella, 1993). More recently, IMF conditionality attempted to fulfill a similar role but was less effective (see Edwards, 1989 and Sachs, 1989). After the fall of Convertibility in 2002,

Dornbusch and Caballero (2002) proposed a rescue plan for Argentina inspired in the League of Nations "Argentina is bankrupt, bankrupt economically, politically and socially. Its institutions are dysfunctional, its government disreputable, its social cohesion collapsed," they wrote. "Argentina now must give up much of its monetary, fiscal, regulatory and asset management sovereignty for an extended period, say five years." Their proposed solution was quite radical: "a board of experienced foreign central bankers should take control of Argentina's monetary policy."

In different degrees, dollarization and currency boards also involve some form of external enforcement. Summers (1993) provided an analogy. "There are many strategies one could take to prevent disastrous results of reckless driving… the currency-board strategy is analogous to removing car accelerators while dollarization is like taking the train (p.32)."

In 1991 Argentina established a currency board. Its success in bringing inflation down rekindled the interest of academics on the subject. In 1993 at a conference organized by the World Bank some of the world's most respected economists discussed the pros and cons of currency boards and dollarization (see Liviatan, 1993). The debate remains relevant today, particularly in the context of time consistency. Allan Meltzer was the only participant to explicitly bring up the issue, but it underlay the arguments in most of the discussions:

> "The improvement that results from a currency board (or some other system of credible rules), depends on the belief that the rule will be followed consistently… If people believe that the policy is time-consistent, they will go to a lower rate of inflation than they would if they believed that the policy was going to be abandoned at some point (ibid., 1993, p.83.)."

Leading the skeptical side, Fischer revisited his 1982 paper. He argued that, on one hand, dollarization and currency boards supposedly enabled "policymakers to impose discipline on themselves, or makes the government more credible than any other system (p.8)", but, on the other, "governments that are determined to break legal arrangements can usually do so (p.10)."

Mundell agreed that there had to be "a confidence-building legal mechanism" to prevent a government from abandoning a currency board when it was convenient to do so. He recognized that even "constitutions can be changed" and therefore proposed the introduction of "some external constraint (p.11)" which he did no specify. Overall, Mundell believed dollarization and currency boards were effective commitment devices:

> "The adoption of an unabrogable currency-board system is a major step. If it means anything, it means monetary and fiscal discipline. If governments move to a currency-board system (or any other unabrogable fixed exchange rate system), budget deficits become possible only to the extent that the public, at home or abroad, buy government securities to finance the deficit. Of course, movement to an unabrogable currency-board system would enormously strengthen the market for government bonds, up to a point of saturation. If fiscal deficits proceed beyond this point of saturation, a default premium will enter into interest rates. Devaluation risk has been removed by the introduction of the currency board, but default risk replaces it. National bankruptcy is the suicide of government, and hence its last resort. That is why fiscal undiscipline always breeds monetary instability. Every government would choose to devalue or otherwise to scrap the exchange rate system, including the currency-board system, rather than face bankruptcy. A rule would have to be made that would prevent a country from avoiding the discipline by overturning the system. A constitutional amendment forbidding borrowing from the Central Bank would remove the incentive for any government to overturn the system, and force governments to fiscal discipline (ibid., p.27)."

The decision of the Argentine government to default in December 2001 and scrap the currency board in January 2002 soundly refuted Mundell's optimistic view. Legal constraints, including constitutional amendments, tend to be insufficiently binding, even for democratic governments. Commitment does not depend so much on legal constraints but on political constraints. As Alan

Cukierman observed during the World Bank debates, "the commitment level is determined by the political cost of breaking it. Different institutions represent different levels of commitment because the different political cost involved in dismantling them. For most, if not all institutions, the commitment is never total in the sense that it is adhered to for some states of nature and broken for other states. A tougher commitment is a commitment such that the range of states of nature in which the commitment is broken is smaller (p.34)."

All these considerations came to the fore in the mid 1990s, when Argentina's Convertibility experienced its first existential threat. At the time, Zarázaga (1995a and 1995b) concluded that currency boards were ineffective mechanisms to resolve time inconsistency:

> "The truth is that currency boards and similar institutions cannot enforce a government's everlasting commitment to low inflation and pegged or fixed exchange rate policies any more than a wedding ring can ensure a spouse's commitment to an everlasting marriage. This weakness is common to other institutions and written laws as well, and its source is the same: ironclad rules do not resolve the basic problem of time inconsistency. This problem lies at the heart of the lack of credibility that haunts policymakers in countries that have frequently broken their commitments in the past. This lack of credibility explains why currency boards are subject to speculative attacks that they can resist without devaluing only at the cost of very severe financial crises. Therefore, depictions of currency boards –or any other ironclad rule, for that matter– as powerful devices that will magically restore investors' confidence and, therefore, prosperity almost overnight and without pain do not help. On the contrary, this optimistic assessment may have the perverse effect of providing policymakers with the incentive to abandon their commitments on the mistaken impression that later, simply by institutionalizing a rule such as a currency board, they can quickly and painlessly restore lost credibility (Zarázaga, 1995b, p.21)."

By the end of the 1990s, partly due to President Menem's announcement, the debate resurfaced but centered exclusively on dollarization. Mundell again argued that dollarization was an ECD, as it would give a country "a rudder for its monetary policy, a stable rate of inflation, and discipline for its fiscal policy (budget deficits are anathema to fixed exchange rates)" (Friedman and Mundell, 2000). Dornbusch viewed dollarization as a way of "'outsourcing' monetary policy and gaining credibility and stability automatically" (IMF, 2000, p.340). In his view, the gains from abandoning the national currency "come in the financial area and derive from enhanced credibility in the exchange rate and hence inflation performance" and are "inversely proportional to its quality, past, current and prospective" (Dornbusch, 2000). In his view, eliminating inflation was a big step "toward pervasive and deep reform."

Velde and Veracierto (2000) analyzed dollarization as a commitment device in the context of the Argentine situation. With a simple model in which the time consistency problem was reduced to the timing of moves between the government (that sets an inflation target) and the private sector (that rationally sets its expectation of inflation given the chosen policy), they showed that by fixing the choice set for the government (zero inflation) dollarization could achieve the best outcome for society. Alesina and Barro (2001, 2002) and Alesina, Barro and Tenreyro (2002) were emphatic about the benefits of dollarization: "if an inflation-prone country adopts the currency of a credible anchor, it eliminates the inflation-bias problem of discretionary monetary policy" (2000, 2001).

Calvo and Reinhart (2001) also came strongly in favor of dollarization. They argued that in emerging markets, where trade is generally invoiced in dollars, liability dollarization is high, and policymakers are not credible, exchange-rate movements are very costly. Floating regimes may be more of an "illusion" and full dollarization "might emerge as a sensible choice for some countries, especially in Latin America." Calvo (2001) emphasized that extensive liability dollarization strengthened the argument in favor of dollarization. Calvo (2002) argued that any flexible exchange system would likely face serious "credibility problems" in countries that have not yet reached "a national accord on the size and nature of the public sector." Under such

circumstances, a non-credible policymaker may have "to tie himself firmly to the mast" to get any lasting results in terms of price stability.

According to Mendoza (2001), dollarization could generate potentially large benefits in developing countries with a long history of monetary and price instability. First, by eliminating price and wealth distortions induced by the lack of credibility. Second, by improving the efficiency of financial markets though weakening informational or institutional frictions that constrained credit to the private sector. Using a model calibrated to Mexican data, he estimated net welfare gains of between 6.4% and 9% of trend consumption through elimination policy uncertainty and 4.6% through weakening credit constraints. He concluded that:

> "Dollarization, the internationalization of the financial system, the creation of strong-currency areas, and the strengthening of institutional and legal arrangements to counter the governments' temptation to display time-inconsistency, could do away both with the risk of collapse of managed exchange rates and with the negative shocks caused by credit constraints that become acutely binding precisely when currencies collapse (Mendoza, 2001, p.37)."

The opposite argument was articulated by Schmitt-Grohe and Uribe (2001), who compared the welfare costs of business cycles in a dollarized economy to those of economies in which monetary policy took the form of inflation targeting, money growth rate pegs, or devaluation rate rules. They reached their conclusion using an optimizing model of a small open economy with sticky prices calibrated to the Mexican economy and driven by three external shocks: terms of trade, world interest rate, and import-price inflation.[12] Schmitt-Grohe and Uribe

[12] The model was calibrated for Mexico, which never dollarized, under the assumption that dollarization was equivalent to a hard peg. However, dollarization potentially entails a regime change, i.e., a change the parameters of the model (Lucas, 1976). It was impossible to estimate those parameters and therefore are not reflected in the results of the model.

concluded that dollarization was the least successful of all the monetary policies considered. In their final remarks they raised several points that are relevant today:

> "In the welfare comparisons presented in this paper, the government is assumed to be able to perfectly commit to the implementation of any of the monetary policies considered. Our results may therefore be regarded as naive. After all, the reason why many observers favor dollarization is its assumed ability to tie the hands of governments too weak to resist the temptation of the printing press. However, the question of commitment could also be turned around: Is it not naive to believe that a chronically undisciplined government would alter its behavior merely because of a change in currency? Would such a government not simply get rid of dollarization at the first strong desire to inflate? Alternatively, would a government that has solved its fundamental fiscal problems not be as prepared to stick to dollarization as to any other low-inflation monetary policy, particularly if the alternative policies yield higher welfare? (pp.27-28)."

In further support of their argument, Schmitt-Grohe and Uribe also raised the issue of conflicting fiscal policies at the national and provincial levels. Based on Argentina's experience with provincial quasi-monies during the Convertibility Plan, they claimed that, even under dollarization, a government could "reintroduce domestic currencies almost effortlessly and clearly do not need to create a central bank first. The most likely scenario is that the Treasury department will simply print low-denomination government bonds and use them to pay for current government expenditures. Thus, all that is needed is a printing press and some government obligations." As a result, they concluded that "the superiority of adopting a foreign currency over other conventional monetary arrangements as a commitment mechanism should not be taken for granted (p.29)."

These arguments seem compelling and are worth examining given the available evidence. The Ecuadorian experience provides some answers. Dollarization initially brought fiscal discipline but in the medium term it was not able to constrain populism and/or eliminate fiscal profligacy and sovereign defaults, which undoubtedly contributed to unimpressive rates of growth of GDP per capita. However, it did reduce the macroeconomic cost of populist policies.[13] Ecuador's annual inflation rate has averaged 3% (even lower than in the US in recent years) and, up until now at least, a large majority of the population supports maintaining the US dollar as legal tender. Correa tried to directly and indirectly circumvent the financial constraints imposed by dollarization. He temporarily achieved this objective by "appropriating" bank reserves and selling expensive forward oil contracts to China. However, he failed in his attempt to introduce a digital currency. His successor and erstwhile vice president, Lenin Moreno, who took office in 2017, had no option but fiscal austerity (see Cachanosky, Salter and Savanti, 2022).

With respect to the issuance of provincial quasi-monies, it has been a recurrent problem under both fixed and floating exchange rate regimes (see Theret, 2020). The important point is that the monetary impact under dollarization would be very different than an under a currency board. A dollar issued by the U.S. Federal Reserve Board will never have the same value of a dollar denominated short-term note issued by an Argentine provincial government that overspends (unless the note carries an interest rate that reflects default risk.) If the domestic banking system is fully liberalized and cannot be forced to accept provincial quasi-monies at face value, their issuance would simply entail an automatic reduction of provincial government expenditures in dollar terms, which would obviously have serious political consequences.

Cooper and Kempf (2001) analyzed dollarization as a commitment device in the context of a protracted conflict between national and provincial fiscal authorities: "The central monetary

[13] A back-of-the-envelope calculation suggests that in Ecuador, dollarization reduced the cost of populism in terms of the annual real GDP per capita growth by an amount equal to between 0.6% and 1%. A more precise calculation would require a properly calibrated model.

authority in Argentina lacks commitment power relative to the regional governments. Consequently, the monetary authority must find a way to commit to not financing the regional fiscal deficits" (p.11). However, they concluded that dollarization could serve as "a commitment device and thus eliminate the inflation bias created by decentralized monetary policy." In turn, Gale and Vives (2002) analyzed dollarization as a commitment device in the context of recurring banking crisis and moral hazard. They concluded that dollarization might be able to "alleviate the commitment problem faced by a central bank" when the costs of establishing a reputation for the central bank are and the risk of moral hazard is moderate or low.

Although generally not sympathetic to dollarization, Chang and Velasco (2002) raised a very important point that is sometimes overlooked in the debate. The theoretical potential losses of seignorage caused by dollarization are irrelevant except unless in the context of a realistic and viable set of options available to policymakers to stabilize the economy:

> "The lesson is that the numerous calculations of the seigniorage that would be lost with dollarization are meaningful only in conjunction with some explicit or implicit assumption about the policymaking process and, in particular, of the credibility problem that may be affecting policy. Only in the absence of such credibility problems one can assert unambiguously that the loss of seigniorage would, in fact, be a loss. If there is a credibility problem, the interpretation is much more problematic and, as we have argued, the loss of seigniorage may in fact be beneficial in welfare terms (p.19)."

In Chang and Velasco's view, if credibility is absent and dollarization works as a commitment device, "the welfare impact of dollarization is ambiguous, and seigniorage measures and Mundellian criteria may be misleading indicators of the true cost of dollarization". The option to dollarize the economy may be valuable if a government is incapable of generating credibility. However, the question cannot be settled theoretically: "even if a government suffers from poor

credibility, and even if dollarization would improve credibility, it is not necessarily the case that dollarization is desirable. Whether dollarization is preferable to flexible rates in such a situation has to be demonstrated empirically".

Based on Argentina's experience with the currency board regime, Grandes (2002) argued that dollarization was not the best policy "to improve fiscal discipline and push forward structural reforms." Therefore, one of its "most valuable" benefits –a reduction in country risk premium– would fail to materialize. As will be explained below, a currency board regime is different in important respects from a dollarization regime. Therefore, any conclusions about the latter, particularly if drawn from the Argentine experience, have limited value. We now have more evidence to test whether country risk spreads fall with dollarization, but a definitive answer is still elusive. Ecuador has shown that populism is viable under dollarization and populism tends to be associated with higher country risk spreads. It is not easy to disentangle the effects of each factor.[14]

Guidotti and Powell (2002) argued that unilateral dollarization was sub-optimal since it would not eliminate the devaluation risk. In their view, in the case of Argentina, the credibility of dollarization depended critically on signing a monetary treaty with the US which ideally should include a) a seignorage sharing agreement, and b) a backstop liquidity facility. Undoubtedly such a treaty would bolster the credibility of dollarization. However, it proved politically unviable in the US under an administration that was generally sympathetic to dollarization. Also, the experience of Ecuador and El Salvador show that unilateral dollarization is resilient even in the face of adverse internal and external shocks.

Mazarski (2009) argued that dollarization not only served as a commitment device but also, and more importantly, as a signaling device that reduced macro uncertainty. In his model there

[14] A recent study by Mari del Castro and Gomez Puig (2017) found that in Latin America country risk spreads, a) tend to be affected more by global than domestic factors, b) tend to have higher impact on economic activity in non-dollarized countries.

are two types of government: good and bad. The former conducts optimal policy while the latter prefers to finance higher (than optimal) government expenditures by printing money; information is asymmetric, *ex ante* voters cannot discern the type of government they have, and the policies of the bad government are sub-optimal. Uncertainty does not allow a good government to achieve the first-best outcome even if it implements an optimal monetary policy. By dollarizing, the good government eliminates uncertainty about the type of government it is (the bad government would never dollarize) and achieves the first best allocation. Basically, dollarization plays the role of a signaling device rather than a commitment device.

Cabral (2010) analyzed the impact of real shocks on a small open economy operating under two opposite corner solutions: a flexible exchange rate and official dollarization. Using an asymmetric two-country model, he demonstrated that although dollarization can generate credibility and achieve price stability, a small open economy might be better able to absorb shocks under a flexible regime. Although this is theoretically plausible, the argument falls into a Nirvana fallacy. First, it assumes not only that a flexible exchange rate regime is attainable, but also that an independent central bank exists and will adopt optimal rules of intervention. These are strong assumptions. First, in emerging markets "fear of floating" prevails, particularly in countries such as Argentina (see Calvo and Reinhart, 2002). Second, central bank competence and independence tend to be the exception rather than the rule (this has certainly been the case in Argentina).

Also, the evidence does not necessarily support the argument in favor of flexible exchange rates, particularly for countries suffering from time-inconsistency disease and institutional anomie. As pointed out by Dornbusch (2001) in these countries, "exchange rates have been the dominant instrument of destabilization." In the last twenty-two years, the Ecuadorean economy sustained several real shocks: the global financial crisis and a sovereign debt default in 2008, a reversal of the commodity cycle from mid-2012 until early 2017, an earthquake in 2016, a sovereign debt default in 2020, the covid-19 pandemic in 2020 and a political crisis in 2022. We can compare its performance in terms of inflation and growth to Peru, which during this period had

a managed floating regime, and Argentina, which experimented with a variety of regimes and economic policies (see Garofalo and Streb, 2022). Ecuador underperformed the former and outperformed the latter.[15] However, given that Peru did not suffer the consequences of a decade of virulent left-wing populism, the comparison with Argentina might be more relevant.[16]

Based on a comparative analysis of populism in Argentina and Ecuador, Cachanosky, Salter and Savanti (2022) concluded that while one cannot universally assert dollarization "improves economic and political outcomes—institutional contingency rules out such a sweeping claim—it can perform a useful role in credibly constraining the state from populist policy excesses".

Cachanosky, Ocampo and Salter (2023) highlighted certain design features that would make dollarization more effective as a commitment device: 1) closing the central bank, and 2) liberalizing the banking sector, and 3) ensuring bank reserves cannot be used to finance recurrent fiscal deficits. With chronic time inconsistency disease and acute institutional anomie, the effectiveness of dollarization as a commitment device in the short-term may depend critically on such design features. However, in the medium and long-term, electoral support provides the most effective insurance against reversal.

The Evidence

In the three countries that dollarized in the 21st century, governments at some point attempted to reverse dollarization a) directly, with the introduction of a new currency, or b) indirectly, by degrading its financial integrity. The first strategy only proved successful in Zimbabwe, where in March-April 2019 the government implemented de-dollarization (following Argentina's 2002 playbook). It is important to emphasize that when the Zimbabwean government

[15] The volatility and lack of durability of foreign exchange regimes in Argentina is indicative of the magnitude of the underlying time-inconsistency and the absence of mechanisms to resolve it.

[16] A country can have dollarization with or without populism. The results are different. The evidence suggests that dollarization reduces the macroeconomic cost of populism.

announced dollarization in 2009 it made it clear that it viewed it as a transitory measure, leaving the door open for the re-introduction of a domestic currency as early as in 2012 "if the macroeconomic situation allowed" (IMF, 2011, p.18). This announcement obviously rendered dollarization less effective as a commitment device. Not surprisingly, the macroeconomic imbalances that led to the unsustainability of dollarization in Zimbabwe had a fiscal origin:

> "The resumption of large fiscal deficits financed by issuing quasi-currency instruments that were not convertible created substantial economic distortions, ultimately forcing the authorities to abandon the dollarized system and adopt a new domestic currency in early 2019. During 2016-18, off-budget quasi-fiscal activities, unbudgeted agricultural programs, and wage bill overruns proliferated, with budget outcomes significantly worse than approved budgets (IMF, 2020, p.5)."

The experience of Ecuador yields valuable lessons. Rafael Correa had opposed dollarization as a professional economist (Correa, 2004), as Minister of Economy (2005) and as a two-term President (2007-2017). He was the most popular president in his country's history and managed to amend the Constitution to get re-elected for a second term. However, he never attempted to reverse dollarization openly (although he tried indirectly). It wasn't because Ecuador's dollarization had been optimally designed but due to the simple fact that the dollar was more popular than he was (Calderon de Burgos, 2007). The same voters who overwhelmingly re-elected Correa in the 2013 election, wanted to continue earning their salaries in dollars. In early 2015, eight years into Correa's presidency, opinion polls showed that 85% of the Ecuadorian population was in favor of maintaining the dollar as legal tender (BBC, 2015).

Correa failed in his attempts to de-dollarize the economy with the introduction of a central bank digital currency (see Arauz, Garrat and Ramos F., 2021). However, he successfully undermined the financial viability of dollarization by appropriating bank reserves to finance growing fiscal deficits (see Romero and Sandoval, 2019 and Erráez and Reynaud, 2022). These measures

imposed a heavy burden on the Ecuadorean economy that have severely constrained its long-term growth prospects.

In the case of El Salvador, President Nayib Bukele's attempts to replace the dollar with bitcoin also failed given the resistance of the population (see Alvarez, Argente and Van Patten, 2022). As in the case of Ecuador, these efforts had a significant impact. Since the approval of the Bitcoin Law in September 2021, El Salvador's country risk premium has averaged 1,150 basis points, compared to an average of 658 basis points during the presidency of Bukele until then.

These experiences strongly suggest that keeping a non-independent central bank after dollarization makes it easier for politicians to reverse it and/or degrade its financial integrity, and in the process damage its credibility and limit its effectiveness (see Cachanosky, Ocampo and Salter, 2022). The reason is simple. Freezing bank deposits and appropriating bank reserves are two of the most effective measures to de-dollarize and the central bank is the most efficient tool to implement them. However, as already mentioned, the most effective deterrent to the reversal of dollarization in Ecuador and El Salvador proved to be the public, which refused to adopt the new currencies that the government tried to introduce.

In Ecuador, the crisis of Argentina in 2002 was fresh in the mind of presidents Lucio Gutiérrez and Rafael Correa when they pondered whether to reverse dollarization (El Nuevo Herald, 2003; BBC, 2015).[17] The experience of Zimbabwe confirms that reversing dollarization in the face of deep fiscal imbalances: real GDP per capita contracted 7.8% in 2019 and 6.9% in 2020, and the annual inflation rate, which averaged 4.5% during the period 2009-2018, increased to 521% in 2019 and has remained on of the world's highest since then.[18]

[17] In contrast with Correa, Gutiérrez, who initially opposed dollarization, has become one of its most vocal advocates (see La Prensa, 2021).

[18] De-dollarization doesn't necessarily need to be traumatic if done by a fiscally responsible government at non confiscatory foreign exchange rates (Helleiner, 2003). This was the case in most Central American countries after World War II. As an example, in the Dominican Republic, Dictator Rafael Trujillo reintroduced the Dominican peso in 1947 after almost four decades of having the dollar as legal tender.

In a relatively well functioning electoral democracy, a politician intent on forcibly replacing the dollar with a domestic currency would face several obstacles. First, the opposition of a majority of the population.[19] Second, the serious logistical complications of introducing a new currency. Third, a significant and negative economic impact on economic activity.[20]

In contrast to a currency board, reversal of dollarization not only hurts bank depositors but the entire population. Everybody would feel its impact since the government would not only redenominate bank deposits but also "take" dollar bills out of people's pockets.[21] Politicians can estimate *ex ante* the electoral cost of doing so through public opinion polls. As mentioned earlier, Correa did and deemed it too high.

The importance of logistics cannot be underestimated. If the banking system is financially integrated to the rest of the world, the longer it takes a government to introduce a new currency the lower the probability that de-dollarization can achieve its intended objectives. As the recent collapse of Silicon Valley Bank shows, technology has made it much easier to move money from one bank to another. Depositors can anticipate the government's intention to reverse dollarization by transferring their savings abroad. Relocating bank reserves offshore and putting them beyond the reach of the government would also make it more difficult to de-dollarize.

Although it is impossible to reduce the expected probability of reversal to zero, there are certain design features that can significantly reduce it in the short term. Such features would include:

In the following decade, the domestic inflation rate did not significantly diverge from that of the United States.

[19] To the extent that reversal of dollarization entails violating property rights, the legal costs might not be insignificant. However, in the presence of institutional anomie they can be deemed irrelevant by politicians considering reversal. Even if the constitutional separation of powers and the rule of law are operational, judicial decisions take time and the final cost is unlikely to be borne by the public officials that decided dollarization (in fact, taxpayers will end up paying the cost of adverse verdicts).

[20] The key issue is the reason behind de-dollarization (see footnote 17).

[21] Reversal of dollarization means salaries will no longer be paid in dollars.

1) the elimination of the central bank, 2) the creation of an independent bank supervisory and regulatory agency to ensure financial stability, 3) the privatization and relocation of bank reserves to a safe jurisdiction to prevent their appropriation by the political system for deficit financing (as Correa did in Ecuador), 4) a full liberalization of the banking system and capital flows (financial integration). Ocampo and Cachanosky (2022) provide a blueprint for such a dollarization scheme. Guidotti and Powell (2002) argued that a monetary treaty with the US was a necessary condition to obtain the full benefits of dollarization and reduce the probability of reversal. While this is undoubtedly true, two observations can be made. First, such a treaty has already proved politically unviable in the US (and probably would not be politically feasible in Argentina). Second, Ecuador and El Salvador have proved the resilience of unilateral dollarization.

The experience of Panama, Greece, Ecuador, and El Salvador shows that in the medium and long-term, the best insurance against reversal in a working democracy is the electorate. In contrast, the experience of Zimbabwe also shows that in a fledgling electoral democracy such insurance does not exist, and that the existence of a non-independent central bank facilitates de-dollarization. Available data on institutional quality seems to support this hypothesis. However, further research is needed to assess how decisive is this factor. Given the traumatic experiences of Argentina (2002) and Zimbabwe (2019), any politician would think twice before attempting to reverse a dollarization.

Country	Index of Electoral Democracy (2000-21)	Index of Judicial Constraints on the Executive (2000-21)	Index of Central Bank Independence (2000-12)	Index of Financial Integration (2000-2020)	Survived?
Zimbabwe	27.5	0.43	0.45	0.22	No
Ecuador	59.3	0.31	0.68	0.68	Yes
El Salvador	64.2	0.61	0.67	0.87	Yes
Panama	74.7	0.60	n.a.	1.00	Yes

Source: V-Dem Institute, Garriga (2016) and Chinn-Ito (2020). The IED is scaled from 1 to 100.

4. The Case of Argentina

In Argentina economists and policymakers are again debating the advantages and disadvantages of dollarization. Given the experience of 2002, one of the key issues being discussed is whether dollarization would be more effective as a commitment device than Convertibility.

Years before the demise of Convertibility, Zarázaga argued that the track record of a country was "far more important for policy credibility than the particular label (central bank or currency board) of the institutions that conduct policy (1995a, p.9)." He also warned about the ineffectiveness of a currency board or any other "ironclad" monetary rule.

Given the country's dismal track record, if no ECD exists under local jurisdiction, this conclusion leaves little hope that policymaker will ever reduce inflation, least of all under a regime in which the peso survives. The notion that it would be possible to establish a track record gradually to gain credibility without an ECD is illusory.

The notion that ironclad rules are ineffective is refuted not only the experiences of Ecuador, El Salvador and Panama but also by Argentine history. The monetary reform of 1899 –by which Argentina effectively joined the gold standard– imposed previously unattainable fiscal and monetary discipline on policymakers for almost three decades. It is worth comparing this regime with Convertibility to try to understand why it was an effective commitment device.

Why did the 1899 Monetary Reform Succeed?

Argentina ended the 19th century with the world's worst abuser of inflationary finance. During the first eight decades of Argentine monetary history, which formally started in 1822, there were only two brief periods of stability and several deep crises, most notably in 1874 and 1890. A depreciating and volatile currency was "almost part of the normal life of the Republic [of Argentina]" (Martinez and Lewandowski, 1911, p.330-32). At the end of the 19th century, time-

inconsistency was high and institutional anomie prevailed. As a London based financial journalist explained:

> "Argentina, on the other hand, is one of the most unfortunate victims of parliamenteering run wild. It is governed not by administrators, but by professional politicians. Everything in its national life, whether industrial, commercial, or financial, begins and ends in politics… There is all the difference in the world between a well-considered policy carried out by capable single-minded administrators, and a parody of the same after it has been hacked and pulled about by politicians who have a score of other objects in view than the one professedly aimed at (Lawson, 1899)."

After the 1890 crisis, which brought down the venerable House of Barings, all hope of monetary stability in Argentina was lost. To many foreign observers, the Argentine government's manifest inability to responsibly manage its fiscal and monetary affairs did not bode well for the future and threatened to derail the country's extraordinary economic expansion. One foreign observer pessimistically warned "that so long as Argentines are allowed to retain the undivided control of the administration, that faith will not easily be restored… The Argentine is incapable of administering anything –financial affairs least of all." The solution to this problem was to "let able and honest resident Europeans step forward and take in hand the control of affairs which are in jeopardy, so long as they are managed by men with whom governor is but a synonym for robber, and government but a system of organized rapine, political obfuscation, and terrorism" (Turner, 1890, p.344,345).

At the turn of the century, a scholar of Argentine monetary history pointed out that inconvertible paper money had "served the official finances of all times as a contribution required from the country in difficult circumstances of its political life" (Pillado, 1901, p.1). Juan B. Justo, the founding father of Argentine socialism, described the country's monetary history as "regrettable". In his view the inconvertible peso was "a curse for the people" and monetary

instability a "calamity directly attributable to governments, which, with the unconsciousness of children, have played with the most elementary laws of currency, or have violated them with the conscience of villains" (Justo, [1921], pp. 30, 36-37).

Despite this poor track record, in November 1899, the Argentine Congress approved a monetary reform that tied the peso to gold through a currency board scheme. However, when it was announced, it was met by skepticism in London. An article in *Banker's Magazine* by the influential columnist W.H. Lawson –who for years had closely followed Argentine financial affairs– considered Argentina's *Caja de Conversión* a "clumsy" copy of India's convertibility scheme. He described it as the zenith of "a long line of quack remedies" and predicted with confidence its inevitable failure:

> "[The reform] is a new folly to be reckoned with in forecasting the future of Argentine finance. That it will be a fiasco, so far as the currency is concerned, requires no saying, but it may be powerful for mischief in other directions. It is all the more exasperating that such follies should be perpetrated in a period of unexampled prosperity, when there is less excuse for them than ever before… All who are interested in Argentine finance know that that is the indispensable virtue which it lacks, which it has never had except for very short intervals, and which may soon have to be given up in despair as an impossibility. The Argentines themselves appear to be utterly unable to comprehend the supreme importance of sound money in the commercial economy of nations… if the national treasury were managed with a tithe of the regularity and integrity which characterise the administration of the foreign-owned banks and railways, there would be very little trouble with the currency… It would seem as if the Argentines, before they hit on a true solution of the monetary problem, must exhaust all the possible fakes and fallacies (Lawson, 1899)."

Despite Lawson's dire warnings and the fact that the *Caja de Conversión* started its operations without gold reserves, in a short period of time the Argentine peso became one of the strongest currencies of the world. As Della Paolera and Taylor (2001) have noted, one of the key elements of this reform was "the degree of independence from political interference granted to the Conversion Office. The monetary authority was to be administered by a board of five directors chosen by the executive branch, each subject to approval by the Senate, and all appointed to a term in office of five years. This was a clear and transparent attempt to enhance the credibility of the institution by keeping it at arm's length from the various branches of the government that might interfere with or apply pressure to the monetary authority as a way to seek fiscal or monetary policy relief in hard times. The plan was successful in this respect" (p.120). In other words, an effective commitment device under Argentine jurisdiction was found. Institutional anomie was neutralized.

Ford (1962) argued that the gold standard "worked" in Argentina for two reasons, one exogenous and the other of a political economy nature. The first is that it didn't face a critical test until mid 1913 and was abandoned a year later. In other words, it was a "fair weather" regime. Secondly, according to Ford exporters and the land oligarchy controlled the political system and it was in their interest that the regime survived. According to Ford, for a primary export economy with a large foreign debt burden such as Argentina, adherence to the gold standard accentuated boom and bust cycles. In his view, before 1914, "the landed and export producing oligarchy, aided by the particular economic and political structure, willingly abandoned or adopted the gold standard whenever it was to their benefit and profit (Ford, p.169)."

Bordo and Kydland (1990) conjectured that political stability was a main factor that explained why the gold standard was so durable, particularly in the UK and the United States. In their view, countries fraught with unstable internal politics found it difficult to refrain from running budget deficits, ultimately financed by paper-money issue (e.g.., Italy and Argentina), although the benefits of convertibility likely placed some constraints on their behavior." (p.32). Another

factor that explains the durability of the gold standard, according to Bordo and Kydland, was the centrality of England. This could also help why it was important for Argentina, whose economy was closely tied to England's, to adhere to it. However, Argentina abandoned the gold standard almost two years before England did.

However, neither the abandonment of the gold standard in 1914 in the midst of a financial crisis, nor the emergence of a new power structure in 1916 significantly altered Argentina's monetary situation. In fact, despite the severe economic contraction in 1917-1918, between 1914 and 1927 was "strict adherence to the [monetary] rule [implied by the gold standard] … There was no wild recourse to money printing" (Della Paolera and Taylor, 2001, p.197). It is important to note that there was a shift in political power. During this period, Argentina was governed by the Radical Party, which represented the interests of urban middle classes. In other words, even though the 1899 law was effectively repealed in August 1914, Argentine policymakers continued to adhere –albeit less strictly– the principles of fiscal and monetary orthodoxy. As British historian H.S. Ferns observed, in the first three decades of the 20th century, "as a measure of value and as a store of value the Argentine peso was comparable on the exchanges to the Swiss franc, the pound sterling and the United States dollar (1992, p.272)." One could argue that the "true" Argentine economic miracle started in November 1899, when Argentina managed to achieve lasting price and currency stability for the first time in its short history.

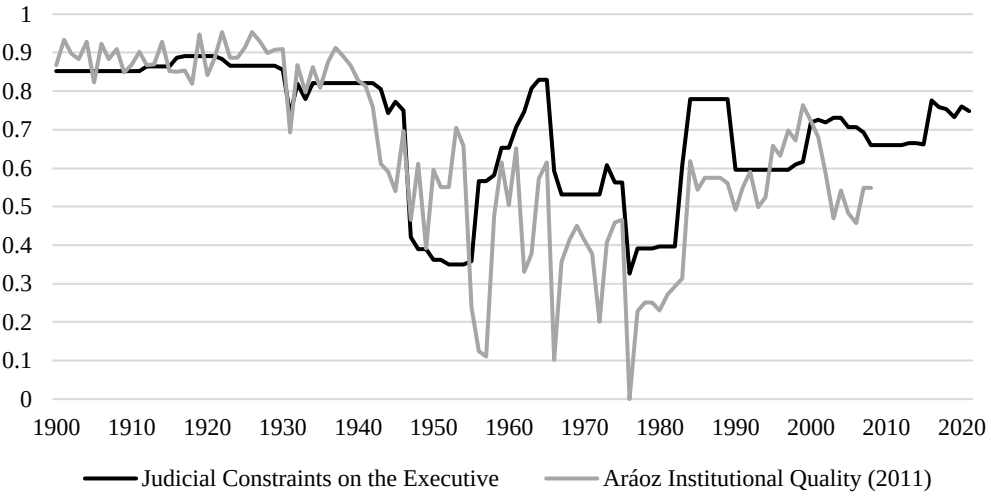
The Argentine monetary and fiscal situation started to change with the Great Depression and, especially, after 1935, with the creation of the central bank (BCRA). Although the gold standard was abandoned at the end of 1929, two years passed before there was an unbacked expansion of the money supply (Salama, 2000, p.10). According to Della Paolera, in 1930 almost 80 percent of the money base was backed with gold, a ratio significantly higher "than in any other gold standard country." (2001, p.192). And even during the worst years of the Great Depression, Argentina maintained a "basic orthodox fiscal stance" (ibid., p.193). The first clear sign of a regime change took place in April 1931, when the *Caja de Conversión* started rediscounting operations (ibid, p.188).

Be it as it may, until 1942, Argentina's inflation rate did not diverge much from that of Australia, Canada, Great Britain, and the United States. During this period the Central Bank had mixed ownership and remained relatively independent. Its prudent counter-cyclical management of monetary policy before the war was internationally praised (League of Nations, 1944, pp.84-85).

The June 1943 military coup led by Juan D. Peron and a group of young military officers was a major turning point in Argentina's history. Under his leadership, in a short period of time the country returned to its wayward ways. By 1946 Perón had completely abrogated the independence of the central bank and made the inflationary tax a recurrent source of deficit financing. Since then, the only lasting period of price stability occurred between March 1991 and December 2001.

As Bordo and Kydland (1990) observed, the gold standard "represented a commitment technology preventing the monetary authorities from changing planned future policy." The main reason it worked for Argentina is that during the period 1900-1929 the rule of law and the constitutional principle of separation of powers –particularly as it relates to the independence of the judiciary– carried more weight than today, even though the quality of electoral democracy was weaker (voting franchise was more restricted). Institutional degradation started with the 1930s military coup and deepened with the 1943 military coup, but it was only after the democratically elected Peron dismissed the judges of the Supreme Court in 1947 that institutional anomie reared its head and became a chronic feature of Argentine life (for the impact of this decision on institutional quality see Alston and Gallo, 2010). Empirical studies lend support to the hypothesis that institutional degradation started in 1930 and accelerated after 1943 (see graph below).

Argentina: Indices of Institutional Quality (1900-2022)



Source: Aráoz (2013) and V-Dem Institute.

Why did Convertibility fail?

It is important to distinguish the factors that contributed to Argentina's economic crisis of 2001-2002 from the factors that explain why the Convertibility was not an ECD. They are related but conceptually different. A crisis can trigger demands for reversal of a currency board regime but whether those demands are met depends on political and institutional factors.

Regarding the origins of the crisis, economists have mostly focused on growing imbalances in provincial finances, deteriorating fiscal sustainability at the national level, appreciation of the real exchange rate, currency mismatches in the banking sector, vanishing credibility, impact of foreign shocks, etc. (see Fanelli, 2002, Mussa, 2002; Hausmann and Velasco, 2002; Calvo, Izquierdo and Talvi, 2003; Della Paolera and Taylor, 2003; Damill, Frenkel and Juvenal, 2003; De la Torre, Levy Yeyati and Schmukler, 2003, Galiani, Heymann and Tommasi, 2003, López Murphy, Artana and Navajas, 2003; Powell 2002; Schuler, 2003; Kiguel, 2011; Cavallo and Cavallo Runde, 2017 and Teijeiro, 2022).

Another strand of research focused on institutional design. Hanson (1993) and Hanke (2002a, 2002b and 2008) argued that Argentina's Convertibility was not an orthodox currency board.

"Its deviations from currency board orthodoxy allowed it to behave more like a central bank than a true currency board in many important respects" (2002, p.2). In his view, the Argentine central bank sterilized inflows of foreign capital, i.e., engaged in discretionary monetary policy, which could not happen under an orthodox currency board. Therefore, Hanke argued that it would be a mistake to conclude "that currency boards are inherently dangerous and bound to end in Argentine-like upheavals" (2008, p.56). In my view, however significant were these deviations from orthodoxy, they don't explain why Convertibility was reversed in such a traumatic way.

With few exceptions, economists did not place much weight on political and institutional factors. Powell (2002) made the case that a double vicious cycle of political risk "fed through to worsened economic fundamentals and these fed back to increased political risk." Della Paolera and Taylor (2003) emphasized how the political dimension of the conflict between the National government and that of the Province of Buenos Aires contaminated the banking system and contributed to a lethal deposit run. Corrales (2002), a political scientist, argued that "two political shocks killed Convertibility: infighting between the Executive and the ruling party, and the 'toughen-as-you-sink' policy experiment undertaken by the IMF and the U.S. Treasury."

Institutional flaws magnified the impact of these shocks and made the reversal of the Convertibility Law politically viable: 1) a president that had publicly opposed the currency regime but had not been elected by voters in a proper election, 2) an electoral system that weakened the link between voters and legislators, 3) pervasive institutional anomie (an Executive used to disregarding or ignoring the rule of law), 4) lack of an independent central bank, 5) high dollarization of bank deposits (almost 75% of total deposits), and 6) high concentration of dollar deposits in a relatively small number of individual holders (less than 600.000 holders of deposits of more than US$3,000). Institutional anomie also helps explains why Argentina ceased to have an independent central bank in April 2001. Had the independence

of the BCRA been preserved, it is unlikely that the Executive would have been able to proceed with unilateral pesification.

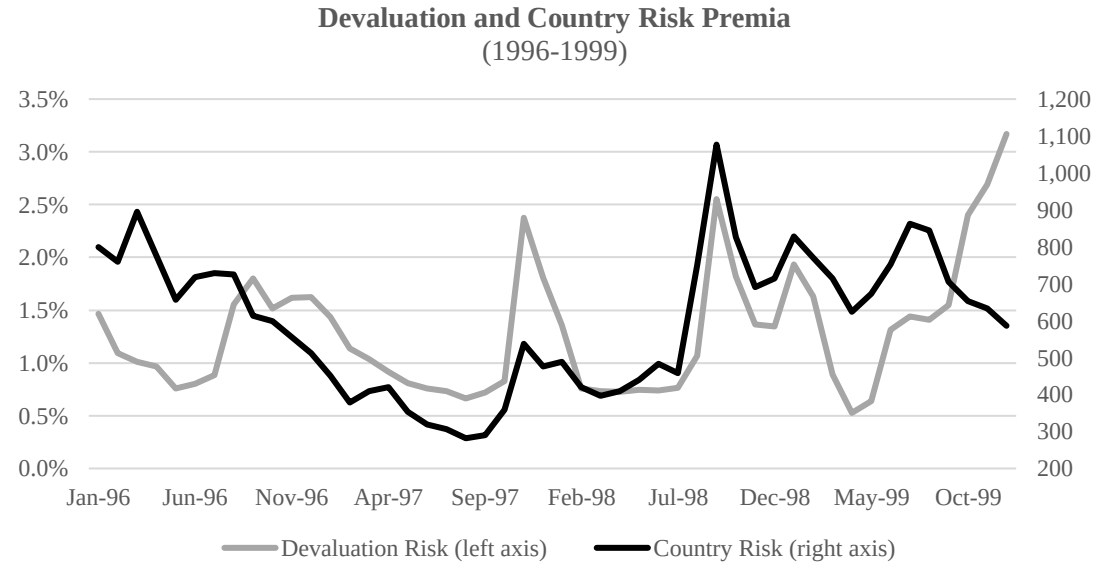
At the time Convertibility was launched in 1991, the public believed that a law approved by Congress seemed like a sufficient guarantee against politicians' attempts to reverse it. Having experienced democracy for only seven years, at the time most Argentines still believed in the separation of powers established by the constitution. However, by design, the Argentine electoral system (particularly the so called *lista sábana* or closed party list ballot) ensured that legislators are not beholden to voters but to the governing party bureaucracy. Although the 1994 constitutional reform made improvements by limiting the ability of the Executive to appoint or remove Supreme Court justices, the prior enlargement of the Supreme Court to align it to the interests of the Executive Branch. Under President Menem the practice of politicizing the appointment of judges, particularly at the federal level, became institutionalized. Weakened *de jure* and *de facto* legislative and judicial constraints opened the doors for the Executive Branch to take arbitrary measures.

Despite these institutional developments, the Convertibility Plan successfully confronted its first existential test in early 1995 with the "Tequila Crisis." However, despite this success doubts started to emerge about its long-term viability:

> A currency board does not magically restore the credibility of a country's economic policies, as some advocates claim. The reason is because currency boards can be abandoned. When investors fear a government is about to abandon its currency board, they take their capital out of the country, and financial panic typically ensues, as it recently did in Argentina. In such circumstances, the armor against devaluations that a currency board supposedly provides becomes a suffocating straitjacket society and their governments will be tempted to cast off (Zarázaga, 1995a, p.9).

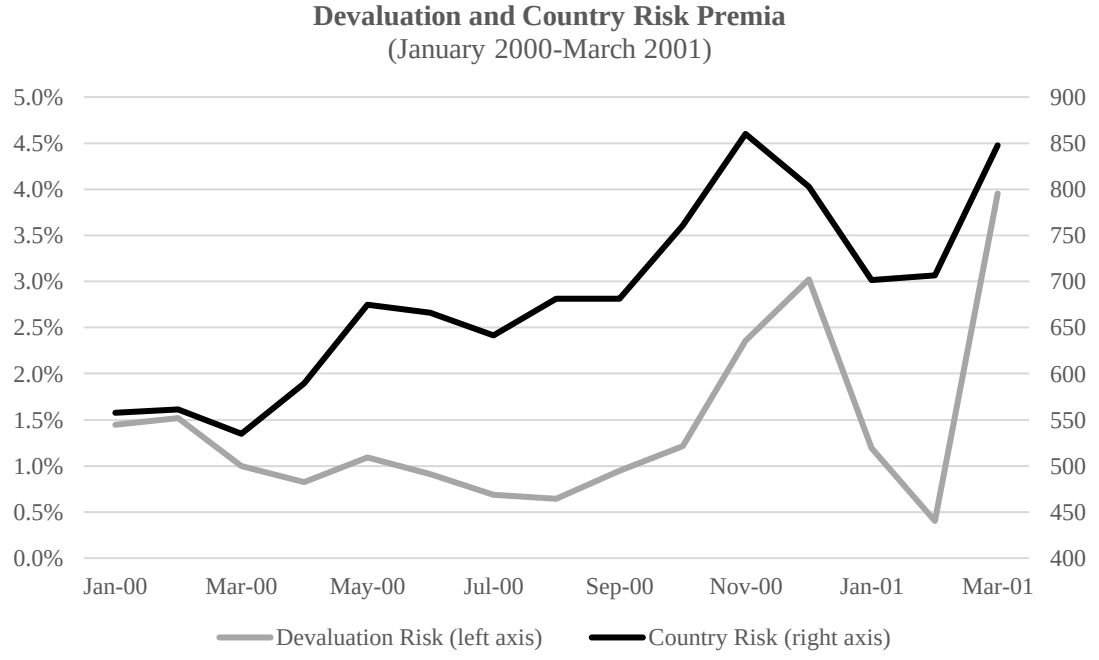
This warning proved wrong in 1995 but prescient in 2001. A succession of foreign exchange crises in South-East Asia (1997), Russia (1998) and Brazil (1999) put a dent on capital inflows to emerging markets and limited Argentina's growth prospects. With a looming change of government, domestic politics, which challenged the sustainability of the currency regime, became an increasing source of uncertainty. Particularly damaging in this regard was the strong and public opposition to Convertibility within Menem's own party led by Eduardo Duhalde, his most likely successor. He had the support of powerful industrial groups and union leaders.

Aware of the problem, President Menem doubled down and in early 1999 he announced the government was considering an official dollarization, a project his economic team had been working on since 1997. Menem encouraged his ministers to accelerate the implementation of the initiative by paying salaries to public employees in US dollars (La Nación, 1999). But the political dynamics generated by a looming election worked against dollarization. Both presidential candidates reacted unfavorably, and the project was soon abandoned.



Source: Central Bank of Argentina and J.P. Morgan.

Fernando de la Rúa of the opposition *Alianza* coalition won the presidential election in November 1999 partly because he publicly supported Convertibility.[22] In contrast, his opponent and eventual successor, Eduardo Duhalde of the Peronist Party, had openly voiced criticism of the currency regime and even advocated a sovereign debt default. The *Alianza* was deeply divided about Convertibility. Former President Raul Alfonsín, who had the support of most of the UCR's leadership, publicly railed against the currency regime. In an interview he gave in October 2000 he said that the 1930 military coup and Convertibility were "the two gravest" episodes in Argentine history in the 20th century. He considered the currency board "a deadly trap" (La Nación, 2001). Alfonsín's diatribes echoed the complaints of several industrial groups that since 1999 had been lobbying for a devaluation of the peso (Fair, 2017). As Corrales (2002) has pointed out, "until the last days of the De la Rúa administration, the most relentless critic of the government's economic policy was the ruling coalition itself."



Source: Central Bank of Argentina and J.P. Morgan.

[22] Formed in 1997, the *Alianza* was a center-left coalition led by the UCR, Argentina's oldest political party, and that also included FREPASO (*Frente País Solidario*), formed in the mid 1990s by dissident "progressive" factions of the Peronist Party, and the Socialist Party.

Alfonsín's public criticism of Convertibility coincided with the resignation of Vice President Alvarez. The ensuing political crisis highlighted deep fissures between De la Rua and the *Alianza* and triggered a bank run that with varying degrees of intensity would not stop until December 2001. Ironically, the reappointment of Domingo Cavallo, the "father" of Convertibility, as Economy Minister in March 2001 undermined the regime's credibility. In 1999 Cavallo had publicly stated that the Convertibility Law needed to be modified to allow the peso to float (Lapper, 1999).[23] Not surprisingly, his appointment fueled expectations that the currency regime would change which were reflected in a significantly higher devaluation risk premium. One of Cavallo's first measures was to fire the president of the Central Bank which not only made "a mockery of central bank independence" but also further eroded the "already shaky reputation of institutions in Argentina" (Powell, 2002). As a result, the devaluation risk premium crossed the 10% threshold for the first time since the Tequila crisis. Two months later Cavallo confirmed investors' worst fears when he successfully pushed through Congress an amendment to the Convertibility Law that changed the parity of the peso to an average of the dollar and the euro.[24] He also announced a subsidy to exporters that resulted in an effective devaluation of the peso. It was evident by mid 2001 that the currency board was not an ironclad regime as investors had originally believed. To make matters worse, the restructuring of government debt increased the banking system's overall exposure to the public sector at a time investors had serious doubts about its solvency. By mid-July 2001, the devaluation risk premium reached its highest level ever.[25] The defeat of the *Alianza* in the October legislative elections sealed the fate of Convertibility.

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[23] At the time, Cavallo's statement had a significant positive impact on the devaluation risk premium (see Schmukler and Servén, 2002).

[24] If Convertibility had survived, the inclusion of the euro would have led to a stronger appreciation of the peso, which was what these measures aimed to correct.

[25] As Corrales (2002) has pointed out, the confluence of external and domestic political shocks forced Cavallo "to try every possible gimmick" to save Convertibility. It is a tragic irony that the key decisions he took during 2001 contributed to the opposite result. For Cavallo's own interpretation of the crisis see Cavallo (2002b).

The events of December 2001 and January 2002 confirmed that in Argentina the decisions of a sitting president, even if arbitrary can prevail over any formal or informal constraints. A glaring example of the degree of institutional anomie was the fate of the so-called "Intangibility of Deposits" law, approved in literally three minutes by a majority of the Argentine Senate in August 2001. This law was meant to increase depositors' confidence in the banking system by protecting their right against any attempt to confiscate them by the government. It was hoped that this measure would prevent the steady deposit withdrawals that had started in October from turning into a full-fledged and lethal bank run. In reality, it only served to fool depositors for a while. On January 7, 2002, the Argentina government froze all deposits and then forcibly converted all dollar deposits into pesos at a below market rate, which entailed a capital loss of at least 30%.[26] Eventually, the Supreme Court ruled that this measure was unconstitutional but very few depositors benefited from this ruling (see Marval, O'Farrell y Mairal, 2004 and Clarín, 2017).[27]

Chang (2000) presciently pointed out that the Argentine government "could end its currency board system virtually overnight if it wished to." The only barrier to reversal was the immense popularity of Convertibility among voters. However, this factor was not such a strong deterrent. First, due to the design of the electoral system, legislators, particularly in the largest districts, have more allegiance to the party bureaucracy than to actual voters. Secondly, the unfortunate resignation of President De la Rúa, created a major political crisis and elevated Eduardo Duhalde to the presidency without an electoral mandate.

Without radical changes in the institutional and electoral framework, a currency board regime will remain a suboptimal commitment device for Argentina. Convertibility is different from

[26] The government basically converted dollar bank deposits into pesos ("pesified") at an exchange rate that resulted in a confiscation. As it is usually the case in Argentina, the mechanism to repudiate the law was an emergency law approved by Congress.

[27] The nationalization of the private pension fund system in 2008 –which implied a significant confiscation of private savings– is another clear example of institutional anomie.

dollarization in an important respect which made it particularly vulnerable to reversal: the bi-monetary nature of the banking system. With the passage of time, and partly due to decreasing credibility, financial dollarization increased. At the beginning of Convertibility, dollar denominated M3 was 33% of total M3, but by November 2001, the percentage had doubled and deposits in US dollars represented 75% of total bank deposits. As pointed out by Della Paolera and Taylor (1997, 2001 and 2003) there is a potential lethal inconsistency between any fixed exchange rate regime such as a currency board, and a fractional reserve banking system with a) a high ratio of inside money to outside money, and b) a large currency mismatch in its balance sheet. As a result, external convertibility is unsustainable if internal convertibility is in doubt due to the deteriorating quality of bank assets. On the other hand, internal convertibility is unsustainable if fears of devaluation increase. This inconsistency would be eliminated under dollarization because external convertibility disappears (outside money is the US dollar). However, even if dollarized, a banking system prone to originating bad quality assets (aka *gaucho banking*) will pose a threat to financial stability.[28]

The probability of reversal of a currency board regime with a bi-monetary system increases with declining credibility, which inevitably leads to increased financial dollarization and a growing devaluation risk premium. But as dollar denominated bank deposits grow in importance, so does the political temptation to confiscate them, particularly if they are concentrated in a relatively small number of individual holders. At the same time, with a growing currency mismatch on the asset side, doubts about the sustainability of the parity of the peso put into question the soundness of the banking system and can trigger a bank run.

[28] Narrow banking, or any other variant of the 100% reserve system, is not a viable option for Argentina, least of all in the context of dollarization and current circumstances. There are three major objections. First, it would increase its financial cost (it would be necessary to replace M1 as opposed to the monetary base). Second, it would lead to a significant credit contraction as banks would not be able to raise the necessary capital to sustain current levels. Third, it could lead to costly and lengthy litigation, which would generate doubts about reversal and thus undermine credibility.

Reversing Argentina's currency board required not only devaluing the peso but also freezing and then forcibly converting dollar deposits into peso deposits at a below market exchange rate (essentially equivalent to imposing a capital levy).[29] The magnitude of the political cost of doing so was directly related to how many voters held those deposits, which in December 2001 amounted to US$ 42.3 billion. According to official figures, individual holders (i.e., excluding legal entities) accounted for 50% of this amount and were broken down as follows: 67,441 checking accounts; 3.5 million savings accounts; and 1.1 million CD accounts.[30] The level of concentration of these deposits was high. The total number of depositors with a balance of US$3.000 or more in their account was as follows: checking accounts, 14,320; savings accounts, 549,800; and time deposits, 903.376. These deposit holders bore the brunt of the government's decision to abandon the parity of the peso. The amounts effectively confiscated by the government can be estimated at US$13 billion from holders of dollar deposits and US$4.5 billion from holders of peso deposits. From an electoral standpoint, individual holders of bank deposits denominated in US dollars represented approximately 18% of registered voters.[31] While it is true that holders of peso denominated deposits also suffered a loss in US dollars, 30% of such deposits were held by less than 100,000 individual accounts. Given that the devaluation risk premium increased considerably after July 2001, holders of peso deposits could not hold any illusions about their eventual dollar value.

The reversal of the Convertibility Law in January 2002 suggests that strong voter support for a currency board regime will not be an effective deterrent against reversal if: a) institutional anomie prevails (i.e., the Executive Branch acts arbitrarily and faces weak judicial or legislative

[29] Measured in US dollars, the losses suffered by holders of peso denominated deposits were identical to those of dollar denominated deposits.

[30] In contrast, the figures for peso denominated deposits as of December 2001, were as follows: 1,139,522 individual holders of checking accounts, 8,855,364 individual holders of savings accounts and 160,039 individual holders of time deposits.

[31] In the 2003 election, Ricardo López-Murphy, a right-of-center politician got slightly over 3 million votes, which probably included most of the victims of the government's confiscation.

constraints), b) financial dollarization is high, c) dollar deposits in the domestic banking system are held by a relatively small percentage of voters, and, d) the central bank is not independent. The figures provided above, which were available at the time of reversal, suggested the political cost of reversing Convertibility was not prohibitive since traditional voters of Peronism were under-represented among the holders of dollar denominated deposits.

It is also important to point out that given the resignation of President De la Rúa in December of 2001, the electoral system did not serve as an effective disciplining mechanism on his successor.[32] Duhalde reached the presidency without having been elected by voters. Unlike De la Rua, he did not believe in Convertibility and, more importantly, had the support of a majority of the Peronist Party, most labor union leaders and powerful business groups that had been actively lobbying for a devaluation of the peso since 1999.

The other deterrent to reversing Convertibility was its expected negative impact on economic activity. At the end of 2000, Dornbusch that a devaluation of the peso would accomplish little and would destroy the banking system (Dornbusch, 2000). This advice was ignored. In hindsight, it seems Alfonsín, Duhalde and the many economists, businessmen and politicians who supported them underestimated the consequences of devaluing the peso. In his first press conference Duhalde's Economy Minister Remes Lenicov, citing as precedent the experience of 1967, stated that the planned devaluation of the peso would have "a reactivating effect" on the economy (La Nación, 2002). In fact, as pointed out by Edwards, (2002), "the minister referred to a historical precedent. Although he was then very young, he said, he remembered that in 1967 a 40 per cent devaluation had been highly successful; it did not generate inflation and the value of the peso stabilised rapidly." Two months later, public officials at the Ministry of Economy reaffirmed "their confidence" that the drop in GDP would "not be greater than 4.9%" (Oviedo, 2002). Remes Lenicov resigned a month later. His estimates turned out to be widely

[32] As Cavallo (2002a) has forcefully argued, what happened in Argentina in December 2001 can be described as a civil and bloodless *coup d'etat*.

off the mark: during 2002 GDP fell by a staggering 11% (higher than in 1930) and the poverty rate exceeded 50%, setting historical highs.[33]

Several factors may have contributed to this error. First, the Brazilian devaluation in early 1999, which was followed by a rapid recovery.[34] Second, during 2001, several foreign "experts" argued that a devaluation and an orderly sovereign default would have a stimulating effect on an economy that had stagnated for almost two years (see Zarázaga, 2003). Be it as it may, Argentine politicians were able to deflect the blame for the 2002 recession to Convertibility itself.[35]

An important lesson from Convertibility is that in countries which the political system has incentives to spend excessively and pro-cyclically and suffer from acute institutional anomie, any currency regime with a bi-monetary banking system will be inherently unstable and likely to be reversed. The bifurcation of the economy (and the banking system) effectively reduces the electoral coalition that would supports the regime while simultaneously establishing the basis for a confiscating coalition.

Why did the *Caja de Conversión* regime last longer than Convertibility? The table below compares the institutional environment under which each regime operated. Although the quality of electoral democracy was lower during the 1900-1929 period, indices of judicial constraints on the Executive Branch and compliance with the Supreme Court and Judicial

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[33] Argentina's GDP per employed person grew 23% between 2002 and 2005. However, Zarázaga (2006) estimated that it should have grown by about 35% during this period.

[34] By mid 2001 the evidence in emerging markets suggested that devaluations were contractionary in the first year and slightly expansionary afterwards with any real effects disappearing rapidly (see Edwards, 1985 and Kamin, 1988). The most immediate precedent was Brazil's devaluation in early 1999, which was followed by a rapid economic recovery (for Brazil's devaluation and recovery in 1999 see Fraga, 2000 and Gruben and Welch, 2001). There were many obvious reasons why the Brazilian experience could not be extrapolated to Argentina, particularly the high levels of dollarization in the banking system. However, some well-known economists suggested otherwise (Krugman, 2001).

[35] Besides this tangible economic cost, the disorderly exit of Convertibility also inflicted significant damage on the country's institutional fabric. The government infringed property rights with impunity.

decisions were higher (in other words, institutional anomie was weaker). Another important factor to consider is that during 1900-1929 the banking system was not bi-monetary, i.e., assets and liabilities were denominated in pesos.

Caja de Conversión versus Convertibility

	1900-1929	1991-2001
V-Dem Indices		
Electoral Democracy (0 to 1)	0.4	0.8
Judicial Constraints on the Executive (0 to 1)	0.9	0.6
Legislative Constraints on the Executive (0 to 1)	0.6	0.7
Compliance with High Court Decisions (1 to 4)	3.1	2.6
Compliance with Judiciary (1 to 4)	3.2	3.1
Aráoz		
Institutional Quality (0 to 1)	0.9	0.6
Independence of the Judiciary (1 to 10)	10.0	6.2
Independence of the Monetary Authorities (1 to 10)	8.6	7.6

Source: Aráoz (2011) and V-Dem Institute.

Can Dollarization work in Argentina?

The events of January 2002 confirmed that in Argentina a currency board regime will not serve as an ECD. The key question is whether the same conclusion applies to dollarization. Economists generally lump them together (see for example Dornbusch, 2001) but there are significant financial and institutional differences between them that are relevant in the context of reversal. As Powell (2021) pointed out, the "experience of the currency board is only partially informative regarding the possible success of dollarizing."

First, as observed by Mankiw (1998) and proven by the Argentine experience, under a currency board regime, the central bank can abandon the parity when facing a crisis of credibility, whereas this would be impossible under dollarization. Second, as noted by Chang (2000) and proven by the experience of Ecuador and El Salvador, it is "much more difficult" to reverse official dollarization than a currency board. Among other things, de-dollarization requires

creating demand for a new domestic currency, a problem which proved insoluble to both Correa and Bukele.

Despite this evidence, for a variety of reasons most Argentine economists oppose dollarization. The traumatic end of Convertibility has a significant weight in this opposition. According to Nicolini (2022) Argentina has not had sound monetary policies "since the early 1960s, except during Convertibility". Consequently, it would be understandable "if someone came from abroad to tell us that what we should do is to dollarize because for 48 of the last 60 years we have used monetary policy in a perverse way. And the only decade where we used it in a non-perverse way was with Convertibility, which is also a way to lose control of monetary policy." Although he admits dollarization could "completely" eliminate inflation it would be unadvisable because it would leave fiscal policy as the only stabilization tool (Nicolini, 2021). This would supposedly be a problem because fiscal policy has been "destroyed" (policymakers have proven to be incapable of using it effectively).

If Argentine policymakers have proved incapable of using fiscal policy and monetary policy effectively, it would logically follow that it makes sense to look for an alternative. Argentine history shows that any policy rule would be better than arbitrary and ineffective discretion. However, in Nicolini's view, the ideal way of reducing inflation "given the circumstances, is with explicit controls on the amount of money." He does explain why such policy would be credible given Argentina's political dynamics and, more importantly, given that it was implemented during the Macri administration with disastrous results.

Uribe (2022a and 2022b) also opposes dollarization. Although it could bring inflation down it but would so at high cost in terms of "real volatility" and with a substantial loss of seignorage (which he estimates in the US$1.5-3 billion range).[36] Also, dollarization would be an explicit

[36] In relative terms the estimate is not high. It would represent approximately 0.5% of potential GDP, which is a relatively low cost to achieve price stability and establish firm conditions for sustained economic growth. Also, it assumes dollarization is forever.

admission that "we cannot give our Central Bank independence and we need to delegate monetary policy to a foreign Central Bank that designs its monetary policy without taking us into account."[37] As an alternative to dollarization, he proposes establishing central bank independence from "the first day of the next administration and without waiting for the Treasury to achieve fiscal sustainability" (Uribe, 2022a). Given that, a) historically the main enemy of central bank independence has been the Minister of Economy, and b) a law approved by Congress would not be effective in maintaining it, according to Uribe the president must become its "guarantor" (Uribe 2022a).

Such a proposal seems optimistic given that the only period of central bank independence Argentina had since 1943 ended in April 2001 with an arbitrary presidential decree issued by (probably) one of the most law-abiding presidents in history.[38] Also, it seems unrealistic to believe that any reputable economist would accept the position of Minister of Economy without having full control of the BCRA. Finally, given the realities of Argentina's electoral calendar, it is hard to believe that even a well-intentioned and determined president could be a more ECD than a well-designed dollarization scheme.

According to Sturzenegger (2023) dollarization has three very important disadvantages. First, seignorage losses, which he estimates at 10% of GDP. This number doesn't make any sense. Under dollarization, the government would only have to exchange the monetary base for existing international reserves. The loss of seignorage would be the opportunity cost of investing such reserves, i.e., which under any reasonable assumptions would range between

[37] It is not clear why such recognition is a problem to the extent it is reflective of reality. Recognizing one's limitations is the key to being able to resolve a persistent problem.

[38] Indices of central bank independence can be misleading. For example, two recent studies by Garriga (2016) and Romelli (2022) suggest that in 2012, the Argentine Central Bank was more independent than the US Federal Reserve. Reality is very different from whatever the statute or charter of the central bank says. As Cukierman, Webb and Neypati (1992) explained in their seminal paper, "the actual independence of the Argentine central bank is substantially lower than the legal indicators imply" (1992, p.363). In other words, *de facto* independence is significantly lower than *de jure* independence.

0.5% and 1% of GDP annually.[39] Second, Sturzenegger argues that the dollar moves in the exact opposite direction in which the peso should optimally move "because when a global crisis occurs, the peso would appreciate instead of depreciating." However, Ecuador's experience since 2000 suggests that this concern is overblown. Sturzenegger's argument falls into a "nirvana fallacy." He assumes that a realistic alternative to dollarization is a flexible exchange rate regime with an independent central bank that follows optimal intervention rules, something that has rarely happened in Argentina. Finally, and most importantly, Sturzenegger believes dollarization can be easily reversed. "In Argentina anything can happen", he concludes. "And, if it [dollarization] is reversible, then it would not generate the credibility improvement that we long for."

While it is true that almost anything can happen in Argentina and that it would be dangerous to underestimate the power of the "devaluation lobby", a properly designed dollarization can significantly reduce the risk of reversal in the short term. It would be wrong to conclude that dollarization would be easily "reversible" based solely on the experience of 2002. Second, as explained above, another effective deterrent to reversing dollarization would be the negative impact it would have on economic activity. Finally, while it is true that, as pointed out by Velde and Veracierto (2000), in a sovereign nation "no commitment device is absolute", in anomic and fiscally profligate countries proper institutional design can make dollarization the most effective commitment device available to policymakers.

Conclusions

In two centuries of Argentine monetary history, price and currency stability have been the exception rather than the rule. The peso was stable only when a) its value was fixed to an international standard by law, or b) there was a competent and independent central bank (only

[39] The caveats raised by Chang and Velasco (2002) when estimating the seignorage losses generated by dollarization are applicable to all these arguments.

in two periods, May 1935-June 1943 and September 1992-April 2001). The experience of 2002 shows that given high levels of institutional anomie –a legacy of enduring populism– any monetary and banking regime in which the dollar co-exists with the peso –such as Convertibility– will be inherently unstable and highly vulnerable to reversal, therefore unlikely to be credible.

The dynamics of the electoral calendar and Argentine politics make it very unlikely that even a well-intentioned and determined president will be able to stabilize prices and complete all the necessary reforms needed to put the economy on a path of sustainable growth if the peso survives. As long as central bank independence remains chimerical, the intersection of macroeconomically and politically viable stabilization plans is an empty set.

It would be naïve to assume that something will radically change Argentine politics any time soon without an external disciplining factor. It is hard to believe that any other monetary regime can impose a stricter discipline than dollarization. Convertibility proved that eliminating inflation is the only policy that consistently garners the support of a majority of voters. Therefore, achieving price stability is a necessary pre-condition for completing a program of fiscal adjustment and structural reforms, which will inevitably take time.

In a relatively well functioning electoral democracy, in the medium and long-term the best insurance against reversal of dollarization is strong voter support. This was the case in Ecuador, where dollarization has lasted more than two decades despite major flaws in its design and having suffered the impact of several shocks. In El Salvador, dollarization has also resisted the attempts of a populist leader to relax its financial constraints. Although neither country has reached a macroeconomic nirvana, it is hard to argue they would be better off had they kept their own currency. Even with a decade of virulent populism, Ecuador has grown faster and with a significantly lower inflation rate than Argentina, which during this period experimented with populism and a variety of discretionary policies and currency regimes. However, in the short-run, certain design features can strengthen the effectiveness of dollarization as a

commitment device. By enhancing credibility these features can help to deliver more rapidly lower inflation and economic growth, which in the medium and long-term will strengthen the "electoral insurance" against reversal. Over time, both elements virtuously reinforce each other to reduce the probability of reversal.

In a country like Argentina that has experienced for decades high, persistent, and volatile inflation, low or negative GDP growth, high levels of *de facto* dollarization and low credibility due to time-inconsistency disease and institutional anomie, a well-designed dollarization scheme offers the best, and possibly only, hope for lasting price stability and growth. In such scenario, to propose a flexible exchange rate regime in which an independent central bank follows an optimal intervention policy is dangerously naive.

Chronic populism has pushed Argentina into a sub-optimal situation in which there is a very limited menu of viable options to stabilize the economy with any chance of success. Among such options, dollarization offers the most realistic chance of delivering lasting price stability and sustained economic growth. As to the costs it might entail, it is hard to imagine they could be higher than those imposed by discretionary policies, particularly in the case of Argentina.

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