

Institutional Resilience in Banking Systems

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Abstract

This is a condensed version of Salter and Tarko (2018), presented at the Austrian Economics in the 21st Century conference in Rosario, Argentina. I argue that current perspectives on banking and financial regulation, including newly popular proposals for macroprudential regulation, cannot achieve their objective. Admittedly banking and financial systems need to be governed, to overcome collective action problems that can hinder the stability of the system. But this stability can be an endogenous feature of self-regulation. I contend that the governance institutions in historical free banking systems succeeded in making those systems resilient. These institutions permit us to classify free banking systems as polycentric systems for banking and financial governance.

Key Words

Banking, finance, financial crisis, free banking, macroprudential, polycentricity

JEL Codes:

E52, E58, G28, P12

INTRODUCTION

This is a condensed version of the argument Vlad Tarko and I make in a recent paper, titled “Governing the Banking System: An Assessment of Resilience Based on Elinor Ostrom’s Design Principles” (Salter and Tarko 2018). I had the privilege of presenting this paper at the Austrian Economics in the 21st Century conference, held in Rosario, Argentina, and sponsored by Fundacion Bases. What follows is a summary of my remarks and arguments.

In the late 1990’s and early 2000’s, macroeconomists cautiously proclaimed the “end of history” with respect to stabilization policy. It

seemed we had finally become adept enough at stewarding the macroeconomy that we no longer had to worry about severe recessions, at least from the demand side. We also seemed to have adopted prudent financial regulations that struck an appropriate balance between financial sector safety and economic progress. The 2007-8 financial crisis exploded this hope. In the wake of the crisis, many economists have called upon central banks to take a much more active approach in stabilizing the economy. Good monetary policy, resulting in prudent aggregate demand management, was no longer enough. Instead central bankers, and related political organizations, had to take more active steps to rein in the financial system as well.

Most of the calls for additional regulation have fallen on the financial side, rather than the traditional monetary policy side. The old paradigm of financial regulation embraced “microprudential” policy: bank-specific rules, such as capital ratios, that promoted the health of the financial system by acting on individual financial institutions. The new paradigm, in contrast, embraces “macroprudential” policy. This policy attempts to control systemic risk by targeting system-wide variables directly. Galati and Moessner (2013) provide a useful review of the recent literature on macroprudential policy. From a policy standpoint, the remarks of then-Fed Chairman Ben Bernanke (2011) are particularly important, because they show that top men in monetary policy and financial oversight are taking this paradigm seriously.

However, what is taken for granted in the above is that the financial sector, especially as it relates to banking and banking-like activities, is inherently unstable and in need of oversight. This is an inappropriate assumption (Salter 2014; Salter and Tarko 2017). It is inappropriate to approach the study of banking systems with our minds already made up as to whether they are stable or not. Instead, we need to look at the multiplicity of supporting *institutions* that underpin the financial sector to ascertain how these institutions contribute to, or detract from, stability. Elinor Ostrom, the 2009 Nobel Laureate in economics, famously developed a paradigm for analyzing the robustness of institutions. I employ E. Ostrom’s (2010) approach here to analyze how banking systems are governed.

I contend that *resilient* banking systems (Aligica and Tarko 2014)—those that both are resistant to shocks and are effective at productively employing capital—possess a supporting institutional structure such that the banking system is *polycentric* (V. Ostrom et al.

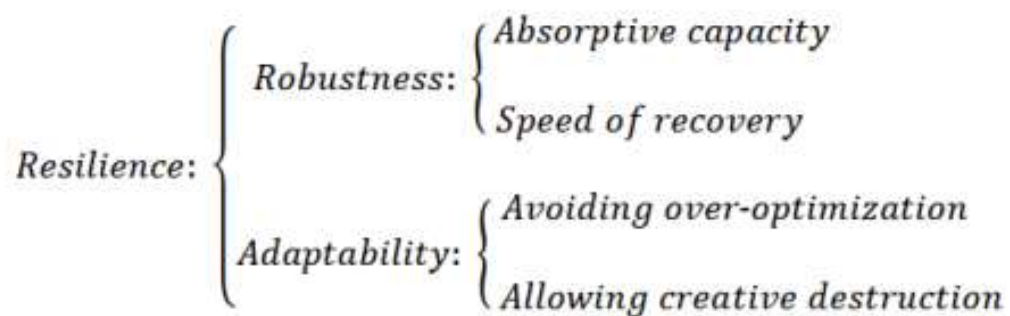
1961; see also Tarko 2016, ch. 2). In polycentric governance systems, decision-making authority is fractured, overlapping, and concurrent. No one agent or group of agents has a monopoly on decision-making power. Instead, agents interact within a multiplicity of institutions that each check the possible predatory activities of others, while providing the incentives and information necessary for agents to cooperate to maintain the health of the system. Historically, banking arrangements that have most closely resembled polycentric banking systems are the so-called *free banking systems*. While I will explain later what these systems entail, in brief free banking refers to minimal or no statutory regulations on banking. But this does not mean that there are no rules governing the banking system. The rules and institutions that exist have evolved bottom-up, rather than being imposed top-down. This makes it much more likely that the banking system will be resilient. Thus the question is not regulated versus unregulated banking systems, but rather top-down versus bottom-up governance in banking systems.

I organize the remainder of the paper as follows. In Section 2 I provide a brief overview of what it means for governance institutions to be resilient. In Section 3 I discuss the potential sources of destabilization that can plague banking and financial systems. I show how polycentric banking systems can overcome these problems in Section 4. I conclude in Section 5 by showing how this analysis relates to the “design principles” for robust governance devised by E. Ostrom.

INSTITUTIONS AND RESILIENCE

First we must explain what it means for an institutional system to be resilient. Resilience encompasses several features, which are summarized in Figure 1 below:

Figure 1—Aspects of Resilience



Source: Salter and Tarko (2018: 4)

The first aspect of resilience is robustness. In general, robustness means resistance to destabilizing forces. It has two sub-components: absorptive capacity and speed of recovery.

Absorptive capacity refers to the system's ability to resist shocks. Speed of recovery refers to the system's ability to return to full functionality quickly. In the context of financial and banking systems, absorptive capacity is most salient in the case of "balance sheet shocks": exogenous events that suddenly deteriorate the quality of banks' balance sheets. This of course will cause some damage to the system, but that damage need not be catastrophic. Some systems are more capable of resisting balance sheet shocks than others.

Speed of recovery in this context pertains to how long it takes for the system to sort out the effects of shocks—to accurately price financial assets and allocate liquidity internal to the system such that the system itself is stable—and return to ordinary financial intermediation. In the U.S., the Great Depression and the Great Recession are both instances where the banking system was not robust to shocks and slow to recover. This was due in no small part to misguided monetary and financial-regulatory policies that made it difficult for banks to cope with balance sheet shocks, as well as undertake the actions necessary to re-evaluate their balance sheets, reshuffle their assets and liabilities (which may include declaring bankruptcy), and restore pre-existing liquidity and credit flows.

Robustness is an obviously desirable feature of financial systems. But it is only one feature, and approaching questions of comparative institutional analysis and design from this perspective only runs the risk of overlooking an equally important function. This function is adaptability: how well the system facilitates creativity and change.

A system is adaptable if it avoids over-optimization, resists slippery slopes, and is permissive of creative destruction. Over-optimization is frequently a risk in banking and financial systems. Regulators are constantly creating and enforcing rules that are designed to lessen the magnitude of *past* crises. But while there is an underlying similarity to all financial panics, the nature of how those panics relate to breakdowns in financial intermediation constantly change, due in part to the changing assets and liabilities the financial sector underwrites and allocates. One of the reasons the so-called “shadow banking sector,” which entailed non-bank financial organizations undertaking bank-like activities, was so prominent was because existing financial regulations had over-optimized the U.S. system against traditional banking crises. The unintended consequence was not a retardation of banking activities, but a relocation of them to non-traditional sources. While the U.S. system may have been robust to a Great Depression style banking panic, it left itself wide open to the kinds of turbulence that ultimately resulted in the Great Recession. This was a classic case of over-optimization.

A system is vulnerable to slippery slopes when it gets “locked in” to a set of rules or policies, which makes it less able to change course. This is particularly true of centralized, top-down regulatory systems for banking and finance. In contrast, decentralized systems, because decision-making authority is spread across many agents, find it easier to change course when background circumstances change. This point is closely related to over-optimization, but nonetheless is conceptually distinct. The bluntness and lack of nuance in finance and banking regulations is a clear example of slippery slopes: rather than radically reform the regulatory apparatus in the wake of its obvious failure, public authorities “doubled down” by increasing these regulators’ power, as well as creating new ones that are constituted similarly to the old ones. We have good reason to be skeptical this approach will prove any more successful than those that came before.

Finally, resilient systems must be open to creative destruction. Changes in rules and procedures are sometimes called for, and although entrenched interests often oppose such changes, a robust system must find some way of allowing these changes to take place for the greater good of the system. In finance and banking systems that are hierarchical and centralized, the only possibility for creative destruction is at the top of the hierarchy. In decentralized and polycentric systems, however, there are many opportunities for produc-

tive entrepreneurship all throughout the system. Because agents of change have more opportunities to pursue entrepreneurial projects in decentralized and polycentric systems, we should expect these systems to be less stagnant than their hierarchical and centralized alternatives.

Table 1 contains a summary of the aspects of resilience. It shows why, on all of the margins we have discussed, polycentric systems tend to outcompete monocentric (meaning hierarchical and centralized) systems. This information will be particularly important to keep in mind as we turn the analysis more concretely to the problems financial and banking systems confront, as well as the mechanisms by which those problems are ameliorated.

Table 1—Resilience in Polycentric vs. Monocentric Systems

Aspect of resilience	Monocentric	Polycentric
<i>Absorption capacity</i>	<i>Lower:</i> Errors affect the entire system. Higher information costs lead to discovering the problem with a delay.	<i>Higher:</i> Errors only affect a sub-set of the system, and help is available from the other parts. Decision-makers that spot a problem can act on it immediately, before the problem becomes too large.
<i>Speed of recovery</i>	<i>Lower:</i> Information costs are higher, errors of “one-size-fits-all” solutions have wide-ranging effects.	<i>Higher:</i> Lower information costs, diversity of approaches facilitates learning.
<i>Over-optimization</i>	<i>More likely:</i> No inherent break on over-optimization until it’s too late. Higher regulatory complexity.	<i>Less likely:</i> Decision-centers that over-optimize suffer costs long before the problem has the chance to expand to everybody. Simpler regulatory rules.
<i>Creative destruction</i>	<i>Less:</i> Opportunities for substantial entrepreneurship exist mainly at the top.	<i>More:</i> Numerous opportunities for entrepreneurship at different levels.

Source: Salter and Tarko (2018: 10)

THE SOURCES OF FINANCIAL TURBULENCE

Banking and financial systems are crucial drivers of economic progress. But the function they perform does leave them vulnerable to unforeseen disturbances that, if not combated, have the potential to cause significant economic damage. Whether banking and finan-

cial systems can cope with shocks or not depends on the institutions they rely on to solve governance problems.

At its most basic, financial intermediation entails borrowing short and lending long. Banks take deposits and channel these funds into investments. Banks (usually) pay depositors interest for the privilege of using their funds, and they earn a rate of return on the portfolio financed with those funds. The difference between interest paid to depositors and returns on investments constitutes banks' profits. These profits are not mere private returns. Banks perform a very important social function. They serve as middlemen between suppliers and demanders of loanable funds. Households who are net savers would otherwise find it difficult to put their savings to productive use due to transaction and information costs. In mitigating these costs banks increase the amount of scarce capital that can be put to socially remunerative uses.

The process by which capital is allocated depends on the smooth operation of prices, including interest, which is the price of time. When the financial sector is working well, a constellation of relative prices and rates of return signal where capital can be used most effectively, as well as provide information for financial organizations, such as banks, to ascertain whether they have increased the value of society's resources by earning a profit. However, as we well know, the financial sector does not always operate smoothly. Prices, which are ordinarily reliable signals of where resources can be most effectively allocated, can sometimes contain bad information. The beginnings of a financial crisis exist when market actors begin to suspect that many errors have become embedded in the economy's financial structure, and so observed prices and rates of return no longer convey economic reality. This resembles a wrench thrown in the gears of the financial system. Unless the errors are correctly identified and eliminated, the resulting financial turbulence can be extremely costly for society.

We can group the shocks that destabilize financial systems into three categories. First, households may become much more uncertain about the future, ceasing the regular flow of funds into depository institutions, and hence the flow of capital to investment projects. To the extent demanders of loanable funds were expecting continued access to such funds at more or less prevailing prices (rates of interest), this can cause many downstream investment projects to become suddenly and unexpectedly infeasible. Second, households may become uncer-

tain not about the future in general, but specifically the banking system as a reliable means of storing their saved earnings. If so, households may try to withdraw their funds *en masse*. This is a classic bank run. Since banks are in the business of financial intermediation, they do not have available more than a fraction of the funds households deposit with them. The rest of the funds have been channeled into investment projects. If enough people seek to withdraw their funds, it is possible the banking system may become insolvent. Third, banks themselves may experience sudden unexpected losses due to investments in projects that seemed promising *ex ante* but turn out to have been errors *ex post*. This can cause the asset side of banks' balance sheets to deteriorate, which can also precipitate cascading failures, as initially isolated bank failures grow into mass failures both within the financial sector, and in non-financial sectors whose firms relied on the financial sector for a continual flow of funds.

The existing financial-regulatory apparatus tries to stabilize the financial system by ameliorating these shocks. However, it is constitutionally unable to do so. It is bureaucratic, unwieldy, and unable to access the dispersed knowledge that is spread throughout the financial system in a way that can yield timely policy solutions. Fortunately we have an alternative to the existing monocentric-hierarchical regulatory apparatus for financial systems. Instead, we can look to historical free banking systems as instances of *polycentric banking systems* that have successfully arrived at endogenous solutions to the problem of banking and financial stability.

GOVERNING BANKING AND FINANCE: THE POLYCENTRIC ALTERNATIVE

Not all decentralized banking systems are free banking systems. The specific banking systems that interest us are the so-called free banking systems (Dowd 2015; Selgin 1988; Selgin and White 1994; White 1989, 1995). In such systems, banks are free to issue their own liabilities redeemable in whatever the economy's underlying money-commodity is, such as gold or silver. There are no specific restrictions on banking and finance, in terms of regulations or statutes. Banks are bound by only the common laws of property, contract, torts, corporations, etc., in their society. While no historical banking system was perfectly free, notable approximations include late 18th and early 19th century Scotland, 19th century Sweden, and Canada for virtually its whole history up until the First World War.

There are three crucial institutions or practices underpinning such banking systems that made them resilient. The first, and perhaps the most important, is the interbank clearinghouse. As multiple banks within these systems competed, they would come to acquire each others' liabilities in the course of doing business. Initially banks would clear their liabilities against each other one at a time. But they soon discovered that it was more convenient (transaction cost reducing) to meet collectively, at a specified time and place, to clear their liabilities simultaneously. This practice, as it became regularized, grew into the clearinghouse. In addition to facilitating the clearing of banks' liabilities, the clearinghouse performed several other useful social functions. Through the clearinghouse, banks would maintain voluntary minimal capital and quality standards, to promote the safety of the system as a whole. This prevented individually unscrupulous banks from free riding on the good reputation of other banks, as well as the banking system more generally. Through the clearinghouse banks also exchanged business-relevant information, such as warnings about counterfeiters and other committers of financial fraud. And during times of financial turbulence, the clearinghouse facilitated a quick and speedy return of liabilities to banks that had taken excessive risk, preventing financial contagion from spreading to other banks. The clearinghouse also served as a forum by which healthy banks could give emergency loans to troubled banks, so long as they were illiquid but not insolvent. Thus, although the *intended purpose* of the clearinghouse by its member banks was simply to help them do business and make profits, its *adaptive function* was a crucial promoter of financial safety by both lowering the likelihood of financial shocks in the first place and mitigating them if and when they occurred.

The second institution of importance was the hard budget constraint. Free banking systems did not have a formal lender of last resort that could create liquidity *ex nihilo* and bail out irresponsible banks. Banks in these systems always faced the prospect of having to redeem their liabilities for the underlying money commodity to other banks in the clearing process, as well as honoring financial obligations payable in liabilities denominated in the money-commodity. Because there was no extra-systemic source of emergency liquidity, banks had to be much more careful than those in contemporary banking systems about the risk in their portfolios. Failure would not be mitigated by emergency loans, except through voluntary provision by other banks through the

clearinghouse, who themselves expected to be paid back once the trouble passed. When there is no formal lender of last resort, banks have a much stronger incentive to prevent risky, exotic assets from piling up on their balance sheets. In contrast, the widespread presence of moral hazard in contemporary banking systems—banks making imprudently risky investments in the attempt to earn supernormal returns, because they expect a bailout should those risky investments not pan out—is due in no small part due to central banks' prodigal provision of emergency liquidity, even to banks that are not just illiquid, but insolvent as well (Salter 2016).

The final institution considered here is extended liability. A company is subject to extended liability if its shareholders are responsible for more than their investment in the company, should the company go bankrupt and is unable to meet all its debt obligations. For example, double liability means equity holders are responsible for up to two times their initial investment; triple liability, up to three times; and unlimited liability, up until the full amount owed to debt claimants. In historical free banking systems, banks almost always had some form of extended liability. This means that debt claimants to banks that go bankrupt, so long as the banks are subject to extended liability, have a claim to shareholders' *personal wealth*. If a lender of last resort can be modeled as bailing out troubled banks, extended liability can be modeled as "bailing in," by using shareholders' personal wealth as a source of payments to meet a bank's debt obligations. Because of banks' business model, these debt holders also include ordinary depositors, who are essentially loaning the bank capital. Extended liability thus has the same stabilizing effects as a lender of last resort, without the concomitant problem of moral hazard. It also gave bank depositors a stronger incentive to monitor bank activities, as well as provided bank owners another incentive to economize on risk.

These three institutions—the clearinghouse, hard budget constraint, and extended liability—each combine and complement each other to provide an impressive foundation for banking and financial stability. Separately and as a group, they can be viewed as voluntary governance solutions to a crucial collective action problem: maintain the health of the system-wide balance sheet, so that fundamentally healthy banks do not find themselves forced to contract their liability issues to meet speculative redemption demands.

RESILIENT BANKING IN LIGHT OF E. OSTROM'S "DESIGN PRINCIPLES" FOR GOVERNANCE SYSTEMS

Now that we have discussed the three key institutions that promoted the resilience of free banking systems, we can explore how those institutions constitute polycentric banking. E. Ostrom outlined a set of "design principles" that correspond to functions performed by successful governance systems. While E. Ostrom developed these principles in the specific context of common-pool resources, Salter and Tarko (2017) argue that they can be generalized to shed light on a wide variety of governance systems. The design principles are as follows (cf. E. Ostrom, 1990: p. 90; 2005: p. 259; E. Ostrom 2010, p. 653; 2014; Wilson, E. Ostrom & Cox 2013):

1. *Clearly defined group boundaries.* Governance systems need some way of determining which agents and organizations are part of the system and subject to its rules. This function in free banking systems was largely performed by the clearinghouse. Membership in the clearinghouse association was a credible signal of a bank's good standing in the community of financial intermediaries.
2. *Proportionality between benefits and costs.* Any actions that contribute to the stability of the system should be commensurately rewarded; any actions that detract from the stability of the system should be punished. This function was performed largely by the smooth operation of the price system in finance, as well as the common law principles of bankruptcy. These features were successful especially in punishing banks that took on too much risk.
3. *Those affected by the rules have the power to modify the rules.* Free banking systems were self-governing polycentric systems. The rules in place were largely determined by the banks themselves, and could be enforced by those banks. In contrast, modern monocentric systems rely on hierarchical command by politicians and bureaucrats. The norm is costly regulation, regulatory capture, and rent seeking.
4. *Enforcers of rules are themselves accountable.* Any governance system must find a way to guard against abuse by those empowered to enforce the rules. *Quis custodiet ipsos custodes?* The combination of monitoring performed by bank depositors and bank shareholders, as well as informal self-regulation under the auspices of the clearinghouse, ensured that no one agent or group of

agents was in a position to impose costs on others without some check on potential predation.

5. *Graduated sanctions for breaking the rules.* Resilient governance systems meter punishments such that they are proportional to the offense. Effective deterrence entails a series of increasingly costly penalties based on the number of infractions, or the severity of the infraction. The price system provides the first set of penalties: irresponsible banks are punished by losses, rather than earning profits. If they alter their behavior—cease engaging in behaviors that are potentially socially costly—this penalty is temporary. Continued irresponsible behavior is checked by the clearinghouse, in the form of sanctions for violating capital or quality controls, or access to emergency liquidity only at premium rates. Finally, the legal system in which all banks were embedded provides the final set of punishments, including bankruptcy.
6. *Access to dispute resolution methods.* Resilient governance systems need some way for legitimate disagreements to be expressed and resolved. Because banks would deal in each other's liabilities in the normal course of business, conflicts would occasionally develop. But through the clearinghouse banks could resolve these disputes in a low-cost manner that was widely perceived to be equitable. Immediate recourse was not to the legal system, although that possibility remained for very serious disputes that could not be resolved within the clearinghouse.
7. *External authorities recognize the right of self-governance.* Free banking systems were not completely free from government. The government maintained the courts, and ultimately enforced legal decisions using standard coercive means. But this was a last resort; the government recognized banks' and other financial intermediaries' rights of self-governance and commercial association. This is in contrast to modern monocentric systems, where government activity is a regular feature of financial intermediation, and informal attempts to resolve conflicts arouse suspicion of collusion. This design principle is noteworthy because it implies that any transition towards a truly resilient financial system would somehow have to convince, or else constrain, government from interfering. This is very difficult to do (Calomiris and Haber 2014).
8. *Governance activities organized in multiple layers of nested enterprises.* Free banking systems had multiple layers of operation, in terms of their ordinary business activities and governance in-

stitutions. Day-to-day business was one such layer; adjudication through the clearinghouse another; appeal to the common-law legal system another still. The nested character of governance in these systems is important because it ensures that agents simultaneously have access to the means of dispute resolution while are forestalled from using those means as instruments of predation. This highlights another problem with contemporary monocentric regulatory systems. Financial regulators, who take a top-down perspective, behave as guardians acting from on high upon a system that is essentially simple. Complex interdependencies and feedback effects in institutions and procedures of financial intermediation are overlooked, or else treated superficially. Instead, regulators mistakenly perceive a straightforward relationship between the current state of the market, the regulators' intervention, and the desired end-state of the market. Adam Smith's famous dictum concerning the follies of the "man of system" come to mind here. By not grappling with the complex nature of banking and finance, regulators are taking an approach to systemic stability that is doomed to failure before it is even attempted.

The appropriateness of treating free banking systems as polycentric governance systems for banking and finance become apparent when viewing the function of free banking systems' key institutions from the perspective of E. Ostrom's design principles. Comparative institutional analysis shows that free banking systems meaningfully qualify as resilient polycentric systems. It also explains why the current monocentric approach is information- and incentive-incompatible. That is, the monocentric approach fails because it relies on unrealistic assumptions about the agents' (both private and public) incentives, and the information they have at their disposal. If we wish to construct truly resilient banking and financial systems, we must focus on the basic institutions that can allow good governance to emerge bottom-up. It cannot be imposed top-down.

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