Investigating Monetary and Macroeconomic Policy in the Bretton Woods Era: Evidence From France

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Abstract

We attempt to develop a new methodology of inquiry in order to assess the effects of monetary policy during the Bretton Woods Era. Building on the data and the findings of Monnet (2014) on monetary policy in France in the period 1946-1972, we adopt the Local Projections Model (LPM) developed by Jorda (2005) in order to obtain multiple impulse-response functions of endogenous real and monetary macroeconomic variables to domestic and foreign monetary policy shocks. Our results are broadly consistent with a standard open-economy Mundell-Fleming model and confirm the consensus view on monetary policy implementation in that period.

\textbf{JEL Codes}: E52, E58, N14
1 Introduction

1.1 Inquiry

During the time-honoured Bretton Woods Era, many countries (e.g. France, Germany, UK and Italy) started experimenting with a new method of implementing monetary policy. Central Banks started leveraging direct controls on credit aggregates and the overall money-market degree of liquidity as primary tools in setting out the monetary policy stance. At the same time, the official discount rate was sidelined to a secondary role. The consensus view at the time was that Central Bank interest rates had somehow lost their meaning, as they were not particularly efficient in regulating the flow of credit to the real economy (Monnet, 2014). This exegesis was embedded in the wider political framework of the time, which took the name of Keynesian Consensus. The majority of policymakers agreed on the fact that demand-side policies were crucial in order to stir the economy towards full-employment. This goal was to be achieved by fiscal policy, while monetary policy would assume a more restrictive countercyclical role. Exchange rates were fixed and international capital flows were heavily regulated, therefore allowing for a spread between domestic and foreign interest rates. Simultaneously, restrictive credit controls employed to dampen domestic demand allowed for a disconnect between the Central Bank’s rate and the monetary stance. Therefore, the domestic interest rate structure was allowed to vary freely, easing the burden of Government and private debt during the post-war reconstruction.

While the literature at the end of that era almost immediately (e.g. Hodgman, 1973) started reporting and studying monetary policy implementation during this period, only very recently have systematic quantitative analyses been carried out. Most notably Monnet (2014) and Aikman et al. (2016) use VAR models to investigate the quantitative effects of monetary policy on output and other endogenous variables. While the former adopts a pure narrative approach in the fashion of Romer and Romer (1989) for identifying episodes of monetary restriction, the latter attempts to build a quantitative index representing the monetary stance, which is then used complementarily to the discount rate in estimating the dynamic multipliers associated with the impulse-response functions. We consider the narrative approach superior. In fact, building a dummy variable taking the value one in case of a restrictive episode is the most effective way of identifying the contractionary policy actions carried out through credit controls. This is due to the multiplicity of instruments used over time, as well as the relative binding capacity of each instrument, depending on the state of the economy.
We build on the identification made by Monnet (2014) as a starting point for our analysis. The main contribution here is to develop a new methodology for investigating the effects of monetary policy on real and monetary variables during the Bretton Woods Era. In doing so, we estimate impulse-response functions (IRFs) of narrative shocks by employing the Local Projections method set forth by Jorda (2005). This allows us to adopt a richer and more flexible specification, which accomplishes the task of generalising the inference in a general equilibrium Mundell-Fleming framework. In fact, without the nuisance of the imposition of a priori theory-based constraints, we can indeed experiment by including more variables contributing to the impulse-response functions, as well as test for an asymmetric state-dependent effect of quantitative restrictions on output and prices. All in all, our results are able to identify short and long-run relations with real and monetary endogenous variables that are broadly consistent with the consensus view on monetary and macroeconomic policy implementation during the Bretton Woods Era. Hence, our findings significantly strengthen the current mainstream view, while also shedding light on some peculiarities of macroeconomic policy implementation in France.

The remainder of this paper is divided in the following way: after a brief evaluation of monetary policy during our period of interest, the first section briefly outlines the issue we are investigating and its importance in relation to common topics in open-economy macroeconomics. Specific emphasis is given to a description of the international monetary system in order to stress the ties between monetary policy implementation during the Bretton Woods Era and the so-called “trilemma”. The second section describes our econometric model of inquiry and its underlying methodology. The third section displays the data and our findings. The fourth section concludes.

1.2 The Bretton Woods Era: a historical appraisal

Towards the end of WWII, there was broad consensus amongst policymakers that a new monetary system would be necessary in the post-war period. It was generally agreed that past monetary systems had proved suboptimal. Theoretical discourse on the framework of such a system was heavily influenced by two very contrasting past experiences (Bordo, 1993). These were the pre-WWI gold standard and the interwar period of macroeconomic disorder (Obstfeld et al, 2004). According to Eichengreen and Flandreau (1997),
the defining characteristic of the era of the classical gold standard (ca.1870-1910) was
the stable exchange rate between most significant currencies, as the money supply of a
country was directly linked to its gold reserves. While causing great certainty regarding
exchange rates and intensive foreign lending, the international gold standard implied a
significant interconnectedness of national economies: Its binding nature prevented any
kind of domestic monetary policy to mitigate adverse effects of supply and demand
shocks, given that each country’s external balance had to be strictly maintained (Bordo
and Redish, 2003). The reestablishment and subsequent incremental abandonment of
the gold standard during the interwar period enabled governments to pursue an indepen-
dent monetary policy in pursuit of domestic objectives. This, however, did not result in
the desired stable economic conditions and full employment. To improve their external
balance, many countries devalued their currencies, effectively engaging in beggar-thy-
neighbour monetary policy. Furthermore, the interwar period was a time of amplified
currency speculation.

As stated by Gorski (1945), the groundwork for the Bretton Woods System was the
Atlantic Charter of 1941. Its resolutions in clauses 4 and 5 called for a lowering of inter-
national trade barriers and increased global economic cooperation and advancement of
social welfare. The Bretton Woods Agreements are comprised of three separate treaties,
including the agreement of the International Monetary Fund (IMF agreement) and the
agreement of the International Bank of Reconstruction and Development (IBRD agree-
ment). Together, these agreements were thought to ensure a stable and less speculative
monetary system. Exchange rates in the Bretton Woods system were fixed, but ad-
justable. The member states committed to maintain their exchange rates within 1% of
parity. IMF approval was necessary for significant exchange rate changes (rule of funda-
mental disequilibrium). In addition, the IMF was meant to oversee the exchange rates
as an independent body. The primary goal was to accompany the process of reestablish-
ing currency convertibility and to help member countries overcome temporary liquidity
problems. Its general scarcity of currency clause ensured that the IMF had the option to
penalise countries which adopted destabilising monetary policy stances. The main role
of the IBRD was to provide the loans necessary for a quick rebuilding of the economic
system (Gorski, 1945).

The envisioned quick recovery towards current account convertibility took longer than
anticipated. It was accompanied by persistent deficits against the dollar by most West-
ern European economies and several balance-of-payment crises, which led to temporary additional exchange and capital controls. After reinstating current account convertibility in 1958, international trade (especially between the Bretton Woods member states) rose dramatically, and consequently many of the controls in place could no longer be enforced effectively (Bordo, 2017). According to Bordo the Bretton Woods System of the 1960s had evolved into a “gold dollar standard”, crucially dependent on US monetary policy. This asymmetry resulted in conditions similar to those of the interwar period. One crucial implication of this asymmetry was the fact that the US was not required to adjust its balance of payments and could run a deficit while implementing expansionary fiscal policy, thereby causing inflation in other countries. This prompted confidence considerations, as at some point the participating countries could all at once demand to exchange their dollar reserves into gold. In 1964 the dollar amounts held by foreign central banks increased US gold reserves for the first time. This development also evoked concerns about the ability of the US to create sufficient liquidity, since overcoming the US deficit would mean less provision of liquidity for the other countries of the Bretton Woods system (Eichengreen, 2008).

To overcome this issue, the IMF issued “Special Drawing Rights”, designed as an international reserve to complement the dollar. Various measures aimed at reducing the risk of a “gold run” were implemented. While they were able to postpone the collapse of the Bretton Woods System, the existing imbalances were amplified by US inflation. After France and Britain announced that they would convert dollars into gold in the near future, the US suspended gold convertibility in 1971. Ultimately, in 1973, the adjustable peg system was abandoned, thereby concluding the Bretton Woods experience (Bordo, 2017).

2 The Issue

2.1 Monetary policy with quantitative controls

As a matter of fact, the desire of governments to regulate interest rates and plan the economy during reconstruction arguably ended up creating a situation where there was little transmission between interest rates and credit quantities. In such an environment, manipulating interest rates to conduct monetary policy could lead to suboptimal outcomes. Hence, monetary policy during that period was conducted using credit controls, meaning that, rather than adjusting interest rates, the central bank directly manipu-
lated the quantity of credit (Monnet, 2014). Nevertheless, credit controls were used for a much wider agenda than simply smoothing out macroeconomic fluctuations. In his review of the implementation of credit controls in Western Europe, Hodgman (1973) lists the following reasons:

1. To finance government debt at lower interest rates than market preferences would permit
2. To check the flow of credit to the private sector without raising domestic interest rates, thus attracting foreign funds through the balance of payments
3. To influence the allocation of real resources towards priority uses
4. To block the channels of financial intermediation and therefore to assist a restrictive general monetary policy by impeding a rise in velocity
5. To strengthen popular acceptance of price-wage controls by holding down interest income to credit-granting institutions and private investors

In some countries, especially the United Kingdom, policymakers viewed interest rates as ineffective for the conduct of macroeconomic control (e.g. in the Radcliffe Report, 1959). It was thought that large movements in interest rates would be required to have an impact on output (Aikman et. al., 2016). Nowadays the prevailing view has shifted towards a more balanced judgment: recent assessment of the use of credit controls instead of interest rates suggests that, if the money market is dysfunctional, as was the case of France, then credit rationing may be superior to credit allocation through interest rates (Monnet, 2014).

The main tools that central banks used to employ to directly control credit were **rediscout ceilings**, **liquidity ratios**, **hire-purchase controls** and **special deposits**. Rediscout ceilings were caps on the total value of loans discounted by the central bank for each financial intermediary (Monnet, 2014). These caps were implemented as a percentage of total deposits for each institution, implemented in an entirely discretionary manner according to the bank’s asset quality and individual risk exposure.

Penalty rates could be placed on discounts in excess of the ceilings. Strictly speaking, they constituted a form of microprudential regulation, but used for macro objectives. Credit Ceilings consisted in direct limits on the expansion of credit. Their nature was intrinsically temporary and they were used to mitigate the risk of asset bubbles forming
(e.g. the Banque de France regularly set rediscount quotas for agricultural products to prevent a large surge in the prices of agricultural goods). However, this was only an efficient mechanism for stabilising inflation when banks held a substantial amount of central bank debt. For this reason, direct limits on credit expansion were also deployed since the 1950s by many European monetary policymakers (Monnet, 2014). Credit expansion limits were also used for credit allocation as a form of industrial policy, and also for macroprudential purposes. Such usage of selective credit policy was particularly common in postwar Europe and East Asia in order to solve coordination failures within the loan market (Johnson 1974, Rodrik 1994). In addition, credit controls were deployed as a means to maintain the banking sector in an equilibrium that does not contradict wider monetary and fiscal policy stances. For instance, in order to avoid speculation on public debt or the national currency, credit controls were implemented as a complement to international capital controls: in the standard IS-LM model, credit controls reduce the interest rate on government debt (Monnet, 2014). Other motivations behind their employment include the possibility of reducing the interest rate on loans below the market rate and increased bank access to the central bank discount window during periods of monetary contraction. For all these reasons, monetary policy becomes more powerful in these circumstances (Hodgman, 1973).

Liquidity ratios were used by the central bank when lending to other financial intermediaries in order to determine a debtor’s ability to pay current debt obligations without raising external capital. They were used for countercyclical stabilisation of the money supply, and hence output and inflation. Often, they tended to be considered a vital complement to credit controls for preventing banks substituting their assets for those with greater liquidity. Reserve Requirements, instead, had the scope to set the minimum amount of reserves required to be held by each financial institution, as a percentage of total deposits held by that bank. Their usage was mostly aimed at microprudential and macroprudential regulation and countercyclical monetary policy: in theory, a fall in the reserve requirements stimulates credit expansion. Hire-purchase controls were instead a type of asset financing method that allowed firms or individuals to possess and control an asset during an agreed term, whilst paying instalments covering the depreciation of the asset and interest to cover the capital cost. Hire-purchase controls were used to set limits and regulate the degree to which financial institutions could lend assets involving such purchases. Finally, special deposits were an instrument of monetary policy involving the placement of a specified proportion of the banking sector’s liquid assets with the central bank as a means of controlling the aggregate money supply. Special deposits were
excluded from liquidity ratios and reserve requirements. Hence, if monetary authorities sought to reduce the money supply, they could call for a special deposit to lower the liquidity base of the banking sector. This reduced bank lending and credit expansion, hence leading to a fall in the money supply.

The impact of credit controls on output and inflation chiefly depends on the channels through which credit supply shocks are transmitted to the economy. These channels can be broadly categorized as demand and supply channels. The former category includes, most importantly, the bank lending channel, the household demand channel and business investment. The latter mainly consists of the working capital channel. By restricting the supply of credit, quantity-based monetary policy tools reduce demand by households, as households find it more difficult to borrow for consumption and residential investment. Lower household demand results in decreased output and prices (Barth and Ramey, 2002). Business investment reacts negatively to credit supply reduction. As raising external finance is difficult, firms cancel or postpone their investments. This reduces demand, pushing down prices and output (Mishkin, 1995; Bernanke and Gertler, 1995; Ciccarelli et. al., 2010). Via the demand channel, restrictive policy leads to lower output and prices. Via the supply channel, restrictive policy reduces output, but unlike the case of the demand channel, the effect on prices can be positive, depending on whether the tradable or non-tradable goods sector is affected more strongly. The overall effect of restrictive policy should therefore be negative in terms of output. However, in terms of prices, the overall effect depends on which one of the channels dominates and which sector is the most affected. In the case of the UK, Aikman et. al. (2016) suggest that the channels had been relatively equivalent, while in the case of France, Monnet (2014) found that the restrictive policy had a negative effect on both output and inflation, thus possibly suggesting dominance of the demand channel.

2.2 Capital controls and the “trilemma”

The Mundell-Fleming trilemma, also known as the impossible trinity, postulates that a country needs to select at most two among the threefold choice of free capital mobility, fixed exchange rate management and monetary autonomy. The challenge for international monetary policymakers comes in choosing which of these choices are best to pursue and how they can be managed, since only two of the three options can be exercised simultaneously. The trilemma is widely used to discuss capital controls and monetary
policy autonomy under the Bretton Woods system and it has long been recognized as a benchmark theoretical model for positive and normative policy analysis. In practice, its importance rests on the possibility of analysing different stylised facts that lie in between the different options of the choice: often the divergence 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 Mundell-Fleming trilemma often becomes a useful point of view for the analysis of credit controls. In this respect, Monnet (2014) highlights two facts that are broadly at odds with the classical assumptions underlying the trilemma argument during the Bretton Woods Era. First of all, he notes that 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. Indeed, the use of monetary policy instruments also needs to conform to the trilemma. Therefore, the question that arises is if the capital controls offer an attractive policy option: often, they can supply a certain degree of policy autonomy. Nevertheless, middle-ground policies should be implemented very cautiously, as soft interest rate pegs allow for a greater scope over autonomy of monetary policy. Finally, although broad capital controls allow for monetary policy autonomy, they introduce costly distortions in the economy (Klein and Shambaugh, 2015).

Therefore, in the Bretton Woods framework credit controls attained a twofold objective. Internally, quantitative controls were already the main instruments of the central bank. Externally, the discount rate could be, for example, adjusted in line in France during the Bretton Woods regime. Since the channel of interest rates was heavily constrained and almost shut down, the interpretation of 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.

An alternative, possibly complementary, view to the aforementioned hypothesis is that capital controls were a necessary piece of 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 monetary policy. The dis-
appearance of capital controls was a correlation of the decrease of state intervention in domestic credit markets and the increasing role of interest rates and open market operations as monetary policy tools. One possible way to effectively make use of the instruments available to the central bank is to use interest rates to achieve the external equilibrium and credit controls to manage inflation. The management of aggregate demand and the way in which monetary policy is applied in prominent economies has important consequences for economic activities globally.

3 The model

3.1 Methodology

Our aim is to propose a new generalised methodology of inquiry into the effects of monetary policy as it was usually implemented during the Bretton Woods Era, namely through direct controls on the outstanding stocks of credit and by directly altering the balance-sheet requirements of commercial banks. The idea is to reconstruct a generalised aggregate demand-aggregate supply model implied by the data. Indeed, while the quantitative SVAR (Structural Vector Autoregression) approach adopted by Monnet (2014) more closely resembles more a partial equilibrium exercise, we attempt to develop our framework in a general-equilibrium perspective. Our ability to include numerous controls for the behaviour of the public and the private sectors allows us to include in the model all the factors that influence (or are influenced by) monetary policy, and thus are feeding back into the impulse response function. Therefore, our methodology may also prove helpful for investigating the effects of monetary policy in other countries during the same time period.

In order to achieve our goal, we adopt the generalised local projections model, as set forth by Jorda (2005). It consists in the simple OLS regression:

\[ y_t = \alpha_{t+h} + \beta_{t+h} \varepsilon_t + \gamma'_{t} x_t + u_{t+h} \]

where \( y_t \) is the dependent variable, \( \varepsilon_t \) is the monetary shock and \( x \) is a vector of controls. The equation is estimated with the endogenous variable lagged up to \( h \) periods ahead, with \( h \in \{1, 2, ..., H\} \). The estimated coefficients \( \beta_{t+h} \) represent the dynamic multipliers associated to the monetary shock. This specification retains numerous advantages. First
and foremost, the researcher does not need to impose any *a priori* theoretical structure on the model as it is sufficient to correctly identify the shocks. The vector of controls in the regressions includes lagged endogenous variables and any other variable that could be dynamically affected by the shock and could feedback to dependent variables. In other words, all controls are accounted for by information related to the true impulse responses, but no theoretical structure is imposed on the specification.

Another advantage of this Local Projections Model (LPM) is that it can account for state-dependence in the impulse response functions. There are many reasons to believe *a priori* that monetary shocks may have differing effects conditional on the state of the economy, i.e. expansion and recession. For this purpose, it is possible to adopt the smooth transition local projections (STLP) model, by combining the contribution of Jorda (2005) with the smooth transition model by Granger and Terasvirta (1993). Formally:

\[ y_t = F(z_t)(\alpha^e_{t+h} + \beta^e_{t+h}\varepsilon_{t+h} + \gamma^e_{t+1}x_{t+h}) + (1 - F(z_t))(\alpha^r_{t+h} + \beta^r_{t+h}\varepsilon_{t+h} + \gamma^r_{t+1}x_{t+h}) + u_{t+h} \]

Variables are defined below.

The coefficients are allowed to vary depending on the state of the business cycle: \( \beta^e \) and \( \beta^r \) denote the response in expansions and recessions, respectively. The state variable \( F \) indicates the probability that the economy is undergoing an expansion and, therefore, it is bounded between 0 and 1. It is defined as the cumulative density function of the Logistic random variable:

\[ F(z_t) := \frac{\exp(\theta z_t)}{1 + \exp(\theta z_t)} \]

The variable \( z \) is a lagging-behind moving average of quarterly growth, minus a parameter equal to the portion spent in recessions (we set it to 20%, following the trend in the literature) and divided by its standard deviation. Finally, the parameter \( \theta \) indicates the speed by which the economy swings from one state to the other. We follow the consensus by calibrating it as equal to 3.
For VARs impulse response functions are calculated with respect to a baseline scenario of the economy. As long as the process by which the economy switches from expansions to recessions is not explicitly modelled, state-dependent dynamic multipliers are likely to be biased. In fact, a shock might well make the state of the economy change, and if a simple VAR is not able to capture this switch, then it will return distorted impulse response functions. The STLP model overcomes this issue. For all these reasons, local projection allows the researcher to use a far more flexible specification. In contrast to standard VARs, we can test for state-dependence and include more variables in order to account for many more factors, namely the term-structure of interest rates and the relevant stocks of debt and money, which are often excluded from the usual VAR specifications due to parsimony.

As a matter of fact, this is indeed the goal of our analysis: we aim to establish a new, standardised, theory-based methodology of inquiry for monetary policy during the Bretton Woods Era that thoroughly stresses the ties between free capital mobility, fixed exchange rates, interest-rate policies and direct credit aggregates targeting. The LPM grants us the possibility of simultaneously studying the interactions between monetary policy stance, short and long-run interest rates, output and prices, the stocks of money and credit to the government and to the private nonfinancial sector, the foreign exchange rate and interest rate and the trade balance. We are able to study the interactions between these endogenous variables, also allowing for nonlinearities, as well as to gain an understanding of how policymakers used to behave in response to endogenous developments in the economy and what tools they decided to employ to achieve specific targets.

For the sake of illustration we chose France as a case study, since narrative restrictive monetary shocks have already been identified by Monnet (2014). Indeed, since many different tools, ranging from credit ceilings to liquidity controls, were used at the time, and it is not clear how binding they were, the only way to gauge the effectiveness of the policy stance is to build a dummy variable taking the value 1 whenever a restrictive episode occurred. Hence, we are not able to associate a precise impulse response function to each variable, but we still can understand whether monetary policy had some effects or not. Monnet (2014) employs a Cholesky VAR in his analysis, including up to four variables in the system. This procedure allows him to capture the effects of monetary shocks on selected variables precisely, but it falls short of analysing macroeconomic policy in a general-equilibrium open-economy AD/AS framework. For this reason,
starting from his contributions, we develop a generalised methodology that, given some narratively-identified monetary shocks, can effectively uncover the differing nuances of macroeconomic policy. Future research will be able to improve the analysis of monetary policy as it was implemented in other countries, such as the United Kingdom (cf. Aikman et al, 2016), Germany or Italy, during the Bretton Woods Era.

3.2 Econometric specification

For our purposes we estimate three different models. The first calculates the Impulse-Response Functions (IRFs) of prices, output, money and credit stocks, interest rates, the trade balance and the exchange rate in response to a narrative monetary shock. The second model analyses possible asymmetric IRFs of prices and output conditional on the state of the business cycle. The third, finally, seeks to understand how the economy reacted to changes in the other variables of interest, particularly the domestic policy rate, the foreign interest rate (i.e. the Federal Funds rate, given the natural dominance of the US economy in the Bretton Woods framework) and the exchange rate.

Impulse response functions are robust to the number of lags chosen of the control variables, as well as to the inclusion or omission of irrelevant variables. We have chosen to include four lags of each variable in the baseline specification of each equation. It is assumed that four lags are sufficient to absorb all the relevant information that might feed back into the dependent variable. This assumption is fairly arbitrary; nevertheless including more lags does not alter significantly the IRFs obtained. Every equation includes the current and lagged values of every variable as regressors. Omitting variables that might be deemed “irrelevant,” i.e. theoretically not directly strongly related to one another. For example long-run interest rates and prices does not change our IRFs in an appreciable manner. Therefore, we do not have problems of overfitting.

As far as the diagnostics are concerned, we are not estimating the equations using the seemingly unrelated regressions estimator (SUR), which is in this case the most efficient one. Similarly, we are not using Driscoll-Kraay corrected standard errors, which would account for correlation across equations. As a result, the standard errors of our IRFs are not minimised and possibly biased. This has been a deliberate choice, made for the sake of easing the computation, which, however, does not affect the nature of our findings. Even by assuming a wider uncertainty about the dynamic multipliers, the point estimates remain unbiased.
4 Data and Results

4.1 Data

Our dataset spans the years 1947 to 1972 inclusive. All variables are reported monthly, except for the trade balance in proportion of GDP reported quarterly. The data we employed have been obtained from heterogeneous sources. Specifically, the identification of restrictive monetary shocks following a narrative approach ‘a la Romer and Romer (1989) is identical to the one performed by Monnet (2014) based on minutes from the Banque de France. Indexes of consumption, prices, and production of total industry have been retrieved from the yearly reports of the National Credit Council. The source for the seasonally-adjusted series for the M2 money stock and the stock of credit to the private non-financial and the public sectors is Patat and Lutfalla (1990, while the source of all the financial variables, the social discount, money market and long-run interest rates, as well as the Franc-US Dollar Exchange rate and the trade balance as a ratio to GDP is the database: ”Global Financial Data” http://www.globalfinancialdata.com/.

4.2 Results

4.2.1 Model 1: Narrative restrictive shocks

As just stated, our first specification simply runs parallel to the VAR regressions implemented by Monnet (2014). The only difference is the greater number of control variables and lags, which allows us to account for more information and does not require a priori reasoning based on economic theory. Unsurprisingly, the effects we find on output and prices are very similar to those in the aforementioned study. On average, a restrictive monetary shock induces a 2.5% fall in the price level and a circa 5% fall in industrial production after one year. It is interesting to notice how these proportions are roughly similar to those implied by the Taylor Principle. In other words, a monetary shock has on average twice the effect on output than it has on prices.

The impact on the M2 aggregate is fully consistent with the correspondent decrease in nominal and real output. Broadly speaking, this entails money velocity (and thus demand for money) remaining approximately stable in recessions.
The effect of a quantitative monetary restriction on the total outstanding stocks of credit to the private and public sectors entails interestingly different time paths. For what concerns the former, it attains its maximum trough of slightly less than 10% after one year and half following the shock. Afterwards, it slowly starts recovering. There are many possible interpretations of this phenomenon. We could assume that frictions in the bank lending channel and credit rationing tend to worsen the downswing. In addition, we could also consider that two years after the monetary restrictions, firms start again to demand some credit for covering short-run liabilities or because they plan to investment.
not immediately but in the foreseeable future.

As far as credit to the general government is concerned, we should first of all stress the fact that the initial surge (of about 3% after 5 months from the restriction) remains significant and robust to the number of lags included in the specification, as well as to the omission of any variable. It is reasonable to think that, immediately after credit controls enter into force, banks might prefer to shift towards lending to the government or buying short-term bills. Afterwards, credit to the public sector may diminish due to the portfolio preferences of the banking sector.

The initial surge in credit to the government is directly matched by an initial moderate decrease in both short and long-run public bond yields. Although this effect is not significant, it remains consistent with the increase in credit. The movement of short and long-run rates is consistent with standard economic theory: three-months yields initially surge due to the tightening of the liquidity level on the money market, while 10-year yields remain less affected.
Overall, this corresponds to a flattening of the yield curve, as investors prefer to shift to long-run securities for hedging against uncertainty in a recession. Two years after the shock, this trend is reversed, as the economy starts recovering and a steepening of the yield curve occurs. Finally, we can see that, as expected, a credit control implementation leads to an average improvement of the trade balance to GDP by 3% after one year and half. Taking the exports as exogenous, the reduction in income and hence imports entails an improvement of the balance-of-payments. Symmetrically, the increase in foreign currency reserves induced by the balance of payments surplus brings forth downward pressures on the exchange rate, i.e. market forces push for the exchange rate to appreciate. Notice that the FRF/USD exchange rate is price quoted, thus a decrease entails an appreciation. Clearly, in nearly the entire sample the exchange rate was fixed. Therefore, policymakers had to take into account that a restrictive shock had to bring forth revaluation pressures, rather than a simple exchange rate appreciation.
Overall, the predictions of our first model do not come as a surprise. The standard Mundell-Fleming mechanisms come to the surface. All equations are complete. The only potential threat to internal validity of the trade balance equation is the omitted variable of foreign GDP. Nevertheless, this exclusion does not make the overall assumptions crumble and the results remain perfectly in line with economic theory.

4.2.2 Model 2: Asymmetric IRFs

Recent literature has thoroughly made the case for impulse response functions to shocks that vary conditional on the state of the business cycle. Our specification gave us the chance to model explicitly this phenomenon, and we attempted it for the sake of completeness. Notwithstanding this, the results below need to be taken with a grain of salt. In either case, the effects of monetary shocks prove to be stronger in recessions than in expansions. Clearly, this goes against any economic theory and possibly against common sense. The main problem here is that most shocks occur during expansions, as they represent a standard countercyclical policy. For this reason, IRFs in recessions are biased due to insufficient variance and are not meaningful for the sake of the analysis. For completeness we also have reported the chi-square statistic of the Wald test of equality of the coefficients, although clearly a model of state-dependent IRFs cannot be estimated conditional on the information available.
Figure 10: The impact of a restrictive credit control shock on the price level during an expansion

Figure 11: The impact of a restrictive credit control shock on the price level during a recession

Figure 12: The impact of a restrictive credit control shock on the industrial production index during an expansion

Figure 13: The impact of a restrictive credit control shock on the industrial production index during a recession
4.2.3 Model 3: Exchange and interest rates

Our last model has the purpose of analysing the response of endogenous variables to other candidate instruments for macroeconomic policy. First of all, we estimate the IRFs to the central bank’s discount rate, which has in other periods has been a core tool for monetary policymakers to adjust in order to achieve targets. Our findings show a significant long-run price and production puzzle, i.e. increasing the discount rate by 1% has positive long-run effects on output and prices. These findings resemble those by Monnet (2014) and they show that the bank rate was not employed as a countercyclical measure.
Additionally, it is also interesting to notice that a shock in the discount rate had a very limited impact on short-run liquidity and virtually no impact on long-run bond yields. Hence, again, it seems likely that a more effective way of impacting the yield curve was the use of direct credit controls.
deficit was again monetary policy with quantitative controls. This finding is also in line with the consensus view: the IMF agreement considered the exchange rate devaluation as a tool of last resort only for overcoming balance-of-payments deficits.

Finally, except for an initial short period of about eight months, shocks in the foreign interest rate did not affect the domestic interest rate, nor the exchange rate. This indicates that international capital flow controls were in place and were binding. Effectively, a consistent spread between the domestic rate and the one implied by uncovered parity persisted. This, therefore, gave the policymaker an additional degree of freedom, while direct credit controls and international capital controls were used complementarily, as in fact argued by Kelber and Monnet (2014).
Figure 21: The impact of a shock in the federal funds rate on Banque de France’s discount rate.

Figure 22: The impact of a shock in the federal funds rate on the Franc/Dollar exchange rate.

5 Concluding remarks

Our results strongly confirm the evidence found by Monnet (2014). Furthermore, they are consistent overall with a generalised open-economy Mundell-Fleming environment where there are strict controls on cross-border financial capital flows. Specifically, we are able to generalise the previous inquiry to a general equilibrium setting. This allows us to understand which tools were used to address which targets, as well as the effects they had on endogenous macroeconomic variables. These results are encouraging for building up a new methodology for studying the implementation issues and the effects of monetary policy during the Bretton Woods Era. There is indeed room for promising future research to apply this methodology to other countries that notoriously experienced direct credit controls as a primary tool of monetary policy in those decades.

In detail, our case study helps to confirm empirically many aspects of the consensus view of monetary policy implementation during the aforementioned period. Most notably, we strongly confirm the irrelevance of the discount rate for the monetary policy stance. Effectively, as Monnet (2014) records, many policymakers agreed at the time that central bank rates had lost their conventional meaning for monetary policy. Our results strongly support this view, which was dominant in France during the thirty postwar years of the Trente Glorieuses. At the same time, the negligible impact of movements in the foreign interest rate signals the presence of non-negligible hurdles to cross-border capital
flows.

Another important feature our analysis is able to underscore is the fact that were reluctant to use the exchange rate for adjusting the external deficit. Rather, they seemed to assign credit controls to the double task of achieving both the internal and the external balance. This confirms the philosophy underlying the core IMF agreement: exchange rates were fixed and capital flows were controlled. Adjustments from parity were small and often discouraged, therefore preferring the latter tool for achieving a trade balance equilibrium.

These results also help shed more light on some details that have been overlooked, possibly due to the lack of in-depth empirical analyses. For instance, the stabilisation of the foreign exchange rate in France has been more effectively implemented through credit controls rather than through the interest rate, as common wisdom has always suggested. In a similar fashion, the pass-through of shocks from the central bank policy rate appears to have been very contained, therefore undermining the traditional view that conventional monetary policy was used to control the yield curve, whereas the overall degree of liquidity in the money market was mainly affected through credit controls.
References


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