

**The Politics of Quantitative Easing and Housing Stimulus by the Federal Reserve and  
European Central Bank, 2008-2018**

Forthcoming in *West European Politics*.

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\* I would like to thank Henry Farrell, Randall Hansen, Alison Johnston, Paulette Kurzer, Ronen Mandelkern, Kimberly Morgan, Herman Schwartz, and two anonymous reviewers for their valuable comments on earlier versions of this article.

## Abstract

Central banks have been important yet underexplored actors in the fight against the Great Recession. In addition to ultra-low interest rates, they adopted large-scale bond-buying programs known as quantitative easing (QE). Yet, there is significant variation in QE programs with important distributive consequences. Why has the Fed adopted multi-trillion-dollar bond-buying programs in housing, while the ECB has not? This article argues that the Fed targeted the integrated housing finance market as a monetary transmission strategy to stimulate core elements of the U.S. growth model: credit, demand, and consumption. In contrast, the ECB hardly stimulated housing given the eurozone's fragmented housing finance markets and the macroeconomic frictions with some eurozone growth models, particularly export-oriented Germany. Analyzing archival and interview data, this article traces the decisions of these central banks since the Great Recession, contributing to scholarship on the politics of central banking, economic policy in hard times, and the welfare state.

Key words: quantitative easing (QE); unconventional monetary policy; central banks; growth models; housing finance; financial crisis

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## Introduction

Central banks have been front and center in the fight against the Great Recession of 2008-09. While scholars in political science have privileged how elected officials have responded to the crisis, they have rarely analyzed monetary policy, particularly not from a comparative perspective (Pontusson 2018). This is surprising, given that major central banks entered the public spotlight when, in addition to lowering interest rates to effectively zero, they adopted multi-trillion-dollar “quantitative easing” (QE) programs to boost the economy. As part of these programs, central banks purchased large amounts of government and private sector bonds, which bloated their balance sheets to unprecedented levels -- yet in very different areas. Why have some central banks expanded their balance sheets by buying large amounts of mortgage debt, while others have not? QE programs have significant distributive implications, as they support certain assets and markets over others (Jacobs and King 2018; Jones and Matthijs *forthcoming*). At a time when most QE programs are coming to an end, this article analyzes the variation in important QE programs of the Federal Reserve (Fed) and the European Central Bank (ECB) in the housing market.

Housing is a particularly important target for central banks’ QE programs, as mortgages are one of the largest asset classes in capital markets (Johnston and Kurzer 2019, in this issue). The Federal Reserve (Fed) made headlines when it started buying massive amounts of mortgage-backed securities (MBS) in 2008, which cumulated to an astonishing amount of USD1.7tn by 2018. In contrast, the European Central Bank (ECB) only marginally intervened in the housing market as part of its unconventional, large-scale QE programs, having purchased EUR290bn in housing bonds by 2018. Even though both central banks have expanded their balance sheets to roughly equal degrees and experienced problems in their housing markets, the Fed has provided extensive monetary stimulus for housing, while the ECB has not.

Housing interventions by central banks have often-overlooked distributive consequences. As these programs tend to stimulate private housing markets by lowering the cost of mortgage debt and increasing house prices, this led Kevin Warsh, a former Fed governor, to label them “fiscal policy in disguise” (Quoted in: Fleming 2017). While fiscal considerations may not be the primary objective of these policies, Binder and Spindel (2016, 189) correctly note that these programs blur “the boundary between monetary and fiscal policy.” When central banks purchase large amounts of mortgage debt, they create winners and losers in the economy, where the former benefit from inflating house prices and the latter face increasingly unaffordable property markets. More generally, many have criticized QE for contributing to soaring asset prices that benefit the rich, for reinforcing wealth inequality (Jacobs and King 2016), and for producing financial instability, all of which increased the political scrutiny of central banks (Jones and Matthijs *forthcoming*).

This article argues that central banks are embedded in macroeconomic growth models (Baccaro and Pontusson 2016; Hassel and Palier *forthcoming*), which shapes the variation in monetary stimulus for housing. The United States has a consolidated growth model that is consumption- and credit-based in which the integrated, well-developed housing finance market is a key sector for producing economic growth. In contrast, the eurozone contains greater diversity within its growth model—some based on exports, others on domestic demand—in which nationally fragmented, less-developed housing finance markets are not universally driving growth. As a result, the Fed targeted housing as a monetary transmission strategy to stimulate the core elements of the U.S. growth model—credit, demand, and consumption. In contrast, the ECB hardly stimulated housing because of (i) the incompleteness of eurozone housing capital markets and (ii) the fact that stimulating housing and consumption creates macroeconomic frictions with some powerful euro members, particularly export-oriented Germany.

Following a comparative sequential approach (Falletti and Mahoney 2015), this article systematically compares the different responses of the Fed and ECB during and after the Great Recession by evaluating evidence from primary archival material, author interviews with central bankers, and public records. This empirical strategy helps explain the policy differences by tracing the preferences and decision-making processes of central bankers in the two institutions. The article concludes with larger implications for how to think about the welfare state, the politics of central banking, and economic policy in hard times.

### **The Politics of QE: Central Banks, Growth Models, and Housing Finance**

In response to the crisis, central banks have adopted an array of unconventional measures. When short-term rates approached zero, without producing signs of economic strength or meeting inflation targets, central banks started buying large amounts of assets in the open market, such as government or private sector bonds. This practice is known as QE and has significantly expanded the balance sheets of major central banks. The goal was to boost the economy by increasing the reserves of private banks, raising asset prices, and reducing long-term interest rates, which would then stimulate bank lending, investment, consumption, and growth in the economy. By the end of 2018, the ECB and Fed have adopted QE programs that contributed to the expansion of their balances sheets to astonishing amounts of EUR4.7tn and USD4.1tn, respectively.

The housing sector is a prominent target for central bank intervention given its large asset markets for mortgages. Central banks can buy large amounts of housing assets in the secondary market -- such as MBS, asset-backed securities (ABS), or covered bonds<sup>1</sup> -- which has the effect

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<sup>1</sup> ABS are securities backed by a pool of assets -- e.g., housing, car, or credit card debt -- and traded in capital markets. MBS are a specific type of ABS backed by a pool of housing loans. Covered bonds are bonds backed by a group of assets, such as ship, car or housing loans. In contrast to MBS, the underlying loans of covered bonds stay on the

of increasing the price of the purchased asset and lowering its yields (Krishnamurthy and Vissing-Jorgensen 2011; Acharya et al. 2011; Hancock and Passmore 2015). One mechanism is the signaling channel, suggesting that housing bond purchases signal strong commitment to mortgage markets, which then drives down the risk and yields of these bonds. Another is the portfolio-rebalancing channel, suggesting that asset classes are imperfect substitutes in an investor's portfolio -- owing to market frictions and regulatory constraints -- such that large-scale asset purchases of housing bonds reduce the supply and increase the demand of these bonds in the open market, which then raises their prices and lowers their yields. As the yields of housing bonds and mortgage rates are linked -- i.e., mortgages are often securitized -- mortgage rates tend to fall along with the yields on housing bonds (Hancock and Passmore 2015, 863). If mortgage rates fall, this tends to increase housing demand, prices, and mortgage lending, which in turn stimulates consumption in the larger economy (Mishkin 2007). This is partly because increasing housing demand and prices boosts the wealth of households and eases their credit constraints, which then stimulates household borrowing and consumption.

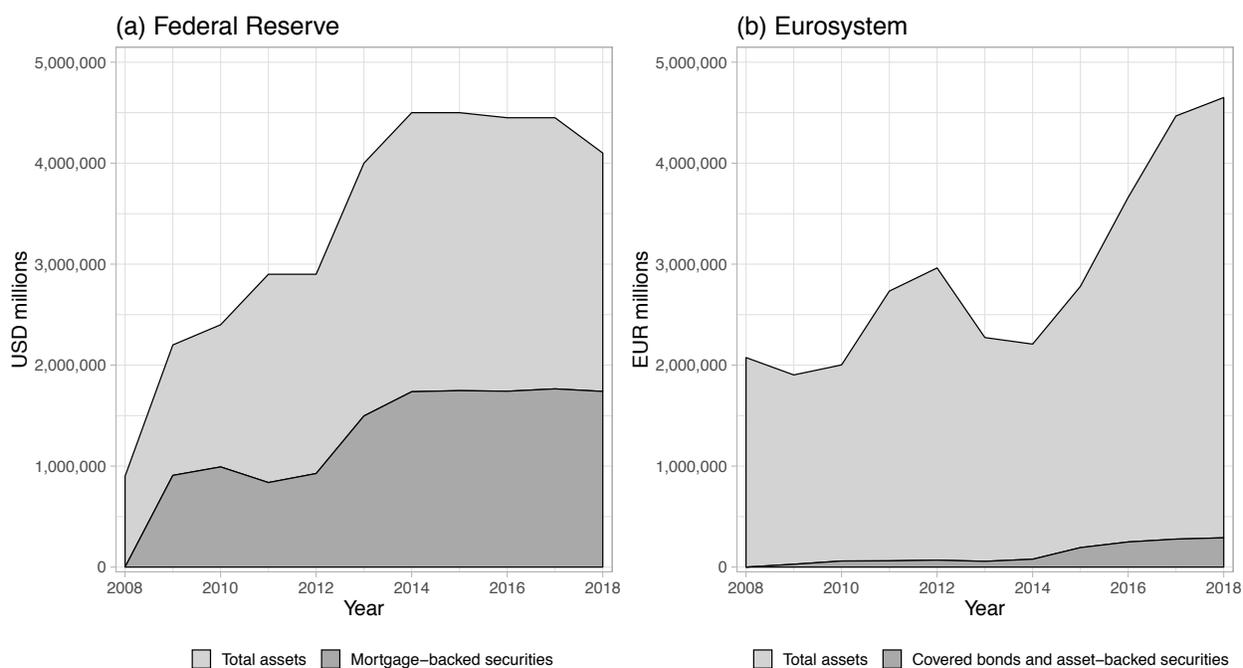
Yet, little is known about why the Fed and ECB differed in offering monetary stimulus for housing as part of their balance sheet expansions. Lombardi and Moschella (2016, 864) correctly note that “[d]esigning asset purchase schemes presents policy-makers with a number of alternatives, including to what extent and in which markets to intervene.” As figure one demonstrates, the Fed intervened strongly into the housing market by buying and holding up to USD1.7tn in MBS by the end of 2018, which constitutes 41 percent of its balance sheet

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issuer's balance sheet. As housing constitutes the largest portion of ABS and covered bond markets, they can be considered “housing-related assets.”

(USD4.1tn). In the same year, the ECB has only bought and held EUR290bn in housing-related assets, such as covered bonds and ABS, constituting six percent of its balance sheet (EUR4.7tn).<sup>2</sup>

Figure one: Housing-related asset purchases by the Fed and ECB, 2008-2018<sup>3</sup>



Existing scholarship has rarely focused on the political foundations of unconventional monetary policy. First, the central bank literature in political science, with its traditional focus on central bank independence and economic outcomes (Bernhard 1998; Goodman 1991; Lohmann 1998), has had little to say about QE.<sup>4</sup> Scholars in economics have studied unconventional policies, but not explored the *politics* of how and why central banks adopt them. While economists have

<sup>2</sup> Note that the Fed's balance sheet expansion to USD4.1tn in 2018 was mainly driven by QE purchases of Treasuries (USD2.2tn) and mortgage debt (USD1.7tn), whereas the ECB's QE purchases have amounted to only EUR2.6tn out of its EUR4.7tn balance sheet in 2018. Within QE, the ECB has bought a wider array of assets, such as corporate bonds, covered bonds, ABS, public sector securities, and sovereign debt. Outside QE, the ECB has primarily expanded its balance sheet through lending programs to private banks (EUR730bn).

<sup>3</sup> The ECB's purchases include the covered bond programs (CBPP) I, II, and III, and the ABS program (ABSPP). The Fed's purchases of MBS were part of its QE programs. Note that the ECB's balance sheet was larger than that of the Fed in 2008, mainly because the ECB already engaged in large-scale lending programs to eurozone banks (i.e., refinancing operations). Sources: ECB; Fed; own calculations.

<sup>4</sup> See Fernandez-Albertos (2015) for a recent review of the central bank literature in political science, revealing the absence of scholarship on the topic.

shown that monetary stimulus for housing can have transmission effects for the larger economy, they have not investigated why central banks differed in their housing-bond programs and their decision-making processes (Hancock and Passmore 2015; Krishnamurthy and Vissing-Jorgensen 2011).

Second, studies on economic policy in hard times, such as by Farrell and Quiggin (2017), have convincingly shown that the initial comeback of expansionary fiscal policy during the Great Recession quickly gave way to austerity-led policies shortly after the crisis (Blyth 2013). Yet, these studies have not taken into account that central bankers defied this trend by engaging in continued expansionary monetary programs that have outlived their fiscal counterparts. Central banks' balance sheets have remained unprecedentedly large even ten years after the crisis. Indeed, Mandelkern (2016) does take into account fiscal *and* monetary policy during the crisis, arguing correctly that the policy responses among central banks were strikingly similar in their expansionary focus, but he does not explore the different ways in which central banks have expanded their balance sheets.

Third, Lombardi and Moschella (2015; 2016) offer a promising account for explaining the different crisis responses of the Fed and the ECB, arguing that their different institutional designs explain the variation in monetary stimulus (also see Henning 2016). More specifically, they argue that the ECB's decentralized decision-making structure as opposed to the Fed's more centralized structure—by which they mean that national central banks have important channels of influencing the ECB's decision-making, whereas regional reserve banks have limited influence over the Fed's monetary policy—made it more difficult to adopt large-scale bond buying programs for the ECB. Yet, despite their different institutional designs, the Fed and the ECB have expanded their balance sheets to similar degrees, but in different ways. While illuminating, the constraints and

opportunities of central bank action go well beyond their institutional features, such as the larger macroeconomic structures that shape the strategies and actions of central banks.

Relatedly, one might argue that the answer lies in the different legal mandates of the two banks or different natures of the crisis on both sides of the Atlantic. While the ECB has a narrow mandate based on price stability, the Fed's mandate encompasses both price stability and full employment. These legal foundations are certainly important, but they cannot account for why both central banks have expanded their balances sheets to equal degrees, yet with differing expansions in housing. It is also fair to say that the Fed and ECB faced different crises, requiring different policy tools. The eurozone crisis had multiple sources in the sovereign debt, housing, and banking markets, whereas the crisis in the United States originated in housing finance and spread through the financial system. Yet, such a view is better at explaining why the Fed initially bought housing bonds as a direct crisis response in 2008-09 than why it has bought and retained housing bonds long after the worst of the crisis was over (Acharya et al. 2011, 76). In both cases, the larger point of QE was to stimulate the economy, which begs the question as to why the Fed has picked housing to achieve that goal, whereas the ECB has not. What these accounts are overlooking is the fact that the structure of the economy matters greatly in influencing monetary policy. Advanced economies depend on different sectors to generate growth. As a result, and for all the official claims of neutrality and independence, different central banks promote different markets with the aim of bolstering growth.

This article argues that macroeconomic growth models explain the variation in monetary stimulus for housing since the Great Recession. This study builds on a growing body of research on growth models, emphasizing particular components of aggregate demand, such as household consumption and exports (Baccaro and Pontusson 2016; also see contributions in: Hassel and

Palier *forthcoming*). This article places the housing sector more centrally into growth model research, showing that central banks – tasked with securing “optimal” macroeconomic performance of growth models -- have intervened in the sector to transmit monetary policy and stimulate growth. Yet, their decisions to intervene depend greatly on the degree to which housing is a monetary transmission sector for the growth model. While housing tends to be a transmission belt in consumption- and credit-led economies, where rising housing prices and growing credit tend to stimulate private consumption (Mishkin 2007), the sector is much less central to export-oriented growth models, where price stability in the housing market is a priority to avoid inflationary consequences (Voigtländer 2014). This study concurs with earlier insights on how monetary policy is shaped by larger macroeconomic structures. Hall and Franzese (1998), for instance, have convincingly argued that economic institutions, such as collective bargaining structures, can reinforce monetary policy. For instance, the German Bundesbank’s efforts in keeping prices stable were significantly aided by the country’s wage bargaining system that kept wages low. Where Hall and Franzese focus on wage bargaining, this article looks at how larger growth models, and the role of housing within them, shape monetary policy.

In the United States, monetary policy is conducted in the context of its consumption-oriented growth model in which housing is a major engine to produce growth. Housing occupies a central position within the U.S. growth model, given the sector’s ability to stimulate the core aspects of the model: private demand, credit, and consumption (Schwartz 2009; Prasad 2012; Rajan 2010). The central position of housing to the U.S. economy has not been lost on central bankers and monetary economists, who have long emphasized that the Fed can target housing as a monetary transmission strategy to generate growth. First, the U.S. housing finance market is integrated, standardized, and well-developed (Schwartz and Seabrooke 2008), which allows for

large-scale interventions in this market. The most important sources of mortgage funding are MBS in the secondary mortgage market valued at USD6.5tn. The mortgage market itself is characterized by high degrees of liquidity, liberal lending terms (e.g., low down payments), high turnover, and strong government support (Schwartz 2019, in this issue). Second, the integrated and well-developed nature of housing finance makes it an important sector for transmitting monetary policy. In a first step, large-scale housing bond-buying programs tend to lower mortgage rates through the signaling and portfolio rebalancing channels (Krishnamurthy and Vissing-Jorgensen 2011). In a second step, lowering rates tends to stimulate housing demand, credit, prices, and consumption, as it eases the credit constraints and boosts the wealth of households (Mishkin 2007). Concomitantly, monetary stimulus for housing – supporting mortgage debt, homeownership, and housing wealth -- ties in with the country’s larger strategy of “mortgage Keynesianism” and privatized welfare (Prasad 2012; Schwartz 2019, in this issue; Hassel and Palier *forthcoming*).

In the eurozone, monetary policy is conducted in the context of diverse national growth models where fragmented, less-developed housing markets are less central to fuel economic growth. First, European growth models are divided into largely two camps: consumption- and export-oriented models (Baccaro and Pontusson 2016; Johnston and Regan 2016). While export-led economies are largely found in Northern Europe, including Germany, Austria, and the Netherlands, consumption-led economies are located in Southern Europe, such as Spain, Greece, and Portugal. Unlike in the United States, stimulating housing, credit, and consumption is no universal growth strategy for *all* European economies. Johnston and Regan (2017) show that in countries with strong wage bargaining, usually export-oriented economies (i.e., Germany and Austria), house price growth (and housing booms) was restrained, while in countries with lower wage coordination (i.e., Ireland and Spain) housing markets had stronger momentum in recent

decades.<sup>5</sup> As a result, housing transmits monetary policy much less in the eurozone (Calza et al. 2013), particularly within its largest economy: Germany (Voigtländer 2014).

Concomitantly, the housing finance markets of the eurozone are more fragmented and less developed when compared with their American counterparts. Covered bond markets in the eurozone are important elements of the area's capital market, amounting to a volume of EUR1.4tn in 2016, yet a number much lower than the integrated U.S. MBS market. Just before the euro crisis, the largest covered bond markets were found in Germany (EUR720bn), Spain (EUR352bn), France (EUR327bn), and Ireland (EUR80bn), while Poland's was merely EUR700m.<sup>6</sup> In addition, European mortgage markets also vary when it comes to loan-to-value ratios, transactions costs, and government subsidies (Schwartz and Seabrooke 2008). While the German mortgage market is highly conservative—with high down payments, transactions costs, and few subsidies for homeowners—other eurozone mortgage markets, such as those in Spain or the Netherlands, are more lenient and offer significant subsidies.<sup>7</sup> The fragmented nature of housing finance markets reflects the incompleteness of European capital markets (Braun 2018; Epstein and Rhodes 2018; Quaglia, Howarth, and Liebe 2016) and makes monetary transmission through housing difficult. Yet, even under conditions of integrated European covered bond markets (Engelen and Glasmacher 2018), it would have been unlikely for the ECB to intervene extensively, given the frictions between growth models within the eurozone, as debtor states tend to be consumption-oriented, while creditor nations are largely export-oriented, holding greater sway in the management of the eurozone.

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<sup>5</sup> There are also important transnational linkages between surplus and deficit countries, channeling excess savings of surplus countries to housing markets in deficit countries (Ansell, Broz, and Flaherty 2018).

<sup>6</sup> Sources: European Mortgage Federation. In 2009, the largest non-eurozone covered bond markets were in Denmark (EUR327bn), the UK (EUR205bn), and Sweden (EUR134bn).

<sup>7</sup> The rate of homeownership in the eurozone ranges from roughly 50% in Germany and 54% in Austria to 75% in Portugal, Spain, and Ireland to over 90% in Slovakia and Slovenia, with an overall average of 70%. Source: Eurostat.

In sum, we would expect the Fed to adopt monetary stimulus for housing as a growth and transmission strategy to stimulate the economy, whereas the ECB should engage in limited monetary stimulus for housing, as it is not a central transmission sector for the eurozone.

### **The Fed's Multi-Trillion-Dollar Housing Stimulus**

During and after the crash of 2008-09, the Fed initiated multi-trillion-dollar bond-buying programs in the housing area that were central elements of the country's QE program. The Fed viewed housing as the source of macroeconomic distress *and* as a transmission sector to kick start growth in the wider economy. Running out of conventional options at the zero-lower bound, the Fed deployed monetary stimulus for housing as a growth strategy designed to lower mortgage rates, stimulate housing demand and prices, and consumption in the wider economy. By 2018, the Fed has bought and held USD1.7tn in MBS, roughly one quarter of all MBS in the United States.

In late 2008, the Fed started supporting housing in order to kill two birds with one stone—fixing the core source of the crisis and generating consumption in the economy. The first round of QE included asset purchases of USD500bn in MBS backed by the government-sponsored housing enterprises Fannie Mae, Ginnie Mae, or Freddie Mac.<sup>8</sup> In a press release, the Fed stated that the objective of these programs was to stimulate housing, so as “to reduce the cost and increase the availability of credit for the purchase of houses, which in turn should support housing markets and foster improved conditions in financial markets more generally.”<sup>9</sup> In an interview, a former senior Fed official noted that housing was a key sector through which monetary policy could be transmitted:

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<sup>8</sup> Note that the Fed also bought USD100bn in agency bonds of Fannie Mae, Freddie Mac, and Freddie Mac.

<sup>9</sup> Fed, “Federal Reserve announces it will initiate a program to purchase the direct obligations of housing-related government-sponsored enterprises and mortgage-backed securities backed by Fannie Mae, Freddie Mac, and Ginnie Mae.” Press release, November 28, 2008.

By purchasing mortgage-backed securities, the Fed was trying to influence the flow of credit and faith in the housing markets ... I saw that the problems with the mortgage markets were a real impediment to easing monetary policy and the transmission of easing monetary policy. It was an important channel for monetary policy -- important in and of itself and because it was the area causing problems. So if you could stabilize the housing market, it would help stabilize the financial system. I think the Federal Reserve had identified the weakness in the housing market, and the lack of a bounce back in the housing market as one of the primary factors holding back the economic recovery.<sup>10</sup>

The Fed then initiated these housing bond purchases under then Fed chair Ben Bernanke, whose academic work on the Great Depression and monetary policy at the zero-lower bound demonstrated that housing finance has important intermediary functions for aggregate demand (Bernanke 1983; Bernanke, Reinhart, and Sack 2004). In the early years of the crisis, the Fed's QE measures started with large-scale interventions in the housing market.

Most members of the Fed viewed these programs as sound economic and even *social* policy, reinforcing fiscal measures aimed at helping homeowners. In internal staff memoranda, Fed economists highlighted that MBS-buying programs would help homeowners in a number of ways. First, they stated that these programs would tend to lower mortgage rates, helping distressed and affluent homeowners refinance their mortgages at better rates.<sup>11</sup> Second, they would also allow new buyers to enter the housing ladder at historically low mortgage rates.<sup>12</sup> And these programs would stimulate house prices and stabilize the housing wealth of ordinary people, allowing

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<sup>10</sup> *Author interview, Fed official.* Washington, D.C., July 10, 2014.

<sup>11</sup> Joseph Gagnon and Michael Holscher, *Purchases of Agency MBS and Debt*. December 5, 2008.

<sup>12</sup> William Dudley and Brian Madigan, *Memorandum: Plans for MBS Purchases by the System Open Market Account*, Dec 30, 2008.

homeowners to tap their housing equity for consumer spending.<sup>13</sup> While the primary objective of the Fed in 2008 was to stimulate the country's housing market and economy, it did so with an eye to social policy objectives of helping homeowners hard hit by the crisis.

Within the Fed, most central bankers were not overly concerned with the market-distorting effects of these programs, but there was some disagreement. Despite channeling funds into housing, and thereby privileging housing over other sectors, the majority viewed this as a necessary evil to stimulate the economy. In an internal memo, staff economists noted that:

This policy tool would tend to skew credit allocation toward one sector of the economy—something that ... would be unusual from a historical perspective. Nonetheless, some distortion of credit allocation may be an acceptable price to achieve the Federal Reserve's dual mandate of maximum employment and price stability.<sup>14</sup>

In an interview, the senior Fed official expressed that:

There was discomfort, for sure, with the idea that the Federal Reserve was allocating credit to particular a sector: housing. Some of the Reserve Bank Presidents, in particular, worried that this would set a precedent and Congress would come to us for other things. I didn't see it as that big of a threat. I saw it making policy more effective.<sup>15</sup>

The Fed official raises the issue of internal opposition to these programs by some presidents of the regional banks. For instance, Charles Plosser, then president of the Philadelphia Fed, voiced concern that these programs would invite pressure from politicians and interest groups:

We will get pressure from various interest groups to retain certain assets. We will certainly, in all likelihood, get calls from consumers, builders, and Congressmen if we start to sell

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<sup>13</sup> Joseph Gagnon and Michael Holscher, *Purchases of Agency MBS and Debt*. December 5, 2008.

<sup>14</sup> *Ibid.*

<sup>15</sup> *Author interview, Fed official*. Washington, D.C., July 10, 2014.

mortgage-backed securities out of our portfolio in order to reduce its size. We will hear fears that the mortgage rates may rise.<sup>16</sup>

The president of the Dallas Fed, Richard Fisher, noted that:

I don't believe that we should be in the business of financing housing. I think that is a matter for the Treasury and for other authorities, and I would like to get out of that business as quickly as possible.<sup>17</sup>

He went so far as to call the practice of buying housing bonds “social engineering.”<sup>18</sup> Jeffrey Lacker, president of the Richmond Fed, stated that the Fed's housing programs would distort credit allocations in the market and perpetuate “this really corrosive political economy in our country of tapping government resources to subsidize the housing market.”<sup>19</sup> In an op-ed, he elaborated that “[i]t is as if the Fed has provided off-budget funding for home-mortgage borrowers” (Lacker and Weinberg 2014). These few dissenting voices went unheard. The clear majority within the Fed viewed housing as the key impediment holding back the U.S. economy, a conclusion that paved the way for additional housing bond purchases.

Shortly thereafter, the Fed started its second and third rounds of QE to support housing and the larger economy. First, in 2010, the Fed introduced an asset-purchase program that included USD600bn in Treasury bonds acquired with the goal of bringing down overall long-term interest rates, not just mortgage rates. Second, in 2012, it started a third and final round of QE. Its monthly purchases of USD40bn in MBS and USD45bn in Treasuries were designed to “put downward pressure on longer-term interest rates, support mortgage markets, and help to make broader

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<sup>16</sup> FOMC, transcript, January 27-28, 2009.

<sup>17</sup> FOMC, transcript, January 26-27, 2010.

<sup>18</sup> FOMC, transcript, April 26-27, 2011.

<sup>19</sup> FOMC, transcript, September 20-21, 2011.

financial conditions more accommodative.”<sup>20</sup> Fundamentally, the decision to buy housing bonds was not preordained but rather a deliberate choice by central bankers. When asked about why the Fed did not exclusively expand its balance sheet in U.S. Treasuries—an alternative strategy some regional central bankers considered less risky and more neutral—a staff economist at the Fed responded in an interview that the Fed bought MBS as part of a continued effort to revive housing, depressed levels of which still held back the economic recovery, and thereby to stimulate the larger economy.<sup>21</sup> Consequently, the Fed initiated further purchases to bring down mortgage rates, encourage home purchases, mortgage refinancing, and consumer spending. By 2014, the Fed’s housing bond holdings expanded to USD1.8tn.

In response to some optimistic economic data, the Fed ended its balance sheet expansion with the so-called tapering of asset purchases in 2014, while retaining its balance sheet holdings until 2018. Since 2018, the Fed has slowly started to wind down its holdings of housing bonds, but will not necessarily reduce its balance sheet to pre-crisis levels. In terms of pace, the Fed is likely to avoid sudden market shocks and adopt a long-term strategy of wind-down. In terms of size, it will likely retain housing assets, which would give it more flexibility to transmit monetary policy. While the Fed’s balance sheet expansion started as crisis relief, its large balance sheet is now firmly part of a broader, post-crisis policy toolkit.

In sum, the Fed purchased large amounts of housing bonds to stimulate housing and the larger economy as part of its QE programs during and after the Great Recession. Reviving housing meant supporting the heart of the American growth model of credit and consumption, deeply connected with other key sectors of the U.S. economy, as well as homeowners hurt by the crisis. Housing was not only holding back the economic recovery, but also the key sector through which

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<sup>20</sup> FOMC press release, October 24, 2012.

<sup>21</sup> *Author interview, Fed staff economist.* Washington, D.C., September 10, 2014.

monetary policy could be transmitted to stimulate the country's consumption-led growth model. The result was that, by 2017, the Fed's balance sheet expanded to USD4.5tn, including USD1.8tn in MBS and USD2.5tn in Treasury bonds.

### **The ECB's Limited Housing Stimulus**

In response to the crisis, the ECB also adopted unconventional programs to stimulate the eurozone, but it supported housing much less relative to the Fed. This is because monetary programs to stimulate housing and consumption do not reinforce the heterogeneous growth models of the eurozone—some of which rely on exports, others on consumption. Unlike in the United States, housing is not a key driver of growth in most eurozone countries, most notably not within its creditor states. For instance, export-oriented Germany does not privilege stimulating private consumption and housing as part of its growth model, but instead relies on price stability, wage and credit restraint, and savings. In such a model, increasing housing prices is cause for alarm rather than satisfaction. The German and Dutch central banks already sounded the alarm about overheating housing markets in their countries (Bundesbank 2013; De Nederlandsche Bank 2017). Both central banks have promoted a conservative approach to large-scale asset purchases, so as to maintain price stability, market discipline, and financial stability (Steinberg and Vermeiren 2015). Relatedly, the fragmented nature of European housing capital markets made monetary interventions in housing more difficult when compared with its integrated U.S. counterparts. As a result, the ECB has bought only EUR290bn in covered bonds and ABS by 2018.

The ECB started its first covered bond purchase program in 2009, when the crisis hit European banks and the covered bond market started to dry up. To stabilize that market, the ECB initiated its first purchase program by buying EUR60bn in covered bonds until 2010. Shortly

thereafter, in 2011, the ECB initiated its second covered bond purchase program, which amounted to merely EUR16bn until 2012. Although the ECB had targeted purchases in the amount of EUR40bn for the second program, it prematurely stopped the program, because the ECB feared squeezing out investors and the covered bond market had already been recovering.

Yet, these asset purchases only had a limited effect on housing markets. On one hand, these programs were miniscule in size when compared with those of the Fed. On the other, covered bonds are not exclusively backed by housing, but also by other forms of collateral, such as ships, airplanes, or public sector loans. In the case of German covered bonds, the ECB bought EUR8bn in bonds covered by German mortgages and EUR11bn in bonds covered by German public sector loans between 2009 and 2012.<sup>22</sup> Moreover, as each member bank of the eurosystem purchased an amount of covered bonds equivalent to its capital key within the ECB, Spain and Ireland -- home to some of the largest covered bond markets in the eurozone -- purchased only moderate amounts of bonds.<sup>23</sup> The direct impact of these asset purchases on housing markets is therefore limited.

The rationale for these early purchases was to re-activate the European covered bond and inter-bank markets, but not to stimulate housing. While European housing markets have partly benefitted from these purchases -- one senior ECB official called this “collateral benefit”<sup>24</sup> in an interview -- it was not the ECB’s objective to provide specific support for housing. Instead, as Francesco Papadia (2014a), the ECB’s former director of monetary operations, put it, the “ECB purchases were not targeting a reduction of long term yields but rather tried to remedy a market dysfunction in the covered bond segment.” On the comparison with the Fed, a senior ECB official elaborated that: “Our goal was not to fix the housing system, but to help the banking and financial

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<sup>22</sup> Source: ECB.

<sup>23</sup> The Spanish and Irish central banks purchased EUR6.6bn and EUR1bn, respectively, out of the ECB’s total of EUR60bn.

<sup>24</sup> *Author interview (phone), ECB official I.* December 18, 2014.

system.”<sup>25</sup> Another ECB official stated that, while stimulating housing might increase consumption in the U.S. economy, the same would not be true in Europe:

Quantitative easing in the United States works through the wealth effect: increasing private consumption and producing stronger growth. And we don't have this effect in Europe. We don't have a market-based financial system, we have a bank-based finance system ... our transmission channel works through the banks.<sup>26</sup>

Yet another ECB official echoed that these programs were designed to revive the banking system and parts of the capital market, but not to stimulate housing:

It was not so much helping real estate, it was more about helping banks and also helping the biggest private sector bond segment in Europe ... I don't think you can say that the housing sector, in the case of Europe, was an objective at all. Indeed, there are some who say that, in some places, we are seeing again something of too much enthusiasm for real estate, for instance in Germany.<sup>27</sup>

The Germans agreed. The Bundesbank repeatedly sounded the alarm, when German house prices increased in the years following the crisis, considering overvalued house prices as a source of financial risk partly caused by loose monetary policy (Bundesbank 2013; 2018).

The ECB initiated its third covered bond purchase program in 2014, and shortly thereafter, launched its first ABS program, but again the ECB did not show much interest in boosting housing. The goal of these programs was to ease monetary conditions by providing liquidity for financial markets in times of ultra-low interest rates and deflationary pressures. By January 2015, the ECB had added another EUR30bn in covered bonds and EUR1.8bn in ABS to its portfolio.<sup>28</sup> Yet, as

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<sup>25</sup> *Author interview (phone), ECB official III.* December 8, 2014.

<sup>26</sup> *Author interview, ECB official IV,* Frankfurt, March 30, 2015. My translation.

<sup>27</sup> *Author interview (phone), ECB official I.* December 18, 2014.

<sup>28</sup> The ABS market amounted to EUR1.5tn in outstanding securities in 2013. Sources: European Commission; ECB.

Papadia (2014b) noted, “it is clear that the ECB has no intention to favour the housing sector, which in countries like Germany may already be too lively.” Similarly, a senior ECB official noted that the then most-recent round of covered bond purchases had been launched “in the context of QE-like thinking – that you wanted to increase the balance sheet, inject reserves, and then you’re just looking for assets you can buy.”<sup>29</sup> Still, boosting housing was not a priority in implementing the third covered bond program. In general, the difference between the earlier and later programs is that the former were designed to reactivate the covered bond market that had dried up in times of financial turmoil, while the latter were designed to inject liquidity in financial markets in times of deflationary pressures.

Has housing played a greater role when the ECB adopted a more extensive version of QE between 2015 and 2018? In 2015, the ECB started purchasing assets in the amount of EUR60bn per month, including sovereign bonds, covered bonds, ABS, and, later on, public sector securities<sup>30</sup> and corporate bonds.<sup>31</sup> The ECB’s QE program incorporated and extended the already existing covered bond and ABS programs into its larger bond-buying scheme. According to the ECB, the new QE program was designed to stave off deflation and “ease monetary and financial conditions, making access to finance cheaper for firms and households,” so as to stimulate investment and consumption.<sup>32</sup> While the ECB briefly expanded asset purchases to EUR80bn per month in 2016, with the goal of raising inflation, it reduced its purchases to EUR60bn in 2017; EUR30bn in early 2018; and EUR15bn later in 2018, given some optimistic economic data and the political limits of these programs. In early 2019, the ECB stopped its asset purchases and quantitative easing, yet

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<sup>29</sup> *Author interview (phone), ECB official II.* January 19, 2015.

<sup>30</sup> Later in 2015, the ECB adopted a public sector securities purchase program as part of QE. These are debt securities issued by local, regional, and central governments and agencies as well as international organizations located within the eurozone.

<sup>31</sup> In 2016, the ECB adopted a corporate sector purchase program as part of QE. Corporate bonds are debt securities issued by firms.

<sup>32</sup> ECB, press release, “ECB announces expanded asset purchase programme,” 2015.

retaining its balance sheet holdings for an extended period of time.<sup>33</sup> More importantly, the ECB's balance sheet expansion was mainly driven by assets and tools *outside* housing, such as public sector securities or refinancing operations to stimulate the inter-bank lending channel.<sup>34</sup>

Given the limited amounts that the ECB has bought in covered bonds and ABS, this did not create much controversy. While these programs did little to stimulate economic growth, Braun (2018) correctly notes that they have strengthened the eurozone's securitization and covered bond markets, signaling investors that the ECB is supporting these asset markets. These actions have contributed to the wider efforts of building a capital markets union -- of which the ABS and covered bond markets are key pillars -- in an attempt to unify eurozone capital markets and financial markets (Howarth and Quaglia 2016; Epstein and Rhodes 2018).

Much more controversial were the ECB's decisions to buy sovereign bonds and its larger QE program, triggering heated debates between national central banks, finance ministries, and the media. First, as the eurozone does not have "euro bonds" equivalent to U.S. Treasury bonds, attempts by the ECB to buy sovereign bonds of its member states generated the criticism of offering monetary financing for governments. Second, the Bundesbank and Dutch central banks criticized QE for creating financial instability, undisciplined markets, and misallocated resources. The hawkish members of the eurozone in particular viewed providing monetary assistance for specific countries or sectors as inappropriate.

These conflicts reflect some deeper macroeconomic frictions between the ECB's loose monetary policy, including asset-purchase programs, and the German growth model. The German Bundesbank and finance ministry have been among the most vocal critics of ultra-loose monetary

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<sup>33</sup> ECB, "Account of the monetary policy meeting of the Governing Council of the ECB," Frankfurt (12-13 September, 2018).

<sup>34</sup> In 2017, the ECB held roughly EUR2tn in public sector securities and EUR760bn in long-term refinancing operations (LTROs). LTROs are low-interest loans that the ECB provides to eurozone banks for up to three years.

policy. First, the Bundesbank has argued that loose monetary policy would produce asset bubbles and financial risk, such as an overheating German property market.<sup>35</sup> Andreas Dombret, a Bundesbank official, noted that: “[t]he mixture of booming real estate market and low interest rates can become a dangerous cocktail for the banking and savings bank sector” (Quoted in: *Deutsche Welle* 2017). Second, German politicians across the political spectrum have criticized QE and ultra-low interest rates for hurting savers, who have collected lower interest on their deposits since the crisis. Third, while QE tends to weaken the euro, which should help export-oriented economies, German exporters have viewed these policies as artificial, detached from market fundamentals, and threatening currency stability. In sum, QE programs that stimulate housing, hurt savers, and create uncertainty about currency developments create frictions with Germany’s export-led model.

This stands in stark contrast to central banks faced with collapsing house prices and high private mortgage debt, such as those in Spain and Ireland, favoring QE asset-purchase programs. Patrick Honohan, then governor of the Irish central bank, remarked that QE was an “unmitigated plus for the Irish economy,” partly because it helped the country’s public finances and alleviated the pressure of homeowners, as “they will find it possible to do things they were not able to do because they were scrimping and saving to pay.” He also acknowledged the macroeconomic frictions between QE and some eurozone economies, as “[c]ountries in which the saving constituency is very dominant are not clear that they like quantitative easing at all, with zero interest rates on their savings.”<sup>36</sup> Similarly, Luis Maria Linde, governor of the Bank of Spain, praised QE and stated that its “estimated impact is superior in the case of public debt and covered bonds” (Quoted in: Tado 2015). Central banks with problems in their housing markets viewed QE and asset-purchase programs more favorably than the Bundesbank.

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<sup>35</sup> In a report, the Bundesbank (2018) reckoned that house prices are overvalued by 15-30 percent in urban areas.

<sup>36</sup> Patrick Honohan, Hearing, Joint Committee on Finance, Public Expenditure and Reform Debate (May 28, 2015).

In sum, the ECB purchased only moderate amounts of housing-related bonds as part of its QE programs. This is partly because housing is not a transmission sector for major European economies, such as export-oriented Germany or the Netherlands, where rising house prices are viewed with skepticism. Relatedly, the capital markets for mortgages are more fragmented when compared with their U.S. counterparts, which made effective housing interventions by the ECB more difficult. The most salient conflicts over QE in the eurozone revolved around whether the ECB should buy sovereign bonds, but much less about the targetability of economic sectors, such as housing.

### **Conclusion**

Since the Great Recession, major central banks in advanced economies have adopted expansionary QE programs to boost their economies. This article has shown that they have supported private housing markets to different degrees as part of these balance sheet expansions. While the Fed has bought close to two trillion dollars in mortgage debt, the ECB has purchased housing-related bonds much less extensively. This article has shown that growth models, and the role of housing within them, explain these monetary policy differences in the United States and the eurozone.

This study contributes to important research on the welfare state and inequality, the politicization of central banking, and economic policy in hard times. First, monetary stimulus for housing has important distributive consequences (Jacobs and King 2016). Much like fiscal policy, purchases of housing bonds by central banks tend to lower the cost of mortgage debt and stimulate housing demand and prices. These programs help homeowners obtain cheaper mortgages, refinance at better rates, and stabilize or accumulate housing wealth – a form of private social insurance. In the United States, in particular, the Fed added another layer of government support

onto its mortgage market, reinforcing already existing housing programs, such as homeowner tax breaks and subsidies offered by the government-sponsored enterprises Fannie Mae and Freddie Mac (Rajan 2010; Schwartz 2019, in this issue). Yet, increasing property prices do not benefit everyone. These actions have also contributed to unaffordable property markets in many major cities and reinforced wealth inequality (Fuller, Johnston, and Regan 2019, in this issue). This study therefore contributes to research questioning the “neutrality” of central banks (Adolph 2013).

Second, this study concurs with those who have emphasized the politicization and limits of central bank independence (Best 2017; Binder and Spindel 2017; Jones and Matthijs *forthcoming*). Central banks are often assumed to be independent entities that can adopt policy decisions with fair levels of autonomy. Yet, in the case of the Fed, policymakers have openly threatened to limit the Fed’s independence by changing the Federal Reserve Act. In the case of the ECB—often considered the most independent central bank—the German government has attacked and denounced its loose monetary policies, even connecting it to the rise of populism. This challenged the independence of the ECB, a striking development given the longstanding German insistence on enshrining a high degree of independence in the ECB’s mandate. In recent years, unconventional monetary policies have significantly strained and politicized the relationship between politicians and central banks (Jones and Matthijs *forthcoming*).

Finally, this article demonstrates that the actions of central banks are important—yet understudied—elements of how advanced economies have responded to economic problems since the Great Recession. While much research has focused on fiscal policy (Farrell and Quiggin 2017; Blyth 2013), this study concurs with an important body of work on monetary policy (Mandelkern 2016; Lombardi and Moschella 2015; 2016). Future research might further explore the historical

origins and policy differences, distributive consequences, and politicization of unconventional central bank policy, such as quantitative easing.

## References

- Acharya, Viral, Matthew Richardson, Stijn Van Nieuwerburgh, and Larry White. *Guaranteed to Fail: Fannie Mae, Freddie Mac, and the Debacle of Mortgage Finance*. (Princeton: Princeton University Press, 2011).
- Adolph, Christopher. *Bankers, Bureaucrats, and Central Bank Politics: The Myth of Neutrality* (Cambridge: Cambridge University Press, 2013).
- Ansell, Ben, Lawrence Broz, and Thomas Flaherty. “Global Capital Markets, Housing Prices, and Partisan Fiscal Policies.” *Economics & Politics* vol. 30 no. 3 (2018): 307-339.
- Baccaro, Lucio, and Jonas Pontusson. “Rethinking Comparative Political Economy: The Growth Model Perspective.” *Politics & Society* 44, no. 2 (2016): 175-207.
- Bernanke, Ben. “Non-Monetary Effects of the Financial Crisis in the Propagation of the Great Depression.” *American Economic Review* 73, no. 3 (1983): 257-276.
- Bernanke, Ben, Vincent Reinhart, and Paul Sack. “Conducting Monetary Policy at Very Low Short-Term Interest Rates. *American Economic Review* 94, no. 2 (2004): 85-90.
- Bernhard, William. “A Political Explanation of Variations in Central Bank Independence.” *American Political Science Review* 92, no. 2 (1998): 311-327.
- Best, Jacqueline. “Bring Politics Back to Monetary Policy.” *Foreign Affairs*. Web. December 6, 2017.
- Binder, Sarah, and Mark Spindel. “Independence and Accountability: Congress and the Fed in a Polarized Era.” In *Congress and Policy Making in the 21st Century*, edited by Jenkins, Jeffery, and Eric Patashnik. Cambridge: Cambridge University Press, 2016.
- — —. *The Myth of Independence: How Congress Governs the Federal Reserve* (Princeton, NJ: Princeton University Press, 2017).
- Blyth, Mark. *Austerity: The History of a Dangerous Idea* (Oxford: Oxford University Press, 2013).
- Braun, Benjamin. “Central Banking and the Infrastructural Power of Finance: The Case of ECB Support for Repo and Securitization Markets.” *Socio-Economic Review* (2018).
- Bundesbank. “Possible Overvaluation of Residential Property in German Cities,” (October 21, 2013).
- — —. “Monthly Report,” vol. 70 no. 2 (February 2018).
- Calza, Alessandro, Tommaso Monacelli, and Livio Stracca. “Housing Finance and Monetary Policy.” *Journal of the European Economic Association* 11, no. 1 (2013): 101-122.

De Nederlandsche Bank. “Financial Stability Report,” (Autumn 2017).

*Deutsche Welle*. “Bundesbank Warns of German Real Estate Bubble,” (4 May 2017).

Engelen, Ewald, and Anna Glasmacher. “The Waiting Game: How Securitization Became the Solution for the Growth Problem of the Eurozone.” *Competition & Change* 22, no. 2 (2018): 165-183.

Epstein, Rachel, and Martin Rhodes. “From Governance to Government: Banking Union, Capital Markets Union and the New EU.” *Competition & Change* 22, no. 2 (2018): 205-24.

Falleti, Tulia, and James Mahoney “The Comparative Sequential Method,” in: Mahoney, James, and Kathleen Thelen (eds.) *Advances in Comparative Historical Analysis: Resilience, Diversity, and Change* (New York: Cambridge University Press).

Farrell, Henry, and John Quiggin. “Consensus, Dissensus, and Economic Ideas: Economic Crisis and the Rise and Fall of Keynesianism.” *International Studies Quarterly* 61, no. 2 (2017): 269-283.

Fernández-Albertos, José. “The Politics of Central Bank Independence.” *Annual Review of Political Science* 18 (2015): 217-237.

Fleming, Sam. “Federal Reserve Warned Over Maintaining Big Balance Sheet.” *Financial Times* (May 7, 2017).

Fuller, Gregory, Alison Johnston, and Aidan Regan. “Housing Prices and Wealth Inequality in Western Europe.” *West European Politics* (2019, in this issue).

Goodman, John. “The Politics of Central Bank Independence.” *Comparative Politics* 23, no. 3 (1991): 329-349.

Hall, Peter, and Robert Franzese. “Mixed Signals: Central Bank Independence, Coordinated Wage Bargaining, and European Monetary Union.” *International Organization* 52, no. 3 (1998): 505-535.

Hancock, Diana, and Wayne Passmore. “How Does the Federal Reserve’s Large-Scale Asset Purchases (LSAPs) Influence Mortgage-Backed Securities (MBS) Yields and US Mortgage Rates?” *Real Estate Economics* 43, no. 4 (2015): 855-890.

Hassel, Anke, and Bruno Palier, eds. *Growth and Welfare Reforms in Global Capitalism* (Oxford University Press, *forthcoming*).

Henning, Randall. “The ECB as a Strategic Actor: Central Banking in a Politically Fragmented Monetary Union.” In James Caporaso and Martin Rhodes, eds. *The Political and Economic Dynamics of the Eurozone Crisis*. Oxford: Oxford University Press, 2016.

Jacobs, Lawrence, and Desmond King. *Fed Power: How Finance Wins* (Oxford University Press, 2016).

— — —. “American Oligarchy? The Concealed Politics of the Federal Reserve Bank.” *PS: Political Science & Politics* vol. 51 no. 4 (2018): 743-746.

Johnston, Alison, and Paulette Kurzer. “Bricks in the Wall: The Political Economy of Housing in Europe.” *West European Politics* (2019, in this issue).

Johnston, Alison, and Aidan Regan. “European Monetary Integration and the Incompatibility of National Varieties of Capitalism.” *Journal of Common Market Studies* 54, no. 2 (2016): 318-336.

— — —. “Global Finance, Labor Politics, and the Political Economy of Housing Prices.” *Politics & Society* 45, no. 3 (2017): 327–358.

Jones, Erik, and Matthias Matthijs. “Beyond Central Bank Independence: Rethinking Technocratic Legitimacy in Monetary Affairs.” *Journal of Democracy* (forthcoming).

Krishnamurthy, Arvind, and Annette Vissing-Jorgensen. *The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy*. National Bureau of Economic Research Working Paper 17555, October 2011.

Lacker, Jeffrey, and John Weinberg. “The Fed’s Mortgage Favoritism.” *Wall Street Journal* (October 7, 2014).

Lohmann, Susanne. “Federalism and Central Bank Independence: The Politics of German Monetary Policy, 1957–92.” *World Politics* 50, no. 3 (1998): 401-446.

Lombardi, Domenico, and Manuela Moschella. “The Institutional and Cultural Foundations of the Federal Reserve’s and ECB’s Non-Standard Policies.” *Stato e Mercato* 35, no. 1 (2015): 127-152.

— — —. “The Government Bond Buying Programmes of the European Central Bank: An Analysis of their Policy Settings.” *Journal of European Public Policy* 23, no. 6 (2016): 851-870.

Mandelkern, Ronen. “Explaining the Striking Similarity in Macroeconomic Policy Responses to the Great Recession: The Institutional Power of Macroeconomic Governance.” *Comparative Political Studies* 49.2 (2016): 219-252.

Mishkin, Frederic. *Housing and the Monetary Transmission Mechanism*. National Bureau of Economic Research Working Paper 13518, October 2007.

Papadia, Francesco. “Should the ECB Go Quantitative?” *Money Matters Blog* (2014a).

— — —. “About Elephants and ABS.” *Money Matters Blog* (2014b).

Pontusson, Jonas. "The Fed, Finance, and Inequality in Comparative Perspective." *PS: Political Science & Politics* vol. 51 no. 4 (2018): 743-746.

Prasad, Monica. *The Land of Too Much: American Abundance and the Paradox of Poverty* (Cambridge, MA: Harvard University Press, 2012).

Quaglia, Lucia, David Howarth, and Moritz Liebe. "The Political Economy of European Capital Markets Union." *Journal of Common Market Studies* 54 (2016): 185-203.

Rajan, Raghuram. *Fault Lines: How Hidden Fractures Still Threaten the World Economy* (Princeton, NJ: Princeton University Press, 2010).

Schwartz, Herman. *Subprime Nation: American Power, Global Capital, and the Housing Bubble* (Ithaca, NY: Cornell University Press, 2009).

— — —. "Covering the Private Parts: The (Re-)nationalization of Housing Finance." *West European Politics* (2019, in this issue).

Schwartz, Herman, and Leonard Seabrooke. "Varieties of Residential Capitalism in the International Political Economy: Old Welfare States and the New Politics of Housing." *Comparative European Politics* 6, no. 3 (2008): 237-261.

Steinberg, Federico, and Mattias Vermeiren. "Germany's Institutional Power and the EMU Regime after the Crisis: Towards a Germanized Euro Area?" *Journal of Common Market Studies* 54, no. 2 (2016): 388-407.

Tado, Maria. "Bank of Spain Says ECB Action Helped Propel Euro-Area Recovery." *Bloomberg Quint* (June 3, 2015).

Voigtländer, Michael. "The Stability of the German Housing Market." *Journal of Housing and the Built Environment* 29, no. 4 (2014): 583-594.