



# The redistributive politics of monetary policy

Louis Rouanet<sup>1</sup> · Peter Hazlett<sup>2</sup>

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## Abstract

Monetary policy and institutions are far from exempt from political influences. In this paper, we analyze monetary institutions not as being run by either benevolent technocrats or a wealth-maximizing Leviathan, but as the outcome of competition between interest groups trying to capture wealth transfers. We argue that while interest groups gaining from specific monetary policies and institutions can easily identify themselves, losers often cannot. As a result, losers have a more difficult time fighting back, and both the organization of money production and monetary policy are shaped by political competition between rent-seekers. We use our framework to analyze modern developments in monetary policies and institutions, namely (1) the Fed’s reaction to the 2007 financial crisis, (2) the Fed’s reaction to the COVID crisis, and (3) the establishment and development of the euro.

**Keywords** Inflation · Redistribution · Cantillon effects

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## 1 Introduction

Any institution or policy, to be established and maintained, must benefit at least one individual. Yet when it comes to monetary policy, existing models often act as if benevolent monetary authorities are solving for the social optimum without considering the incentives policymakers face. As Plosser (2018, p. 2) writes, however, “policy makers are not the romantic ‘Ramsey planners’ that we economists often assume in our models but actors responding to incentives and subject to institutional constraints, both of which shape policy

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✉ Louis Rouanet  
louis.rouanet@wku.edu

Peter Hazlett  
phazlett@gmu.edu

<sup>1</sup> Department of Economics, Western Kentucky University, Bowling Green, KY, USA

<sup>2</sup> Department of Economics, George Mason University, MS 3G4, Fairfax, VA 22020, USA

choices and outcomes.” Neither the formation of monetary institutions nor monetary policy is immune to private interests.

While economists have long argued that the production of money is not neutral on the distribution of wealth and the pattern of prices (Cantillon, 1755; Hayek, 1931), it is still unclear how and through what channels monetary policy impacts those variables. Richard Cantillon was the first economist, in 1755, to argue that the first receivers of the newly created money will benefit from inflation, while the later receivers will lose from it as the real value of their cash balances depreciates—a process called the “Cantillon effect” (Blaug, 1997). Once we relax the assumption of neutral money, it is clear that certain groups may benefit from newly created money being injected into the economy while other groups may lose. At this point, what more is a central banking institution than one that changes the distribution of assets within society? Alternative monetary arrangements are rarely conceptualized as entailing different distributions of resources, and yet they surely are.

The distributional consequences of Cantillon effects from monetary policy, however, are difficult to identify.<sup>1</sup> For instance, while the development of unconventional monetary policies since 2007 has led to a ballooning literature on the impacts of monetary policy on inequality, the literature has failed to come up with decisive answers.<sup>2</sup> Earlier studies on the effects of inflation suggest that it mainly increases inequality.<sup>3</sup> Although some of the more recent research concurs,<sup>4</sup> much of it has found evidence to the contrary.<sup>5</sup> Some studies also find that contractionary monetary policy has increasing effects on inequality,<sup>6</sup> while some indicate decreasing effects (Ballabriga & Davtyan, 2017). Finally, other studies have found a nonlinear relationship between inflation and inequality.<sup>7</sup> The relationship between inflation and income and wealth inequality seems to be inconclusive on a one-way directional effect (O’Farrell et al., 2016).

Similarly, no consensus has been reached when trying to assess the impact of unconventional monetary policy, such as quantitative easing (QE), on inequality. Studies have varied dramatically with respect to their conclusions, with some saying that unconventional monetary policy has increasing (Albert et al., 2019; Saiki & Frost, 2014; Taghizadeh-Hesary et al., 2020), decreasing (Lenza & Slačálek, 2018), heterogeneous (Guerello, 2018), ambiguous (Bernoth et al., 2015), and negligible (Casiraghi et al., 2018) effects on inequality. The growing literature on this topic seems to have failed to identify a systematic effect between monetary policy and inequality. Prasad (2014), for instance, highlights the discrepancies in the literature on the effects of monetary policy and concludes that “the sheer number of channels suggests that the net redistributive effect is specific to each economy and even to the specific type of monetary policy action undertaken by a central bank” (p. 414).

While the absence of a systematic effect of monetary policy on wealth and income distribution may seem discouraging to researchers, this absence has, paradoxically, important consequences for the political economy of monetary institutions. In this paper, we argue

<sup>1</sup> For attempts to identify such effects, see Cour-Thimann (2013) and Sieroń (2019).

<sup>2</sup> For a comprehensive review of the literature on monetary policy and inequality, see Colciago et al. (2019).

<sup>3</sup> Bulíř and Gulde (1995); Easterly and Fischer (2001); Erosa and Ventura (2002).

<sup>4</sup> Dolado et al. (2018); Israel and Latsos (2020); Rouanet (2017).

<sup>5</sup> Doepke et al. (2015); Menna and Tirelli (2017); Meh et al. (2010).

<sup>6</sup> Areosa and MB. (2016); Coibion et al. (2017); Furceri et al. (2018); Mumtaz and Theophilopoulou (2017).

<sup>7</sup> Bulíř (2001); O’Farrell and Rawdanowicz (2017).

that the effect of money creation on income and wealth distribution will depend on both the prevailing economic and political equilibrium. In other words, the distributional consequences of inflation will depend on which interest groups are able to control the money creation process for their own benefit. Yet it is precisely because of the difficulty in identifying the losers from inflation that those harmed by monetary policy are unlikely to play a role in its formation. Monetary policy can be understood as a process providing concentrated benefits to special interest groups while imposing dispersed and not easily identifiable losses on other groups. Hence, while some economists—especially economists in the Austrian tradition—have emphasized how the impact of changes in the money supply depends on the channels through which money is “injected” into the economy (Hayek, 1931; Mises, 1949; Garrison, 2000), the selection of such channels is itself likely to be shaped by the logic of interest groups. On the other hand, while the existing literature on the political economy of money has focused mostly on the impact of the election cycle (Abrams & Iossifov, 2006; Nordhaus et al., 1989; Drazen, 2000) as well as on issues of time inconsistency (Kydland & Prescott, 1977; Barro & Gordon, 1983) and seigniorage maximization (Cagan, 1956), it tends to leave out the role of interest groups in shaping both the tools and objectives underlying monetary policy.<sup>8</sup> Considering the redistributive effects of money creation and credit allocation policies, on the other hand, allows one to apply the logic of interest groups to the organization of money production. Cantillon effects are a matter of public choice.

We provide evidence for our interest groups approach using three case studies: (1) the Fed’s reaction to the 2007 financial crisis, (2) the Fed’s reaction to the COVID crisis, and (3) the establishment and development of the euro. One prediction of our framework is that when either Cantillon effects or the effects of credit allocation are less identifiable, those gaining from money creation and preferential lines of credit are more likely to successfully exert influence on monetary authorities. While our first and second case studies using the Fed show the importance of interest groups receiving concentrated benefits and imposing dispersed costs, the case of the euro provides the opportunity to contrast the latter situation to one where the losers of money creation are easily identifiable and suffer concentrated losses. We show that in this situation, those harmed by money creation and credit allocation policies are more likely to successfully lobby for institutional safeguards preventing other interest groups from inflicting costs onto them.

## 2 Cantillon effects as public choice

### 2.1 Cantillon effects

David Hume is often credited for having developed the idea of monetary neutrality—i.e., the idea that money affects nominal prices but not real prices. In its strictest sense, the concept of money neutrality excludes the identification of any distributive effects caused by monetary policy. Money creation, however, is unlikely to ever be neutral (Hayek, 1931) on either prices or the distribution of wealth and income. It is only because money is not neutral that studying the distributive effects of money creation is relevant.

<sup>8</sup> See Heckelman and Wilosn (2021) and Weise (2012) for some who have identified effects interest groups have had on monetary policy.

It was a predecessor of Hume, the Franco-Irish economist Richard Cantillon (1755), who was among the first to notice the redistributive effects of monetary creation. In his *Essay on the Nature of Trade in General* (1755), Cantillon notes how “[a]n expansion of actual money in a state always produces an increase of consumption and a propensity toward greater expenditure. But the higher prices caused by this money are not found equally across all kinds of commodities and merchandise in proportion to the quantity of this money” (p. 83). For Cantillon, the effects of an increase in the money supply on the price level are gradual and involve a change in relative prices. The first ones to receive the newly created money see their incomes rise, whereas the last ones to receive the newly created money see their purchasing power decline as consumer price inflation comes about. Therefore, money creation impacts relative prices and wealth, a process that Blaug (1997) called the “Cantillon effect.”

Imagine a two-person economy with individuals A and B. B likes sailing and cheese relatively more than A. A likes tennis and candy relatively more than B. Under those conditions, if the Fed decides to print one million dollars and hands it to B, the relative price of sailboats and cheese will increase, while B will be wealthier. If the money is given to A, the relative price of candies and tennis balls will increase, and A will be better off.<sup>9</sup> In other words, the first receiver of the newly created money will benefit from inflation, while the late receiver will lose from it.<sup>10</sup>

Other channels should also be taken into account. “A” could, for instance, have better knowledge of the future path of monetary policy, either because he plays a role in directly setting the Fed’s agenda or because of his political connections. Better information about the Fed’s monetary policies means that A will be able to adjust his plans more quickly, hence providing him with profit opportunities unavailable to the rest of the population.<sup>11</sup>

The receivers of the newly created money who first have the opportunity to use it in market transactions are beneficiaries of the monetary policy. Thus, how newly created money is injected is of first-order importance in determining who benefits and the overall distributive effects. As Oskar Morgenstern (1972) puts it, “If no account is given where [...] additional money originates from, where it is injected, with what different magnitudes and how it penetrates (through which paths and channels, and with what speed), into the body economic, very little information is given.” Depending on these factors, “The same total addition will have very different consequences” (p. 1184). Similarly, Mises (1971) argues:

When the increase of money proceeds by way of issue of currency notes or inconvertible bank-notes, at first only certain economic agents benefit and the additional quan-

<sup>9</sup> For formal models making related arguments, see Williamson (2008) and Andrei et al. (2017).

<sup>10</sup> Andrei et al. (2017) find evidence for this prediction by constructing an “economic distance from the Fed” index for different industries.

<sup>11</sup> For instance, the financial firm BlackRock, which was hired by the Fed to grant loans on its behalf, will know what kind of asset will be bought by the central bank and what direction monetary policy will take before other agents, hence providing this firm with certain potential advantages (Tett, 2020).

tity of money only spreads gradually through the whole community. If, for example, there is an issue of paper money in time of war, the new notes will first go into the pockets of the war contractors. As a result, these persons' demands for certain articles will increase and so also the price and the sale of these articles, but especially in so far as they are luxury articles. Thus the position of the producers of these articles will be improved, their demand for other commodities will also increase, and thus the increase of prices and sales will go on, distributing itself over a constantly augmented number of articles, until at last it has reached them all. In this case, as before, *there are those who gain by inflation and those who lose by it. The sooner anybody is in a position to adjust his money income to its new value, the more favorable will the process be for him* [emphasis added]. (pp. 208–209)

In the case of money creation being used to finance specific government-sponsored projects, the existence of Cantillon effects is obvious. Yet they are still present when seigniorage is not a major source of public funds. Monetary policy is, for the most part, conducted through the buying of financial securities or through loans to financial institutions. If all financial assets are perfect substitutes for each other and if capital and other productive factors are homogeneous—i.e., all capital goods are perfect substitutes—then Cantillon effects are unlikely to play a major role: no monetary injection will ever be able to change the relative prices of perfect substitutes. While considering capital as homogeneous as in Knight (1944) may sometimes be theoretically useful, capital goods and investment are in fact only partially specific (Mises, 1949; Lachmann, 1956). Similarly, financial assets are only imperfect substitutes for each other when their liquidity and risk is heterogeneous, meaning that the Fed or any other central bank can influence their price through open-market operations or other policies. The Fed buying mortgage-backed securities, for instance, does have an impact on their price and indirectly supports the housing market.<sup>12</sup> Similarly, by taking safe assets out of the market, the Fed can induce an increase in the demand for risky assets (Di Maggio et al., 2020), thus raising their price. If monetary authorities can impact the relative price of securities, the question becomes why the Fed does not adopt a representative basket of financial assets to increase the neutrality of its open-market operations. The interest groups perspective suggests that this is unlikely to happen because the benefits of this policy are dispersed instead of concentrated.

The recent switch from traditional open-market operations to credit-oriented balance sheet policy does not fundamentally change the logic of “Cantillon effects.” By paying interest rates on bank reserves parked at the central bank, the Fed can now ensure the demand for such reserves is perfectly elastic (Selgin, 2018). As a result, the Fed can create base money by buying financial assets without increasing the money supply. Any increase in base money leads to a corresponding increase in bank reserves parked at the central bank as opposed to loans. Yet this does not mean the absence of Cantillon effects. Instead, it suggests that monetary authorities can also influence the path of the newly created money throughout the economy by adopting either regulations or monetary policy tools designed to that effect. With interest paid on reserves, the Fed buying specific financial assets against base money still leads to some relative price changes and breeds winners and losers.

Ultimately, Cantillon effects imply that certain groups of people will come out winners while others come out losers. Wagner (2010) recognized this, noting how the Cantillon

<sup>12</sup> Di Maggio et al. (2020) provide evidence that the Fed de facto allocated credit through its long-duration large-scale asset purchase programs. The authors find that the Fed's choice to purchase mortgaged-backed securities instead of buying treasuries exclusively during the first QE resulted in an additional \$600 billion of refinancing and substantially reduced interest payments for refinancing households.

framework “suggests that central banking operates to the advantage of some clienteles within society and at the expense of others” (p. 149). Having witnessed the Mississippi bubble burst, Cantillon (1755) emphasized the distributional effects of money creation and argued that credit expansion policies “open the door to making great fortunes, are rarely managed for the sole benefit of the state, and those who operate them are often corrupted” (p. 146). Yet inflation does not necessarily increase inequality. For instance, if seigniorage is spent on welfare programs, then inflation could have the opposite effect.

In some cases, Cantillon effects might not show up in any inequality measures at all, or any aggregate magnitude for that matter. Wagner (2010, p. 148) warns that Cantillon effects might be more evident through the impact they have on the structural patterns of economic activity, while aggregate measures might show little to no change. Yet, because of Cantillon effects from new money injections, individuals who are the first recipients of the money will benefit. Where groups have the opportunity to gain through political action, interest groups will form. If different interest groups desire alternative monetary policies relative to others, money creation becomes a matter of public choice.

## 2.2 Public choice and the money creation process

The production of both base money and close money substitutes cannot be separated from the political process within which it takes place (Calomiris & Haber, 2015). While scholars often offer public interest explanations for the conduct of monetary policy and central banking (Ugolini, 2017), there is a clear disconnect between the rationalization of central banking and their everyday operations (Boettke et al., 2021; Salter & Smith, 2019). Central banks are not immune to political (Binder & Spindel, 2019; Jordan & Luther, 2020) and bureaucratic influences (Toma, 1982). Similarly, the interaction between the regulatory and monetary policies conducted by central banks is rarely analyzed in view of the political constraints faced by political agents.

As for other institutions, political agents and interest groups will bid for the institutions and practices underlying money production that benefit them most. Since different monetary regimes will impact the pattern of wealth and income differently, different groups will compete to capture the redistributive effects of money production.<sup>13</sup> In other words, Cantillon effects are a matter of public choice. Modifications to central banking institutions and policies reflect the efforts of participants to seek changes that change remaining alienable ownership rights in their favor.

In the previous subsection, we explained why the first receivers of the newly created money tend to gain from an increase in the money supply while later receivers of the newly created money do not. Starting from this insight, we can apply the straightforward logic of collective action (Olson, 1965) to money production itself. While economists emphasizing the importance of Cantillon effects generally analyze the impact of money production on market prices, they rarely investigate the impact of the money production process on “political prices” as well. In the same way that changes in the money supply are not neutral vis-à-vis the structure of production in the private sector, changes in the money supply impact the structure of production in the political and governmental sector.<sup>14</sup>

<sup>13</sup> The Fed itself should also be considered as one interest group trying to capture the money production process for its own benefit (Shughart & Tollison, 1983).

<sup>14</sup> Of course, where the money is injected into the economy should not itself be considered as exogenous. Instead, where the newly created money is injected will be determined by political competition between interest groups to capture the gains from money creation.

Following Wagner (1986), we posit that “the distributional consequences of alternative monetary institutions and their processes of monetary expansion ... will be the primary element in explaining the choice and persistence of particular institutions” (p. 531). Instead of assuming the government’s objective function, the objectives sought by the government in general and the monetary authorities in particular reflect the outcome of the political process within which diverse interest groups compete. This means considering how different monetary institutions benefit and harm different interest groups and explaining why certain interest groups successfully impose their objectives while others do not.

To understand the redistributive effects of money creation, we can first think of the special case where changes in the money supply do not change either relative prices or the distribution of income and wealth. Such a situation corresponds to a money production process where nominal money balances are increased or decreased by the same percentage. For instance, each dollar owned would now be worth  $(1 + x\%)$ , where  $x$  is the percentage-point change in the money supply. Because the gains from inflation would be equal to the inflation tax on real money balances, there would be, under this scenario, no incentive to inflate the currency.

An institutional framework approximating a proportional increase in nominal balances is technically possible to implement. It is feasible, for instance, to automatically add  $x\%$  per day, week, or year to every deposit account automatically. This institutional framework would approximate Hayek’s (1931) call for allocatively neutral monetary policy while being able to maintain monetary equilibrium following changes in the demand for money.<sup>15</sup> But however advantageous this institutional arrangement is, it is unlikely to be implemented because it would lack political support. The benefits of maintaining monetary equilibrium through allocatively neutral monetary policy are dispersed and not easily appropriable by political players.

Instead of being allocatively neutral, monetary policy is likely to be conducted in such a way as to provide concentrated benefits and impose dispersed costs. While the logic of Cantillon effects has a clear prediction with respect to who wins and who loses from inflation, it is not, in the real world, easy to identify who the late receivers of the newly created money are because positions in a chain of transactions are not directly observable. As money is one side of every exchange, the impacts of changes in the money supply are broad. Yet, identifying those effects is challenging. Which persons or groups gain from inflation, and which lose from it, depends upon the actual data in each individual case. The basis of the price system being that individuals do not need to know all the circumstances of time and place to choose the economically efficient path of action (Hayek, 1945), they will generally not know whether they are among the losers in the inflationary process.

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<sup>15</sup> In fact, this institutional framework would probably be better able to respond to sudden changes in the demand for money than the Fed today, as the Fed controls the money supply only very loosely.



The fact that economic agents face knowledge and information problems with respect to who is losing from inflation has implications for the public choice of monetary institutions. While economic agents are not easily able to identify whether they are losing from inflation, first receivers of the newly created money *do know* that they are winning from controlling monetary operations. Because of this asymmetry of information between the first receivers and late receivers of the newly created money, it will be relatively easy for potential first receivers to organize as a group to successfully lobby the government and change the course of monetary policy. Late receivers, on the other hand, will face difficulties both in assessing whether they themselves are losing from the current state of monetary policy and in assessing who else is losing from it. Consequently, the losers of monetary policies will not have the necessary information to engage in successful collective action by forming an interest group with a coherent agenda. If the losers can obtain information about who suffers from monetary policies, on the other hand, they would themselves lobby against policies harmful to them. Politicians would therefore have to find the balance between the benefits given to the rent-seekers and the corresponding losses imposed on the losers (Peltzman, 1976). Hence, when the cost of identifying losers from specific monetary policies and institutions is lower, we expect those losers will play a greater role in monetary policymaking and will enjoy more favorable terms of political trade.

Our analysis offers several other implications. First, the more concentrated the benefits accruing from specific monetary arrangements to an interest group, the greater its incentive to influence monetary policy. Second, the more dispersed the costs of specific monetary arrangements, the less will those bearing the costs of such arrangement fight back to prevent being exploited by the dominant interest group. Third, the more difficult it is for economic agents to identify whether they are losing from alternative monetary arrangements, the less opposition there will be to the dominant interest group shaping monetary policy and monetary institutions. For instance, some groups, such as the owners of fixed-income securities, suffer from easily identifiable losses from inflation and are therefore likely to try to limit the ability the monetary authorities have to increase the money supply. Historically, bondholders have been a powerful interest group supporting the establishment of institutions limiting inflation.<sup>16</sup> Yet even if bondholders are successful at *limiting* the increase in the money supply, the issue of what parties are or could be winning from a *given* increase in the money supply still needs to be answered. How money supply is increased is as important as how much is it increased.

Consistent with Cantillon effects, monetary policies involving credit allocation are likely to be dictated by interest group politics. Credit allocation differs from Cantillon effects in that, instead of distributing newly created money to certain groups, it distributes credit to groups with more favorable rates than what can be found in private markets. Like Cantillon effects, this policy breeds winners and losers. Although the mechanism is different from that for an increase in the money supply, the same logic of interest group politics outlined above is in effect.

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<sup>16</sup> See Di Gioacchino et al. (2004), Pecchi and Piga (1999), and Rose and Spiegel (2018) for such accounts.



One instance of such a monetary institution designed to serve special interest groups might entail a central bank with a governing board that is able to change credit terms in favor of commercial allies. Hence, a so-called monetary policy might be implemented through the purchase of failing loans held by those banks. While this would be characterized as a monetary policy action, it would really represent a commercial transaction wherein people who hold positions of power can use their position to increase the value of their ownership rights.<sup>17</sup>

More recently, the adoption of the floor system by the Fed can be interpreted as a way to conduct credit allocation without suffering from the inflationary consequences of open-market operations. Indeed, under the floor system, bank reserves pay a rate of return at least as large as that on short-term securities. Thus, the demand for reserves is interest-elastic, and the Fed buying financial securities in open-market operations translates into an increase in bank reserves in their Fed account, while it does not translate into credit expansion (Selgin, 2018). By picking which financial securities to buy, the Fed can allocate credit without the inflationary consequences.<sup>18</sup> Whatever the economic merits of paying interest on reserves, the political merits of the floor system may consist in its ability to better mask the costs of distributing rents to special interest groups.

The financial sector has been the most successful, both historically (Selgin, 2016) and recently, at shaping and influencing monetary institutions and policy. Central bankers often either come from the financial sector or can find well-paying jobs in large financial institutions after having served at the Fed, European Central Bank (ECB), or other major central banks.<sup>19</sup> Given the prevalence of the revolving door, responding to the demands of special interest groups has adaptive value for central bankers (Salter & Luther, 2019). More recently, and as we will see in the next section, the Fed has enlarged its mandate by picking winners and losers and buying specific kinds of assets. Such so-called unconventional monetary policies can be analyzed from the public choice/rent-seeking perspective.

### 3 Evidence

#### 3.1 The great recession and the Fed's asset purchase programs

The Federal Reserve's policy response to the 2007–2008 financial crisis serves as a prime example of interest groups influencing monetary policy. During the crisis, the Fed took advantage of Section 13(3) of the Federal Reserve Act which allows the board to make loans during “unusual and exigent circumstances” when the borrower is unable to access credit through other means (Bernanke, 2009). However, many of the Fed's actions would extend beyond this role as lender of last resort following the crisis (Hogan et al., 2015). These actions were primarily targeted to relieve the financial stress burdening banks from the housing crisis. The banks had a relative advantage over other industries in receiving relief from the Federal Reserve, for several reasons. First, the Federal Reserve itself

<sup>17</sup> For instance, see Rouanet (2021) with respect to the creation of the Bank of France.

<sup>18</sup> See Selgin (2018). Hogan (2021) finds that the floor system substituted bank loans by excess bank reserves.

<sup>19</sup> For instance, Mervyn King, former chair of the Bank of England, serves as a senior adviser to Citigroup. Axel Weber, the former Bundesbank chief, then chaired UBS. Ben Bernanke, the former Federal Reserve chairman, serves on PIMCO's board alongside Jean-Claude Trichet, his former counterpart at the ECB.

frequently relies on the political support of the banking industry. Second, banks are the most widely represented group among the Reserve Bank branch directors, as seen in Table 1, and can communicate their concerns more easily, for instance by using their influence in the Federal Advisory Council (Havrilesky, 1990). Finally, the problem of regulatory capture extends to the Fed's activities. In a preliminary report on systemic risk and bank supervision, Beim and McCurdy (2009) report a new Fed employee noting that "Within three weeks on the job, I saw the capture set in" (p. 8, footnote 2).

After mortgage securities were downgraded in ratings, many financial institutions owned assets, such as mortgage-backed securities, whose value crumbled. The Fed instituted multiple programs under its QE measures to take these risky, illiquid assets off the balance sheets of the financial institutions stuck holding them.<sup>20</sup>

The largest of these during this period was their mortgage-backed securities (MBS) purchase program. The program started with the purchase of \$70 billion in mortgage-backed securities from Barclays, BNP Paribas, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, and Morgan Stanley (Congleton, 2012, p. 416). The Fed bought \$1.25 trillion worth of mortgaged-backed securities through their MBS purchase program between January 2009 and March 2010 (Agency mortgage-backed securities [MBS] purchase program, 2016). For the most exposed larger financial institutions, more exorbitant measures were taken, such as the case for Bear Stearns. The Fed created a limited liability company (LLC) under the name Maiden Lane to help bail out Bear Stearns and make the firm look more attractive for acquisition (Bear Stearns, JPMorgan Chase, and Maiden Lane LLC, 2016). The Fed used Maiden Lane to buy the troubled assets from Bear Stearns, enticing a better deal for the acquiring firm, JPMorgan Chase (White, 2009, p. 122). The success of Maiden Lane prompted the Fed to pursue a similar strategy when dealing with the failing American International Group (AIG), spurring the creation of Maiden Lane II and III. Maiden Lane II purchased the diminished mortgage-backed securities from AIG, while Maiden Lane III purchased their collateralized debt obligations (White, 2009, p.122).<sup>21</sup> These transactions represented \$75 billion of financing from the Federal Reserve to Bear Stearns, JPMorgan Chase, and AIG (Congleton, 2012, p. 417). Additionally, the Fed purchased \$400 million worth of mortgage-backed securities and \$200 million of commercial papers and other toxic assets from Bear Sterns and AIG (Hogan et al., 2015, p. 343).

Another major asset purchase program conducted by the Fed was the Term Securities Lending Facility (TSLF). These programs worked by swapping relatively safe and liquid treasury securities for the illiquid assets of specific financial firms. From March 2008 to July 2009, more than \$2 trillion worth of asset swaps took place with firms such as Bank of America, Barclays, BNP Paribas, Countrywide, Credit Suisse, Deutsche Bank, Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley (Congleton, 2009, p. 416).<sup>22</sup> These are only a few of the asset purchase programs the Fed participated in. By September 2012, the Fed started their third round of QE, which entailed purchasing \$40 billion in mortgage-backed securities each month (Hogan et al., 2015, p. 343). The total \$929.1 billion in Federal Reserve loans from 2008–2010 was dispersed among major banks (Bagus,

<sup>20</sup> See White (2014, pp. 1–2) for a full list of credit allocation policies the Fed instituted around this time.

<sup>21</sup> For more details see American International Group (AIG) (2016).

<sup>22</sup> For more details see Term Securities Lending Facility (TSLF) and TSLF Options Program (TOP) (2016).

**Table 1** The four most represented industries among the Reserve Bank branch directors

Sector	2015 (%)	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)
Banking	21.1	20.6	19.6	18.6	19.1	18.8
Manufacturing	9.9	9.7	12.3	13.0	9.9	10.6
Wholesale & retail trade	6.8	6.7	7.9	11.8	12.3	10.6
Real estate	4.9	4.8	5.5	4.9	8.0	7.5

Source: Federal Reserve System

2015 p. 109), 91.67% of which were primary dealers (Primary dealers list, 2007).<sup>23</sup> However, many other groups benefited both directly and indirectly from these programs. Since the Fed has never before attempted anything similar to purchasing risky and depreciated financial assets from private banks, the legality of such policies is in question. As White (2010) puts it:

The Fed interprets 13(3) as essentially giving it *carte blanche*. One has to read between the lines and off the edge of the page, however, to find authority for the Fed to purchase assets that are not “notes, drafts, and bills of exchange,” or authority to create special subsidiaries to do so. (p. 456)

The Fed must have loosely interpreted Section 13(3), as that is the main source they cite when using their authority to buy these financial assets (Bernanke, 2009). Yet as Michael Bordo (2008) asked, “why this complicated method of providing liquidity has been introduced when the uncomplicated system of open market operations is available?” (p. 118). The complexity of the new framework made the Fed vulnerable to regulatory capture (White, 2014, p. 6), especially as primary dealers were contacted “to gain a sense of how to design and calibrate some of the emergency programs” (U.S. Government Accountability Office, 2011, p. 39).

QE policies after 2007 benefited specific enterprises, such as those in the housing market.<sup>24</sup> It is difficult to know exactly what the Fed’s intent was behind these policies, but looking at the beneficiaries of these programs provides some fruitful insight. One important aspect of mortgage-backed securities is that they are not usually held by private investors, but mainly lie in the portfolios of banks, financial firms, and insurance companies (Congleton, 2009, p. 289). Thus, the main beneficiaries of the newly injected credit were the large financial institutions who were able to swap their illiquid for liquid assets.<sup>25</sup> When conducting conventional monetary policy with open-market operations, these groups benefit less, as the Fed typically only purchases U.S. Treasury and federal agency securities.

<sup>23</sup> Similar to this case, Anderson et al. (1988) note how the Fed favored member over nonmember banks with its policies during the Great Contraction.

<sup>24</sup> Selgin (2020, p. 8) notes that the Fed can benefit specific groups even when the Fed conducts QE by purchasing treasury securities, as this can be used to finance government spending. QE can be classified as fiscal policy when undertaken in this manner. Selgin (2020, p. 9) then refers to the Fed’s purchases of MBS and the ECB’s asset purchases as “quasi-fiscal” QE, since its aim is to benefit certain groups.

<sup>25</sup> Congleton (2009, pp. 305–306) mentions the overuse of the words “crisis” and “meltdown” during the start of the financial crisis by the firms who were caught holding the illiquid, troubled assets. By doing so, Congleton speculates, the firms were trying to encourage and create support for bailouts and other favorable policies that would benefit themselves.

Since many of these beneficiaries were already organized as large private firms, they faced lower collective action costs than private investors. With the Fed venturing in uncharted territories of their delegated authority, these programs wound up being applied to firms mainly by the discretion of the Fed, as if they were picking winners and losers. As White (2009) put succinctly, “the Fed took on the new role of selectively channeling credit in favored directions” (p. 121).

A report by the U.S. Government Accountability Office (2011) discusses the connections between Federal Reserve directors and the banks receiving credit:

Some of the institutions that borrowed from the emergency programs had senior executives and stockholders that served on Reserve Banks’ board of directors... We identified at least 18 former and current Class A, B, and C directors from 9 Reserve Banks who were affiliated with institutions that used at least one emergency program. (p. 39)

Examples of these political connections are General Electric’s CEO who served as a Class B director and was consulted with when the Fed was designing emergency lending programs (White, 2014, p. 5). Concomitantly, General Electric was one of the largest issuers of commercial paper. Similarly, the CEO of JPMorgan Chase was a class A director when his bank participated in these programs (U.S. Government Accountability Office, 2011, p. 40). According to officials, the Federal Reserve Bank of New York’s “Capital Markets Group contacted representatives from primary dealers, commercial paper issuers, and other institutions to gain a sense of how to design and calibrate some of the emergency programs.” The U.S. Government Accountability Office (2011) recognizes these political connections and the problems they pose for the Fed in conducting monetary policy without favoritism:

Having the Class A directors, who represent member banks, and the Class B directors, who are elected by member banks, as required by the Federal Reserve Act, creates an appearance of a conflict of interest. This is because Class A or B directors might own stock in banks or Class A directors might work for banks that are supervised by the Reserve Bank while also overseeing aspects of the Reserve Banks’ operations, including the bank presidents’ evaluation and salary and personnel decisions for the supervision and regulation function. In addition, Class B directors are involved in the president selection process. In turn, the president oversees the supervision and regulation function, which regulates the member banks that vote for the Class A and B directors. The president also may serve on the FOMC [Federal Open Market Committee]. (p. 41)

Was the support from the financial firms enough to get political actors to follow through with these unprecedented policies? It is worth noting that they were not the only ones adversely affected from these poor assets. Along with investment and commercial banks, insurance companies, pension plans, and national governments also held a fair share of mortgage-backed securities in their portfolios. These groups would also have been in favor of the Fed’s asset purchase programs, as once the Fed began buying these assets, their

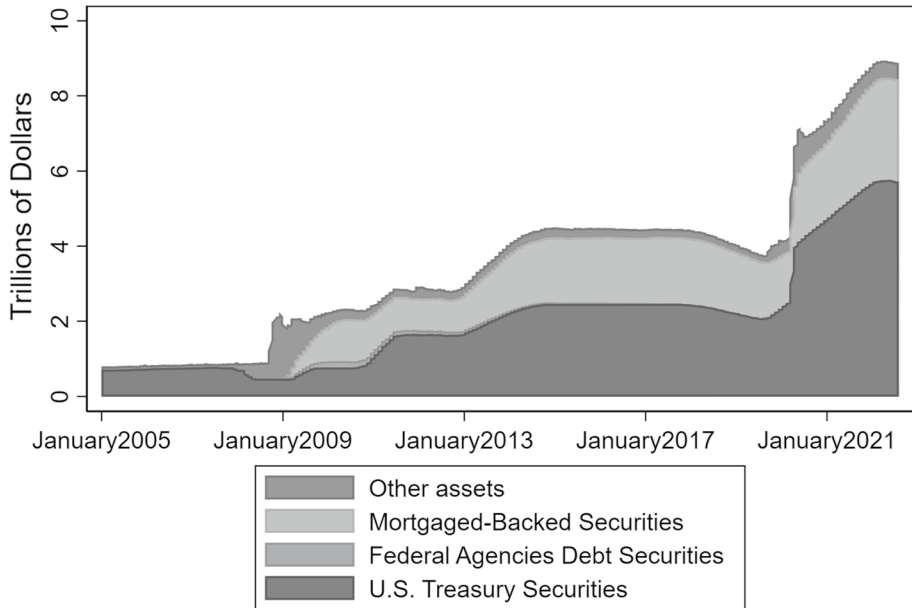
prices rose modestly (Congleton, 2012, p. 417). This lent support for these programs from large well-organized interest groups. Some financial firms, such as American Express, Goldman Sachs, and Morgan Stanley, even switched their status to banks in order to gain access to the Fed's asset purchase programs (Congleton, 2012, p. 415). Blau (2017, p. 334) finds that banks who engaged in lobbying activity were 36% more likely to borrow from the Fed and that banks that employed people who were politically connected were 29% more likely to obtain emergency loans. Similarly, Igan et al. (2012) find that lenders who lobbied made riskier loans before the crisis, suffered larger losses after the crisis, but received more benefits from the bailout program.

In order to take on these assets, the Federal Reserve had to increase its balance sheet. Figure 1 breaks down the Federal Reserve's assets from January 2003 to present, showing the rise from less than \$1 billion in July 2008 to over \$4 billion in the beginning of 2014. As the Fed decided to hold riskier assets, the taxpayers would have to foot the bill if the value of those assets held by the Fed fell. When the Fed agrees to swap Treasury securities for these assets, they are shifting the risks of those assets from the previous holders to taxpayers (Selgin, 2020 p. 62). Additionally, performing contractionary monetary policy is much more challenging with the new balance sheet, as pointed out by Bordo (2008, p. 118). When the Fed wants to sell assets to contract the money supply, how will the Fed sell its mortgage-backed securities if no one is willing to buy them? Again, the costs of this would seem to fall on dispersed, unorganized groups of money holders. Consistent with our theory, the benefits from the Fed's change in policy are accrued to the well-organized interests group who can create political pressure to favor the monetary policies that benefit them, while the costs are dispersed across large groups of people who face higher costs to collective action. Looking into the interests groups who sought to gain from the Fed's response to the 2008 financial crisis can illuminate the institutional shift in monetary policy during this time.

### 3.2 The Federal Reserve's response to the COVID-19 pandemic

The COVID-19 pandemic has brought about the largest economic downturn since the Great Recession. The Federal Reserve has thus brought back many of its policies from a decade ago to combat the economic turmoil.<sup>26</sup> From mid-March to the end of April 2020, the Fed bought over \$2 trillion in Treasury and mortgage-backed securities, which is larger than any of its previous bond purchase programs. In addition, the Fed continued to lend to its "primary dealers" through the Primary Dealer Credit Facility at low interest rates (Cheng et al., 2020). In operating these programs, the Fed once again outsourced labor from private financial firms, this time using the resources of the largest asset manager in the world, investment firm BlackRock. However, this time BlackRock is allowed to buy some of its own funds on behalf of the central bank. BlackRock, who "has suddenly become instrumental to the transmission of monetary policy," can gain from the Fed policy, while once again taxpayers bear the risk and consequences of holding illiquid assets (Nicolaci da Costa, 2020).

<sup>26</sup> For a thorough review of the Fed's policy response, see Cachanosky et al. (2021, pp. 1156–1160).



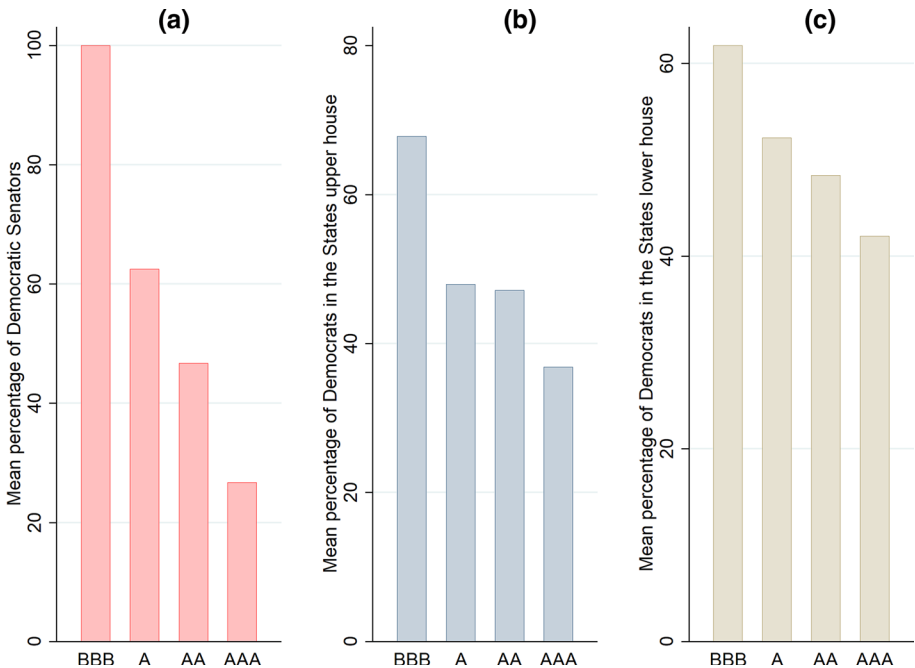
Source: FRED.

**Fig. 1** The Federal Reserve's assets. Data from securities, loans, and other assets & liabilities held by the Fed (2020)

The pandemic has also brought about some new and innovative policies from the Federal Reserve.<sup>27</sup> The Fed has created the Primary Market Corporate Credit Facility (PMCCF), which allows the Fed to directly lend liquid assets to corporations in exchange for corporate bonds. Additionally, the Fed has created the Secondary Market Corporate Credit Facility (SMCCF) to purchase secondary market corporate debt and corporate bond portfolios in the form of exchange-traded funds (Secondary Market Corporate Credit Facility, 2020). As of April 9, 2020, the Fed will take on up to \$750 billion in corporate debt for these programs. If the Fed were to incur losses through the PMCCF or SMCCF, up to \$75 billion would be covered by the Exchange Stabilization Fund at the Treasury (Cheng et al., 2020). Congress also pledged an additional \$454 billion in the Coronavirus Aid, Relief, and Economic Security (CARES) Act to cover any losses incurred by the Fed in the duration of these programs. In other words, taxpayers bear the risk and front any losses from these asset purchase programs.

With the Fed switching to a floor system, the Federal Reserve has become unbounded by their balance sheet (Selgin, 2020). The benefits to lobbying the Fed for credit access and financial support has therefore increased substantially, especially after 2008 when the Fed signaled that they were willing to aid certain groups in times of crisis. The recent pandemic has then brought with it all sorts of private and public entities reaching out to the Fed for help. One of the biggest differences in the Fed's response to COVID in relation to the 2007–2008 financial crisis is the benefits they have doled out to nonfinancial entities. Many

<sup>27</sup> See Cachanosky et al. (2021, p. 1161) Table 1 for a full list of revived and new credit facility programs from the Fed.



**Fig. 2** State credit ratings taken from the S&P Global Ratings (History of U.S. State Ratings, 2020)

central banks have indirectly supported fiscal stimulus policies by compressing “the costs of raising and servicing private and public debt” (Cavallino et al., 2020, p. 5). The Fed has now started directly lending to state and municipal governments through the Municipal Liquidity Facility (MLF). This involves the Fed purchasing up to \$500 billion in notes from these local governments that are tied to future tax revenues (Municipal Liquidity Facility, 2020). The Fed’s policy has opened the door for private and state organizations to plead their case as to why they are most in need to receive the benefits of the central bank’s QE policies.

The Fed received permission in May 2020 with the Heroes [Health and Economic Recovery Omnibus Emergency Solutions] Act to create the Municipal Liquidity Facility. States with low credit ratings have less access to credit at low interest rates than states who are more fiscally responsible. Therefore, access to cheap credit from the Fed is more beneficial for states with worse ratings. States with worse credit ratings tend to be run primarily by politicians from the Democratic Party, as shown in Fig. 2. The Heroes Act, which gave the Fed the authority to lend to states, was written and heavily supported by Democrats. The states with lower credit ratings were able to grant the Fed more power in order for them to carry out monetary policy that would benefit their constituents.<sup>28</sup> We would expect states who are more fiscally responsible to be in opposition to the Municipal Liquidity Facility, as it benefits the fiscally irresponsible states at the expense of taxpayers. States with higher credit ratings tend to be run primarily by politicians from the Republican Party. In September 2020, the Republican Party introduced the Delivering Immediate Relief to

<sup>28</sup> Grier (1991) finds a correlation between liberal leadership on the Senate Banking Committee and increases in the growth rate of the monetary base.



America's Families, Schools and Small Businesses Act, which would terminate the Fed's authority to make any new loans to state or local governments. However, this bill was ultimately never passed, making the states backing the bill the losers. These bills suggest that monetary policy is being influenced by interest groups in Congress by expanding or shrinking the central bank's authority.

Additionally, the Fed has instituted the Main Street Lending Program to lend to small and medium-sized businesses. The Federal Reserve started lending to the private nonfinancial sector for the first time in the history of the bank (Cavallino & De Fiore, 2020). However, some have questioned how beneficial these programs will be to these businesses (The Main Street fakeout, 2020). The Fed is offering a limited amount of delayed liquidity to firms picked by banks and the Federal Reserve, quite contrary to the deals offered to "primary dealers," large financial firms, and state and local governments, who receive immediate relief with favorable terms. Main Street does not have the same organized, political interest group in Washington as either of these entities, and thus we should expect them to find it more difficult to capture the benefits of liquidity injections.<sup>29</sup> However, it is not a lost cause for these businesses. The Fed is committed to aiding in preventing any "unnecessary insolvencies" (Transcript of Chair Powell's Press Conference, April 29, 2020, 2020, p. 9).

Some question how necessary the Fed's new and revived programs of credit allocation have been for accomplishing their stated mission. Cahanosky et al. (2021) conclude that "[t]hese credit allocation facilities were unwarranted: they were not necessary to promote monetary stability" (p. 1169). However, there is no doubt that certain groups benefited from these policies. Who benefits from changes in monetary policy is under the Fed's discretion, which then makes it a matter of public choice. All in all, these policies have ballooned the balance sheet to almost \$7 trillion, as seen in Fig. 1. In June 2020, balance sheets of central banks in the five largest advanced economies were projected to grow 13–15% by the end of 2020 (Cavallino & De Fiore, 2020). As the Fed continues to provide more benefits to private and public entities through institutional changes in how it conducts monetary policy, the returns to seeking aid from the Fed increase. Then, especially in times of crisis, we should expect an increasing number of groups asking the Fed for support. The recent pandemic following the Fed's changes in monetary policy in 2008 is consistent with this prediction. Furthermore, the theory of collective action explains why we find groups who face lower costs to organizing more successful in capturing these benefits than groups who face high costs to acting collectively.

One government interest group that is directly affected by the Fed's monetary policy is the U.S. Treasury. By law, the U.S. Treasury receives all of the Federal Reserve's surplus funds (Senate and House of Representatives of the United States of America in Congress, 1913). Since the Fed has changed from a corridor system to a floor system, they change interest rates through manipulation of the interest on excess reserves (IOER). Under this new system, Fed remittances have increased significantly and have since constituted a larger share of the corporate tax profits received by the Treasury (Cutsinger & Luther, 2022). When the Fed raises this rate, it cuts into their surplus as they pay banks for holding reserves. This ultimately results in less sent in remittances to the U.S. Treasury. This is evident, as when the Fed increased the IOER rate from 0.25% in December 2015 to 2.4% in 2019 (Federal Reserve Bank of St. Louis, submitted), the U.S. Treasury's revenue from the

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<sup>29</sup> This does not mean that these businesses have not tried to engage in political exchange. Initially, when the Fed announced these programs, firms in the retail, energy, and transportation industries all lobbied the Fed to expand the programs with larger benefits (Timiraos, 2020).

Fed decreased from \$115,672 million in 2016 (Department of the Treasury, 2016, p. 131) to \$52,793 million in 2019 (Department of the Treasury, 2019 p. 120). With the recent increase in inflation, the Fed has started to increase its interest on reserve balances (Federal Reserve Bank of St. Louis, submitted), which will ultimately cut into its remittances sent to the Treasury. Under these policies, the United States Department of the Treasury loses.

How effective interest groups in Congress—which in essence controls the Treasury—will be in imposing its will on monetary authorities depends in turn on how institutions shape “political prices.” As we argued earlier, the Fed’s institutional structure reflects the interests of key private interest groups such as the banking industry. As the political influence of these groups declines, we should expect the Treasury and its political overlords to play a greater role in monetary policy. For instance, the Dodd-Frank Act, by no longer allowing Class A directors who represent the stockholding banks to vote for the president of the Reserve Bank (Dodd-Frank Wall Street Reform and Consumer Protection Act, 2010, § 1107), weakened the political power of the banking industry in the Fed. As the influence from the banking industry is weakened, we should expect resulting Fed policy to be less favorable to this group. Bankers, as traders of fixed-income securities, can easily be identified as the losers of inflation (White, 2014). Hence, our theory suggests that inflation is more likely following the reform of the Fed, as bankers are a less represented interest in the Fed’s decision-making. The Fed’s policy response to the COVID-19 pandemic reflects this change.

### 3.3 European Central Bank

One of the clearest examples of how political forces determine the operation of monetary policy is the creation and development of the euro. When the French government renewed the attempt at a monetary union in 1988, the West German government was extremely skeptical. With the prospect of German reunification, France agreed to reunification in exchange for Germany renouncing the Deutschmark and accepting the establishment of a common currency (Baun, 1995). Initially, however, the Germans knew they could suffer the concentrated costs of money creation and therefore tried to establish institutional safeguards to avoid this scenario.

When the eurozone was created in 1999, it was well recognized that more fiscally rigorous countries would benefit less from the money creation process than more fiscally reckless countries. Germany, a traditionally fiscally responsible government, now had to share its seigniorage revenues deriving from its strong and international currency, the Deutschmark, with all of the members of the monetary union. Sinn and Feist (2000) estimates that Germany lost €30 billion in seigniorage revenue with the introduction of the euro, while France gained €31 billion. In addition, government debt is a privileged asset in the money creation process as banks need to hold government securities to meet their capital requirements and as the central bank acts as a lender in last resort for the government. This meant that more fiscally “responsible” governments from northern Europe would not receive as much of the newly created money as members of the eurozone who decided to let their deficits grow larger. In addition, national banks part of the Eurosystem gained some discretion over the quantity of money and credit in their nation’s economy. Consequently, the euro relaxes the fiscal discipline of members of the eurozone, as part of the cost of budget deficit, per the Cantillon effect, is borne by other countries in the eurozone. As Sinn (2018) puts it:

Contrary to the widespread belief that euros are minted in Frankfurt and lent out to the euro countries in proportion to country size, the truth is that, within the Eurozone, national central banks have a lot of autonomy to deviate from proportionally issuing credit to the national economy. Within extremely loose rules laid down by the ECB they can issue more money by way of providing refinancing credit to local banks or buying more assets if needed. (p. 19)

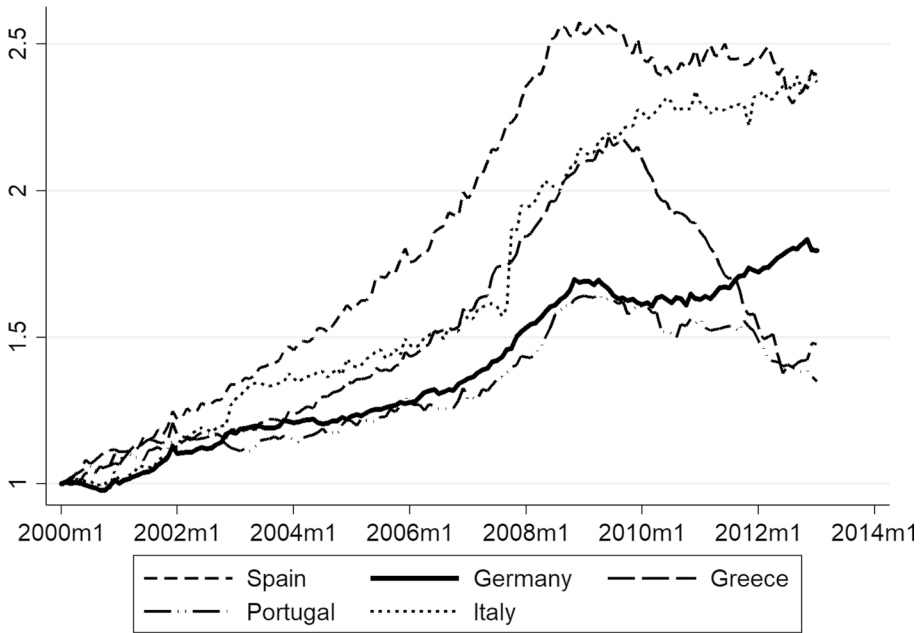
As we explained in Sect. 2.2, the easier it is for potential losers of monetary inflation to identify themselves, the easier it will be for them to fight back. The German government knew very well that the euro could potentially be a very bad deal given the strength of the Deutschmark and the potential for debt monetization of less fiscally rigorous countries in the periphery. Since Germany knew the euro could be used at its expense, its interest had to be balanced against other countries interests. Consequently, many of the euro's original institutional features can be explained as an attempt to limit the probability of "monetary capture" by southern European states. The ECB was established in Frankfurt and was to be strictly independent from political pressures. From the start, the creation of the euro went hand in hand with the creation of rules aimed at avoiding pressures on monetary policy by national fiscal authorities (Delors, 1989).

Contrary to the Fed, which has a dual mandate with inflation and full employment considered equally important objectives, the members of the eurozone, pressured by northern states, adopted more anti-inflationary objectives with a hierarchical mandate where priority was given to the 2% inflation target. The ECB also adopted, on paper, additional constraints with what was called the "two pillars" of monetary policy (Gerlach, 2004), according to which (a) inflation could not be about 2%, and (b) the money supply (M3) could not grow by more than 4.5% per year. Finally, European treaties forbade the ECB from engaging in direct monetary financing. Those rules had been established because Germany worried other countries would pressure to inflate the currency.

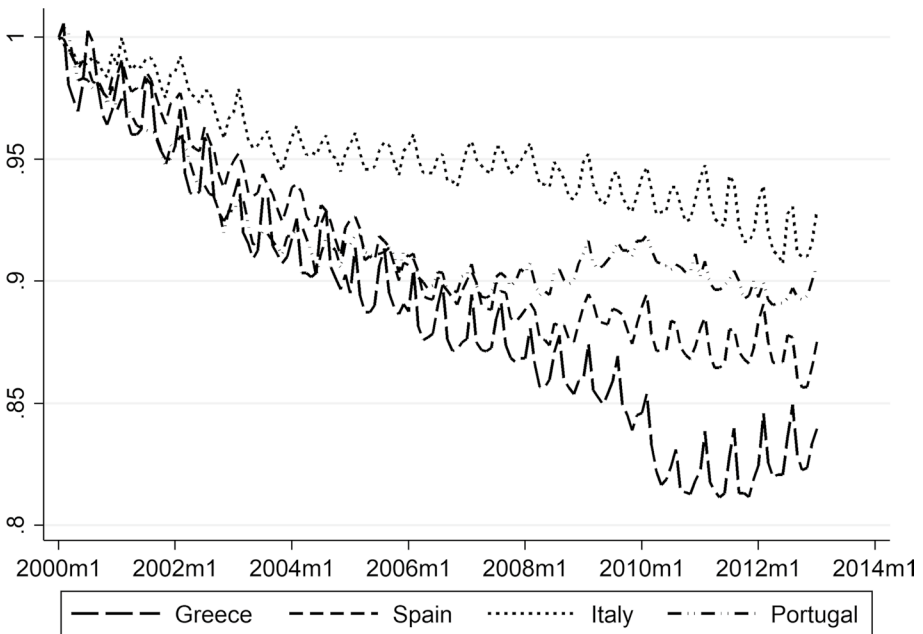
In addition to constraints placed on European monetary authorities, European treaties, taking into account the close relationship between fiscal and monetary policies, also established rules forbidding member states to have a public deficit greater than 3% of GDP and a public debt stock greater than 60% of GDP. Had they been effective, these rules were designed to limit the member states' incentives to pressure the ECB in monetizing their debt. Yet, by 2003, the provisions placed in the European Treaties were a dead letter as France and Germany violated the rules.

Besides, by 2001, the M3 target had been violated. From November 2001 to October 2003, the annual growth rate of M3 averaged 7.7%, far above the reference rate of 4.5%. By 2008, M3 was growing at a rate of 12% in the eurozone. The newly created money was also not distributed evenly within the euro area (Fig. 3). The money supply grew much faster in the periphery of the eurozone, with growth rates approaching 20% per year in countries such as Spain or Greece for 2008.

Given the weakness of rules set to limit the exploitation of Germany by fiscally irresponsible governments, the money creation process in the decade before the crisis was captured by southern European states, who issued debt which would then be monetized



**Fig. 3** Growth in the M3 money supply, currency excluded, in the eurozone, 2000–2013 (index = 1 in January 2000). *Source* Aggregated balance sheet of euro area monetary and financial institutions, excluding the Eurosystem. ECB



**Fig. 4** Ratio of the national price level to the German price level (index = 1 in January 2000). *Source* Eurostat's HICP data

through the ECB's monetary operations. As a consequence, the money supply in countries such as Greece experienced much higher levels of growth, suggesting that Greece and other southern countries were among the first receivers of the newly created money. While M3 increased by more than 150% in Spain between 2001 and 2008, for instance, it increased by "only" around 60% in Germany.<sup>30</sup> Whether the newly created money in the peripheral countries was used in real estate (Spain), the financial sector (Ireland), or increasing the size of the public sector (Greece), this monetary dynamic led to a fall in the price of German goods relative to the goods sold in the GIPS countries (Greece, Italy, Portugal, Spain), as the Cantillon effect would suggest (Fig. 4). As Bagus (2010) puts it, "In a form of monetary imperialism, banks and governments in southern countries produced money that Germans had to accept" (p. 57). With this money, Greeks could buy cheap German exports, and their country experienced a growing current account deficit.

Because the governors of the national central banks have a large majority in this Governing Council of the ECB, they may be subject to pressure from member states. In the instance where a majority of countries within the Eurosystem have fiscal problems, or when a debt crisis has negative spillover effects on the other member states, the ECB is unlikely to be able to resist the political pressure in favor of a more accommodating monetary policy (Holzmann et al., 1996). As Arnold and Lemmen (2001) note at the beginning of the euro experiment, "Article 104B of the Maastricht Treaty forbids the ECB or EU to bail out troubled governments, but it remains to be seen whether this principle will be upheld in times of crisis" (p. 109).

There are at least three main ways by which national central banks (NCB) in the Eurosystem can use money creation to their country's benefit (Sinn, 2018). First, each NCB can issue emergency liquidity (ELA), that is, provide credit to local banks according to its own collateral rules. Using ELA does not require ex ante permission from the General Council of the ECB. While the General Council can stop ELA with a two-thirds majority, the GIPSIC countries,<sup>31</sup> which all used ELA during the crisis, had more than one third of the votes in the Governing Council before the Baltic states joined the eurozone in 2014–2015.<sup>32</sup> The second channel by which NCBs can issue money nationally is within the rules established by the Eurosystem's Agreement on Net Financial Assets (ANFA). The Bank of Italy, for instance, bought €105 billion worth of government bonds under the ANFA rules. Finally, changes in collateral policy can also influence the allocation of credit across the eurozone. To obtain liquidity from its NCB, a bank needs to present collateral of acceptable quality. After the beginning of the 2008 crisis, and as the quality of the assets held by peripheral countries fell, the General Council of the ECB lowered its requirements for quality collateral.

The potential redistributive effects of the euro are obvious when we consider who the residual claimant over the assets of the ECB's balance sheet are: the respective national treasuries. When the ECB or the NCBs buy a government bond, they, de facto, stop being

<sup>30</sup> During the same period, real GDP increased by around 30% in Spain and 12% in Germany (source: FRED). It is therefore unlikely that cross-variations in economic growth can explain large differences in the growth of the money supply within the eurozone. In addition, some southern European countries such as Italy experienced real GDP growth slightly lower than that of Germany and yet still experienced much faster rates of M3 money supply growth.

<sup>31</sup> GIPSIC refers to Greece, Italy, Portugal, Spain, Ireland, and Cyprus. All those peripheral countries faced major debt crises.

<sup>32</sup> On the likely impact of the new voting system in the General Council after the Baltic states joined the eurozone, see Belke and von Schnurbein (2012).

a liability for that government. Each national treasury will pay interest on the bonds held by the Eurosystem, but the central banks will refund those same interest payments to those same treasuries. Hence, if the NCBs are able to buy bonds from their respective government, they provide the latter a benefit whose cost is borne by all cash holders in the eurozone. If, on the other hand, the ECB buys government bonds instead of the NCBs, the seigniorage revenues are shared among all member states based on their capital share in the ECB. This would still have redistributive consequences in favor of countries facing higher interest rates, as it would lead to a partial debt mutualization among the member states.

Most of the policy development after the 2008 crisis can be analyzed in light of the attempts by indebted and peripheral countries to use monetary policy for their own benefit, as well as Germany's (and a few other smaller fiscally responsible countries) opposition to such attempts. As Sinn (2018) puts it:

[S]aying that the debtors co-determine the rate at which they can borrow is an understatement. In 2017, 63% of the votes in the ECB Council were held by countries with a negative net foreign investment position. Any public choice model applied to the trade-off between national interest and true monetary goals would suggest that this fact will have repercussions for the kind of policies chosen by the ECB Council. (p. 31)

The establishment of the euro led to the elimination of cross-country bond spread in the eurozone and therefore greatly benefited peripheral countries, which before the euro could only borrow at higher rates. These lower interest rates led to higher money supply growth in those countries. With the bankruptcy of Lehman Brothers, however, the bond spread increased drastically. As a result, the ECB created a number of programs aimed at helping countries facing debt crises, especially the Securities Markets Programme and the outright monetary transactions (OMT), which drastically reduced the bond spread.<sup>33</sup>

The ECB's policies have, to a certain extent, reduced bond spreads and benefited peripheral countries. The structure and conduct of the ECB's programs such as QE, nonetheless, are constrained by the non-bailout clauses in the European treaties. This is not to say however that the European "constitution" prevents using monetary policy to redistribute wealth among member states. When the president of the ECB, Christine Lagarde, said that she was "not there to close spreads," Italian bond yields spiked immediately, leading her to walk back her comments (Clinch, 2020). The political fight between northern and southern European states is likely to continue.

## 4 Conclusion

As seen by recent literature, monetary institutions affect the distribution of ownership in society. We have approached understanding these effects by looking at the repercussions that liquidity injections—or Cantillon effects—and credit allocation by central banks have for the first and last (if ever) receivers of newly created money. When there are large benefits to being the first receiver, well-organized interest groups will form to capture those

<sup>33</sup> Krishnamurthy et al. (2018) estimate that the Securities Markets Programme as well as the announcement of the OMT reduced government bond yields with a 2-year maturity by two percentage points in Italy and Spain, five points in Portugal and Ireland, and 10 points in Greece.

benefits. Additionally, when costs are dispersed and losers are unaware of the costs, they are less likely to advocate against the monetary policy. This seems to be the case for the Federal Reserve's policy after the 2007 financial crisis and during the current COVID crisis. However, when losers can identify the costs and others who are also losing, they will lobby for more beneficial policies, as evident from the ECB.

The preceding inquiry can help shed light on why central banks tend to be organized in the ways that they are and why they conduct policy in the ways that they do. For instance, our theory explains why proposals to have central banks use a broad basket of financial assets to conduct monetary policy, which would increase the neutrality of its open-market operations, are unlikely to emerge. Under such a policy, benefits are dispersed widely instead of concentrated among a few groups, and therefore would be strongly objected to by incumbent beneficiaries. By subjecting monetary institutions to public choice analysis, one can better understand recent changes in monetary policies and why some groups are major advocates of such policies.

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