# Credit controls as an escape from the trilemma. The Bretton Woods experience<sup>†</sup>

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The Mundell "trilemma" is widely used to discuss capital controls and monetary policy autonomy under Bretton Woods. Without denying its usefulness, this paper highlights two facts at odds with assumptions underlying the "trilemma" argument. First, conflicts between internal and external objectives were uncommon. Second, the use of quantitative credit controls allowed central banks to disconnect their interest rate from their monetary policy stance. This was considered by contemporaries as a way to escape international constraints. Capital controls were imposed to complement credit controls. Interest-rate spreads were neither a good measure of capital controls nor of central bank autonomy.

The "trilemma" or "unholy trinity" of international finance is widely used by political scientists and economic historians to shed light on the history of capital controls and monetary policy autonomy (Cohen 1993; Goodman and Pauly 1993; Obstfeld and Taylor 2004; Bordo and James 2015; Frieden 2015). Given that financial restraints were the norm during the three decades after World War II (Helleiner 1996; Ghosh and Qureshi 2016), the Bretton Woods system receives special attention in most of these studies. However, the "trilemma" argument relies on two assumptions that, as this short paper argues, were rarely verified during the Bretton Woods period. Questioning such assumptions may modify our interpretation of the rationale behind capital controls and, in some cases, cast doubts on the use of interest rates spread to assess the autonomy of central banking.

First, conflicts between internal and external policy objectives, which are at the core of the trilemma, were in fact not common. Despite such infrequent conflicts, capital controls persisted over decades. Second, and most important, quantitative instruments (credit controls, reserve requirements, etc.) could allow central banks to disconnect their interest rate from the overall domestic monetary policy stance in order to avoid the constraints of international finance. They assigned the interest rate to the external side while, in order to fight inflation, managing domestic credit expansion with direct quantitative controls. Such a disconnection—which is inconsistent with the mechanisms of the Mundell–Fleming model—was possible because of the highly regulated and segmented domestic financial systems of this period in which price signals played little role and state intervention was driving credit allocation. Capital controls themselves played a role in making credit controls effective.

The first part of this essay documents that contemporary policymakers and economists of many countries were aware of these two arguments. In the second part, we study the

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example of France to confirm that conflicting situations between internal and external objectives were rare and that, when they occurred, they could be solved by disconnecting interest rates from domestic policy stance. This case study also highlights the peculiar conditions under which it was possible, as well as explains the role of capital controls in this context and the consequences for interpreting spread of interest rates.

It has long been recognized that the "trilemma" should rather serve as an ideal type; that in practice there is almost no case in where policy is positioned at the corners because the choice between fixed and floating exchange rates is not dichotomous and capital controls are never fully binding (Obstfeld and Taylor 2004; Bordo and James 2015). The argument of this paper lies elsewhere however: it highlights cases where the standard mechanics of the Mundell–Fleming world falls short of explaining policy choices and capital controls because interest rates were not the only tool available to central banks.

# I. Challenges to the "trilemma"

What is called indifferently the "impossible trinity," the "unholy trinity" or the "trilemma" of international finance states that it is impossible for a country to have at the same time the following three: fixed-exchange rates, capital mobility, and monetary policy autonomy. Only two are possible. In practice, it has been known for a long time that capital flows may constrain central banks because their discount rate affects at the same time domestic credit and international capital flows. It was already an important concern in the XIXth century (Bloomfield 1959; Bazot et al. 2016). The theoretical formulation of the "impossible trinity" in the early 1960s is due to the work of Robert Mundell, and then Marcus Fleming, giving rise to the well-known Mundell-Fleming model (Obstfeld 2001).<sup>1</sup> The "trilemma" later gained popularity as a framework to understand the joint historical evolution of capital mobility, exchange rate regimes and monetary policy autonomy. A strand of literature-widely developed in political sciences-calls upon the "impossible trinity" to explain countries' choices to peg their exchange rate and their degree of capital account openness (Cohen 1993; Goodman and Pauly 1993; Andrews 1994; Pauly 1995; Rodrik 2011; Frieden 2015).<sup>2</sup> This perspective makes crucial references to the Mundell–Fleming model, conflicts between "internal" and "external" equilibria, as well as to the role of capital controls under Bretton Woods (see, for example, Goodman and Pauly 1993, pp. 54–55).

Another strand of literature, following the seminal work of Obstfeld and Taylor (2004), uses the "trilemma" to shed a quantitative light on changing historical constraints of international finance. One main insight is to quantify the magnitude of this constraint by using spreads between domestic and foreign interest rates. Results confirmed that "absent capital controls, countries choosing to peg loose considerable monetary independence," and "look-ing at the interest-rate data, we can see the trilemma's lessons borne out over a very broad range of historical experience" (Obstfeld and Taylor 2004, pp. 193–194).

## 1.1 Conflicts between internal and external objectives?

The "trilemma" originates from the potential conflict between the internal objective of monetary policy (keeping inflation stable and a low unemployment rate) and its external

<sup>&</sup>lt;sup>1</sup> There is much more in the Mundell–Fleming model than the "impossible trinity." It is worth remembering that the main policy issues it aimed to address were the policy-mix between fiscal and monetary policy and the stability of the monetary system (Mundell 2001; Obstfeld 2001).

<sup>&</sup>lt;sup>2</sup> See also Widmaier (2004) for a critical perspective on the use of this term.

objective (maintaining the fixed-exchange rate). There are two opposite cases of conflict (Mundell 1968, pp. 250–271, Argy 1971; Goodman and Pauly 1993, pp. 54–55).<sup>3</sup> The central bank wishes to *decrease* its leading interest rate to *push inflation up* but there is a balance of payments *deficit*. On the opposite, the central bank wishes to *increase* its leading interest rate to *combat inflation* but there is a balance of payments *surplus*: an increase in interest rates would cause *capital inflows* and worsens the surplus. If one wants to justify persistent capital controls, it is necessary to argue that such situations occurred repeatedly and that central banks frequently had to deal with them. To our knowledge, the only study that has addressed such a question based on comprehensive quantitative evidence is Michaely (1971). His conclusions clearly did not support the statement that conflicts between domestic and international targets were a regular feature of policies under Bretton Woods:

"In most major countries, the requirements of external and internal balance tended much more often to provide policy indications in the same direction, or at least not to contradict each other, rather than to point in opposite directions."  $p. 63^4$ 

Michaely echoed debates on the international monetary system in the 1960s where—besides the USA—conflictual situations were diagnosed in few cases only.<sup>5</sup> As observed by Michaely, the typical situation of main advanced countries in the 1950s was to have at the same time a balance of payments deficit, decreasing official reserves, and inflation booms.<sup>6</sup> Conflicts between external and internal objectives occurred mostly in the 1960s, when some European countries and Canada faced a balance of payments surplus and imported inflation, after the 1958–1959 return to convertibility. This is when Mundell and Fleming wrote their articles. The most prominent example was the West German case that finally led to revalue the mark in 1961. Similar conclusions were formulated in 1962 by Milton Gilbert, head of the Monetary and Economic department of the BIS and a towering figure of the debates on the international monetary system in the 1960s:

"In the post-war period, the need to reconcile domestic and external objectives has confronted western Europe only in the past few years. Previously there was no basic reconciliation problem because there was no essential conflict."<sup>7</sup>

In theory, monetary policy is assumed to be conducted through open market operations, so that domestic interest rate reflects the monetary policy stance (Mundell 1968, pp. 250–271). Yet, another option was possible, although not considered into the Mundell–Fleming model.

<sup>&</sup>lt;sup>3</sup> Note that in recent macro models (Farhi and Werning 2014), the rationale for capital controls is more complex as capital controls can be welfare improving whatever the exchange rate regime.

<sup>&</sup>lt;sup>4</sup> Obstfeld (2001, p. 7) quotes Michaely and states, regarding the policy-mix between fiscal and monetary policywhich was a major concern in Mundell's writings—that "indeed, the theory of the policy mix had little practical significance under Bretton Woods." We think such observations are not limited to the policy-mix and may also question the relevance of the trilemma to explain policy constraints under Bretton Woods.

<sup>&</sup>lt;sup>5</sup> For an introduction to these debates, see Bordo (1993), James (1996), and Toniolo and Clement (2005).

<sup>&</sup>lt;sup>6</sup> See also the narrative of these common cycles in Monnet and Puy (2016), based on IMF annual reports

<sup>&</sup>lt;sup>7</sup> Bank of International Settlements Archives (BISA), H.S 379, "Reconciliation of domestic and international objectives of financial policy," by Milton Gilbert, paper presented at the annual meeting of the American Finance Association, Pittsburg, December 28, 1962.

## 1.2 Monetary policy without interest rates

A prominent feature of monetary policy during the Bretton Woods period was that central banks relied heavily on quantitative instruments such as credit ceilings or quotas, discount ceilings and liquidity requirements, in order to curb inflation (Monnet 2014, 2016). As expressed by the US economist Samuel Katz (1969, p. 5):

"The characteristic which perhaps best distinguishes the new monetary technology from the orthodox tradition of central banking is an unprecedented emphasis upon credit rationing."

Abundantly described in contemporary writings (Fousek 1957; Hodgman 1973; Holbik 1973), it has been studied more recently by Werner (2002) on Japan, Monnet (2014, 2016) on France and Western Europe, and Aikman *et al.* (2016) on England. In most countries, debtor and creditor interest rates were legally controlled, the state intervened heavily on credit allocation, sectors benefited from subsidized loans and regulated interest rates, such that credit markets were segmented and the transmission mechanism of the central bank interest rate to the rest of the economy was usually ineffective. Actions of central banks were embedded in activist credit policies whose objectives were to allocate credit to priority sectors. Credit controls (i.e., quantitative limits on the growth rate of banking loans) were used to curb inflationist pressures while being consistent with directed credit policies. Typical of what have been called "embedded" liberalism (Ruggie 1982; Helleiner 1996) or, from a different perspective, "financial repression" (Battilossi 2003; Reinhart and Sbrancia 2015), the price signal of interest rates was weak and markets cleared through quantities. In such an environment, the interest rate of the central bank did not necessarily reflect the stance of monetary policy (Monnet 2014).

The potential disconnection between the interest rate on one hand and quantitative instruments of central banks on the other hand was more than a curiosity. It was recognized by contemporaries as a way to solve the conflict between internal and external objectives (Argy 1971). In his survey of central banks' quantitative controls, Hodgman (1973, p. 138) stated clearly that one of the purposes of such tools was:

"to check the flow of credit to the private sector without raising domestic interest rates and thus attracting foreign funds through the balance of payment."

Milton Gilbert was also explicit about such a possible disconnection which meant

"to assigning the interest rate to the external side and to finding ways of managing the rate of credit expansion without relying wholly on interest rates."<sup>8</sup>

At the times when European countries faced inflation and balance of payments surplus, such an option became popular. In 1960, the Governor of the Bank of Italy, Donato Menichella, discussed the conflict (which he called "dilemma") that central banks faced when "the balance of payments is in surplus but wages and prices are set to rise." The solution adopted in Italy in 1959 relied on isolating the interest rate from other policy instruments:

"The measures we adopted were of a quantitative nature, so that we were able to avoid a change in the discount rate. [...] In avoiding a rise in Bank rate, our

<sup>8</sup> BISA, H.S.380, "Domestic and external equilibrium, European objectives and policies," paper presented at the Annual Meeting of the American Economic Association, December 29, 1964. See also Katz (1969, pp. 4–6).

tactics were in line with the spirit of the policy which, as I said earlier, tends to dissociate measures aiming at domestic monetary equilibrium from those which, with sometimes contrary effects, influence international capital movements."<sup>9</sup>

In his account of Austrian monetary policy under Bretton Woods, the economist Karl Socher tells that a similar trick was intended to be used in 1964:

"An interesting proposal for fixing interest rates according to foreign rates was made in 1964 in the stabilization proposal of the Council of Economic and Social Questions. [...] The Council proposed to lower interest rates and at the same time restricts credit by direct controls" (Socher, in Holbik 1973, pp. 22–23).

Most important, Socher explains that it was possible because the Austrian credit markets were highly regulated and segmented:

"The argument rests on the assumption that interest rates and credit restriction operate independently, interest rates on credits in competition with foreign credits, and credit restriction on non-competitive credits. *(ibid)*"

Finally, the plan was not implemented in Austria because the conflict between internal and external objective was too short-lived to require any policy intervention. As we will see in the next section, France used a similar technique in 1963–1965. To assign the interest rate to the external equilibrium while using quantitative controls for domestic policy purposes was not always a successful strategy, however. As expressed by Socher (infra) and Monnet (2013, 2014; 2016) among others, it required that usual channels of transmission between interest rates and the quantity of credit were ineffective because of ubiquitous financial regulations and segmented credit markets. Otherwise, restrictive policy implemented through credit controls (i.e., rationing) and reserve requirements would have pushed other interest rates up (debtor, credit, money market rates, etc.), which would have been in contradiction with the objective of the central bank. Such a contradiction occurred in West Germany in 1959–1961. As explained by Gilbert (*infra*) and Katz (1969), the Bundesbank relied extensively on reserve requirements-at levels unseen before-to curb inflation and sterilize capital inflows while increasing its discount rate moderately. But the rise of reserve requirements transmitted to interest rates in various segments of the credit market such that the Bundesbank finally increased its own rate to follow market interest rates. This caused major capital inflows and "on the whole the object of the credit restrictions was thus not obtained" (Deutsche Bundesbank, Annual Report 1960, p. 5, quoted by Katz 1969, p. 11). Capital controls were implemented to curb inflows but were not effective enough. German attempts to sterilize capital inflows were unsuccessful, exactly as predicted by the model of Mundell (Obstfeld 1980). So, why was the dissociation between interest rate and quantitative instruments unsuccessful in Germany? The main reason is probably that West Germany had less regulated and segmented credit markets than other European countries (Hodgman 1973; Monnet 2016). It was also one of the only European central banks to rely on open market operations. Finally, another reason is that the conflict between internal and external disequilibrium in Germany in the early 1960s was stronger than in other countries (Kouri 1975).

<sup>&</sup>lt;sup>9</sup> Banca d'Italia, Abridged Version of the Annual Report. The Governor's Concluding Remarks for 1959, May 1960, p. 20.



Figure 1. Discount rates of the Bank of France and US Federal Reserve. Sources: FRED for US. Annual reports of Conseil National du Crédit (CNC) for France. Quarterly data. Gray-shaded areas are periods of restrictive monetary policy (Monnet 2014).

# 2. A case study: France in the early 1960s

The French central bank decided to implement a restrictive policy in February 1963 in order to fight inflation and limit the growth of bank liquidity.<sup>10</sup> As stated during the board meeting, the reason was that "there was an abnormal rise of flows in the money market threatening the internal and external equilibrium of the currency."<sup>11</sup> On 28 February, 1963, the Bank of France reintroduced a ceiling on the expansion of bank credit. Credit growth in 1963 could not exceed 12 percent (10 percent starting September 1963). The main ratio of liquidity requirements was also increased from 32 to 35 percent in February, and to 36 percent in May (Monnet and Vari 2017). Such restrictive measures were lift down in June 1965. During this restrictive episode, the discount rate was increased only once, in November 1963, and by a very moderate amount, from 3.5 percent to 4 percent (figure 1). In the 1963 Annual report of the Bank of France, it was written that "the lowness of the increase means that it was foremost a psychological measure."<sup>12</sup> The Governor explained at the board meeting that an increase in the discount rate "had been delayed as much as possible because we did not want to worsen the surplus of the balance of payments by encouraging capital—especially short-term capital flows—to be invested on the Parisian market."<sup>13</sup> The change in the base lending rate (which usually followed the discount rate) was even smaller, by only 25 basis points.

<sup>12</sup> Banque de France, Rapport Annuel 1963, p. 20.

<sup>&</sup>lt;sup>10</sup> The description of French monetary policy is based on Monnet (2014) who relied on archival material.

<sup>&</sup>lt;sup>11</sup> Archives of the Bank of France (ABF), PVCG, February 28, 1963.

<sup>&</sup>lt;sup>13</sup> Ibid, November 14, 1963.



Internal equilibrium: cycles of indutrial production, money and prices. Cyclical components computed with an HP filter.

External equilibrium: offical foreign reserves, dollar assets, current account



Figure 2. Conflict between external and internal objectives?. Internal equilibrium: cycles of indutrial production, money and prices. Cyclical components computed with an HP filter. External equilibrium: official foreign reserves, dollar assets, current account. Sources: Annual reports of CNC and International Financial Statistics. Quarterly data. Gray-shaded areas are restrictive episodes of monetary policy (Monnet 2014).

# 2.1 Escaping from the trilemma

Figure 2 shows the conflict between external and internal objectives that was faced by the Bank of France in early 1963: inflation, production and money were booming while there was an inflow of foreign capital leading to a sharp increase of the level of foreign assets held by banks and monetary authorities.<sup>14</sup> It was a new situation because previous episodes of restrictive quantitative monetary policy in the 1950s (cf. shaded areas on figures I and 2) had started instead at times of capital outflows (i.e the growth of foreign reserves was

<sup>&</sup>lt;sup>14</sup> During Bretton Woods, the change in official reserves holding was deemed the most prominent indicator of a balance of payments surplus or deficit (Obstfeld 1993).

negative).<sup>15</sup> A simple—anachronistic—Taylor rule (set as in Taylor 1998) would predict that, given the value of the inflation rate and the output gap in those years, the interest rate should have been as high as 8 percent in 1963. Price stabilization was achieved thanks to a set of various quantitative controls, without increasing interest rates to levels that would have been necessary to bring inflation and money growth down by an equivalent amount. Note that during the two restrictive episodes of the 1950s, it had already been the case that the discount rate was increased significantly but not enough to be able, by itself, to stabilize inflation. Quantitative controls were already the main instruments of the central bank on the internal side, and the discount rate could be adjusted in line with the external side (Monnet 2014).

#### 2.2 Consequences for capital controls and interest rates spreads

Before the November 1963 discount rate increase, the French government had tightened capital controls on inflows as soon as April 1963: paying interest on non-residents banking accounts was prohibited in April and stricter terms were applied to foreign borrowing by residents in August (Teyssier 1973).<sup>16</sup> Such measures were not taken as an opportunity to increase the official discount rate in line with the restrictive stance of domestic monetary policy. Since the channel of interest rates was almost shut down, the interpretation of these capital controls is very different from the one given by the Mundell-Fleming model. In fact, such controls were not primarily used to prevent investors from benefiting from the differential between home and foreign interest rates, they were instead used to make credit ceilings and liquidity requirements more effective. As stated by the Governor of the Banque de France in August, the willingness to restrict borrowing from non-residents was justified by the fact that these loans had increased after credit restrictions were imposed on the domestic front at the beginning of the year.<sup>17</sup> Without restrictions on foreign borrowing, firms and households could borrow abroad and would not have been constrained by credit ceilings. Without controls on foreign deposits, banks liabilities could have increased and the liquidity requirements (that forced banks to hold some reserves as a proportion of liabilities) would have been less restrictive (Monnet and Vari 2017).

Because of the dissociation between interest rates and quantitative controls, the differential between domestic and foreign interest rates is likely to be an imperfect proxy of the constraints faced by the central bank. This is shown on figure 3, in light of the information given previously about Bank of France's policy. In the "trilemma" perspective, a large spread between domestic and foreign rates is interpreted as evidence of greater monetary policy autonomy (Obstfeld and Taylor 2004). Figure 3 displays two measures of capital mobility. The first one is the difference between the changes in the French and US money market rates. This is similar in kind with the measure of Obstfeld and Taylor (2004) who regress the first difference of the domestic interest rate on the first difference of the

<sup>&</sup>lt;sup>15</sup> It was also the case in the restrictive episodes of 1948 and 1968 (see Monnet 2014) that we exclude here for the sake of brevity and clarity of the presentation.

<sup>&</sup>lt;sup>16</sup> See also the discussion at the General Council of the Banque de France: ABF, PVCG, April 11 and August 8, 1963.

<sup>&</sup>lt;sup>17</sup> ABF, PVCG, August 8, 1963. The maturity of these loans was decreased from 5 to 2 years, their maximum amount from 2 to 1 million and their maximum interest rate from 5 to 4 percent. Moreover, additional measures were taken to avoid that residents circumvent the law and contract more than one loan from non-residents.



Figure 3. Interest rates spreads and the monetary policy stance. Sources: FRED for the Fed fund rate. Reports of the CNC for the French rate. IFS for spot and forward exchange rates.

Notes: The deviation from the covered interest rate parity is d = F/S(1 + i) - (1 + u)where F and S are the forward and spot exchange rates, i and u are the French and US money market rates. Data are quarterly such that we use the average value of call money rates over 3 months. The forward exchange rate is the one at end of the previous month.

international leading rate. The second one is the residual of the covered interest rate parity (which takes into account the difference between spot and forward exchange rates), following Obstfeld (1993). To construct these measures, we use money market rates which are the best available proxy for "free" credit conditions in both countries. We compare the French call money market rate to the US Fed fund rate which was the leading international interest rate during this period. The spread is positive when the return is higher in France.

Figure 3 shows two striking features. First, the spread is higher in 1958 during the episode of restrictive monetary policy that coincided with a French balance of payments deficit. In this episode, internal and external pressures were going into the same direction and capital controls were tight to avoid speculative movements. A high spread between the French and US rates does not mean that French policies could abstract from the balance of payments. If anything, it was exactly the contrary and this is why a devaluation was necessary in August 1957 and June 1958, after months of restrictive monetary policy and stabilization of the price level. Second, the spread remains very moderate during the 1963–1965 restrictive episode which was nonetheless the most obvious case of conflict between external and internal objectives. As we have shown earlier, it is due to the fact that anti-inflationist policies relied on quantitative instruments rather than on the interest rate. Interestingly, the spread between interest rate changes in 1963–1965 is not significantly higher than in 1967 when capital controls were completely abolished for a year (Katz 1969; Teyssier 1973) whereas the covered interest rate parity rightly reflects the loosening of capital controls. Hence, the spread does not provide consistent information on the external constraint that France was facing at that time, nor on the way she got around with it.

## 3. Conclusion

Neither does this article claim that the "trilemma" framework is unuseful for economic history nor does it deny the fact that capital controls gave autonomy to domestic policies under Bretton Woods. The goal of the present paper was to outline when some underlying assumptions of the "trilemma" framework can be questioned and, then, to discuss cases not considered in the Mundell-Fleming model. It suggests alternative interpretations and areas for further research, especially on the rationale and evolution of capital controls and their interaction with credit controls. In the Mundell-Flemming framework, capital controls aim at solving potential conflicts between the capital account and the spread between domestic and international interest rates. An alternative view is that capital controls were a necessary piece within highly regulated and segmented financial systems where credit was supposed to be directed by the State to priority sectors and where the central bank relied primarily on direct credit controls for her monetary policy. Capital controls were the external counterpart of interventionist policies in the domestic allocation of credit.<sup>18</sup> Historical issues behind the interpretation of capital controls are important. Studies relying on Mundell-Flemming suggest that capital controls disappeared because country choose to turn away from either monetary independence or fixed-exchange rates (Goodman and Pauly 1993). By contrast, the alternative view presented in this paper puts more emphasis on the fact that the disappearance of capital controls was a correlate of the decrease of state intervention in domestic credit markets and of the increasing role of interest rates and open market operations as monetary policy tools.<sup>19</sup>

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- <sup>18</sup> This view is especially compatible with the one of Helleiner (1996) who consider capital controls in the broad context of "embedded liberalism" as well as with Battilossi (2003) who emphasizes the fiscal role of such controls in a political economy framework. An additional prevalent rationale behind post-war capital controls, on a short-term basis, was to avoid speculative movements, whatever the external and internal situation of countries (Bloomfield 1954).
- <sup>19</sup> Offer (2017) provides a new perspective on credit controls and the "market turn."

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