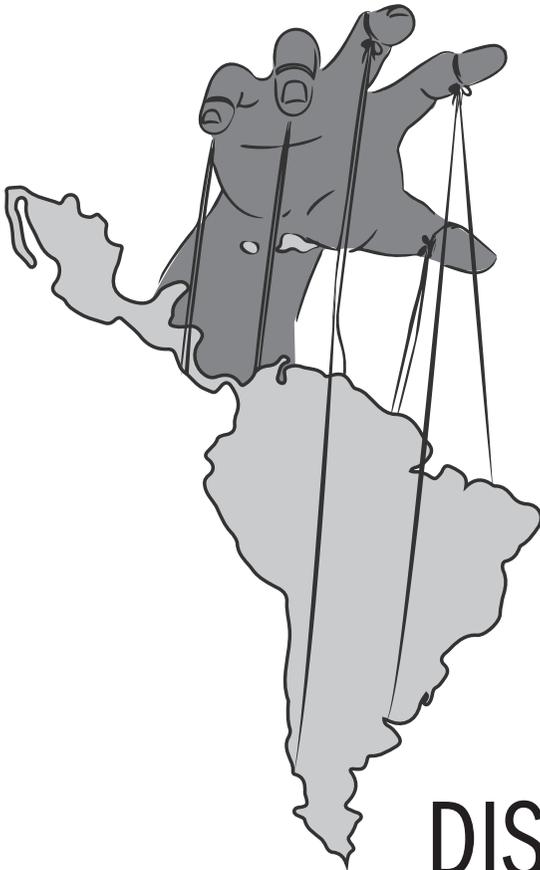


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Monetary Policy and the Exchange Rate as a Shock Absorber

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ABSTRACT

This article seeks to analyze some of the options available to Emerging Market Economies (EMEs) when deciding their monetary and exchange rate policies. In particular, what are the benefits and costs when they choose to have the exchange rate as the shock absorber. I argue that although there are costs of having a more variable exchange rate, in general the benefits more than outweigh these costs. The main benefit is precisely that the exchange rate makes a faster adjustment when the structural conditions of the economy change. I also study the case of Chile since it adopted a full-fledged inflation-targeting scheme in 2001. In this country the exchange rate is the shock absorber, and has moved when structural conditions have shifted. Notably, in Chile long-term interest rates have shown significant stability, while the volatility of the exchange rate has not been higher than that of other EMEs.

I. INTRODUCTION

During the 1990s and 2000s, several Emerging Market Economies (EMEs) adopted inflation-targeting frameworks for their monetary policies. Chile went on board in the early 1990s just after the law granting autonomy to the Central Bank of Chile (CBC) was passed. Inflation at that time was close to 30 percent, and the newly independent central bank decided to gradually bring down inflation until it matched the levels of developed economies. This process took about a decade (Figure 1), and in 2001 the CBC decided to have a permanent inflation target of 3 percent with a tolerance range of ± 1 percent.

A full-fledged inflation-targeting scheme requires, among other things, that the central bank have the necessary instruments to meet the target and that there are no conflicting goals.¹ Before 2000, this was not the case in Chile, since there were explicit targets for the exchange rate that could, on some occasions, compete with the inflation target. Indeed, until that year, there was an exchange rate band in place, and the CBC was committed to maintaining it through interventions in its limits, although it could also intervene inside the band.

When the exchange rate is allowed to float freely, it becomes the adjustment variable. If there is a negative external shock

such as a capital flow reversal or a decline in the terms of trade, it translates into a depreciation of the domestic currency. However, the fact is that many countries that have adopted inflation targets are not willing to let their exchange rate move freely, including both resource-rich economies in Latin America, Asian EMEs, and advanced economies where capital flows are the more prevalent external shock. It also happens that some economies present a significant degree of dollarization. In such cases, abrupt movements in the exchange rate can produce financial instability and inflationary disturbances as well.

In the next section, I review briefly the different trade-offs EMEs face when deciding on the shock absorber variable in their macroeconomic frameworks. Section III discusses the pros and cons of having the exchange rate as said shock absorber. Finally, in Section IV, I discuss the case of Chile, with mentions of some other Latin American countries as well.

II. MONETARY POLICY OPTIONS

In the classical Mundell-Fleming trilemma, if there is free capital mobility, it is not possible to have simultaneously a fixed exchange rate and control of monetary policy.² Hence under open capital accounts, central banks have to choose whether to control monetary policy or the exchange rate. If they decide to have control over monetary policy, then the exchange rate will be the adjustment variable or shock absorber. On the other hand, under a fixed exchange rate they will be unable to control monetary policy, and thus that will become the adjustment variable. There is also a third option, which is to close the capital account or to introduce some controls so as to have a partially open capital account, without totally free movements of capital.

In Latin America, many countries have moved to more flexible exchange rates. Additionally, most have fully or partially

abandoned capital controls, which have become increasingly difficult to use in a globally integrated world. Chile is a case in point. Back in the 1990s, the Central Bank had an explicit inflation target but was not willing to allow the exchange rate to float freely, keeping the exchange rate within a band. The forces at that time were for a more appreciated domestic currency, meaning that the exchange rate was functionally pegged to the top of the band. However, the experience of the debt crisis of the early 1980s, in which an appreciated currency led to a substantial current account deficit and to a debt buildup, produced big concerns of a possible new crisis that could follow a major appreciation of the peso. The quasi-fixed exchange rate, in practice, eliminated exchange rate risk, inducing even more capital inflows.

As those inflows were sterilized to meet the inflation target, they produced massive losses for the CBC. Most of the evidence³ for that episode shows that controls were either useless, or at best only marginally efficient in reducing capital inflows. At the central bank at that time the feeling was that they had some effect at the beginning, but as time passed markets found a way to avoid them. It is interesting to note that the instrument was enhanced several times during this period as markets were finding loopholes that had to be closed. All this ended in the late 1990s when the Asian crisis erupted, capital flows diminished, and the exchange rate depreciated. Since then, there have been no capital controls in Chile.

That said, it is important to mention that, after the Global Financial Crisis, capital controls are back in the economic discussion, mostly related to macroprudential policies. The IMF has softened its earlier vision on controls, and some EMEs have imposed them.⁴

III. THE EXCHANGE RATE AS A SHOCK ABSORBER

Why is it that many countries are so reluctant to have the exchange rate as a

shock absorber? One argument is that the volatility of the exchange rate may produce adverse effects on the real sector. As the real exchange rate is a key relative price, which in the short term is often determined by the nominal exchange rate, then the volatility of this key price will send confusing signals to the market, damaging the real economy. Another argument has to do with the foreign exchange debt of corporations and households. In particular, if these sectors are heavily indebted in foreign currency, a real depreciation of the local currency produces an increase of the debt burden and might end up in bankruptcies, with a negative effect on the overall economy. The debt crisis of the early 1980s that hit many Latin American countries is a clear example of that effect; Argentina's crisis of the early 2000s also has many elements of this sort. A third argument is related to the dollarization of the economy and the effects of the depreciation/appreciation on inflation. If the economy is highly dollarized, a depreciation will produce a proportional impact on inflation with little or no effect on the real exchange rate. If this is so, the volatility of the nominal exchange rate loses its main benefit, which is precisely to act as the adjustment variable or the variable that adjusts to bring things back to equilibrium. Any change in it will be offset by a corresponding change in inflation. Studies on the Exchange Rate Pass-Through (ERPT) coefficient show that, although it has declined over time, in commodity-exporting countries it is higher than in non-commodity-dependent ones, and that in Latin America it is relatively high as compared to other regions of the world.⁵

On the other hand, the most important advantage of a free-floating policy is precisely that the exchange rate makes the adjustment. If the structural conditions of the economy change, then the equilibrium real exchange rate shifts. The adjustment of this key relative price can be made either through a change in the nominal exchange rate, which is more rapid,

or through a decline in domestic prices, which is usually more gradual, costlier, and involves a deeper recession and higher unemployment. Latin America offers many examples of countries with a fixed exchange rate that they initially tried to defend, despite a significant shock to the economy,⁶ and eventually had to abandon this policy with all the costs associated with having postponed the decision until it was no longer sustainable. A floating exchange rate makes this adjustment easier.

Another advantage is that it allows for a more independent monetary policy, and in particular a countercyclical one. There are many examples of EMEs in different periods of time that, to maintain the fixed or semi-fixed exchange rate, have been forced to implement a more contractionary monetary policy, even in times of economic slowdown. The recent experience of Argentina is a case in point. In the midst of a recession, the central bank implemented a very contractionary monetary policy to sustain the exchange rate. Turkey and some other EMEs are examples of the very same phenomenon in recent months.

A flexible exchange rate regime also allows for a much more stable trajectory of interest rates. Indeed, while the exchange rate is more volatile, the interest rate is less so. It's either one or the other, unless effective capital controls are imposed. Those that favor the exchange rate as the adjustment variable implicitly assume that exchange rate volatility is not as damaging as interest rate volatility.

One of the ways to mitigate the negative effects of exchange rate volatility is making sure agents in the economy are aware of and internalize this volatility and the associated effects. If that is the case, and if a relatively deep derivatives market is available, they will cover the foreign-currency-denominated debt and their exports/imports in the market. The case of Chile is illustrative. After the currency was allowed to float freely about 20 years ago, corporations have

increasingly covered their foreign debt, so their net exposure is very low.⁷

Of course, this does not mean that a flexible exchange rate is cost-free. In all these policy options there are costs and benefits. For instance, even in a country used to exchange rate variations, if a variation is too abrupt it can also affect real activity. On the other hand, countries frequently suffer transitory shocks, such as a large and short-lived capital inflow, that do not change fundamentals but might have an impact on the exchange rate in the short term. It could be argued that in these cases the movement in the exchange rate is not optimal, since the appreciation will reverse rapidly, producing excess volatility. Although there is merit in this consideration, it is important to stress again that a deep financial and derivative market helps to reduce this volatility and that capital controls or forex interventions are not always an efficient solution to this problem.

Despite the benefits of having free floating exchange rates as the shock absorber, evidence shows that only a handful of countries are truly floaters.⁸ At least in the EM world, most countries intervene with a different degree of frequency in the exchange rate market to stabilize the domestic currency. In some countries, especially those with thinner markets, these interventions can have some effect. Peru, for instance, has achieved remarkable exchange rate stability with a policy of continuous interventions. There are also cases in which the intervention has some political driver. For instance, if the export sector is too strong (for example, if the agricultural sector either has a big weight in the economy or is overrepresented in the political spectrum), then it often puts pressure on the government or the central bank to intervene when the currency is appreciating.⁹

IV. THE CASE OF CHILE¹⁰

Since the year 2001, Chile has had a full-fledged inflation-targeting regime. The

inflation target is 3 percent with a tolerance range of ± 1 percent. The average headline inflation rate during this 18-year period has been 3.2 percent. This is a major reason why the inflation target in Chile is very credible; in the medium and long run, the target has been met. At the Central Bank of Chile, the time horizon for the inflation target has been defined at two years. That is, the operational target is that the projected inflation in two years' time is 3 percent. If inflation is projected to be above that number, then monetary policy should be more restrictive, and vice versa when projected inflation is below 3 percent. In a forward-looking Taylor Rule,¹¹ what matters most is expected inflation rather than actual inflation.¹² During all this period, the two-year expected inflation, as measured by a monthly central bank poll among economic analysts, has been very close to 3 percent (Figure 2). As seen in Figure 2, there have been four periods in which the two-year expected inflation departed from 3 percent. The first was in the early months of the inflation-targeting regime, and it was probably due to the fact that in the previous year inflation had been around 3.5 percent. Hence, in a sort of adaptive expectations mode, the expected inflation for a few months was the same number. Then there were two very brief periods (in 2003 and 2009) in which expected inflation was first slightly above, and then slightly below, 3 percent. Finally, the most important episode in which the two-year expected inflation departed from the 3 percent target was for about a year in 2007-2008.¹³ At that time there was some delay in the necessary tightening to keep expected inflation under control, thus both inflation and inflation expectations went up. The result was a significant tightening in 2007-2008, in which the monetary policy rate went from 5 percent to 8.25 percent. When the global financial crisis erupted, the CBC cut the monetary policy rate from that level to 0.5 percent in the first seven months of 2009.

When comparing inflation expectations in Chile and other inflation-targeting

countries in Latin America, it is seen that by a wide margin Chile has been closest to the target (Table 1 and Figure 3). While in Chile this difference has been 0.2 percent on average since the year of implementation of the inflation-targeting scheme, in Colombia it has been 0.8 percent, in Brazil 1.1 percent, and in Mexico 1.2 percent.

Of course, the fact that almost all the time the two-year inflation expectation was at 3 percent does not mean that the actual inflation rate was 3 percent. The Chilean economy is subject to many shocks, and hence inflation is volatile. What matters, besides the fact that expectations are well-anchored at a two-year horizon, is that on average actual inflation has been very close to 3 percent. However, interestingly, actual inflation has been within the target range of the central bank only 55 percent of the time, and the rest of the time it has been above or below that range (Figure 1).

One episode will help to illustrate the way monetary policy is conducted in Chile and the role of the exchange rate as the shock absorber. In 2013, after the Taper Tantrum episode,¹⁴ international interest rates increased, flows to EMEs declined, and currencies in EMEs depreciated. The Chilean peso was no exception. In addition, the price of copper, after reaching record highs in the previous two years, started to come down. All this produced a two-way phenomenon in Chile. On the one hand, inflation picked up and in April 2014 was already above 4 percent, over three percentage points higher than a year earlier. On the other hand, economic activity started to decelerate. In 2012 GDP growth was 5.3 percent, in 2013, 4 percent, and in 2014 it went down to 1.8 percent.

What should monetary policy do in this case? Inflation was up and growth down. The inflation shock was a supply shock and deemed to be a one-off shock. That fact was important to have in mind for the optimal monetary policy response. Additionally, the slowdown in activity led

to a downward revision to projections for future inflation. Hence, the Central Bank decided to run a more expansionary policy and cut interest rates by 200 basis points to 3 percent. Inflation stayed above target for more than a couple years, but eventually came down, proving that the monetary policy response had been optimal.¹⁵ The depreciation of the domestic currency was the optimal response to the negative shocks the economy was facing. The central bank could have attempted to stop the depreciation with a tighter monetary policy since the depreciation was producing transitory inflation. However, that would not have been the optimal policy response. As explained in this framework, the exchange rate is the shock absorber and should be allowed to find its new equilibrium level.

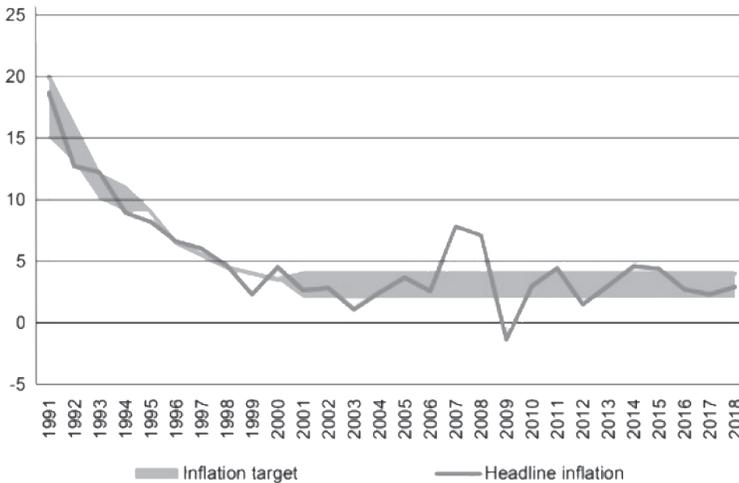
Here it is important to make two caveats. First, this episode makes clear that inflation targets must be “flexible” in the sense that the smoothing of the business cycle is very instrumental in achieving inflation targets, since both variables are intimately related.¹⁶ Second, when there is a cost-increasing supply shock, a tighter monetary policy response should not be taken for granted, provided that inflation expectations remain anchored. That was the case of Chile during this period, and it explains why a more expansionary policy could be implemented. During all the time that headline inflation was above the target range, the two-year expected inflation remained anchored at 3 percent. When in the second half of 2015, after one and a half years of inflation above the target range, the CBC perceived that there was a risk of de-anchoring expectations, it raised the monetary policy rate by 50 basis points to 3.5 percent, and that was enough to avert any risk in this sense. This did not happen in other Latin American countries that during this same period suffered similar events and, after an initial period in which they cut rates, they ended up raising them significantly amid an increase in both actual and expected inflation.

The final point I want to make addresses the volatility of the exchange rate and of the interest rate in an inflation-targeting scheme with a flexible exchange rate, based on the Chilean experience. I have argued that even though having the exchange rate as the shock absorber means more volatility of this variable, the benefits of this policy are such that they more than outweigh its costs. The questions that naturally arise are, what is the volatility of the exchange rate in a country that has implemented this monetary policy scheme, and how does it compare with other countries. Figure 4 shows some interesting facts.¹⁷ The left-hand side panel shows the volatility of the exchange rate *vis à vis* a group of commodity exporters and a group of EMEs between 2015 and 2018 using quarterly data. It shows that the volatility of the Chilean peso is about average as compared to these groups of countries. In some quarters it is above average and in some quarters below

average. In all quarters it has been within the 25th-75th percentile range.

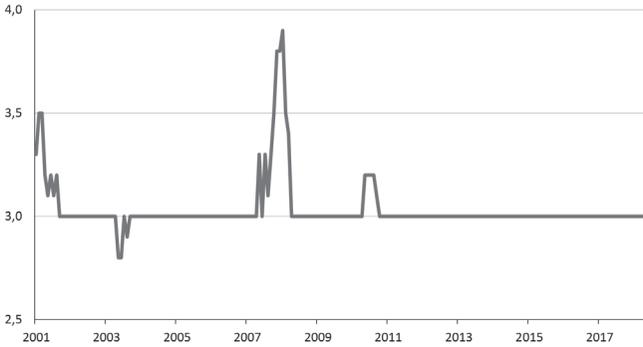
The right-hand side panel shows the volatility of the 10-year government bond interest rate for the same groups of countries and for the same period. Here Chile is clearly below average, and below the 25th-75th percentile range in most quarters as well. This leads us to conclude that at least during this period Chile, with a policy framework in which the exchange rate is the shock absorber, has enjoyed remarkable stability in interest rates without having above-average volatility in the exchange rate. Although there are many variables at play behind this result, it is safe to say that the higher the credibility of the monetary authority, the more likely that a policy that has the exchange rate as the shock absorber does mean more stability of interest rates and not necessarily excessive volatility of the exchange rate.

Figure 1: Headline Inflation and Inflation Target. Chile: 1991-2018



Source: Central Bank of Chile

Figure 2: Chile: Two Years Expected Inflation, 2011-2018



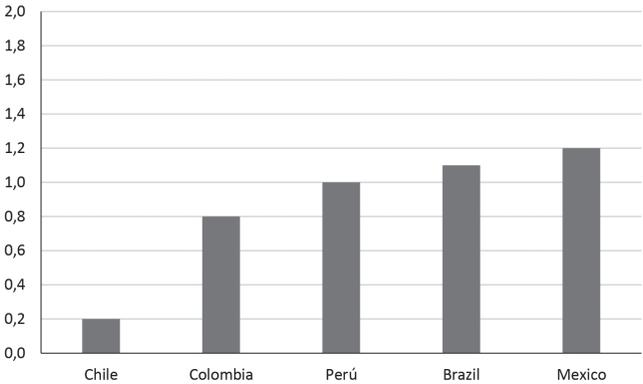
Source: Central Bank of Chile

Table 1: Inflation Target Versus Headline Inflation: Latin America

	Target	Target Range	Year of Implementation	Average Inflation (until dec. 2018)
Chile	3.0	2.0 - 4.0	2001	3.2
Perú	2.0	1.0 - 3.0	2006	3.0
Colombia	3.0	2.0 - 4.0	2010	3.8
Mexico	3.0	2.0 - 4.0	2002	4.2
Brazil	4.5	2.5 - 6.5	2006	5.6

Source: Central banks of the countries in the table

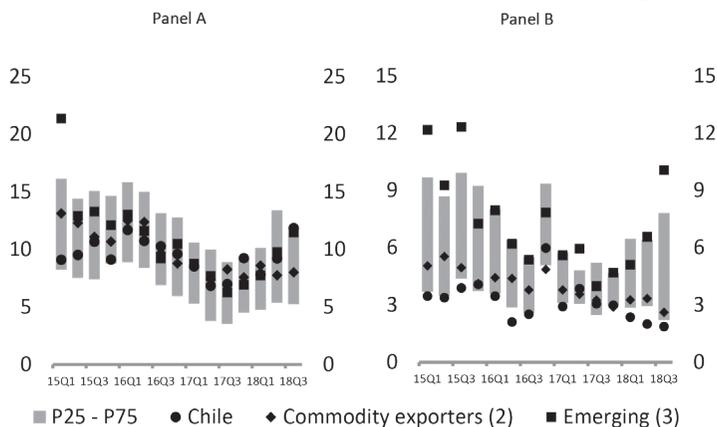
Figure 3: Difference Between Average Headline Inflation and Target Inflation*



* The period for each country corresponds to the one that goes from implementation of the inflation targeting (shown in Table 1) to December 2018.

Source: Central banks of the countries in the figure

Figure 4: Volatility of the 10-Year Interest Rates (Panel B (1)) and Y-o-y Exchange Rates (Panel A)



Source: Rosanna Costa

(1) Calculated as the standard deviation of daily change in rates. (2) Includes Chile, Brazil, China, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Peru, Poland, Russia, and Turkey. (3) Includes Australia, Canada, New Zealand, and Norway.

NOTES

¹By this we mean that there is only one nominal anchor (the rate of inflation). This implies that the exchange rate is not an additional anchor, i.e. there is a flexible exchange rate scheme, although forex interventions could be present. See Frederic Mishkin and Klaus Schmidt-Hebbel, "Does Inflation Targeting Make a Difference?" in *Monetary Policy Under Inflation Targeting*, eds. Frederic Mishkin and Klaus Schmidt-Hebbel, series on Central Banking, Analysis and Economic Policies, vol. 11, Central Bank of Chile, 2007.

²Rey (2015) has challenged this view, arguing that whenever capital is freely mobile, monetary policy is constrained by the global financial cycle regardless of the exchange rate regime. Hence, rather than a trilemma there is a dilemma: independent monetary policy is feasible if and only if there are capital account controls. See Helene Rey, "Dilemma Not Trilemma: The Global Financial Cycle and Monetary Policy Independence," NBER Working Paper no. 21162, May 2015 (revised in February 2018).

³Cowan and De Gregorio (2005) review the research on this matter and conclude that for the case of Chile, there is "no evidence that capital controls were able to reduce these inflows, although there is evidence that they had a limited effect on the composition of these inflows." See Kevin Cowan and José De Gregorio, "International Borrowing, Capital Controls and the Exchange Rate: Lessons from Chile," NBER Working Paper no. 11382, May 2005.

⁴See Barry Eichengreen and Andrew Rose, "Capital Controls in the 21st Century," *Journal of International Money and Finance* 48 (2014): 1-16.

⁵See Rodrigo Vergara, "Inflation Dynamics in Latin America: A Comparison with Global Trends and Implications for Monetary Policy," in *Inflation Dynamics and Monetary Policy*, Jackson Hole Symposium, The Federal Reserve Bank of Kansas City, 2015.

⁶Besides the problems of the foreign exchange denominated debt and the ERPT, there is usually a problem of credibility associated with the devaluation of a fixed exchange rate. Indeed, to abandon it produces a negative credibility shock as well.

⁷See Central Bank of Chile, "Financial Stability Report," various issues.

⁸In Latin America, for instance, Peru and Argentina intervene frequently in the foreign exchange market while Brazil, Mexico, and Colombia have reduced the frequency of their interventions. Chile has not intervened since 2011.

⁹This could happen with import substituting sectors as well.

¹⁰For a more detailed analysis of Chilean monetary policy in the last decade, see Rodrigo Vergara, "Política Monetaria en Tiempos Complejos," in *25 Años de Autonomía del Banco Central de Chile*, eds. Alberto Naudon and Luis Álvarez, series on Central Banking, Analysis and Economic Policies, vol. 23, Central Bank of Chile, 2016.

¹¹See John Taylor, "Discretion versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy* 39 (1993): 195-214.

¹²See Lars E.O. Svensson, "Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets," *European Economic Review* 41, no. 6 (1997): 1111-1146.

¹³As documented in Vergara (2018), these conclusions are robust to other measures of expectations, such as those implicit in market prices. See Rodrigo Vergara, “Experiencias de Política Monetaria en Economías Pequeñas y Abiertas: Chile 2012-2016,” *Estudios Públicos* no. 149 (2018): 105-135.

¹⁴When, in May 2013, the then Chairman of the Federal Reserve Board, Ben Bernanke, announced that the pace of asset purchases was going to be reduced. See Ben Bernanke, “The Economic Outlook,” Testimony Before the Joint Economic Committee, United States Congress. Board of Governors of the Federal Reserve System, 2013.

¹⁵Inflation remained above the target range for two and a half years because there was subsequent depreciation shock in 2014 and 2015.

¹⁶See Lars E.O. Svensson, “Flexible Inflation Targeting: Lessons from the Financial Crisis,” paper presented in the seminar *Towards a New Framework for Monetary Policy? Lessons from the Crisis*, The Netherlands Bank, Amsterdam, 21 September 2009.

¹⁷This figure is taken from Rosanna Costa, “Prospects for Inflation and Monetary Policy,” presented at the conference *Chile en Marcha: Un Análisis del Camino al Desarrollo*, Santiago, Chile, 14 December 2018.