Nina Eichacker; ASSAs 2020
European Monetary Policy: Some Stylized Facts

I. Introduction:

Central Banks have great institutional power to shape economic outcomes for their countries and the world, depending on the systemic importance of their country's economy; the European Central Bank (ECB), though relatively new, holds great authority in shaping European economic circumstances, even as it operates within the broader structure of the Eurosystem, which includes the ECB as well as the National Central Banks (NCBs) of European Union member states. This paper examines how capital and reserve holding practices by NCBs and the ECB have evolved over the first decades of the 21st century. The period examined spans the early years of the newly formed Eurozone, the Global Financial Crisis and subsequent Eurozone Crisis from 2008 onward, and the aftermath of those financial and sovereign debt crises. It argues that trends toward uniform capital and reserve holding practices by NCBs across Europe were upended by the ECB's responses to the Global Financial Crisis and the Eurozone Crises that followed 2008, specifically the ECB's refusal to act as a lender of last resort to the peripheral EMU economies of Greece, Ireland, Spain, Portugal, and Italy. It further argues that core EMU members — specifically Germany, though other economies to a lesser extent — have modified their financial and monetary activity to reflect their insecurity with the structural realities of being part of a monetary union.

As early as 2000, key architects of the European Union's Economic and Monetary Union (EMU) debated how well equipped European central banks were to handle both monetary union and their intervention in the European economy at national and supranational levels going forward. Lorenzo Bini Smaghi and Daniel Gros argued that widely divergent capital holding practices throughout the Eurozone, non-standardized rules for national central banks (NCBs),

and the lack of accountability measures for both NCBs and the European Central Bank (ECB) were points of concern for observers. (Bini Smaghi and Gros, 2000, #) Over this period, the ECB's vigilance in enforcing inflation standards and opposing aid for countries in crisis varied; where Germany and France had successfully violated terms of the European Growth and Stability Pact in 2004, peripheral economies in 2009 — Greece, Ireland, Spain, Portugal, and Italy were later denied lender of last resort services by the ECB when their financial systems entered crisis and the countries incurred sovereign debt crises, in many cases due to having bailed out banking sectors. As a consequence, these countries agreed to bailout packages designed in part by the ECB that prioritized austerity policies in the midst of a global recession, with negative consequences at national and European levels. In this context, the resumed preference by EMU peripheral economies to hold reserves and excess capital is a rational response to a monetary system that they know will abandon their financial interests when in need of liquidity. At the same time, the intra-Eurozone payment system — Target and Target2 — has emerged as a new buffer means of transferring funds, particularly as direct lending has slowed since the 2008 financial crisis. European NCB's Target balances have come to be seen as proxies for intra-European balances of payments, and have generated controversies over whether they represent closet bailouts of crisis economies, or whether they represent a smoothing mechanism for ensuring trade even in the midst of economic fluctuations within the EMU. However, key changes have occurred in different countries' balances over time, and this paper explores those trends.

These questions are important for several reasons. First, there are the questions about perceptions of risk and liquidity in the Eurozone. Have banks changed their willingness to hold capital, and have NCBs changed their willingness to hold extra reserve assets in order to hedge

against crises in financial markets? Second, there is a potential power question. Have different countries responded to disparate treatment by the ECB – compare the non-enforcement of the Stability and Growth Pact when Germany and France violated it in 2004 with the ECB's strong stand against fiscal deficits in the Eurozone crisis – by increasing their reserve asset holdings in order to hedge against the risk of NCBs and the ECB failing to act as a lender of last resort in times of crisis? Finally, there is a money creation question. The greater the demand for reserve assets, the less the money that is allowed to circulate within an economy, whether by central banks, or by banks themselves. If banks and central banks in Europe have changed their willingness to lend or to hold excess reserve assets, this implies a changed terrain for monetary policy, and limits the potential benefits from engaging in expansionary monetary policy. Thus, this exercise can be seen as a way of examining whether European monetary decisions follow more of a Horizontalist (Accomodationist) or Verticalist (Structuralist) framework in the context of economic conditions, political arrangements, and historical events.

The structure of the paper is the following. The second section of this paper presents general theory about the significance of holding reserve assets, as well as background on how the European system of payments functions. The third section presents and discusses the significance of empirical trends in reserve asset holdings by European NCBs and the ECB from 1995 through 2015, and the final section concludes.

II. Literature

There is a tension behind desires for stability and growth when it comes to banking and the decision to hold excess reserves. This tension plays out for central banks as well as other financial institutions, whose managers and owners make decisions about what volume of lending to engage in relative to liabilities and within the limits allowed by required reserve ratios. This

section of the paper briefly explores the rationale for holding reserve assets, especially foreign currency reserve assets – by central banks and banks at large. It also examines how Target2, the intra-Eurozone payment system, operates, and its implications for central bank balance sheets, and its broader significance within the Eurosystem.

There are two issues at play when considering banks' liquidity preferences in the post-Keynesian economic tradition. First, how do banks choose between making loans or purchasing assets like corporate paper, bills, or bonds? Banks' relative demand for profits may drive their demand for assets with different expected yields, whether interest accrued over the term of a loan, or the combined interest and other payments in addition to the resale value of an asset like a stock or a bond, or their relative willingness to lend directly or indirectly to other banks. These factors can also help determine banks' willingness to hold assets such as loans, or to securitize them and turn them into new liabilities. Alternately, banks' liquidity preference may be determined by animal spirits, or their relative confidence in the state of the economic, and the likelihood of their borrowers complying with their obligations in the midst of uncertainty. In this context, "a fall in banks' liquidity preference implies that banks are more willing to grant loans, or are willing to grant them on easier conditions." (Lavoie, 2014, 245)

Two schools of thought have developed within Post-Keynesian economists studying money and banking. These are the Horizontalist, or Accomodationist, school, and the Verticalist, or Structuralist, school. Horizontalist and Verticalist refer to the slope of a Central Bank's reserve supply curve – horizontal and upward sloping, respectively. A simple Horizontalist vision argues that central banks accommodate the interest rate that they target by committing to putting whatever quantity of money into or out of circulation in order to target the desired interest rate. Horizontalist authors argue that the LM curve can be viewed as horizontal: central banks will

provide as much or as little money as is demanded throughout the economy, while banks will make their own decisions about how much to lend (and, by extension, how many deposits to potentially create) on the basis of credit-worthiness of the borrowing public. In this framework, households' and banks' liquidity preference may influence demand for money and credit, and the assumption is that banks (and central banks) can effectively provide cash on demand. (Lavoie, 2006) Banks will ration credit through interest rates, rather than by hoarding reserves. Lavoie argues further that when banks and central banks operate primarily as overdraft facilities and clearinghouses, that there is less need to hoard reserve assets, as needs will eventually be accommodated within the system. (Lavoie, 2006, #)

In the structuralist view, banks and other financial and monetary institutions together determine interest rates and credit availability in an economy. These institutions play a more active role in circulating money and determining the money supply of the economy than the accomodationist theory allows. Structuralist authors also argue that liquidity preference – by households and banks – are major determinants of the "volume of credit created by banks," and that structures of banking and financial systems play important roles in facilitating or impeding the flow of credit throughout economies in historically contingent ways. (Dow, 2006, 36) Like the horizontalists, structuralists believe that the money supply is endogenous, and that money "comes into being substantially (though not exclusively) through the credit market." (Dow, 2006, 37) They augment this with the notions that authorities influence money supply through more active setting of interest rates and other fees to encourage or discourage reserve borrowing by banks; through banks' decisions to set their own loan and deposit rates influenced in part by central bank determined 'base rates'. They also argue that endogenous money and liquidity preference can reinforce one another, particularly in the context of financial instability and crisis,

and in particular historic and geographic context. (Dow, 2006, 37-8)

The greatest distinguishing feature between the accomodationist and structuralist theories is likely the distinction between demand for money and demand for credit. Lavoie argues that central banks and banks will provide cash effectively on demand; Dow and other structuralists argue that banks and central banks may hoard cash and other reserve assets for different reasons, including the desire to signal stability, to insure against future crises, or to hedge against a central banks' decision not to act as lender of last resort. (Dow, 2006, 38-40) Dow notes that "money assets are those that have the attributes of money, which allows them to perform money functions. In modern banking systems, the bulk of money consists of deposits; with bank innovation, the range of deposits performing money functions has increased, requiring revisions to the definition of money. Bank deposits come into being primarily as the counterpart to new credit. They also come into being when banks buy securities… Once new deposits are drawn down, or an overdraft facility exercised (credit normally being granted with a view to expenditure), the new deposits circulate within the banking system. (As loans are paid back, the deposits are extinguished.)" (Dow, 2006, 40) It is the specific role of money that defines the power monetary authorities control most directly: "interest on the liquidity [those authorities] are prepared to lend to the banking system. In modern times, this is conventionally the rate at which the central bank takes on repurchase agreements from the banks, the 'repo' rate. Even when there are no reserve requirements as such, banks require liquidity (balances with the central bank) for settling payments… Where there is insufficient liquidity in the interbank market, banks have no other choice but to borrow from the central bank." (Dow, 2006, 40) Dow argues that accomodationists conflate credit with money: thus, the accomodationist argument that overdraft facilities provided by central banks obviate the need to hold large stocks of reserves, Dow

counters that such facilities "are not universally available," and that banks may still need to keep liquid assets for reasons unrelated to borrowing. (Dow, 2006, 44) If anything undermines trust in bank liabilities as a form of payment, the accomodationist argument falls apart. Finally, Dow notes that scarcity of financial resources matters, "especially for particular groups of borrowers." (Dow, 2006, 45) In this context, banks' decisions about what constitutes credit-worthiness is likely to have structural factors determined by particular economic, social, and historic context, and must be considered in the provision of money and the execution of monetary policy for an economy at large.

In the most general sense, central banks and commercial banks' balance sheets list liabilities and assets: obligations to pay and sources of income, or, in Cecchetti and Schoenholtz's textbook definition, "sources of funds" and the "uses to which those funds are put." (Cecchetti and Schoenholtz, 2015, 296) Bank capital is the difference between total bank assets and bank liabilities. Bank capital, per Cecchetti and Schoenholtz, "is the cushion banks have against a sudden drop in the value of their assets or an unexpected withdrawal of liabilities. It provides some insurance against insolvency (the inability to repay debts when a firm's liabilities exceed its assets)." (Cecchetti and Schoenholtz, 2015, 303) Reserves provide liquidity for banks; they are typically a small fraction of the deposits banks hold on the liabilities side of their balance sheets. Banks' willingness to hold excess reserves then can be viewed as an indicator of overall confidence in banking and economic conditions at large.

In addition to deposits, commercial banks' liabilities include checkable deposits, nontransaction deposits, and borrowings from other banks and the central bank. Borrowings can be divided into several categories. Banks in the US tend to borrow reserves from other banks on the federal funds market; their borrowing from the Fed can be divided into discount loans and

repurchase agreements, or repos. Repos are short-term "collateralized [loans] in which a security is exchanged for cash, with the agreement that the parties will reverse the transaction on a specific future date, typically the next day. For example, a bank that has a US Treasury bill might need cash, while a pension fund might have cash that it doesn't need overnight. Through a repo, the bank would give the T-bill to the pension fund in exchange for cash, agreeing to buy it back – repurchase it – with interest the next day. In short, the bank gets an overnight loan and the pension fund gets some extra interest, along with the protection provided by collateral." (Cecchetti and Schoenholtz, 2015, 302) [The second draft of this paper will include more specific detail about European usage of repos by commercial banks; the presentation will provide data on European repo assets.]

Central banks' balance sheets reflect their duties to governments and banks. On the liability side, central banks hold currency circulating outside of banks, government deposits, and commercial bank accounts' reserves, which includes both commercial banks' deposits at the central bank, as well as commercial banks' cash reserves. On the asset side of their balance sheets, central banks hold securities (typically domestic government bonds), loans to domestic commercial banks, and foreign exchange reserves, including bonds issued by foreign governments, gold, which can be used for exchange rate interventions. (Cecchetti and Schoenholtz, 2015, 453) Special Drawing Rights (SDRs) are another foreign reserve asset central banks may hold; they are international reserve assets issued by the IMF under the Bretton Woods fixed exchange rate system. While SDRs are not actually currency, they serve as claims on "freely usable currencies of IMF members". (IMF, 2019) While the largest share of the Federal Reserve's assets are domestic government securities, the ECB's primary assets are repo loans to banks. (Cecchetti and Schoenholtz, 2015, 453) Foreign exchange reserves constitute a relatively

small share of Federal Reserve Assets, but have historically been important in periods of time when more countries used gold standards, and remain important for smaller economies that do not issue vehicle currencies. [The second draft of this paper will present more literature on foreign reserve holding, and the presentation will include material on this.]

Certain key differences separate the ECB from the Federal Reserve. Within the Eurosystem, the European Central Bank (ECB) provides reserves to banks at the country level through their respective National Central Bank (NCB). At the same time, the ECB's Governing Council targets the 'minimum bid rate,' which is a target refinancing rate, like the Federal Funds Rate in the US. Open market operations occur daily in the Eurozone by each member state's NCB; collateral for these repo transactions varies by country. (Cecchetti and Schoenholtz, 2015, 494) Outside of the 2007-2009 crisis, the Federal Reserve has only accepted US government securities as collateral for repos; in the Eurosystem, the ECB and NCBs have accepted "tens of thousands of different marketable assets as eligible collateral, , including not only government-issued bonds, but also privately issued bonds and bank loans." (Cecchetti and Schoenholtz, 2015, 494) The ECB's Marginal Lending Facility is the European equivalent of the Fed's discount window; it "provides overnight loans to banks at a rate this is normally well *above* the target-refinancing rate. The spread between the marginal lending rate and the target refinancing rate is set by the Governing Council… As in the case of the Federal Reserve, commercial banks initiate these borrowing transactions when they face a reserve deficiency that they cannot satisfy more cheaply in the marketplace. Banks do borrow regularly, and on occasion the amounts they borrow are large." (Cecchetti and Schoenholtz, 2015; 495) As with the Fed, Eurosystem banks can store reserves at the ECB Deposit Facility "at an interest rate substantially *below* the target refinancing rate… While they are usually small, these deposits can be substantial, because they include all

excess reserves in the Eurosystem's banks. Deposits at the ECB averaged €350 million from 1999 to 2006, but temporarily surged above €800 billion during the euro-area crisis." (Cecchetti and Schoenholtz, 2015, 495-6) Finally, ECB banks still face reserve requirements; in 2012, the ratio was lowered from 2% of deposits to 1%. The overnight cash rate is the cost of borrowing reserves from other banks in the Eurosystem, and akin to the Federal Funds Rate.

[The second draft of this paper will explore the significance of benchmark rate differentials, and provide a comparison of NCB benchmark rates and average bank lending rates over time.]

Within the Eurosystem, payments are transmitted across borders through the TARGET (Trans-European Automated Real-time Gross settlement Express Transfer) system; in its second iteration, it has been renamed TARGET2. Target2 (formerly Target) is a payment system for the Eurozone. Suppose someone Spanish buys something from a German company, and the customer's bank in Spain must make a transfer to a bank in Germany. Since both banks have accounts with their respective NCBs, which both have accounts with the ECB, the Spanish commercial bank will submit payment instructions through the NCB to the ECB for the Target2 system. The Spanish central bank's Target2 account will be debited, the German central bank's will be credited, and the German commercial bank will get a payment in euros. The ECB is the clearinghouse for the transaction – it transfers money from account to account. The system is a legacy of the fact that the Eurosystem has both NCBs for member countries, as well as the ECB, as the overarching central bank. NCBs make their own decisions about the levels of reserves to maintain with the ECB, capital holdings, and how many other reserve assets (SDRs, foreign currency, gold) to hold. Intra-Eurozone transfers show up on the NCB's balance sheets as liabilities, if they are debits, and assets, if they are credits. Commercial banks pay the NCBs in the debit case, and commercial banks receive payment from the credited NCB. In the case of the

Spanish purchase, one can “see” the change in the transfer of the Spanish bank's reserve assets to the Spanish central bank's eurosystem payments liabilities, and in the transfer from the ECB to the Bundesbank, and from the Bundesbank's Eurosystem assets account to the German commercial bank. Banks with large Eurosystem payment credits receive interest payments from the ECB while the banks with Eurosystem payment deficits pay interest while clearing their debt. Any interest profits NCBs receive from having positive Eurosystem balances get reallocated to the commercial banks receiving payment for the transactions that set the mechanism in motion; it's an exchange driven exercise. (Whelan, 2013, page)

In 2012 and 2013, these balances attracted a lot of attention, partly because Target2 deficits and surpluses ballooned for crisis and surplus countries respectively. Some authors argued that the balances were being collateralized with government bonds; others, including Hans Werner Sinn, argued that the balances were a backdoor way for the ECB to bail out periphery countries' banks and governments, and that Germany would be on the hook if those banks defaulted. Neither of these arguments were exactly true, according to Karl Whelan. (2013) All else equal, Target2 balances tend to increase as current account balances increase, and vice versa, but regression analysis shows little correlation between CA balances and Target2 balances. The changes coincided with a decrease in direct credit flows from the core to the periphery: while the Bundesbank now runs large surplus Eurosystem payment accounts, peripheral EMU economies now seem to borrow in the short term, and their NCBs eventually pay off the obligations. Target payments occur automatically; NCBs must eventually pay the ECB for the debit on their Eurosystem account. Without this system, Whelan argues that CA balances would have been much smaller than they were able to grow as markets withdrew credit to peripheral EMU economies in the lead-up to the Eurozone Crisis; without the Target system,

NCBs would have probably begun asset sales (at losses) to cover obligations as well as capital flight. (Whelan, 2013)

Lavoie has argued that when monetary systems change from being reserve asset holding systems to overdraft systems, that money is more freely available within the system, and the accomodationist theory of monetary policy is likely to describe the system well. (2006; 2013) However, the apparent rise and decline of standard intra-bank lending within the Eurozone before and after the 2008 crisis, as well as the apparent reorientation of credit flows within the Eurozone being routed through the ECB as Target2 payments, highlights the value of analyzing these tendencies. How have Eurozone NCBs' reserve asset holding practices evolved since the implementation of the Eurozone, both before and after the Eurozone crisis? Have banks within the Eurozone increased their capital holdings in the wake of crises, and inconsistent lender of last resort services from the ECB? Are there differences between banks and NCBs in the core and periphery of the Eurozone? The next section of this paper explores how these data have evolved in the late 20th and early 21st century.

III. Data

This section of the paper explores empirical trends in monetary policy and bank practice within the Eurosystem from the mid 1990s through 2018. In so doing, it expands on work about foreign reserve asset holding by Rosero (2015), Dominguez, Hashimoto, and Ito (2011), Obstfeld, Shambaugh, and Taylor (2008), and Moghadam (2010), by applying their lessons to the Eurozone and extending that analysis into the second half of the 2010s. It likewise expands on work about Target and Target2 in European monetary policy by Febrero and Uxó (2013), Cesaratto (2013), Auer and Bogdanova (2017). This section begins with data trends in European central bank holdings of foreign reserve assets, then it examines trends in TARGET2 balances

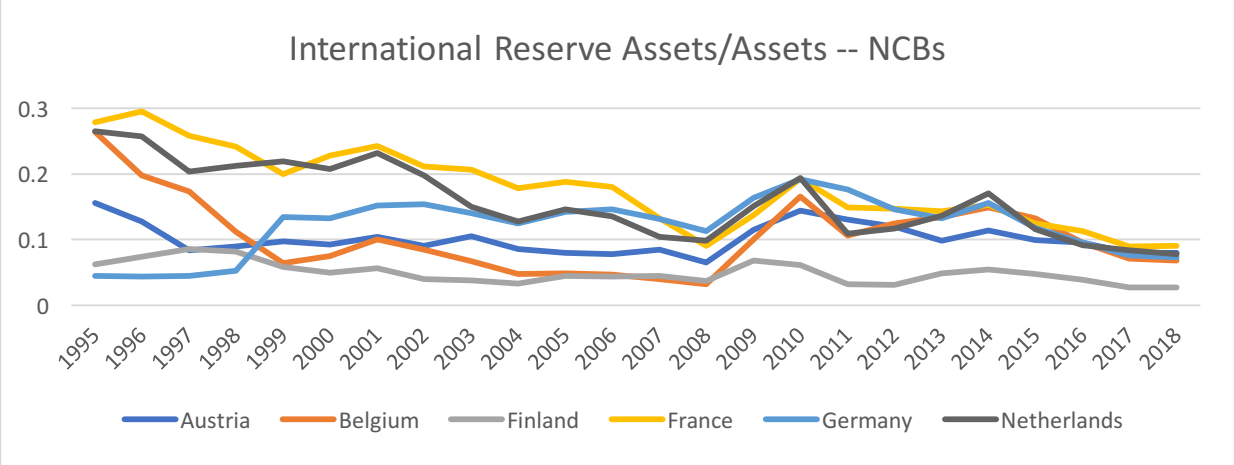
over time, and then it briefly considers capital holdings by commercial banks throughout the Eurozone. Later versions of the paper will include data on repo holdings, Central Bank lending, and benchmark rates, to give fuller portrait of European monetary conditions since the implementation of EMU, and the onset of the Global Financial Crisis and the Eurozone Crisis.

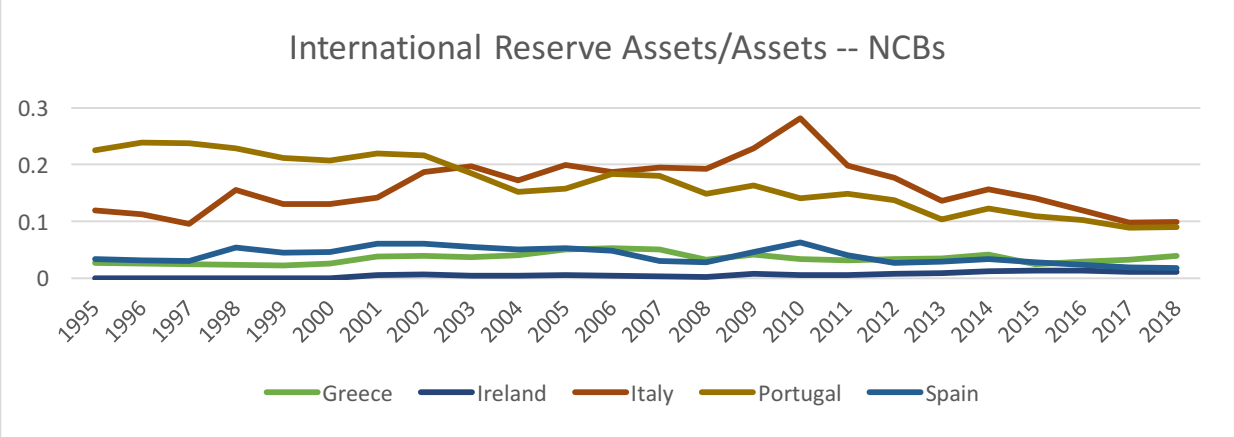
For this paper, I consider EMU members that are part of the EU-15 group. I exclude Luxembourg because its numbers tend to skew results. The total group includes Austria, Belgium, Germany, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, and Spain. I count Austria, Belgium, Germany, Finland, France, and the Netherlands as part of the EMU core, while Greece, Ireland, Italy Portugal, and Spain are included in the peripheral EMU group.

International Reserve Holding Within the Eurozone

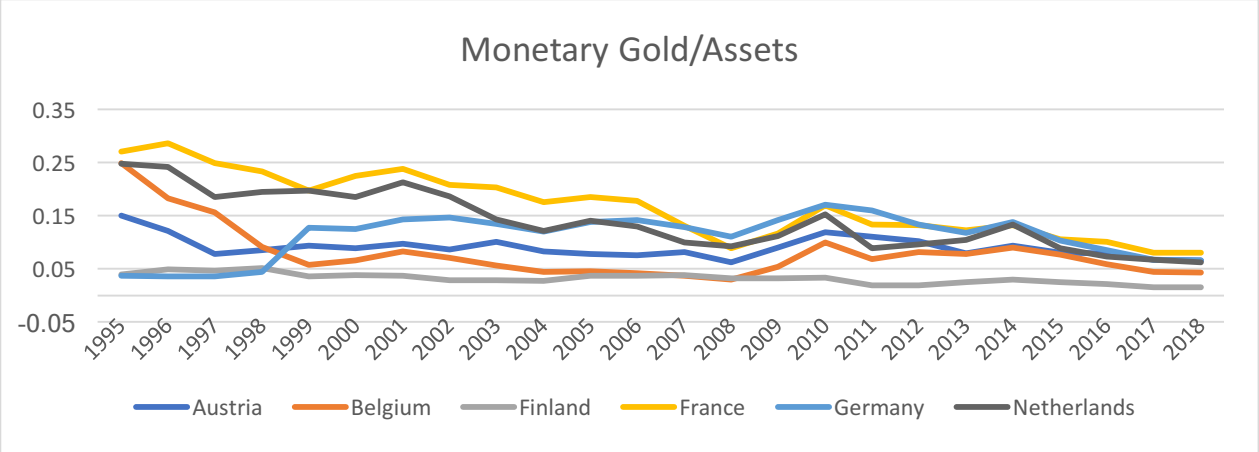
Preliminary analyses show that in the context of the 2008 crisis, NCBs throughout the Eurozone began acquiring more international reserve assets, and that this tendency increased particularly in core EMU countries. These jumps were larger for some economies than others, and the core seems to have had a more pronounced increase in overall international reserve assets as a share of total central bank assets than for peripheral EMU economies. [The presentation will include some speculation about why this may be.] This is in keeping with what a structuralist theory of endogenous money might predict: in times of crisis, liquidity preference rises, and central banks shift toward safer assets, and to ensuring their ability to acquire other currency as necessary under the auspices of the IMF in times of crisis. This trend, though more pronounced in the EMU core, also maintains for most of the peripheral EMU members, particularly following the onset of the Eurozone crisis in 2009. When decomposing the total foreign reserves over assets figure, we see a widespread decline in gold as a share of assets, and an increase in SDR holdings over total assets throughout the Eurozone, core and periphery.

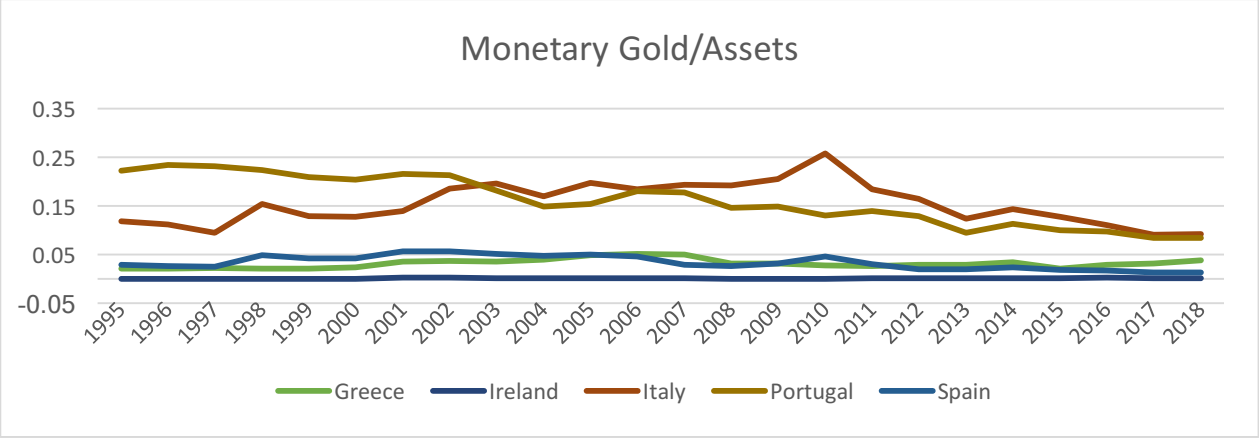
Charts 1a and 1b: Total International Reserve Assets/Assets



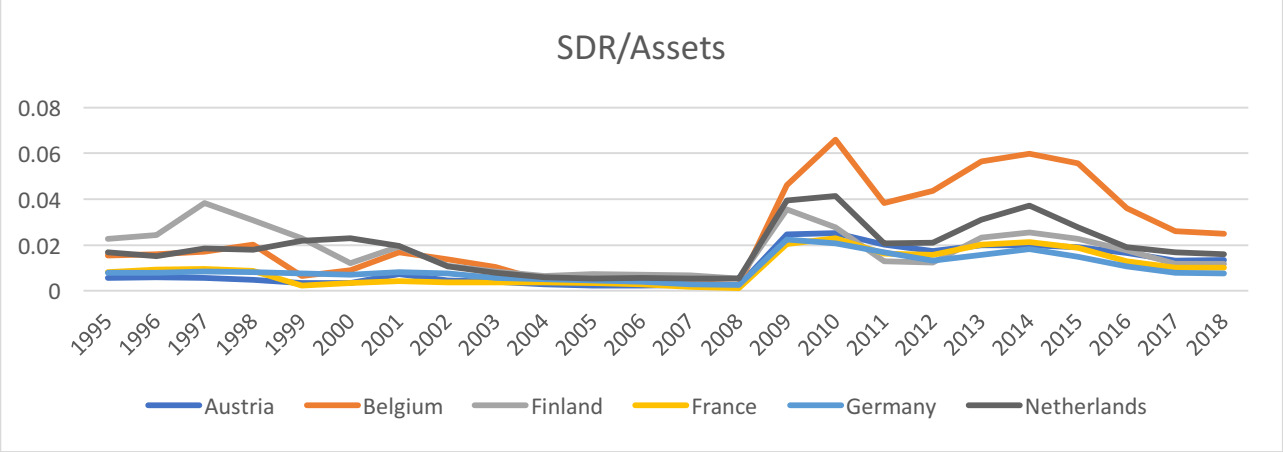


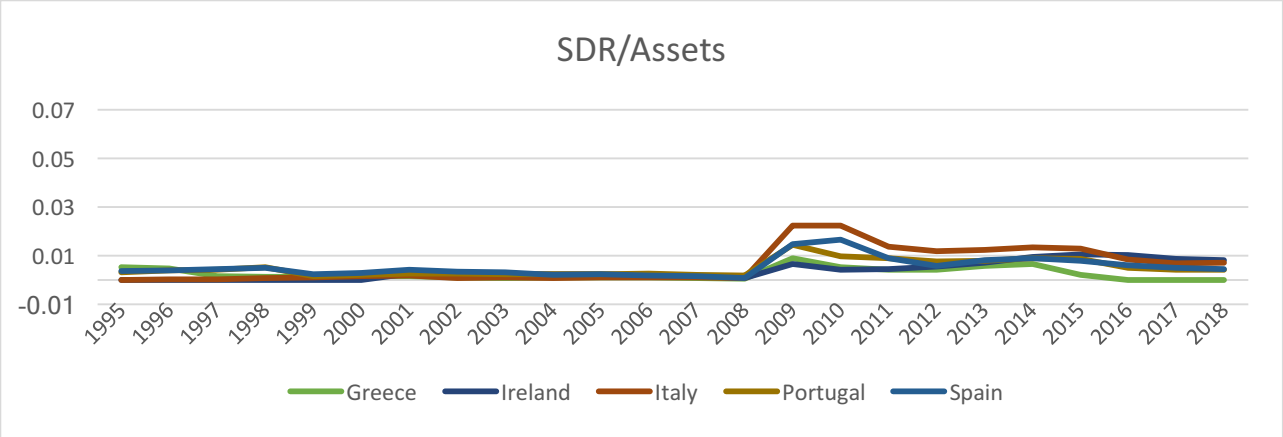
Charts 2a and 2b: Monetary Gold/Total Assets





Charts 3a and 3b: SDRs/Total Assets

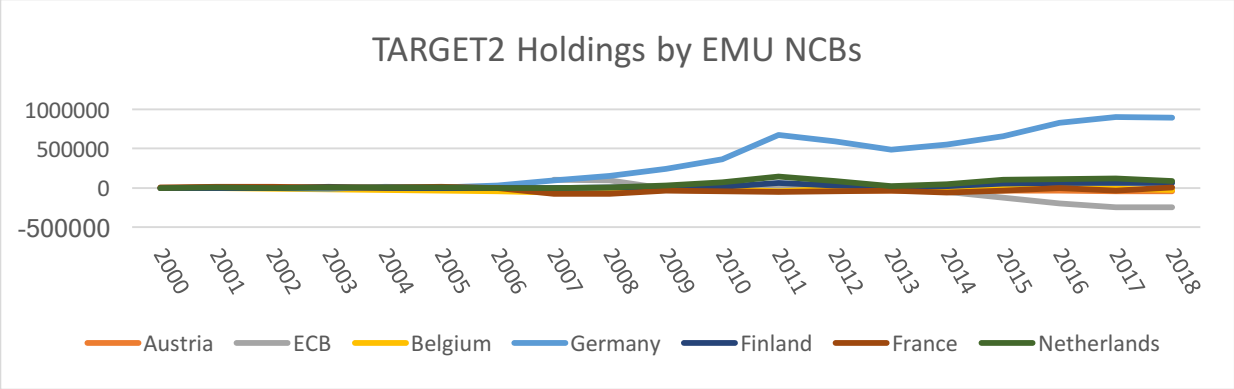


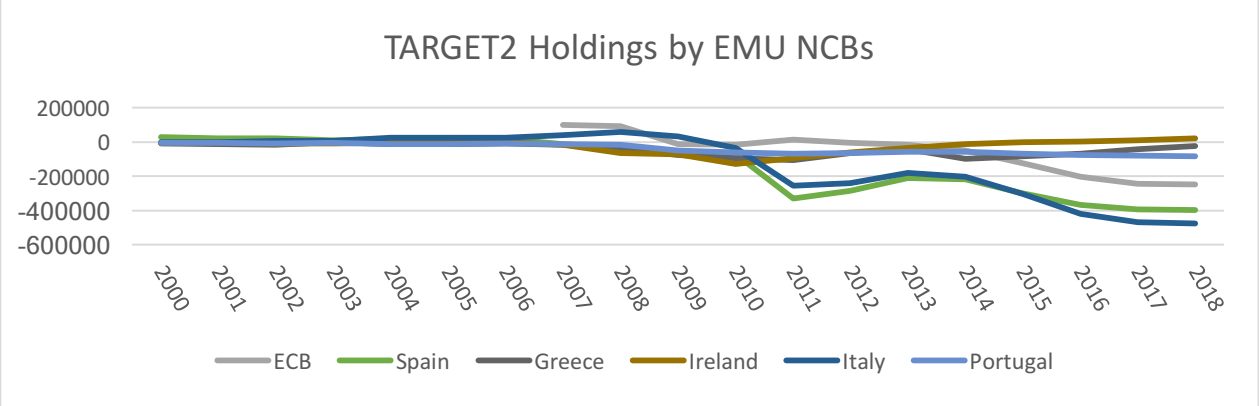


TARGET2 Holdings Within the Eurozone

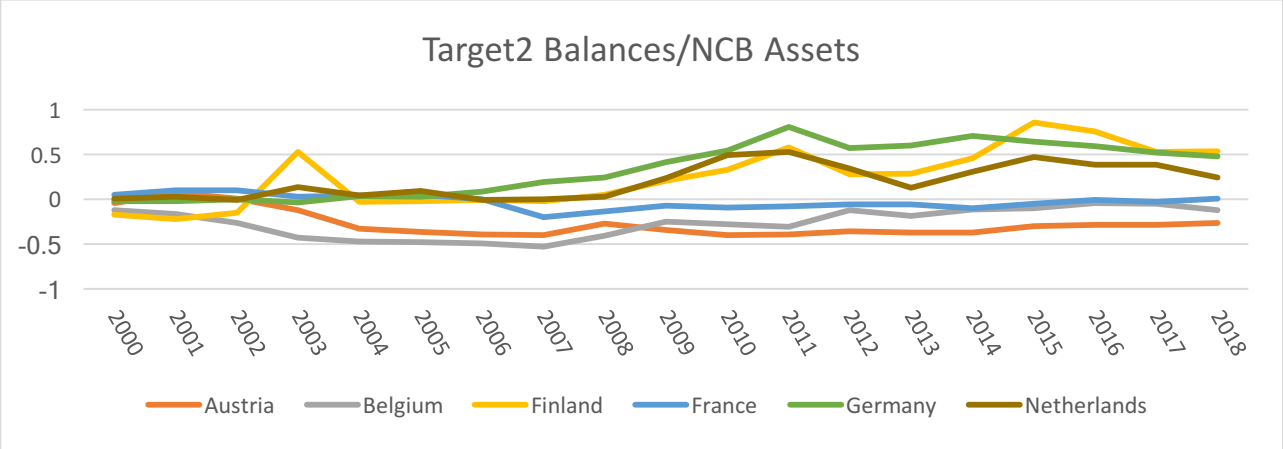
When examining the evolution of Target2 balances within the Eurosystem, we observe that Target2 holdings have increased in absolute terms through most of the Eurozone, and have also increased as a share of NCB central banks' assets since 2008. The presentation of this paper will include figures about direct credit flows between European countries. Since the early 2000s, and especially since the 2008 crisis, the intra-Eurozone payment system has grown in importance within the Eurosystem as a means of accommodating trade, but also as a valve for lending when countries deem multiple countries no longer credit-worthy. In this arena, the financial intstrument Target2 balances seems to have emerged as a new reserve asset, that enables countries to earn incomes through their engagement with their Central Banks, both in the core and the periphery of the EMU.

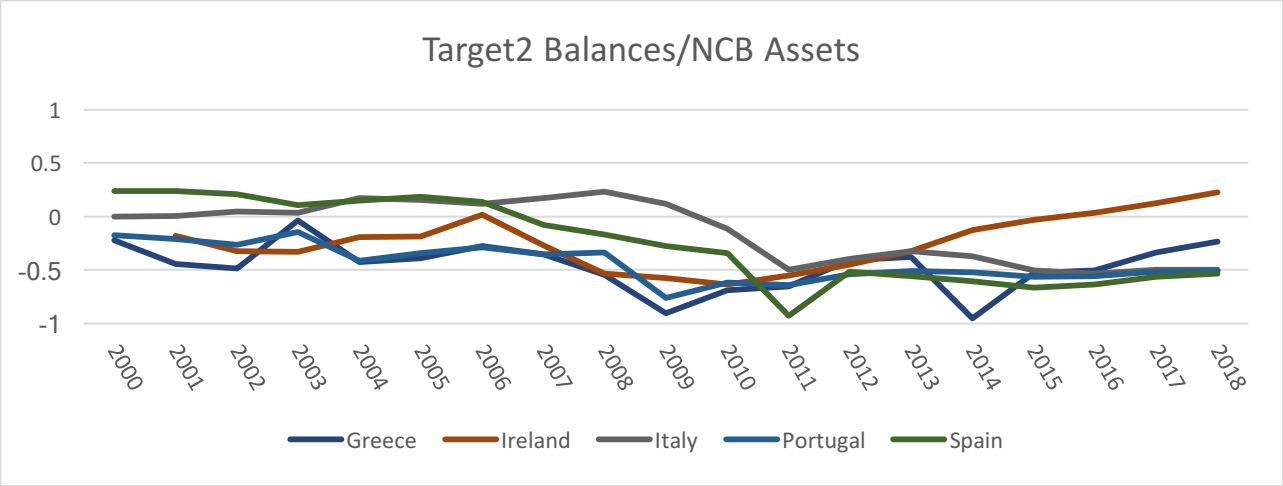
Charts 4a and 4b:





Charts 5a and 5b:

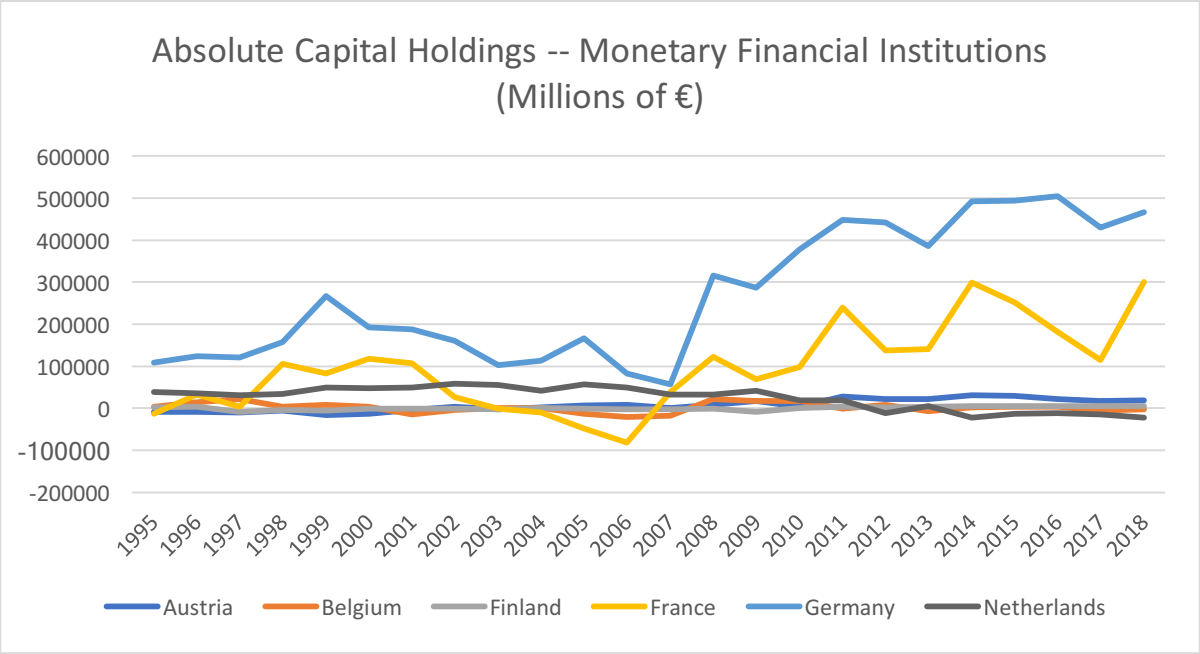


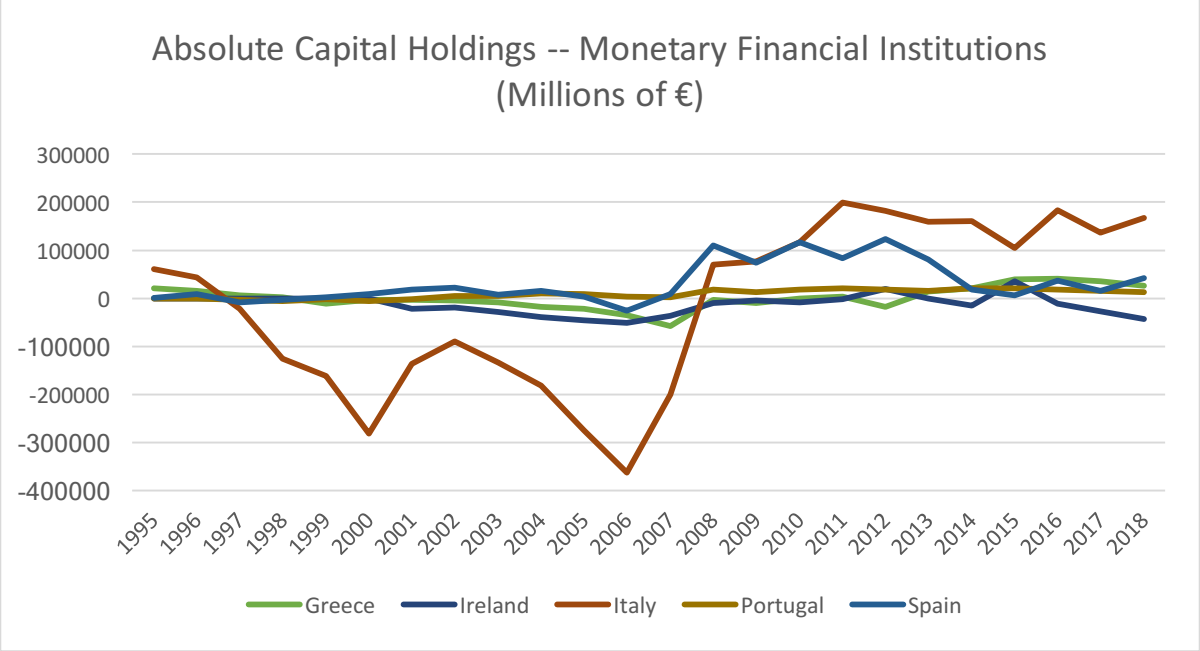


Capital Holdings by Financial Institutions Within the Eurozone

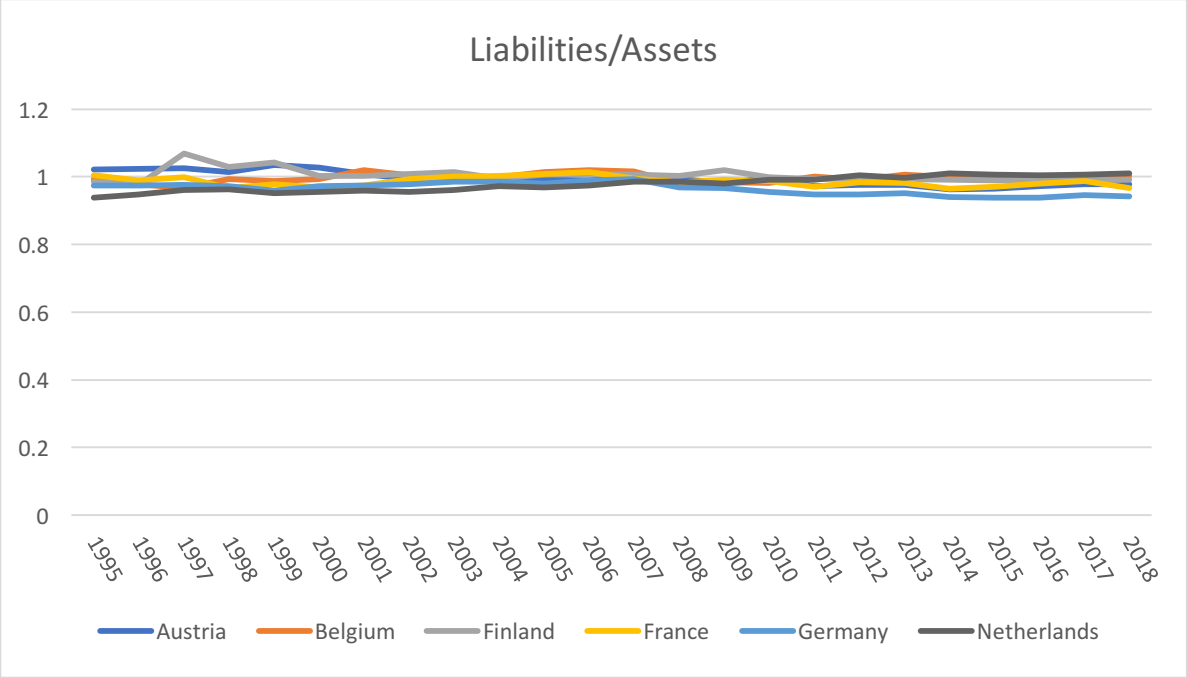
As with NCBs, financial institutions throughout the EMU seem to have increased their liquidity preferences since the onset of the global financial crisis, and the exacerbation of the Eurozone crisis. First, capital holdings began to increase in absolute terms through most of the Eurozone from 2008 onward. Charts 6a and 6b demonstrate this trend in both the EMU core and periphery. The next two sets of charts map liability holdings relative to assets. Charts 7a and 7b show that while core EMU economies had smaller ratios of liabilities to assets, implying that a greater share of their liabilities were not financed by debt than in the peripheral EMU economies, both sets of economies saw ratios of liabilities to assets decrease from 2008 onward, with more dramatic declines in the peripheral EMU economies. The opposite trend is apparent in charts 8a and 8b, which show the ratio of bank capital to assets. Both peripheral and core EMU economies increased their holdings of capital relative total assets; in this case, peripheral economies on average seem to hold higher shares of capital to assets than core economies do on average. This hints at core EMU economies' reactions to the events of the past decade, and their inability to rely on the ECB to bail out banks in times of crisis (liquidity or insolvency).

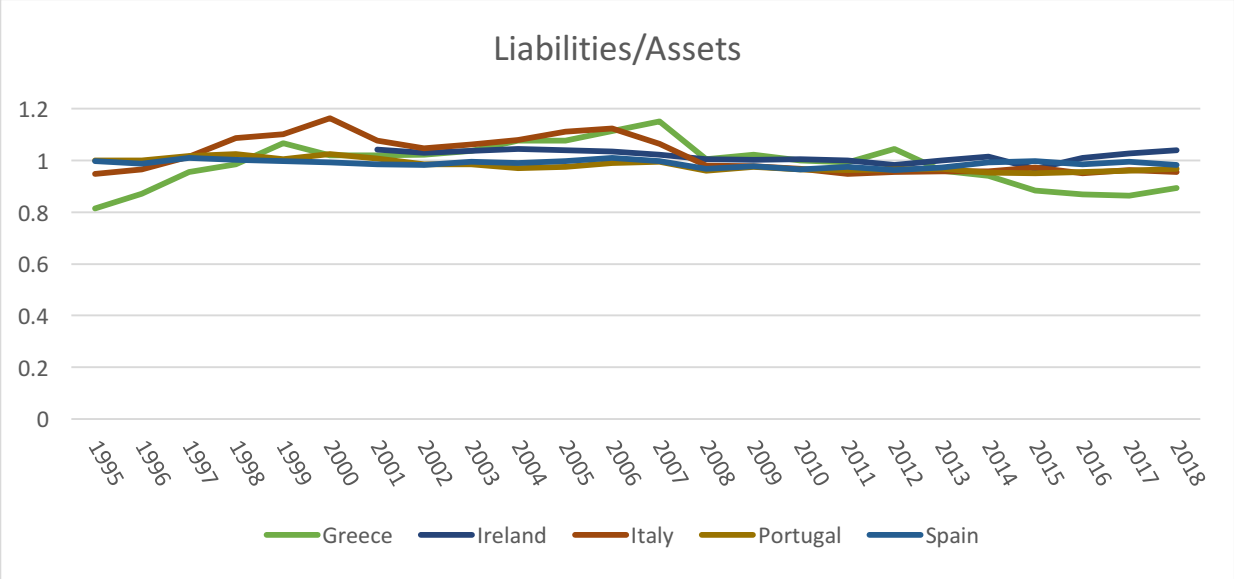
Capital Holdings by Financial Institutions Within the Eurozone
Charts 6a and 6b: Assets-Liabilities



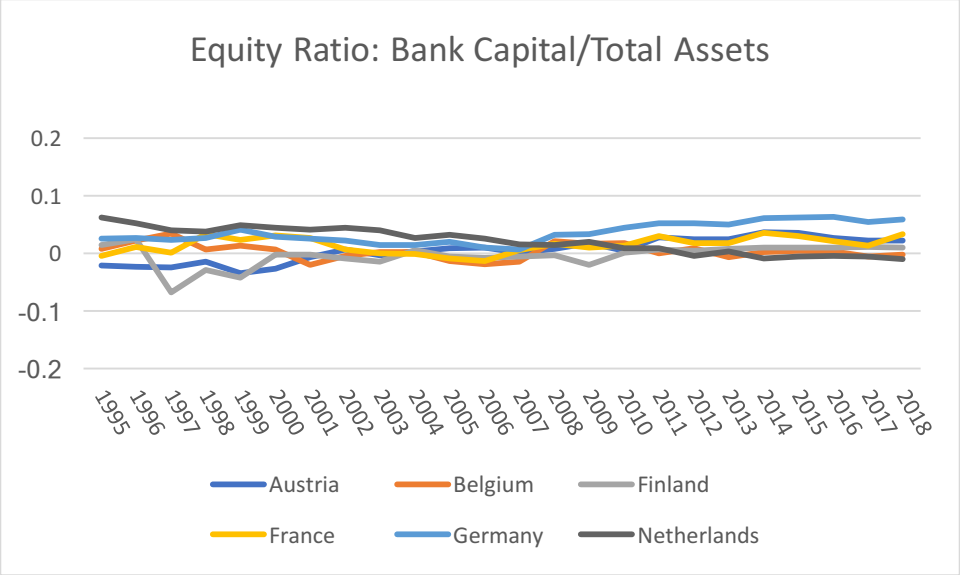


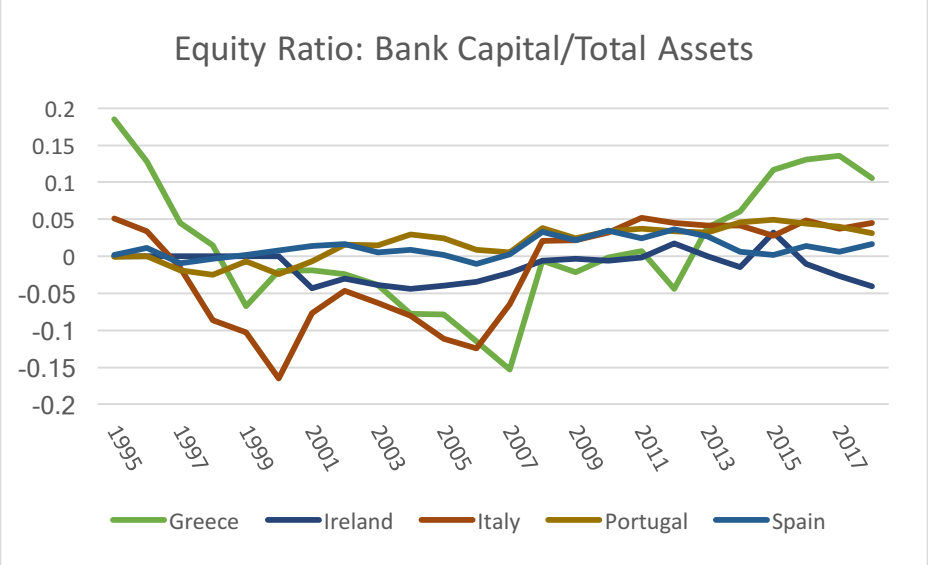
Charts 7a and 7b: Liabilities/Assets





Charts 8a and 8b:





These preliminary findings hint that NCBs and monetary financial institutions in the Eurosystem have internalized lessons from the past decade to approach monetary policy and banking in a more constrained fashion. This may spring from an understanding that liberal lending standards helped bring about the various permutations of banking crises throughout the US and Europe in 2007 and 2008; it may likewise result from observations of the ECB failing to relieve banks and central banks in crisis following the onset of the Eurozone Crisis as the Doom Loop established

itself. My presentation and subsequent drafts will build this story up with data about interest rates, shadow banking, and repo data. It will also suggest ways to analyze this data econometrically to establish deeper trends.

IV. Conclusion

Preliminary analyses reveal that central banks and bank throughout the Eurozone have responded to a decade of crises and mercurial ECB responses to banking systems in trouble by increasing their capital holdings, international reserve asset holdings, and the intra-European payment assets, Target2 funds. Subsequent work in the presentation will give preliminary commentary on interest rates and repo data too. This hints at the validity of structuralist interpretations of monetary policy in understanding how the Eurosystem operates. Banking systems have responded to periods of credit rationing by increasing their holdings of reserve as their liquidity preference has increased; this has occurred in spite of the ECB's unwillingness (eventually grudging) willingness to help design relief packages for the Eurozone's peripheral economies, though the consequences of these bailouts have been likewise controversial.

These dynamics are important to flesh out. As early as 2000, architects of the Eurozone were perplexed by the tendency of NCBs in the Eurozone to hold more foreign assets – especially gold – and for banks in the Eurosystem to hold more capital and reserves than required. (Gros and Bini Smaghi, 2000) These authors argued that peripheral economies like Portugal and Italy were foregoing growth opportunities through their desire to hoard reserves, in contrast to economies like the Netherlands and Germany, which held the minimum reserves necessary under EMU law. The irony is that though peripheral economies gradually relaxed their demand for reserve assets in the early and mid 2000s, they quickly encountered liquidity crises in the moment of the global financial crisis, and especially the failure of various investment banks

in 2008. My presentation and subsequent drafts of this paper will supplement this story about reserve assets with data about interest rates, central bank lending, and repo volumes.

In the coming years, tensions within Europe as a whole are likely to increase as the terms of Brexit become clearer, as different governments that may be more or less supportive of the EU project take office, and as a new cast of directors takes leadership on the ECB. It remains to be seen whether these tendencies toward monetary conservatism are a rational response to structural change in banking systems at national and supranational levels, or whether they are overly stringent responses to short-lived phenomena. However, growth may likely be constrained, whether due to structural change in the financial and monetary architecture of the ECB, or due to new standards for what constitutes credit-worthiness within the Eurozone.

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