

Real vs. Imagined Financial Markets The Regulatory Challenge^{*}

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Abstract:

We have grown accustomed to regulating financial markets based on imagined, not real markets. Real markets are shaped by and co-evolve with institutional arrangements within two fundamental constraints: Imperfect knowledge and the threat of illiquidity. Imperfect knowledge implies that the future is unknown and unknowable and that, therefore, investment strategies developed today will need to be revised, if not reversed, when the future arrives. Illiquidity means that it is impossible to convert *all* claims into cash at any given moment. It follows that when far-reaching downward adjustments to past investment strategies become necessary the illiquidity threat manifests itself and can spiral into a full-blown financial and economic crisis. Institutional arrangements cannot fundamentally alter the binding constraints of imperfect knowledge and illiquidity. However, they determine the *relative* vulnerability of financial systems to these constraints and the risks they pose to society. In designing regulation for financial markets it is critical to recognize that regulators too are affected by imperfect knowledge, and that central banks, the guardians of domestic financial systems, can face liquidity constraints as well. This calls for a diverse set of regulatory strategies that are flexible and take account of different capabilities for self-preservation.

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“There are few things that are more frightening than the steadily increasing prestige of scientifically minded brain trusters in the councils of government during the last decades. The trouble is not that they are cold-blooded enough to “think the unthinkable,” but that they do not think. Instead of indulging in such an old-fashioned, uncomputerizable activity, they reckon with the consequences of certain hypothetically assumed constellations without, however, being able to test their hypotheses against actual occurrences.”
(Hannah Arendt, On Violence, 1970)

I. Introduction

We have grown accustomed to regulating financial markets based on imagined, not real markets. Imagined markets are efficient and exist outside institutional structures; knowledge is perfect and liquidity is free. Laws, and regulations are auxiliaries: they are the unfortunate but necessary crutches in a world that has not been able to rid itself of information costs to ensure that markets approximate their imagined natural state.

In fact, financial markets have an inherent structure that results from the illiquidity constraint. Institutional arrangements organize markets within this constraint; and markets evolve in response to and in interaction with such arrangements. Financial markets change over time and vary from place to place. There is, therefore, no ideal or natural financial market that could plausibly serve as a benchmark for regulation. To the contrary, the attempt by regulators to guess what markets would look like in an ideal world rather than to regulate real markets as they evolve is at the heart of the regulatory failure that manifested itself in the global financial crisis.

Understanding financial markets as institutionally structured and as dynamically evolving in interaction with institutions poses fundamentally different regulatory challenges. From this vantage point it is not sufficient to reduce information costs and create incentives for individual actors in the hope that the sum of all individual responses will produce the desired outcome (Gilson and Kraakman 2011). Rather, we should recognize that institutional interventions will produce dynamic responses the results of which are impossible to forecast, yet they will affect the relative vulnerability of financial markets to crises. Attempts to standardize regulation worldwide based on predetermined

regulatory models are therefore a distraction from the actual regulatory challenges. Instead, domestic and international regulatory agencies should be designed more like firefighters than utilities regulators.¹

II. Pictures from the Global Financial Crisis – An Institutional Autopsy

To illustrate how institutional arrangements shape financial markets within the binding constraints of imperfect knowledge and illiquidity, this section will conduct an “institutional autopsy” (Milhaupt and Pistor 2008) of two manifestations of the global financial crisis: The composition of the Fed’s balance sheet in the midst of the crisis and the rise and fall of credit expansion in Central, Eastern, and Southeastern Europe (CEESE). An institutional autopsy is an approach to institutional analysis based on the notion that in normal times the dynamic interplay of institutions and individual and collective action is too complex to be easily disentangled and analyzed. It therefore uses a breakdown of a system, or some of its parts, to dissect its complex set of institutional arrangements and their vulnerability to break downs. This approach assumes that the relation between institutions, individual or collective behavior and outcomes is rarely unidirectional or mono-causal and that therefore a close examination of the different variables and interactions among them is needed. The two cases were selected to illustrate the dynamic development of institutions and markets in a single system – the US – on one hand, and the impact the interdependence of domestic and transnational markets has on emerging markets, specifically the countries of CEESE, on the other.

Consider the following pictures of the global crisis that represent ‘actual occurrences’ in Hannah Arendt’s terms: First, the balance sheet of the Federal Reserve in the fall of 2008; and second, the rise and fall of credit expansion in the former socialist economies in Central and Eastern Europe before and after the global crisis.

[INSERT GRAPHS ABOUT HERE].

¹ I know of no city that relies exclusively on fire safety codes for buildings and abolished fire engines.

Each depicts a particular crisis outcome, and I will attempt to show that each can help illuminate the underlying structure and institutional arrangement of the financial markets whose failure it documents.

A. Institutional Autopsy of the Fed's Balance Sheet

I begin by examining the balance sheet of the Federal Reserve between August 2007 and January 2009. Note that not only the size, but also the composition of the balance sheet changed dramatically over this short period. It is the mirror image of the markets that collapsed in the fall of 2008 when global financial markets came close to a standstill. As can be seen, the largest items in the fall of 2008 were Term Auction Credit (TAF); Securities Lent to Dealers – Term Facility (TSLF); Net Portfolio Holdings of the Commercial Paper Funding Facility (CPFF); and Central Bank Liquidity Swaps. Each of these new lending facilities was designed to alleviate the threat of a liquidity run in the markets that had served as liquidity fountains in the years preceding the crisis (Mehrling 2011, 120).

- TAF allowed banks to anonymously borrow from the Fed's discount window for up to 90 days. This addressed the problem that banks could no longer use asset-backed commercial papers (ABCP) to access private markets, because there were no longer any takers for these papers. As a result, they were effectively shut out of lending markets, yet needed funds to meet claims on them as they became due.

- Similarly, TSLF lent Treasuries against non-Treasury collateral to dealers in the market that no longer found takers for non-Treasury collateral in Repo markets to finance their positions.

- The CPFF was designed to allow issuers of secured and non-secured commercial papers who had lost their most important investors – money market funds that moved into Treasuries to avoid 'breaking the buck' – to continue to use commercial papers rather than credit lines with banks to meet their liquidity needs.

- Central bank liquidity swaps were designed to ensure that companies in countries with US denominated debt could make their payments in dollars at a time when private markets no longer operated to support cross-border borrowing.²

The Fed's balance sheet at the peak of the financial crisis depicts the credit system that had evolved over the preceding 30 years (Mehrling 2011). It illustrates that this system had come under serious liquidity stress: access to various funding markets had dried up as the viability of secured assets that underpinned these markets became questionable. In fact, the common denominator of the largest funding facilities the Fed offered in the midst of the crisis is that they responded to a collapse of private markets that had been organized around asset-backed securities (ABS) – a technology used to transform virtually any asset or future claim into a tradable security that could be easily converted into cash on demand, or so it seemed.

The origin of ABS markets can be traced to the early 1970s and has its roots in government policies with different goals, yet cumulative effects. On the one hand, Congress sought to address the pressing housing problem and growing unrest in large cities by making home ownership affordable for low-income families. This is the story of the 1968 Housing Act, the privatization of Fannie Mae and the creation of mortgage-backed securities first for low-income housing, and subsequently the creation of Freddie Mac to transpose the same practices to mortgages of higher income households (Hyman 2011). On the other, the Treasury sought to limit the newly created Commodity Futures Trading Commission's (CFTC) regulatory control over the fledgling market for foreign exchange derivatives. When Congress decided to amend the Commodities Exchange Act of 1936 to take account of the growing futures markets, it sought to expand the definition of "futures" to include "all services, rights, and interests in which contracts for future delivery are presently or in the future dealt in". This triggered the "Treasury Amendment of 1974",³ which exempted

² The swap lines are further discussed infra under IV.

³ I am grateful to Rachel Harvey for pointing out the importance of the TA in her research project associated with the "Global Finance and Law Initiative" funded by INET.

transactions in foreign currency, *security warrants, security rights, resales of installment loan contracts, re-purchase options, government securities, mortgages and mortgage purchase commitments*, unless such transactions involved the sale thereof for future delivery conducted on a board of trade.⁴ (emphasis added)

Little did the Treasury know, or anticipate, that this exemption would facilitate the rise and proliferation of markets in asset-backed securities and their derivatives outside regulatory scrutiny or oversight. Cumulatively, these two institutional arrangements shaped and transformed financial markets in the US.

First, it took ten years, but in hindsight it was only a small step from the invention of the securitized mortgages to the slicing and dicing of the pool of securitized mortgages into claims with different maturity and interest rates that met the demands of specific investor groups (Hynes 2011).⁵ The first collateralized mortgage obligation (CMO) was launched jointly by Salomon Brothers, First Bank Boston and the government sponsored entity, Freddie Mac, in 1983 – a vivid example of the close interaction of government and private parties in the making of these markets.

Second, the securitization and tranching technology was soon transposed to other asset classes. If claims for future payments of principal and interest on mortgages could be securitized, so could payments on any other asset or claim. The phenomenal growth of the commercial paper market in recent decades can be linked directly to the expansion of structured financing, as the technology to create ABS became known. As researchers at the NY Fed have documented, “Commercial paper represented only 30 percent of the money stock measure (M1) in 1980. It overtook M1⁶ in mid-1998 and, at its peak, was 60 percent *larger* than M1 in August 2007” (emphasis added) (Adrian, Kimbrough, and Marchioni 2011). The rise of the commercial paper markets is closely related to the rise of ABS. Commercial papers were increasingly backed by assets (ABCP). Indeed, the largest issuers of commercial papers were issuers of ABS, others included foreign issuers of dollar-

⁴ 7 U.S.C. § 2(ii).

⁵ Pension Funds, for example, seek to match their inflows with outflows that are timed to the retirement of their own investors.

⁶ M1 is a measure of the money stock. It includes currency, traveler’s checks, demand deposits and other checkable deposits. For recent data on M1, see <http://www.federalreserve.gov/releases/h6/hist/h6hist1.txt>

denominated paper, finance companies, non-financial corporations and commercial banks (ibid).

Third, in a further recombination of existing financing technologies, bankers at JP Morgan combined the technology of securitization with derivatives practices to create credit derivatives – most (in)famous among them, the credit default swaps, or CDS (Tett 2009). Notably, the first transaction involved a credit default swap between a public agent, the European Bank for Reconstruction and Development (EBRD), and Exxon Mobile – another illustration for the importance of public-private partnerships in the making of new markets.

Fourth, while public actors played a critical role in the making of these markets, little attention was paid to how they evolved over time. Instead, policymakers sought to bring real markets closer to their imagined markets. Thus, rather than monitoring and restricting the rapid expansion of liquidity in the system, the US Federal Reserve developed a systematic bias for easing liquidity, which, after all was assumed to be a free good in prevailing economic theory.⁷ Moreover, while the CFTC frequently sought to extend its supervisory functions to the sprouting derivatives markets (Tormey 1996),⁸ most courts gave a broad reading to the exemptions enshrined in the 1974 Treasury Amendment – and Congress did nothing to change that.

Fifth, the financial instruments and practices invented in the US were soon emulated worldwide. This occurred with the active help and support of public agents – governments as well as multilateral agencies. They sought to ease access to credit for those who had been shunned by traditional bank lending operations. This strategy had deep political appeal: It created the illusion that financial expansion was a win-win and that, therefore, politics did not have to concern itself with highly contested issues of distribution (Krippner

⁷ As Mehrling put it, “... monetary policy came to be seen as a matter of making liquidity in the real world the free good that is was in ideal theory. The result was a systematic bias toward ease by the monetary authorities, systematic bias that private speculators were only too happy to exploit for private profit. In effect, the monetary authorities became partners with the private speculators in a quixotic drive to make EH as true in reality as it was in theory.” (Mehrling 2011) at 91. Note that EH stands for expectation hypothesis of the term structure, which says that “the return on a long-term bond should be just an average of expected short-term interest rates over the life of the bond” (ibid at 49).

⁸ In several interpretative releases (1977 and 1984) the CFTC sought to clarify that the exemption would only apply to transactions between banks and other sophisticated investors. (Tormey 1996) at 2361.

2011). Given their apparent success in the US, the importers and disseminators of these technologies were even more oblivious to their potentially destabilizing consequences.

In summary, the financial markets that collapsed in 2008 did not result from a natural evolutionary process. They had a particular structure that can be traced to specific institutional arrangements – the invention of structured finance and its wholesale exemption from regulatory oversight. The original securitized mortgage designed for a specific purpose was combined, transposed and recombined over time⁹ by market actors in the pursuit of new profit opportunities and were supported as a fountain of new wealth and prosperity by government agents. This gave rise to a complex financial system that relied increasingly on the tradability of securitized claims and their derivatives.

Tradability meant that assets could be easily converted into cash and pushed the liquidity frontier to new heights. However, the salability of assets remained contingent on the viability of the underlying claims, which had been sliced and diced in ways that defied most analysts' understanding (Lewis 2010). The high rating these instruments received from credit rating agencies – another critical institutional arrangement that shaped these markets -- created the appearance that these assets were as safe as highly rated corporate bonds and made them accessible to investors that were required by law to invest only in highly rated securities. When borrowers began to default and doubts about the viability of underlying claims took hold, a run on the very markets that had earlier provided liquidity occurred (Mehrling 2011).

With the benefit of hindsight, the fact that a system that relies on instant refinancing – rather than paying debt with earned income¹⁰ – is prone to collapse is of little surprise. Minsky would not have hesitated to label it ponzi finance (Minsky 1986). More importantly, our institutional autopsy reveals that this particular system was neither natural nor inevitable; it was the product of a set of institutional choices that in conjunction created this outcome. Each step in its making can be perfectly rationalized and every actor had

⁹ This process of institutional innovation, i.e. the recombination of institutional practices from different spheres of life, has been a hallmark of financial market development. See (Padgett and McLean 2006) on the emergence of long distance lending and its institutional and social underpinning in Renaissance Italy.

¹⁰ Household debt kept rising in the US as real income stagnated, or even declined. See Hyman (2011). See also (Dyanan and Kohn 2007). Note, however, that Dyanan et al. attribute the rise of household primarily to consumer profligacy, whereas Hyman suggests that financial innovation was the driving force.

good reasons for pursuing his or her respective choice. None anticipated the outcome *ex ante*. That follows from the imperfect knowledge constraint that afflicts lawmakers and regulators as much as market participants. The real problem was that nobody bothered to look as the market evolved. Instead, regulators, policy makers and academics clung to their imagined model of market efficiency, which they had long equated with social good.¹¹

B. Institutional Autopsy of the Boom and Bust of Credit Markets in CEESE

The former socialist countries of Central and Eastern Europe have been among those worst affected by the global financial crisis. While they were spared a financial meltdown mostly as a result of a multi-stakeholder resolution effort (Pistor 2011), they suffered a severe credit slump in its aftermath (Gardor and Martin 2010). This poses an interesting puzzle for several reasons: These countries had implemented far-reaching institutional reforms, including financial sector reforms in order to join the European Union based on international best practice models; they had opened their markets to foreign investors and allowed their banking sectors to come under the control of foreign parent banks;¹² their credit to GDP ratio was only approaching the less developed economies in Europe; and most banks had capital adequacy ratios well above the international standard.¹³ Moreover, sophisticated financial products, such as CDOs and CDSs, had not penetrated the region, nor had brokers and financial intermediaries created a market for subprime mortgages (Gardor and Martin 2010). Last but not least, the banks most active in the region were not among the most sophisticated in financial engineering. They were mostly mid-sized banks

¹¹ In contrast, Keynes pointed out decades ago, that there is no reason to believe that strategies that are profitable also benefit the social good. “There is no clear evidence from experience that the investment policy which is socially advantageous coincides with that which is most profitable.” Keynes, *supra* note 9, at 157. Moreover, Samuelson who established the efficiency theorem warned that the theorem as such said nothing about whether it was socially desirable: “It does not say that speculation is a good thing or that randomness of price changes would be a good thing. It does not prove that anyone who makes money in speculation is *ipso facto* deserving of the gain or even that he has accomplished something good for society or for himself. All or none of these may be true, but that would require a different investigation.” (Samuelson 1965, 48).

¹² CEESE countries have the highest level of foreign bank penetration in the world. See (BIS 2004).

¹³ The first Basel Accord (Basel I) established an 8 percent capital adequacy rule. Most banks in CEESE had one around 10 percent prior to the onset of the crisis. See Gardor et al. (2011).

from Austria and Sweden, and some German, French and Italian ones as well (De Haas and Van Lelyveld 2010).

What then explains the sudden reversal of fortunes? The short answer is contagion, but that does not explain the mechanism that channeled contagion to these countries. It could be psychology as is often asserted (Akerlof and Shiller 2009); or it could be institutional arrangements that linked CEESE markets to the highly instable global financial system and exposed them to its risk. Closer inspection reveals that the harbingers of prosperity and stable financial systems, the foreign parent banks, sourced the capital they transmitted to CEESE countries from global funding markets (Walko 2008).¹⁴ They thereby linked CEESE to global wholesale markets that relied on instant shiftability of assets, the very markets that collapsed in the global crisis. In short, rapid credit expansion in the region was not supported by an equally rapid growth of domestic deposits (there was a growing gap between deposits and credit expansion), nor were they funded by profits of parent banks in their home jurisdiction, but from parent banks borrowing on global markets and channeling these funds to emerging markets where they could obtain higher yields (Gardor and Martin 2010; Walko 2008).

This was made possible by a governance regime for global finance, which CEESE countries were brought into without its potential effects on these countries ever having been problematized (Pistor 2012). Instead, the image of global financial markets that would direct capital to where it was most needed and thereby help countries converge with the ‘advanced’ markets in the West prevailed.¹⁵

One critical element in the financial architecture is the Basel Concordat with its division of labor between home and host countries. Under the Basel Concordat, the home regulator of the parent banks supervises them as well as their foreign branches, whereas regulators in countries where parent banks maintain subsidiaries regulate these subsidiaries (Bednarski and Starnowski 2007). The consolidated supervision of the financial group is also placed in the hands of parent bank regulators. The flow of

¹⁴ See also (Bruno and Shin 2012).

¹⁵ Remarkably, the recent ECB report on the impact of the crisis on CEESE reiterates this image. See (Gardor and Martin 2010) at 12 on the “downhill-flow-theory” of global capital. Note, however, that this theory had been seriously questioned earlier by Prasad et al. (2007) based on empirical evidence.

information and regulatory coordination between home and host country regulators is relegated to Memoranda of Understanding – documents that were easily signed, but little used. This arrangement allowed parent banks to source additional funds via their foreign (mostly US) branches and channel them to their foreign subsidiaries in emerging markets, without regulators in the latter knowing the sources of the capital that entered their country (Bruno and Shin 2012; Walko 2008).¹⁶ By implication, they had no way of gauging the full risk of free capital mobility to their home markets. Instead, they took assurance from the fact that foreign banks had directly invested in their economies by taking equity stakes in their banks rather than flooding the market with highly liquid portfolio investment – as had happened in Asia in the 1990s.¹⁷ In truth, the FDI argument disguised the nature of credit flows to the region.

Second, the principle of free movement of capital enshrined in the European Treaty was extended to the new member states upon entry -- notwithstanding the fact that the old member states themselves had deferred the unmitigated application of this principle to their own markets for more than thirty years, until the late 1980s.¹⁸ This meant that new member states had few effective policy tools to stem capital inflows, whatever their source, lest they violated their treaty obligations (Gardor and Martin 2010).

Third, the EU transposed the home-host division of labor for governing transnational banks of the Basel Concordat into European Union law. Taken together, the principle of free capital mobility with the home-host division of labor meant that on balance, CEESE countries had fewer policy tools at their disposal to protect themselves against credit booms than other emerging markets (Pistor 2012) (Hahm et al. 2012).¹⁹

¹⁶ Walko (2008) at 84 notes that there is too little information available from intra-bank transfers to know exactly how much capital was sourced and transmitted in this fashion. However, indirect evidence is provided from Fed data on the use of TAF facilities (supra) by foreign banks. Numerous European banks made use of this facility to access liquidity when their US branches could no longer source funding on private markets, including Unicredit, one of the major players in CEESE countries. Data are available at <http://www.federalreserve.gov/monetarypolicy/taf.htm>. I am grateful to Hyun Song Shin for pointing this out to me.

¹⁷ (Feldstein 2002). But see also (Ghysels and Seon 2005).

¹⁸ The Treaty of Rome provided that free capital mobility was to be realized only "to the extent necessary to ensure the proper functioning of the common market" and it took a Council Directive of 1988 to fully liberalize capital. See http://ec.europa.eu/internal_market/capital/overview_en.htm#when

¹⁹ The contrast with Latin America, a region that had been exposed to numerous financial crises in the past, is most striking. Unlike CEESE countries, countries in Latin America had retained sovereignty over capital

Yet, some countries in the region did better than others, suggesting that even within these global structures domestic institutional responses can make a difference. A good example is the fate of Poland during the global crisis. As the above picture on the rise and fall of credit in CEESE indicated, Poland but also the Czech Republic experienced a more moderate credit boom and bust than their neighboring country. Closer examination of regulatory interventions in Poland suggests that this was not by chance.

Poland had already established an impressive track record in governing financial markets that was characterized by proactive regulation and careful design of financial intermediaries during the transition period (Glaeser, Johnson, and Shleifer 2001).

As early as 2006, Polish regulators recognized the potentially devastating effects of the credit boom Poland and its neighbors were experiencing. While policymakers at the IMF and elsewhere were still debating whether this was a natural catch-up with the more advanced countries of Western Europe (Enoch 2007), Polish regulators adopted measures aimed at restricting credit denominated in foreign currency.

A 2006 recommendation²⁰ by Poland's banking regulator established that loans denominated in foreign currency would trigger a 20 percent higher capital reserve requirement than those denominated in PLN.²¹ Moreover, banks were required to assume interest rates in PLN for determining the creditworthiness of the borrower even when lending in foreign currency. Because the former were higher, it lowered the borrower's credit worthiness. These specific measures proved largely ineffective: Within two years, the share of mortgages denominated in foreign currency reached 69% of all mortgages. This was possible because foreign banks could easily sidestep the restrictions by lending directly or through unregulated vehicles rather than through their subsidiaries.²²

Recognizing that financial markets had evolved in a fashion that no longer represented conventional separations between banking, securities and insurance, Poland consolidated

accounts. Moreover, they benefited from the fact that Spanish banks, the most important strategic investors in the region, funded local credit expansion primarily with local deposits.

²⁰ Recommendations are issued by financial regulators pursuant to legislation that empowers them to do so. While not legally binding in the strict sense of the term, violation can trigger supervisory consequences. I am grateful to Agnieszka Janczuk for pointing this out to me.

²¹ Recommendation S "On good practices in respect of mortgage-backed credit exposures" imposed by the former banking regulator, the Commission of Banking Supervision (KNB).

²² Another reason for the ineffectiveness was that the recommendation was highly ambiguous. To address that, a revised recommendation was issued in 2009.

the regulation and supervision of financial markets into a single agency in 2006 (Stroinsky 2006). The governing board of the newly created financial supervisory authority (KNF) anticipated, and arguably went beyond, reforms implemented elsewhere after the global crisis that created sector-wide monitoring councils.²³ Specifically, the KNF's seven members include representatives of the Ministry of Finance, the Central Bank, but also of the Ministry for Social Security, and the President's office, thus ensuring that financial stability was not left to financial regulators alone with their close ties to the financial industry.

In June 2008, two months before Lehman Brothers went bankrupt, KNF anticipated the stress tests later introduced in the US and the EU by introducing specific liquidity standards²⁴ requiring each bank to maintain liquidity that would allow it to operate normally for at least 30 days without external support. The immediate effect of these measures was to curtail the transfer of profits in the form of dividends to foreign parent banks.²⁵ Banks were thus forced to create a self-financed buffer against the downturn in global markets. The measure protected Polish taxpayers from later having to socialize private debt – a fate their counterparts in some of the old EU member states, such as Ireland or Portugal, did not escape.

Further, in October of 2008 when the effects of the global crisis were increasingly felt in the region, KNF imposed mandatory daily reporting requirements on inter-bank financial transactions.²⁶ It thereby gained access to information about financial transfers between subsidiaries and foreign parents that hitherto had been available only to the consolidated supervisor, i.e. the parent bank's home regulator.²⁷

²³ Such as the Oversight Stability Council established by the Dodd-Frank Act in the US.

²⁴ KNF Resolution 9/2007.

²⁵ See Urząd Komisji Nadzoru Bankowego, 'Polski Rynek Finansowy w Obliczu Kryzysu w latach 2008-2009' [Polish financial market in the financial crisis in 2008-2009], Warsaw, May 2010, available at http://www.knf.gov.pl/Images/Polski_rynek_finansowy_w_obliczu_kryzysu_tcm75-22870.pdf, at 29.

²⁶ KNF 2010, p. 20.

²⁷ In theory, this information could have been obtained from the parent bank regulator on request by invoking MoUs between home and host regulators. However, parent bank regulators themselves were less than vigilant in monitoring these flows. The Austrian National Bank discovered only after the crisis the extent to which the expansion of their banks in neighboring countries was fueled by cross-border capital flows. See (ONB 2009) discussed in (Pistor 2010).

In January of 2009, the KNF recommended additional capital buffers of 2 percent over and above the international standard of 8 percent. Another measure tightened exposure limits to foreign parent banks and entities registered in Poland with capital links to other banks.²⁸ To ensure compliance, KNF intensely monitored the implementation of liquidity requirements, by imposing daily reporting requirements on a case-by-case basis, issuing warnings and other sanctions and reporting non-compliance to parent bank regulators.

It is an interesting question whether these measures violated the EU Treaty principle of the free movement of capital.²⁹ The Treaty allows governments of member states some leeway to restrict the free movement of capital for the purposes of prudential supervision and fundamental public policy concerns. The interpretation of these exceptions, however, is not in the hands of the member states, but the European Court of Justice. Existing case law displays significant reluctance on the part of the court to give member states much wiggle room.³⁰

The regime for transnational finance enshrined in the EU treaty and enforced by the ECJ reflects a view of financial markets as an unmitigated good. This view is oblivious to the destabilizing effects the free flow of capital can have on new and old member states alike. Transnational financial markets do not *have* to be structured in this fashion – indeed, the experience of the European Union suggests that treaty provisions can be put on hold for decades to allow for a more guarded approach to financial integration³¹ – and they do not need to expose countries to the vagaries of global financial markets irrespective of those countries’ own risk preferences or loss absorption capacities. The IMF, a former advocate

²⁸ KNF Resolution No 382/2008, effective as of 1 January 2009.

²⁹ Note that Art. 26 of the Treaty on the Functioning of the European Union (TFEU) stipulates that “The internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of the Treaties”. Moreover, TFEU Art. 63 declares that “Within the framework of the provisions set out in this Chapter, all restrictions on the movement of capital between Member States and between Member States and third countries shall be prohibited.”

³⁰ The Court has sanctioned public policy exceptions only in two cases, both dating from the 1990s. See *Advocat General Kokkot* in opinion to case C-371/10 delivered on 8 September 2011. Specifically, in a recent case brought by the European Commission against Poland (*European Commission v. Republic of Poland*, 21 December 2011, C-271/09), the ECJ held that Poland had violated its obligations under the Treaty by restricting pension funds’ investments in foreign securities to 5 percent. This case is noteworthy because of the critical role pension funds played in stabilizing Polish stock markets during the crisis reflecting that they viewed their own survival as depending on the survival of that market; see KNF 2010 (*supra* note 19), p. 10-11. Effectively, the ECJ removed yet another tool for countries to stabilize their domestic financial markets.

³¹ See *supra* note 16.

of financial liberalization, has grown more cautious and has even come around to supporting capital controls (Ostry et al. 2011). Yet, it will take substantial efforts to dislodge the institutional structures that have been created – not the least, because they benefit some more than others.

III. Regulating Real Markets

Based on the two institutional autopsies, what lessons can be drawn for the regulation of (transnational) financial markets?

First, markets do not evolve in a vacuum, but are shaped and structured by institutional arrangements. These arrangements may or may not have been designed with the observed market outcomes in mind. The institutional autopsies reveal that institutional arrangements that were designed for a given purpose – low income housing, for example -- have been adapted, modified, combined and recombined over time in ways that were impossible to forecast. The extent of this institutional innovation goes well beyond regulatory arbitrage, i.e. the formal compliance with rules in purposeful violation of their spirit. It is therefore critical to recognize that regulating finance is, by definition, a work in progress and must be adapted constantly to take account of the process of institutional innovation to which it gives rise.

Second, lawmakers, regulators, and compliance officers inside financial intermediaries face the same fundamental problems as traders, investors, and innovators in financial markets: They have to cope with imperfect knowledge, and the ever-present possibility of a liquidity reversal, the timing and severity of which is difficult, if not impossible, to predict.³² Just as market participants cannot know the future returns on their investments, neither can regulators possibly know how the regulations they put in place will affect future developments of markets or the potential threat they might pose to financial stability. Neither can they easily forecast whether their government or central bank will have the

³² Frydman and Goldberg (2011) suggest that using long term asset price swings may help predict crises. Mehrling (2011) calls for monitoring not only prices in deep markets with a long history, but all asset prices. The reason is that assets that have only recently been made more liquid or more likely to experience a run.

wherewithal to protect the economy from a financial meltdown. This calls not for inaction, but for precaution and closer monitoring of events as they unfold.

Third, while imperfect knowledge and illiquidity issues are fundamental factors that affect all financial markets, institutional arrangements can mitigate their effects. The attempts by Polish regulators to get the credit boom under control is a case in point. It also highlights that domestic regulators in emerging markets are often well equipped to govern their markets – and at times even better than regulators in the so called advanced economies (AEs).

The key for making finance safe for society is therefore not to find the perfect solution for financial market governance *ex ante*, but to create regulatory processes that are responsive to actual market development over time.

A. Regulation for Imagined Financial Markets

There are two diametrically opposed regulatory strategies for governing finance, both of which are based on assumptions about how markets operate that turn out to be highly problematic.

The first approach seeks to optimize individual investor behavior by combining measures aimed at reducing information costs with those addressed at market failure (Gilson and Kraakman 1984) (Gilson and Kraakman 2003) (Gilson and Kraakman 2011). It is rooted in the idea of financial markets as equilibrating systems. Disclosure and reporting requirements make more information available, which in turn should make for better forecasts. This, however, ignores the fact that more information cannot resolve the problem of fundamental uncertainty or imperfect knowledge (Frydman and Goldberg 2011).³³ It may even create the appearance of certainty in the face of uncertainty and thereby misguide market participants as well as regulators (Beck 1992).³⁴

³³ The notion of imperfect knowledge is indebted to the work of Knight (1921) and Keynes (1964 (1936)). See (Frydman and Goldberg 2011) at 11.

³⁴ Or to quote Hannah Arendt again, “Events, by definition, are occurrences that interrupt routine processes and routine procedures; only in a world in which nothing of importance ever happens could the futurologists’ dream come true. Predictions of the future are never anything but projections of present automatic processes

Prudential regulation goes well beyond information costs, but is justified as a way to account for market failure, i.e. the possibility of significant negative externalities. It employs, among other measures, capital adequacy rules and similar targets as a way for creating outer bounds for risk taking by deposit-taking financial intermediaries. Yet, the level at which capital adequacy rules are set has little to do with theory or experience, but is the result of political compromise (Simmons 2001), and rarely reflects the needs of emerging markets or developing countries (Claessens, Underhil, and Zhang 2008). Lastly, as the global crisis has vividly demonstrated, focusing on banks as conventionally defined has sown the seeds for the development of a dual-track, yet interdependent financial system. The regulated banking system, and the shadow banking system (Pozsar et al. 2010).³⁵

Regulating financial markets primarily by keeping information costs down and creating safeguards for what is deemed to be the most important market failure may be consistent with the image of markets as, in principle, self-regulating and tending towards socially desirable outcomes. However, real markets have found and continue to find strategies to mitigate the impact of these regulations and shift their activities to areas that escaped regulatory attention.

The second approach to regulation seeks to remedy many of the shortcomings of the first by recognizing the fundamental problem of uncertainty poses for regulators and the regulated alike. It focuses on regulatory outcomes rather than inputs, invokes principle-based rather than rule-based regulation, and frequently involves the regulated and, on occasion, third parties in rule making and rule implementation. This approach comes under different labels (with some variation on the theme), such as “polycentric principles-based regulation” (Black 2008), “new governance” (Trubek and Trubek 2007), or “experimentalism” (Sabel 2004). It assumes that regulators and regulated are conscious of the problem of uncertainty and the hazards it can create for society, and are both seeking

and procedures, that is, of occurrences that are likely to come to pass if men do not act and if nothing unexpected happens; every action, for better or worse, and every accident necessarily destroys the whole pattern in whose frame the prediction moves and where it finds its evidence.” (Arendt 1970, 7).

³⁵ Policy makers usually warn against dual-track systems of this kind. The former socialist countries, for example, were advised to implement radical economic reforms to avoid the inefficiencies associated with a gradual reform strategies that opened ample arbitrage opportunities between the old and the new system. See, however, (Qian 2003). Remarkably, a similar reason is not applied to the coexistence of regulated and non-regulated finance in the AEs.

to minimize these costs. It thus presupposes some level of trust and shared goals between regulators and regulatees and a willingness to forego other opportunities to engage in joint problem-solving activities (Black 2008).

These assumptions are problematic in the area of finance, not because regulators and regulatees do not collaborate in practice or do not trust one another in principle. They do collaborate and create relations of trust, and not only in terms of the conventional capture stories (Stigler 1971), although that too. As discussed *supra*, financial intermediaries and GSEs collaborated in the development of new financial instruments, such as CMOs. When JP Morgan created securitized credit derivatives, it was in constant dialogue with regulators to assure them that they had governance systems in place that would guard against risk (Tett 2009). Moreover, the financial industry has been extensively consulted on regulatory projects at domestic, regional and international levels, and has not hesitated to make its views known to regulators or the public.³⁶ Rather, these approaches fail because they ignore the inherent structure of financial markets and the political economy implications that follow.

B. Understanding the Structure of Real Markets

As noted, two fundamental factors affect financial markets: imperfect knowledge and the threat of illiquidity. Imperfect knowledge is absolute and universal, even though its impact may be mitigated by appropriate institutional design (Freedman and Goldberg 2011 at 218). In contrast, not everyone faces the same exposure to the threat of illiquidity. Some have greater cash reserves than others; some have more resourceful dealers of last resort than others. Neither are all financial systems equal: Some have a lender or dealer of last resort with unlimited resources, others don't. This "inherent" hierarchy of financial systems (Mehrling 2012) is revealed in times of crisis by who is the last man standing – a rule that can be applied to markets and market participants alike.

³⁶ This is why Sabel and Zeitlin include the EU approach to financial regulation that preceded the crisis, the so-called Lamfalussy process, in their list of examples of experimental governance. See (Sabel and Zeitlin 2008); cf. (Pistor 2011).

The inherent hierarchical structure of financial markets – which may be softened but not eliminated by institutional arrangements (see *infra*) – has important *ex ante* implications for the behavior of market participants, especially in but not limited to end game scenarios. In normal times it may well be that the attempt to allocate capital to the highest return drives individual behavior and market outcomes (Gilson and Kraakman 2011) (Frydman and Goldberg 2011). In times of looming crisis, however, this goal becomes secondary to surviving the downturn. This is dependent not on future returns on assets, but on the ability to liquidate them here and now in order to meet one’s own obligations (Mehrling 2011). In this scenario, the critical question for each actor is not how to evaluate assets in the face of imperfect knowledge, but “where is my dealer of last resort?”³⁷ The corresponding question for central banks as guardians of domestic financial systems in countries around the world is “where is my swap line?” (Sester 2008).³⁸

For some, the dealer of last resort is just another market participant, who may be trying to sell as well and therefore be reluctant to buy. These sellers face a highly inelastic survival constraint and will be the first to fall once the music stops – i.e. when there are no more takers for the assets they need to sell to survive. Others may benefit from being able to sell to those who guaranteed their assets. For yet others, the dealer of last resort is a private bank that is willing to buy their assets to support them (the seller may be an affiliate or be otherwise of critical importance to the bank’s own survival), or because the bank has greater confidence in its own ability to shift the assets to others, if and when it confronts a liquidity crunch. The greater confidence of banks in finding takers for their assets has its institutional underpinning in the central bank’s discount window, which in normal times³⁹ is open only to selected market participants, in particular to deposit-taking banks. For those without access to the discount window, such as investment banks and other unregulated intermediaries in the global crisis, the emergency lending facilities of the

³⁷ This is at the core of the shiftability concept discussed in Mehrling (2011). Note that Mehrling himself confines the term “dealer of last resort” to the Fed. The subsequent paragraphs draw heavily on his work.

³⁸ This refers to the swap lines several central banks extended to one another to ensure that trade and firm debts denominated in foreign currencies could still be paid. Rather than extending loan facilities directly to foreign borrowers of domestic currency, swap lines ensured that other central banks had access to it and took on the risk by lending them to local parties in their jurisdiction. See (Obstfeld, Shambaugh, and Taylor 2009).

³⁹ As noted, the Fed used a series of unconventional measures to expand the traditional function of the discount window to other financial market segments.

central bank may offer some reassurance, even though they too tend to be restricted, at least in principle, to those able to offer adequate collateral.⁴⁰ By implication, the central bank sits at the apex of the system as the *ultimate* dealer of last resort. This function is derived from it having exclusive access to (potentially) unlimited resources.

The regulatory implications of this hierarchical system are profound. It means that not all market participants will respond in the same manner to regulatory interventions; neither do all share the same urgency in ensuring the stability of the financial system, which affects their willingness to collaborate with regulators to accomplish this task. Those who know that they have direct or indirect access to powerful dealers of last resort can afford more risk and will continue buying when others are already heading for the exit (witness Goldman Sachs in the midst of the global crisis).⁴¹ They have greater incentives to engage in regulatory arbitrage, even if this increases their risk of illiquidity, for the simple reason that their survival is not contingent on capital buffers alone.⁴² They may also be less sensitive to “guidance range measures” – an innovative regulatory device proposed by Frydman and Goldberg (2011) to signal to markets that they have reached uncharted territories in terms of historical asset prices. The device is meant to coordinate self-correcting actions by market participants and avoid the risk of extreme asset price swings. Yet, those with potentially the greatest impact on asset prices may have the least incentive to respond to such measures because they, but not others, will be able to sell (if only to the central bank) after prices have swung in the opposite direction.

The position of each actor within the system can change over time – as a result of regulatory change, but, crucially, also as a result of its own doing. Specifically, intermediaries can try to position themselves in greater proximity to dealers with greater access to liquidity in times of distress. It is not a coincidence that many dealers that are at the heart of market based credit systems (Mehrling 2011) have close ties to deposit-taking banks, which in turn benefit from their ability to act more freely via non-bank subsidiaries

⁴⁰ This is the requirement set forth in Section 13 of the Federal Reserve Act, 12 USC 342.

⁴¹ Goldman was able to raise fresh capital from Warren Buffet in the fall of 2008 (which it repaid in March of 2011) even before it was subjected, along with other commercial and investment banks, to a governmental capital injection. See “Goldman Sachs pays Out Warren Buffet”, The Huffington Post, 18 March 2011, available at www.huffingtonpost.com.

⁴² This problem is usually addressed as the “too-big-to-fail” problem, but it afflicts not only those that happen to be the largest organizations today, but all those organizations with liquidity guarantees.

while retaining the protection their deposit taking operations afford them (Pozsar et al. 2010).

The implication of this is that regulation needs to take account not only of change in institutions and practices but also of how these changes affect different market actors and their ability to secure liquidity in times of distress, that is, at times when past bets are adjusted based on current information. The focus on the “too-big” and even the “too interdependent to fail” in recent reforms⁴³ assumes that these are the only relevant parameters for market participants to gauge their own exposure to the threat of illiquidity. Odds are that the specification of these parameters in legislation has given market participants incentives to now look elsewhere for their lifebelt.

C. The Political Economy of Financial Governance

Every financial system is comprised of sellers and buyers of assets with different illiquidity, and thus survival, constraints in times of crisis. The complexity of these relations, as reflected in the number of players, assets and layers of interdependent markets, varies. Thus, while all financial markets are inherently hierarchical, the precise structure of financial markets is a matter of institutional choice. Institutional choice, of course, takes place in the thicket of politics. Recognizing financial systems as inherently hierarchical and as such unequal and unequalizing calls for an acknowledgement of the distributional and thus political effects of regulation. This is true not only domestically, but also globally. As a result of financial liberalization, most domestic financial systems are today part of a global financial system that displays similar hierarchy features. Specifically, the position of a given country in the global hierarchy is determined by its illiquidity constraint. While countries cannot be liquidated in bankruptcy proceedings, the reversal of liquidity can have severe social, political and economic consequences for sovereign states, as illustrated by the case of Greece today and other countries that faced debt crises in the past.

⁴³ See the provisions in the Dodd-Frank Act dealing with large, systemically important financial intermediaries. See Sec. 111 of the Act (H.R 4173).

As in domestic markets, the hierarchical structure of the global system is revealed by the last man standing test, that is, by the ability of countries to rescue their financial systems without triggering a fiscal and/or currency crisis that would put their fate into the hands of outside agents, such as the IMF. Ireland and Portugal recently revealed that they are not very high up in the hierarchy on this account as revealed by the fact that both countries required a bailout after they socialized the accumulated private sectors debt of their banking sectors. More generally, the euro has lost its competitive edge as competitor to the dollar in light of its difficulties in addressing its intertwined the private and sovereign debt crises. Currently, there is only one global reserve currency, the dollar, which serves as the de facto anchor for all other currencies (Eichengreen 2011) and the dealer of last resort not only domestically but also globally – as suggested by the size of liabilities from credit swap lines of the Fed’s balance sheet (see Graph 1). This puts the Fed at the apex of the global financial system.

The actions it takes to safeguard its own system help re-enforce its position at the top. Thus, in the midst of the crisis, the Fed threw swap lines to central banks; some central banks, not all. Not surprisingly, it chose those countries it deemed most critical for the stability of its own system – the central banks of England, the European Union, Japan and Switzerland (Obstfeld, Shambaugh, and Taylor 2009).⁴⁴ It follows that these countries are closer to the top of the global hierarchy than others. Given their position, their incentives in making the global financial system safe for society are likely to be similar to those of the US. Equally likely, these incentives can be assumed to diverge significantly from countries further down in the hierarchy that find themselves at the mercy of the IMF (and its relatively limited resources) when they lose access to private markets (Pistor 2012).

The specific approach to global financial governance as enshrined in the Basel Concordat and the various Basel Accords (which embody global regulatory standards), can be understood better when viewed in the context of a global system that is hierarchically structured. The contours of that regime are determined by the survival constraint of those countries who have a ‘voice’ (Hirschman 1970) in shaping it.. The Basel Concordat diffuses

⁴⁴ In the midst of the crisis additional help was extended to several emerging market countries. See (Sester 2008).

responsibility for liquidity provisioning by aligning the responsibility with supervisory functions. By implication, that parent lenders of last resort are off the hook when foreign markets implode, even if the activities of subsidiaries of ‘their’ banks’ subsidiaries bear responsibility by shifting debt to those markets.⁴⁵ It is thus perhaps not all that surprising that regulatory harmonization based on best practice standards of those on the top of the hierarchy of the global financial system continues to be the name of the game – notwithstanding the fact that the IMF’s “international financial architecture”⁴⁶ conceived in the aftermath of the East Asian financial crisis based on these standards failed spectacularly in the global crisis. That these rules may not fit countries further down in the hierarchy is of little relevance as long as the costs of regulatory failure fall on their side of the fence.⁴⁷

Just as with domestic markets, the hierarchy of global markets is malleable and can be shaped by countries’ own strategies. Countries that suffered serious financial crises in the past have drawn lessons and taken measures to ensure that they will not be the first to fall in the next crisis – even if they cannot (yet) displace the last man standing in the current system. Specifically, countries in East Asia have increased their reserves to insure themselves against future downturns (FRBSF 2003; Obstfeld, Shambaugh, and Taylor 2009). As most of their reserves are denominated in dollars or other major currencies such as the Euro or the Yen, they have positioned themselves closer to the apex of the global financial system. They are more likely to be able to rescue themselves in future crises. Moreover, how they manage these reserve affects those whose debts they hold and will likely make them more responsive to their plight.

The accumulation of reserves may be a poor substitute for a more viable governance structure of global finance. It has led to global imbalances that threaten to destabilize the global system (Wolf 2008). The analysis presented here suggests that answers to this dilemma must be sought in the structural features of the global financial system. What is needed are institutional arrangements that will help mitigate risks for countries not only at

⁴⁵ They would be on the hook for branches.

⁴⁶ (Fратиanni and Pattison 2002).

⁴⁷ This assumption, of course, is becoming increasingly untenable in light of the growing interdependence of financial markets globally.

the top, but on the periphery of the system. Absent such answers these peripheral countries will resort to self-help, even if this adversely affects the global system – and they can hardly be blamed for it.

IV. Real Regulation for Real Markets

Imagined markets don't crash, they tend towards equilibrium outcomes. They may need institutional support, but institutions can be designed to approximate efficient outcomes. They allocate capital to the most efficient use. Their ability to expand financial resources creates a win-win situation: Everybody benefits from greater prosperity. They have winners and losers, but who wins and who loses is determined on the merits. In theory, everybody can win, which is why emulating the practices of the winners can help others succeed.

Real markets crash and do so frequently (Reinhart and Rogoff 2009). They face the constant threat of illiquidity, which manifests itself whenever substantial corrections of bets made in the past become necessary in light of actual events. They allocate capital to whoever is willing to pay the highest price, even if this comes at the expense of the stability of the system, as in speculative or ponzi financing schemes (Minsky 1986). They create winners and losers not only on the basis of merits, but seniority: Those higher up in the liquidity hierarchy have greater survival chances than those further down. Securing a position towards the apex of the hierarchy is therefore an important survival strategy.

These two depictions of financial markets have vastly different regulatory implications. The first, the imagined markets, call for the same best practice institutions for everyone – the creation of a 'level playing field' as it is commonly called. Regulations should be designed to enhance market efficiency, a goal that is best served by reducing information costs and removing other distortions so that the natural forces of the marketplace can bring about efficient outcomes. Only where there is evidence of market failure is additional regulatory intervention tolerated.

Real markets call for a differentiated approach. The hierarchy of markets implies that different market participants and different financial systems have different survival

constraints that are determined only in part by their actions. The strategies they adopt given these constraints and in the name of self-preservation can destabilize the entire system. State and private actors with a greater number of (expected) liquidity options in times of distress are more willing to gamble on liquidity than those that have fewer options. Generalizing their preferred strategies – the best practice standards of current harmonization attempts – to the system as a whole is therefore unsustainable and potentially self-destructive. The only secure strategy for standardizing regulation would therefore be to use the rules most likely to protect the first man *falling*, not the last one standing. Even then, harmonization is highly problematic because it takes regulators' eyes away from the process of dynamic institutional change that is often triggered by their regulation. Instead, it focuses them on implementation of rules meant to address the past, but incapable of resolving future crises.

In short, real regulation for real markets calls for flexibility and diversity in regulatory approaches; it calls for close monitoring of actual market development and responsive interventions by regulators. Most of all, it requires a recognition of the fact that survival constraints differ and that the ones that ought to be monitored most closely are those with the most elastic survival constraint. Clearly, that raises serious questions of political economy as these are the very players that have the greatest resources both for setting the rules of the game and for playing it. Notably, these may be both public and private players and their identity does change over time.⁴⁸

Real regulation for real markets will not avoid financial crises. Every system built on the mismatch between expectations and outcomes is prone to crises. However, a regulatory approach that recognizes different survival constraints, the institutional arrangements that make them more or less binding for different actors, and the implications for the political economy of financial markets and financial market governance may help reduce the magnitude of crises and the uneven allocation of their costs. This may ultimately be in the interest of all. After all, it is anyone's guess who will be the last man standing in the next financial crisis.

⁴⁸ Just as JP Morgan sat at the apex of the US financial system in 1907, and the Fed does today both domestically and globally, so may sovereign wealth funds or similar entities assume this position in the future. For a detailed analysis of the role of sovereign wealth funds in the global financial crisis, see (Pistor 2009).

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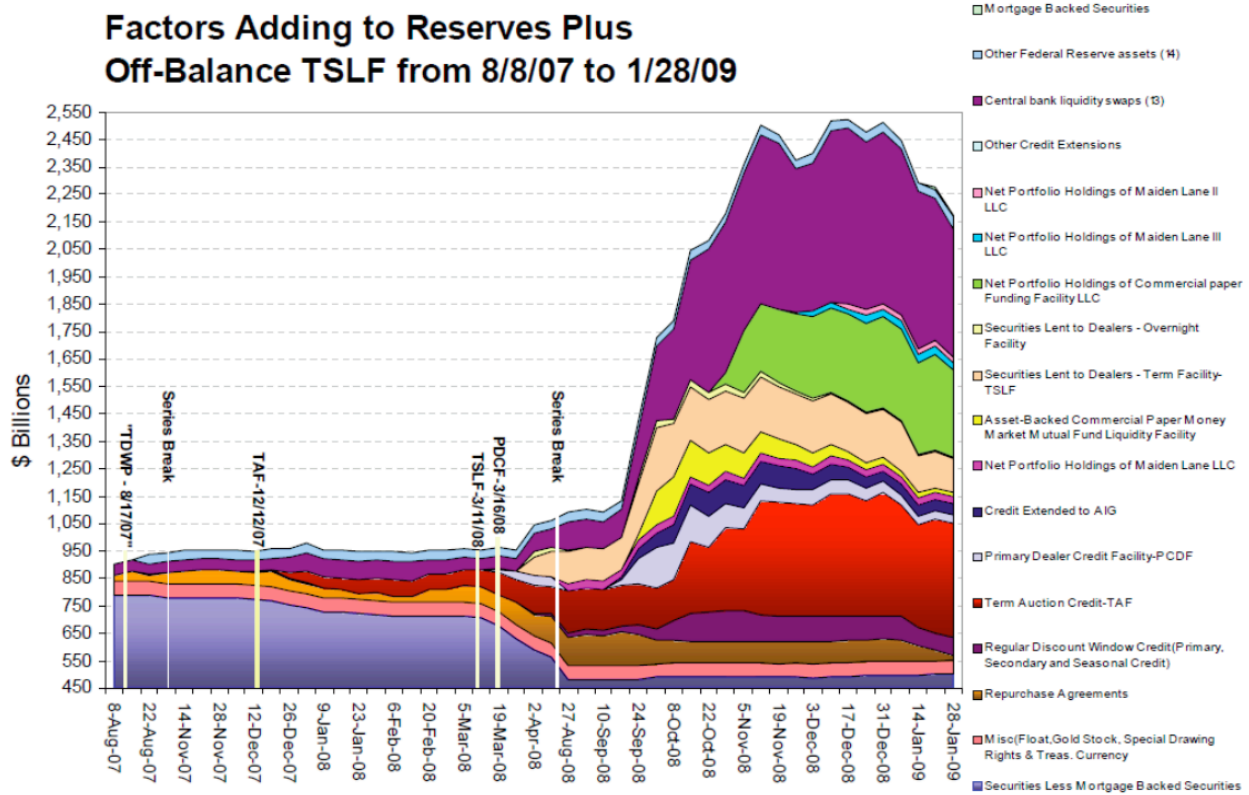
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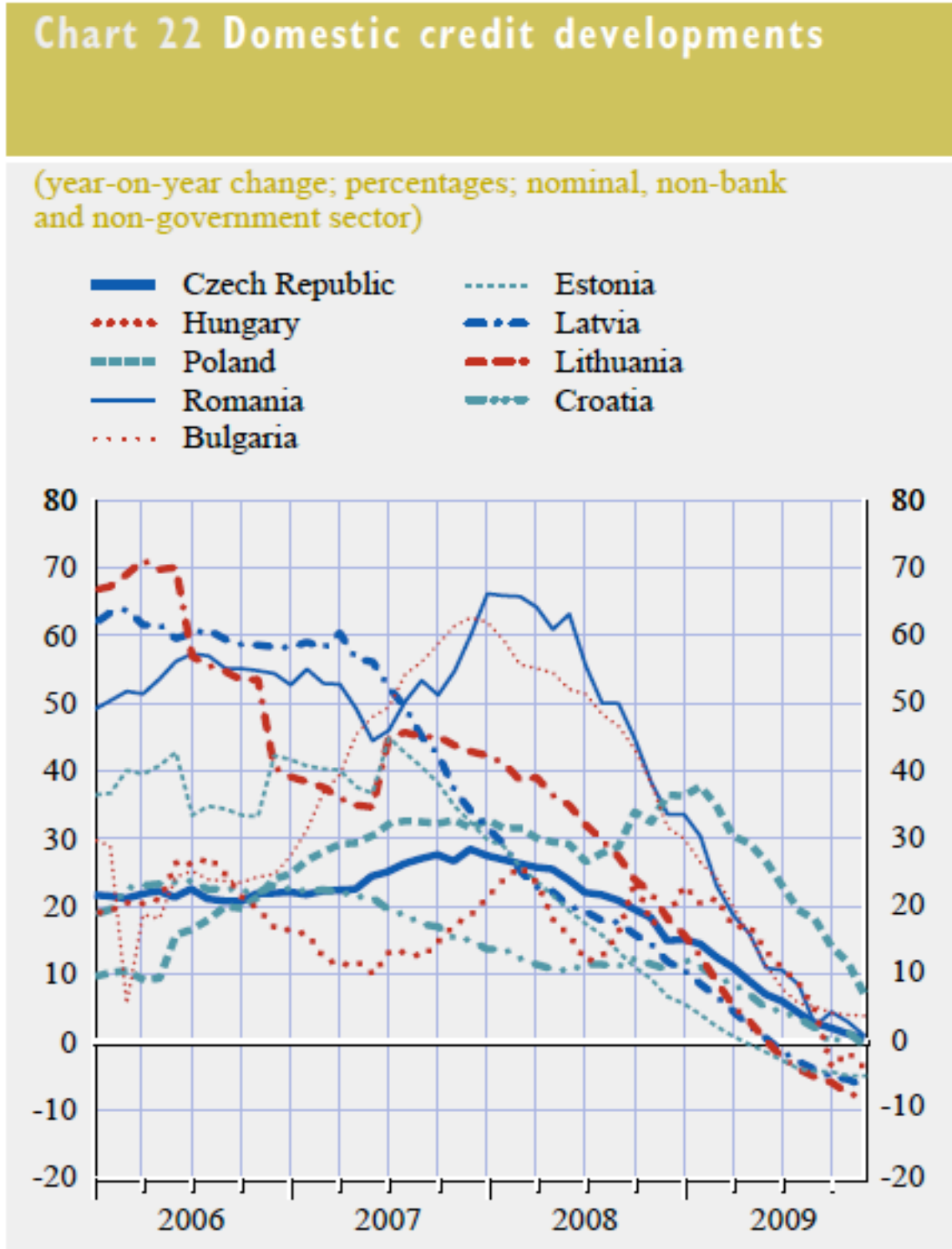
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Graph 1 : The Fed's Balance Sheet in the Global Crisis



Source: Federal Reserve

Graph 2: The Credit Boom and Bust in Central and Eastern Europe



Source: Gardor et al. (2010) using data from the ECB and the Austrian National Bank, ANB.