FINANCIAL MARKETS, REGULATION AND FINANCIAL CRISES

İzak Atiyas and Hasan Ersel[1]

Introduction

The global financial crisis seems to have generated a widespread belief that perhaps faith in the workings of the free markets was overblown. Interestingly, and in contrast to many other financial crises that occurred in the last three decades, this time the meltdown occurred not in the periphery of the global economic system but right in the center where financial sector was supposed to be the most sophisticated. The crisis has generated a critical revaluation of the dominant forms of financial sector regulation, or rather, inadequacies thereof. Interestingly, while at the political sphere the dominant discourse has been towards increased liberalization of financial markets, there was much in the economics literature on financial markets that would lead one to be skeptical of too much liberalism. This paper attempts to provide a brief introduction to economists' stylized approach to imperfections in the financial markets and the need for regulation.

The perfectly competitive market model has served as a benchmark for the economic analysis of a wide range of economic phenomena and different market structures. While common discourse seems to treat perfect competition as the predominant form of market organization, for most economists the perfectly competitive market model is an ideal which in real life is hard to find. As once argued by the great economist P. A. Samuelson, the perfectly competitive market is ideal device for the efficient allocation of resources but it does not exist. That a perfectly competitive equilibrium exists has been theoretically proven by mathematical economists in the 1950s, however its existence is predicated on a number of

[1] Sabancı University, Orhanli, Tuzla 34956 Istanbul, Turkey. E-mail addresses: Izak Atiyas: izak@sabanciuniv.edu, Hasan Ersel: hasanersel@sabanciuniv.edu.

tough conditions (regarding, for example, technology, preferences, number of agents) that in real life are almost never satisfied.

An important reason why the perfectly competitive market model plays the role of a benchmark is that it is "efficient". The notion of efficiency mostly used by economists is the notion of Pareto optimality, developed by the Italian political scientists, sociologist, statistician and economist. This notion is defined as follows: "A situation where the welfare of one agent cannot be made better off without making another agent worse off is Pareto optimal". According to the "First Fundamental Welfare Theorem", a perfectly competitive equilibrium is Pareto Optimal. The implication of this theorem is that under these conditions, the market mechanism can attain an efficient allocation of resources without any need for government or other forms of collective intervention.

Note that the notion of Pareto optimality cares only about efficiency: in a Pareto optimal economy, there is no waste, all potential gains from trade are realized. However, Pareto optimality does not say anything about the distribution of resources, income or wealth among the agents of an economy. Hence an economy can be Pareto optimal but highly unequal. An economy where a single person commands 95 percent of the resources can be efficient in the sense of Pareto. This is where the Second Fundamental Theorem of Welfare Economics comes in: It states that any Pareto efficient outcome can be supported as a perfectly competitive equilibrium through an appropriate distribution of initial endowments.

Much of microeconomics is actually devoted to the analysis markets with "market failures", that is, of environments where the assumptions of the perfectly competitive model do not hold. The main forms of market failures are listed as follows:

- Imperfect competition, that is, situations where agents have the ability to influence and manipulate market prices

- Externalities, or situations where the actions of agents influence not only their own welfare but also the welfare of others (pollution being the typical example of a negative externality)
- Public goods, or goods and services where individuals cannot be excluded from the consumption of the good even if they do not pay for it and where an individual's consumption does not reduce the amount available for the rest of the society (the typical example being national security, the judicial system, or, as discussed below, stability in financial markets)
- Imperfect information, or environments where, for example, some agents know more than others about some relevant aspects of the economy than others

When such market failures exist, then the market mechanism is no longer Pareto optimal and some form of collective intervention into the market mechanism may actually improve efficiency. Hence market failures, or deviations from the basic assumptions of the perfectly competitive market model, provide the economic justification for government intervention, whether in the form of taxes, subsidies, regulations, design and establishment of markets, and the like.

Of the various market failures enumerated above, the one that is most relevant for financial markets is imperfect information. Transactions and contracts in financial markets are often undertaken in environments where some agents possess information that others do not have, and where herd behavior and panic may result in huge losses of wealth and welfare in a relatively short period of time. Most contracts are written with terms and obligations that extend into the future about which information is simply not available. It has been shown by Greenwald and Stiglitz (1984) that under imperfect information it is almost always possible that a government, working under the same informational constraints as those affecting the buyers and sellers in the market, may improve the performance of the economy through interventions entailing taxes and subsidies.

Besides problems created by imperfect information, there is general agreement that financial markets are susceptible to instability (that is, high and unpredictable volatility in prices and quantities). Some authors (such as Minsky, 1982, 2008) think that instability is inherent to financial markets. As discussed in more detail below, instability can be seen as an outcome of the very tasks that the financial sector is expected to perform, and the dynamism it exhibits wile performing these tasks. Hence the purpose of policy is not necessarily to establish a "stable system" that would prevent the financial markets from performing these functions, but to prevent instability from generating adverse outcomes detrimental to social welfare. That, in turn requires various forms of control mechanisms ("fly-by-wire" in aviation and "regulation and supervision" in financial markets.)

Hence there is quite wide agreement among economists and policy makers that some sort of government intervention is necessary to make financial markets work in a reasonable manner. The controversy is about the form and degree of intervention. It would be fair to say that the last two decades the degree of government regulation that is needed to maintain financial stability and the ability of various forms of financial institutions to move around such regulations through innovative financial instruments has been underestimated by policy makers.

The rest of the paper is organized as follows: The next section discusses the basic imperfections in financial markets that make regulation necessary. We then discuss the basic components of banking sector regulation in Turkey. The paper concludes with a few comments on the apparent deficiencies of the global regulatory framework in the face of the crisis.

The need for regulation in financial markets

In most general terms, regulations can be seen as sets of rules that aim at affecting the behavior of economic agents so as to encourage behavior is more conducive to enhancing social welfare and discourage behavior that is harmful to social welfare. Government regulations can take various forms. They can be enforced *ex-post*, that is, after actions that

are subject to regulation has been implemented. Most aspects of competition law enforcement is ex-post: Once firms exhibit behavior that are alleged to be anti-competitive enforcement of competition law ensures that such behavior is punished. Some aspects of financial market regulation is also *ex-post*, for example rules regarding exit of insolvent banks. Many other types of regulations are enforced *ex-ante*. Merger regulations in competition law, regulation of retail and wholesale tariffs in network industries, design and establishment of markets in areas such as wholesale trade in electricity or carbon certificates, taxes and subsidies for different energy fuels are examples of *ex-ante* regulations. In the financial markets, examples of ex-ante regulations would include rules that limit risk-taking (such as capital adequacy ratios), and rules about disclosure.

But what sorts of failures give rise to the necessity of regulation in financial markets? To provide an answer to this question, one should review the tasks that banks are expected to perform in an economy. Indeed, why do we have banks at all? Banks are intermediaries between people who have financial surpluses and people who have financial deficits, in other words, they are intermediaries. But why is such intermediation useful? Why do lenders do not lend to borrowers directly?

A quick review of the literature would reveal the following:[2] Banks perform a vey useful function in screening potential borrowers. They specialize in assessing borrowers that are good risks from those that are bad risks. In addition, to screening, the also perform a monitoring function; they follow borrowers and try to ensure that borrowed funds are indeed used for the purposes that they were borrowed for. Banks also perform a "term-transformation" function. They collect deposits, most of which are relatively short term in nature, and they makes loans which are often much longer term. In that, they also provide a form of liquidity risk insurance.

---

[2] See Dewatripont and Tirole (1994) for a seminal theoretical treatment. Freixas and Santomero (2003) provides a very accessible discussion. See Barth et. al. (2006) for an in-depth discussion of actual policies and their impact.

These are very useful functions that increase the scope and efficiency of economic life. As a result of banking intermediation, many investments that otherwise would not have taken place due to lack of finance end up being undertaken. However, carrying out these functions is subject to various forms of market failures that make regulation and supervision necessary. To name a few:

Panics and bank runs: This is a form of externality. In normal times, most depositors are happy keeping their deposits in the banks and earn an interest on them. However, under conditions of panic, a large majority of depositors run to the bank and want to withdraw their deposits. Given that banks lend longer term, this may create a liquidity crisis which may quickly turn into a crisis of solvency.

Contagion: This is also a form of externality. Because banks are interlinked by borrowing and lending relations, financial difficulties hitting a single bank may quickly jump to other banks, endangering the stability of the whole banking system.

Imperfect/asymmetric information: Here we can really talk about two problems. Because of the tasks they perform, banks are highly leveraged institutions. For a given cost of funds, higher leverage creates incentives for bank owners or managers to bear excessive risks. This is called "moral hazard". Second, depositors normally do not have information to differentiate between high and low quality banks. In other industries, competition for customers would drive low quality firms out of the market. This mechanism may not function in the banking system. This is called "adverse selection". The problems of moral hazard and adverse selection prevent a banking system from functioning efficiently unless it is regulated. In addition, imperfect information may attenuate contagion effects during panics and bank runs.

Market Power: Banking markets are often oligopolistic and increases in concentration over time may increase the market power of banks. However, even when the market share of a single bank is not very large (for example, from the point of view of competition law) banks

may display unusual degree of influence on the policy making process. Most importantly, policy makers may perceive them to be "too big to fail".

These failures provide justifications for the various forms of regulatory interventions discussed below. However, it should also be noted the mere existence of a justification for regulation does not necessarily mean that regulation will actually improve social welfare. This depends on how the regulatory authority is used and on the nature of regulatory intervention, including its technical-economic characteristics. It is generally accepted that various conditions need to hold to ensure that regulatory authority will be used in a way that helps improve rather than reduce social welfare. The first condition is independence from the political authority and from political competition in general. It is generally believed that the best way to achieve this independence is by delegating the authority to issue and enforce regulations to an independent regulatory authority that has financial and administrative independence. This authority would of course be bound by its founding law and a banking law that lays down the main rules regarding the industry, but it would be free in applying these rules through secondary legislation and also in its day-to-day operations. Second, it would have sufficient technical capacity, which is best guaranteed by the employment of highly skilled staff. Third, the rules of operation of the authority itself should be designed so as to ensure accountability and transparency. The authority would also need to generate sufficient credibility in the industry so that the market players would believe that the rules would be enforced fully and in an indiscriminate manner. Finally, another important risk that challenges the quality of regulation is "capture" by the industry, whereby the regulated entities themselves have undue influence on the design and especially enforcement of regulatory intervention.

Even when regulation is independent and not captured, it may suffer from the fact that it is not possible to foresee all possible future contingencies. Especially with the rapidly improving information and communication technologies, financial innovation advances at a very rapid pace. Regulation and enforcement, by contrast, advances at a slower pace. This provides opportunities for financial institutions to design instruments that may make the initial

regulatory constraints not binding. Hence to be effective, regulatory and supervisory institutions need to perceive their tasks in a dynamic way and adapt rules to changing market environments.

Economists often see the problem of regulation as a problem of "mechanism design". The issue is to design a set of rules, or a mechanism, that, given the nature of financial markets and the private objectives of the players in those markets, would provide incentives that would encourage players to behave in a way that is in conformity with social welfare. This definition also captures the notion that the rules should "be incentive compatible", that is, it should take into consideration the fact that there may be conflicts or disagreements between the private objectives of the players and those of the whole society (or the government representing them) and, would set up rewards and punishments that would align these objectives. The discussion above suggests that incentive compatibility needs to be established at two levels: First, at the level of the market players, and second, at the level of regulators themselves (say, to prevent capture by the industry)

Regulation and supervision in the Turkish financial markets[3]

It can be said that there have been two waves of reforms in the Turkish financial markets. In the first wave which took place between 1980-1989 the emphasis was on liberalization. 1980-82 can be marked as the infancy phase of financial liberalization, in which reformers were concentrated on deregulating the financial system. It was naively thought that deregulation was sufficient to create a competitive environment in the financial markets and there were no serious efforts for regulation and supervision. These hopes were short lived due to emergence of a financial crisis in 1982. The period following the crisis (1983-1989), the reforms were more evenly distributed between deregulation and laying institutional foundations for the smooth functioning of the financial system. The regulatory power of the monetary authorities was strengthened. The Banking Act of 1985 introduced provisions regarding the capital

[3] This section draws heavily on Berument, Ersel and Togan (2010)

structure of banks, the protection of deposits, the treatment of non-performing loans, uniform accounting standards and made the external auditing of banks obligatory starting in 1987. The capital account of the balance of payments was liberalized in 1989.

The second wave of reform started in 1999, as part of a disinflation program engineered with the help of the International Monetary Fund (IMF). In June 1999, a Banking Law was passed (No. 4389), which, called for the establishment of a new autonomous banking agency (the Banking Regulatory and Supervisory Agency, BRSA). After some haggling over the selection of board members, the coalition government managed to put together a board in late July 2000 and appointed the head of the BRSA in August. Inevitably though, the financial crisis of 2001 shifted the focus of the newly born BRSA from supervision to restructuring and rehabilitation.

An important step in the way of reforming the regulatory and supervisory framework was undertaken by the enactment of a new Banking Law (Law No. 5411) in 2005. The law and subsequent secondary legislation issued by the BRSA introduced regulations in areas such as bank capital, risk management procedures, on credit and subsidiaries' limits and loan loss provisioning, facilitating mergers and acquisitions, banks' participation, and, accounting standards and independent auditing. In general, one of the main objectives of the restructuring in the banking system has been to enact the legal and institutional regulations for improvement of supervision and audit systems, changing the risk taking and risk-management processes and methods and enhancement of the corporate infrastructure of the banking system. As a result of the measures implemented by the BRSA, the banking legislation was considerably aligned with international regulations, best practices and particularly the EU directives. The specific measures that were taken can be discussed under the following headings.

(i) Restrictions on Banks' Activities. Banks were allowed to engage in financial activities such as securities underwriting, insurance or real estate, areas which may involve more risk than traditional banking activities. But governments may restrict banks from entering in these

businesses. The Turkish Banking Law brings the scope of the permitted banking activities in Turkey in line with those in the EU. EU definitions are general, the Turkish legislation, on the other hand, prefers to define the activities in more detail. However, in order to have a room for initiative for further actions, an open end was introduced by authorizing the BRSA to determine the range of allowed activities.

(ii) Entry Restrictions and Exit Rules. By screening bank entry, governments can try to increase the average quality of operating banks and thereby promote stability of the banking system and protect the economy from the negative effects of bank failures. Governments may also protect banks from increased competition through entry restrictions on domestic and foreign banks, restrictions on branching and ceilings on rates charged on loans and on deposits. Overseeing who operates banks is also an important method for reducing the moral hazard and adverse selection problems created by the government safety net (see below). Also, licensing, transfer of ownership and bankruptcy rules are vital for pushing unfit companies out of the financial sector. If banks are not licensed properly or if they cannot go out of business, unsound institutions are likely to emerge. This also can create a "moral hazard" problem. In this area Turkey has aimed to conform to EU regulations. Relative to the EU, in the Turkish case activities in which banks can engage are defined at a more detailed level. However, the BRSA is also authorized to define additional activities.

(iii) Capital Requirements. It is widely accepted that banks can be discouraged from undertaking undue risks by requiring them to hold appropriate amount of capital. Hence, capital requirements may ameliorate moral hazard problems associated with high leverage or deposit insurance (see below). Authorities therefore, may require banks to have sufficient capital. Prudential rules help financial institutions to measure and manage their exposure to risk. In Turkey banks are required to maintain and keep 8 percent capital adequacy standard ratio on a consolidated (applicable for banks and their financial subsidiaries combined) and unconsolidated basis, in order to ensure that banks maintain an adequate amount of capital against losses that may result from existing and potential risks. The consolidated financial

reporting requirements allow quarterly verification of bank's compliance with the consolidated capital adequacy requirement. When evaluating the capital adequacy ratio, banks are required to take capital charges for market risks such as foreign exchange risk, interest rate risk and securities price fluctuation risk.

(iv) Supervisory Powers. Typically, regulators focus on assessment of the quality of the bank's balance sheet and loans at a point in time and determine whether the bank complies with capital requirements and restrictions on asset holdings. Recently, there has been a major shift in thinking about the bank supervision process. In the new approach, there is more emphasis on the soundness of a bank's management practices with regard to controlling risk. An important element of prudential regulation is the assessment of and provision for non-performing loans. Once non-performing loans are discovered, adequate reserves to cover them must be established. In addition, excessive exposure to single borrowers can also cause difficulties for financial institutions. If exposure to one particular borrower is large and if this borrower becomes insolvent, a domino effect can occur, causing insolvency of the bank itself.

(v) Safety Net Support. Failure of financial institutions can occur despite adequate rules and effective supervision. If one bank fails, depositors may lose confidence in other banks as well. This can result in a chain reaction and even affect institutions that are healthy under normal conditions. Hence banks are fundamentally vulnerable to bank runs. A deposit insurance scheme can help prevent such a chain reaction. Knowing that her deposits are insured by the government even if the bank fails, depositors will not feel the urge to withdraw them and this will help avert liquidity crises. However, deposit insurance can also cause moral hazard problems. Depositors may be less likely to scrutinize their banks, and banks could take on excessive risks if monitoring by customers weakens. Thus, governments provide a safety net for the purpose of lender of last resort and as an explicit deposit insurance scheme.

In Turkey, the government took drastic measures to save the economic system from collapse during the 1994 banking crisis. The most controversial of these was the introduction of full (100 percent) state guarantee to deposits. Introduction of full guarantee to deposits was

effective in ending bank run and the drastic shifts in deposits from private banks to state owned banks. The country, after experiencing the 2001 financial crisis, removed the state guarantee on deposits only in 2003. According to the new scheme, all depositors and creditors are totally protected in the case of intervened banks, whereas only individual depositors are fully protected, but not commercial deposits, in the case of banks being liquidated without intervention. A limited savings deposit insurance system replaced the previous guarantee scheme as of July 5, 2004. Simultaneously, the savings deposit insurance was limited to TL50,000 (around EUR 28,300). Whether limits on deposit insurance schemes is fully credible is a controversial issue, since in the case of a threat of a systemic bank run the government will have incentives to increase the coverage of the insurance scheme in order to prevent a total melt-down. On the other hand, such incentives will not be present in the case of failures of individual banks with no systemic implications.

(vi) Market Monitoring and Transparency. Market-based monitoring of banks can increase their stability and complement government supervision. If, for example, private rating agencies regularly rate banks, this provides valuable information to customers and regulators on their soundness. Banks then have an incentive to improve their performance to maintain business. Thus, regulators can require banks to obtain and publish certified audits or ratings from international rating firms. International monitoring and assistance are also beneficial. Regulators, in order to insure that there is better information for depositors and the marketplace, can also require that banks adhere to certain standard accounting principles and disclose a wide range of information that helps the market assess the quality of a bank's portfolio and the amount of the bank's exposure to risk.

According to Article 66 of the Turkish Banking Law, the parent undertakings are subject to limitations and standard ratios on a consolidated basis. The consolidated supervision of subsidiaries and jointly controlled undertakings shall be performed together with the officials of the BRSA and other authorities that are legally authorized for the regulation and supervision of institutions subject to consolidated supervision, where necessary.

(vii) Government Ownership. The most complete form of government control of banks is outright ownership. In Turkey, there was extensive takeover of insolvent banks by the government following the 2001 crisis. Also, currently three large banks are state owned. Government ownership as a direct form of control has also been put on the agenda after the 2008 crisis. The most important problem here is the absence of any certainty about what rules the government will apply once it takes over a bank on a temporary basis (Turkey in 2001, US and Europe in 2008).

The crisis, regulation and supervision

While it is beyond the scope of this paper to provide a comprehensive discussion of the dynamics that led to the global crisis, and of the proposals for the overhaul of the regulatory system, it is still important to point out that the worldwide crisis of 2008 revealed major weaknesses in the set of regulations governing activities in the financial industry. In addition, it also became apparent that regulators failed to enforce the existing regulations, revealing major problems of incentive compatibility at the level of policy makers and regulators as well.

It will be useful to summarize some of the main shortcomings of the regulatory framework. It became apparent that the current set of rules provided opportunities for regulatory arbitrage (Roubini, 2008): Large amounts of financial transactions were moved out of the banking system, which is regulated, to non-bank financial institutions, which are lightly regulated or not regulated at all. Even though these non-bank financial institutions (or the "shadow banking system") also engaged in significant term transformation and were therefore subject to panics and runs, they did not benefit from formal safety nets and operated with much higher levels of leverage relative to the banking system. Similarly, Caprio et. al. (2009) discuss how the regulatory system depended heavily on risk assessments carried out by credit rating organizations but how the incentives ensured that they would do a poor job. Hence the rules of the game offered insufficient checks on excessive risk-taking and perhaps even encouraged it.

Caprio et. al. (2009) argue, however, that the problem was not limited to the inadequacy of rules. There were enforcement problems as well: "On the grounds that these innovations helped US firms to compete more effectively in the global marketplace, the SEC and banking supervisors refused to take on the political and practical challenge of establishing and maintaining their ability to see and to discipline these complicated and outsized risk exposures" (p. 7).[4]

It also became apparent that another factor complicating the regulation of financial system was globalization itself. Financial markets are possibly the most globalized among markets for goods and services. Regulatory arbitrage possibilities exist not only within countries but across countries as well. The absence of a supra-national authority with comprehensive spatial coverage creates a significant constraint on effective regulation of global players. At the same time, the G-20 meetings at Pittsburgh and the IMF meetings in Istanbul in 2009 showed that perhaps it is still too early to expect major advances towards a multi-country consensus let alone agreement on the issue of global regulation of financial markets.

While the search for reform of financial market regulations is still going on, it is perhaps too early to speculate whether changes will be comprehensive enough to help governments meet the challenges uncovered by the recent crisis. It seems also clear that any reform effort should address not only the rules themselves but also incentives of the implementing parties, especially regulatory authorities to actually enforce those rules.

Coming back to the case of Turkey, it turned out that the Turkish financial system was not hit badly during the crisis. Credit to the private sector did retrench but there were no major liquidity or insolvency problems within the financial system. This apparent success has been largely attributed to the substantial recapitalization of the banking system following the crisis

[4] They also offer some remedies to address this important problem: One is better preparedness; in particular, forcing regulators to publish a well-publicized benchmark plan for crisis resolution in order to avoid strong temptations for large scale bail-outs during the crisis. Another is to increase transparency, in particular to force both regulators and especially large banks to estimate and disclose the subsidies implicit in safety-net mechanisms such as deposit insurance.

of 2001 and to the strength of the regulatory framework that was established in the 2000s. In effect, the adequacy of the regulatory framework was largely due to the fact that non-bank financial markets in Turkey are relatively shallow and that innovative financial instruments that escaped regulatory constraints were not developed. Ironically, it was the relatively underdeveloped nature of the financial system that rendered the regulatory regime adequate and effective.

References

Barth, J. R., Caprio, G. and Levine R. (2006). *Rethinking Bank Regulation*, New York: Cambridge University Press.

Berument, H., Ersel, H. and S. Togan (2010). "Liberalization of Banking Services", unpublished manuscript.

Caprio, G., Demirgüç-Kunt, A. and Kane E. J. (2008) "The 2007 Meltdown in Structured Securitization: Searching for Lessons, Not Scapegoats", Policy Research Working Paper 4756, The World Bank.

Dewatripont, M. and Tirole, J. (1994) *The Prudential Regulation of Banks,* Cambridge: MIT Press.

Diamond, D. W and Rajan,R. G. (2009) "The Credit Crisis: Conjectures about Causes and Remedies", NBER Working Paper No. 14739.

Freixas, X. And Santomero, A. M. (2003) "An Overall Perspective on Banking Regulation" UPF Economics and Business Working Paper No. 664, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=387140 (downloaded January 10, 2010).

Minsky, H.P. (1982*) Can "It" Happen Again? Essays on Instability and Finance*, New York: M. E. Sharpe.

Minsky, H.P. (2008): *Stabilizing the Unstable Economy*, New York: McGraw Hill (Originally published by the Yale University Press in 1986)

Roubini, N. (2008) "Financial Crises, Financial Stability, and Reform: Supervision and Regulation of Financial Systems in a World of Financial Globalization" in World Economic Forum, *The Financial Development Report 2008*, Geneva and New York.