



Competition and the Financial Crisis

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COMPETITION AND FINANCIAL MARKETS

1. Introduction

The financial crisis that started in the summer of 2007 is shaking the world's economic system. It started in the financial sector, but is now having an important impact on the real economy. Even more importantly, the crisis is unfolding in an unexpected way. Academics and policymakers around the world are faced with the questions of what generated the crisis and what can be done to stop it or at least minimize its potentially devastating effects.

The financial sector has long been recognized as being special. Banks perform various roles in the economy and are critical to both the financial system and the real economy. In particular, they improve the problem of asymmetric information between investors and borrowers thus channelling savings into investments; they provide risk sharing by inter-temporal smoothing of undiversifiable risk as well as insurance to depositors against unexpected consumption shocks; they contribute to the growth of the economy; and, finally, they perform an important role in corporate governance. Banks raise a large fraction of their funds through demandable deposits and invest in long term assets. The maturity mismatch between their assets and liabilities and their interlinkages through the interbank markets and the payments system, however, exposes financial institutions to the risk of instability and systemic crises. Furthermore, the great reliance on leverage and the proprietary information that banks possess on their borrowers may induce them to take excessive risks.

For these reasons, competition has been traditionally seen with suspicion in the financial sector, and for a long time, the sector has been subject to tight regulation and to limitations in the application of competition rules. In the last two decades, the trend has somewhat been reversed and competition policy has been applied much more effectively in the financial sector. The current extensive systemic crisis, however, reopens the question of what is the role of competition policy in this sector. The main issues are whether competition is desirable at all in times of systemic crises, and how to limit potential negative effects in the medium and long term. Providing answers to these questions is extremely difficult. The unexpected unfolding of the current crisis, in particular in the financial sector, is casting doubts on the relevance and applicability of standard economic tools.

This paper discusses the role of competition policy in times of systemic financial crises. The main focus is on the financial sector, but the applicability of competition policy to the real sector will also be briefly discussed. Section 2 sets the principles for the discussion. It first explains the special economic features of financial intermediaries in terms of vulnerability to runs, excessive risk taking, systemic crises and safety net arrangements (Section 2.1). Then it reviews the main features of the competitive mechanism specific to the financial sector (Section 2.2.), as well as the potential trade-off between competition and stability (Section 2.3). After doing this, the paper discusses in Section 3 the role of competition policy in financial rescue and restructuring, highlighting the question as to whether the presumption that stability considerations should override competition concerns is warranted. Section 4 moves to the implications for the real economy. The main insight is that, despite the exceptionality of the current crisis, it is important to keep in mind the potential negative long term effects deriving from a loose application of competition policy. Finally, Section 5 discusses the importance of adapting the rules of competition policy to situations of systemic crises going forward. In particular, it stresses the need of a deeper understanding of the

relationship between competition and stability in the financial sector as well as the importance of better cooperation and coordination among competition authorities and regulators.

2. Principles: Financial sector conditions and competition policy

Before answering the question of how competition policy should treat financial markets, it is important to consider features of financial markets that may justify different treatment compared to other sectors.

2.1 *Special economic features of financial markets*

It is well known that banks are special because of their vulnerability to instability and because of the non-negligible share of wealth that investors hold in bank deposits.¹ Instability can originate from:

- The liability side, which is vulnerable to runs and systemic crises; or
- The asset side of banks, specifically the excessive risk that they can take in their investment decisions because of high leverage and opaque assets. This is particularly the case when deposits are insured or banks are believed to be protected and not allowed to fail, because the interest rates on banks' liabilities are then insensitive to risk exposure.

The potential instability of the banking system and the need for consumer protection are the fundamental rationales behind the introduction and development of bank regulation. This origin of bank regulation is important also from the perspective of competition authorities. It suggests that an important objective of regulation that promotes systemic stability and avoids bank runs is the protection of consumer welfare.²

2.1.1 *Runs*

Two main types of bank run exist:

- Panic runs ; and
- Fundamental runs.

Panics emerge when depositors lose confidence in their bank and start withdrawing their funds independently of their consumption needs. If depositors believe that a panic will not occur, only the consumers in need of early consumption withdraw their funds and their demands are satisfied. In contrast, if depositors believe a crisis will occur, all of them rush to avoid being last in the line and not receiving anything. In this sense, panic runs are random events linked to self-fulfilling prophecies.³

Fundamental runs are instead linked to poor bank performance. For example, when banks' returns are low as in a recession, depositors anticipate banks' financial difficulties and withdraw their funds early. Given that banks' liabilities are fixed, banks may be unable to remain solvent. Thus, fundamental runs are

¹ See, for example, the reviews in Carletti (2008) and Carletti and Hartmann (2002).

² One has, however, to distinguish between consumer protection and consumer welfare for competition policy.

³ See the seminal paper on panic run by Diamond and Dybvig (1983).

a response to unfolding economic circumstances. As such they can be efficient as they force the early liquidation of worthless assets.⁴

In reality panic and fundamental runs are interlinked. The information about the true value of bank assets is typically not easily available to all depositors. The so-called “uninformed” depositors may not be able to infer a bank's future performance correctly and erroneously lose confidence in it. When this occurs, a bank illiquidity problem may generate into insolvency and an inefficient run may occur.⁵ Moreover, runs can be generated not only by retail depositors, but also –and more importantly given the interlinkages among banks in modern financial systems– by wholesale depositors and other banks through payment systems and the interbank markets. The freezing of the money and interbank markets in 2007 – 2009 show the great risk of instability affecting the banking system and the need for preserving confidence among retail and institutional investors as well as among financial institutions.

2.1.2 *Moral hazard and excessive risk taking*

A second source of instability for individual banks relates to the problem of moral hazard and excessive risk taking on the asset side. As is well known from agency theory, in a principal-agency relationship the objectives of the parties are not perfectly aligned so that the agent does not always act in the best interests of the principal. The problem can be mitigated by designing appropriate incentive schemes for the agent or by controlling his actions through costly monitoring. In general though, the divergence of interests will not be completely resolved. In corporate finance, and thus also in banking, there is a misalignment in the objectives of debt-holders and firm managers as the attitude of the two parties toward risks diverges. Whereas debt-holders bear the downside risk, the manager pursuing shareholders' interests benefit from upside potential. Thus, the manager has strong incentives to engage in activities that have very high payoffs but very low success probabilities.⁶

While this agency problem is present in all leveraged firms, two features of the banking system make it more severe among banks. First, the opacity and the long maturity of banks' assets make it easier to cover any misallocation of resources, at least in the short run. Second, the wide dispersion of bank debt among small, uninformed (and often fully insured) investors prevents any effective discipline on banks from the side of depositors.⁷ Thus, because banks can behave less prudently without being easily detected or paying additional funding costs, they have stronger incentives to take risk than firms in other industries. Examples of fraud and excessive risk are numerous in the history of financial systems as the current crisis has also shown.⁸

2.1.3 *Contagion*

Whether the failure of individual banks comes from runs or excessive risk-taking, the main worry both in the academic literature and in the policy arena is the risk of contagion. This is the risk that the failure of one bank, or even only the release of bad news about its solvency, leads to the failure of numerous other financial institutions because of the linkages between banks through both the payment systems and the interbank market. The literature focuses on two different mechanisms of contagion:

⁴ See Gorton (1988), Jacklin and Bhattacharya (1988) and Allen and Gale (1998).

⁵ The relation between panic and information-based runs is formally analyzed in Chari and Jagannathan (1988).

⁶ See, for example, the seminal paper by Jensen and Meckling (1976).

⁷ See for example Flannery and Nikolova (2004) for a review on the effectiveness of market discipline on banks.

⁸ See, for example, the evidence found in Boyd and Gertler (1993) and Edwards and Mishkin (1995).

- Contagion originating from direct linkages between banks in the interbank markets or payment systems; and
- Contagion originating from the indirect balance-sheet linkages between banks originating from the interdependency of their portfolios.

The risk of the former type of contagion is lower when banks are better and more equally connected with each other since the proportion of the losses in one bank's portfolio is transferred to more banks through interbank agreements.⁹ The drawback is that this weakens the incentives to close inefficient banks, particularly those that are systemically important, thus generating moral hazard.

A second source of contagion stems from the indirect balance-sheet linkages between banks originating from the interdependency of their portfolios. When a bank is forced to reallocate its portfolios or sell some assets in response to a shock, the portfolios of all other banks are affected. This can potentially generate a systemic crisis through, for example, changes in asset prices.¹⁰ The price at which assets are sold on a market depends, among other things, on the quantity of assets on sale, in particular when markets have limited liquidity.¹¹ The larger the quantity of assets on sale, the lower the selling price of these assets will be. In other words, asset prices are low in states where banks and intermediaries need liquidity. This worsens the problem as the low prices may force banks to sell additional assets, which in turn lowers prices even further. Moreover, when banks are required to value their assets -or at least part of them- at the current market prices, as is the case under the mark-to-market accounting rules, the low prices prevailing in the market also negatively affect the balance sheets of those banks that are not selling assets. These banks may in turn be forced to sell assets even though they would not do it if they were not required to evaluate their assets at the current market prices. This channel of contagion seems to have played an important role in the current financial crises and has led to an important policy debate on the desirability of mark-to-market accounting at times when markets do not work properly.¹²

2.1.4 *Safety net arrangements and other forms of rescues*

Systemic risk and consumer protection are the main rationales for the introduction of safety net arrangements in the form of deposit insurance and lender of last resort. Deposit insurance can prevent panic runs, if all deposits are insured,¹³ because depositors are certain to be repaid, but it fails to prevent panics generated in the interbank market or through the payment systems. In a strict sense, the lender of last resort relates to the provision of liquidity by the central bank to individual banks in distress. Although there is a long-standing debate in the academic literature as well as in policy making about the optimal form and the precise role of the lender of last resort, there seems to be a general consensus that –at least in normal market conditions– this instrument should not be used to deal with individual bank insolvencies. According to the "classic" view, central banks should lend freely at a penalty rate and against good collateral.¹⁴ This should guarantee that the lender of last resort is only used for illiquid banks and in

⁹ See for example Allen and Gale (2000), Freixas et al. (2000) and also Brusco and Castiglionesi (2007).

¹⁰ See Lagunoff and Schreft (2001) and Cifuentes et al. (2005).

¹¹ This is known in the academic literature with the term "cash in the market pricing". See for example Allen and Gale (2004) and Allen and Carletti (2006).

¹² On the role of mark-to-market accounting as potential source of contagion see Allen and Carletti (2008a) and (2008b).

¹³ In practice, with most deposit insurance schemes not all deposits are usually insured so deposit insurance may fail to prevent runs.

¹⁴ See Bagehot (1873).

emergency circumstances. In practice, however, it is difficult, even for central banks, to distinguish illiquidity from insolvency. Banks in need of emergency assistance are under a suspicion of insolvency since they could otherwise raise funds from the market. In theory, as long as markets are sufficient to deal with systemic liquidity crises, there should be no need for central bank's loans to individual banks. However, the interbank market may stop working properly, as the recent crisis has shown, and then help to individual banks may become necessary.¹⁵

Some have argued that even if illiquidity is inextricably connected with the likelihood of insolvency, there is still a role for central bank intervention.¹⁶ Specifically, central banks should extend the discount window facility to the individual banks whose distress may propagate to the entire system. Whenever the social cost of a bank failure is larger than its private cost, the central bank should enlarge discount window loans to individual banks. This should not imply a systematic and indiscriminate rescue of all banks. As it reduces the private cost of risk taking, the lender of last resort, as any insurance scheme, induces banks to take greater risk. Thus, it is crucial that central banks help only the banks having a systemic impact. These are more likely to be large-size banks and banks occupying key positions in the payment system or interbank market. In this sense the lender of last resort policy is likely to generate disparities between small and large banks with negative competitive consequences for the former.

It is important to note that – as will be discussed extensively below – there are other forms of crisis management besides central bank intervention. In particular, bank distress can be dealt with by the injection of public funds by the government – the so-called taxpayer money solution – or with the injection of private money by banks or other market participants – the so-called private money solution. Irrespective of the form of intervention, a rescue always entails moral hazard problems thus calling for further regulatory measures in the form, for example, of minimum capital requirements.

Moreover, the form of public or private intervention is important for competition policy. Direct subsidies or bailouts of financial institutions fall into the category of state aid and have a direct impact on the application of competition policy to the banking sector. By contrast, the private solution may fall into the merger category if it leads to the acquisition of control of the distressed institution. These categories can of course be connected, in that for example a merger can often be accompanied by the injection of public money. This also implies a need to coordinate “traditional” competition policy, e.g. merger control, abuses of dominance, and cartel agreements, with state aid.

2.2 *Competition in financial sector*¹⁷

For a long time competition policy has been applied cautiously in the banking sector. In the US, for example, the de facto antitrust exemption for banking was strongly eroded by Supreme Court decisions in 1963 and 1964;¹⁸ yet today financial institutions are still treated somewhat differently from firms in other sectors. In Europe, the Commission did not apply the old Articles 85 and 86 of the Rome Treaty to the financial sector until the Zuechner case in the early 1980s.¹⁹ Banking was seen till then as a special sector, where business was heavily influenced by the monetary and financial policies of member state authorities, in particular central banks and supervisors, rather than by market forces.

¹⁵ See, for example, Allen and Carletti (2008c).

¹⁶ See for example Goodhart (1987).

¹⁷ See Carletti (2008) for a more extensive review of competition in banking.

¹⁸ The decisions concerned the cases *United States v. Philadelphia National Bank* and *United States v. Lexington* (Bianco, Ghezzi and Magnani, 1998).

¹⁹ European Court of Justice, 14-7-1981, C 172/80, *Gerhard Züchner c. Bayerische Vereinsbank AG*.

Before the liberalization process the balance between the benefits of competition (in terms of efficiency, quality provision, innovation and international competitiveness) and the potential increase in instability was far from being optimal. Regulation was tight and central banks were in many instances too complacent with collusive agreements among banks, sometimes even fostering them. Tight regulation entails high costs. For example, caps on interest rates induce overinvestment in services, excess entry, and favours regulatory capture. The situation has changed substantially in the last decades and currently the general rules of competition policy apply to the banking sector, although some exceptions due to the specificity of the sector remain in a few institutional frameworks.

Analyzing competition in the banking sector is quite complex. On the one hand, the general argument in favor of competition in terms of cost minimization and allocative efficiency applies to the banking industry. On the other hand, however, as in numerous other markets, the standard competitive paradigm may not work fully because of features like:

- Asymmetric information in corporate relationships;
- Switching costs; and
- Networks in retail banking.²⁰

The main consequence is that competition may not always promote efficiency in financial markets. These features will be considered in turn.

2.2.1 Asymmetric information

One of the main roles of banks is to screen and monitor investment projects. This creates important informational asymmetries among banks and potential borrowers and among banks themselves. Competition affects these informational asymmetries, thus changing also the pool of borrowers banks lend to. For example, when borrowers differ in terms of quality, competition in the credit markets may worsen the “winner’s curse” problem because higher loan rates tend to worsen the quality of firms accepting the loan and thus to reduce borrower quality. Increasing the loan rate above that of the competitor has two opposite effects on the profit of the deviating bank. On the one hand, it increases its profit through the usual price effect. On the other hand, it worsens the quality of firms accepting the loan, thus reducing its profit. A firm will indeed accept the least favourable loan rate only after being rejected by all other banks setting more favourable rates; but this implies that the firm accepting a loan from a bank offering a higher loan rate has a low credit-worthiness on average.²¹ This creates endogenous barriers to entry and leads to an oligopolistic structure of the sector, and it may explain why the market for small and medium-sized firms remains local.²²

Credit ratings may help to resolve asymmetric information problems. They play a key role in consumer lending, SME lending, corporate debt issues and asset-backed securities. In many countries, limited credit rating information is available for consumers and SMEs. One result is that banks and other lenders face a problem of adverse selection. Consumers and SMEs who leave their home bank to look for credit elsewhere may have been first refused credit by their home bank, which has the most detailed information on the client’s credit worthiness. Other banks will therefore be wary of new customers and will

²⁰ See the reviews in Carletti (2008) and Carletti and Vives (2008).

²¹ Broecker (1990).

²² Dell’Ariccia (2001).

reasonably impose a credit premium for such customers.²³ Ensuring that fine-grained credit rating information on consumers and SMEs is broadly available would help to overcome this asymmetric information problem and increase banks willingness to compete for customers of other banks.²⁴

For securities ratings, such as corporate debt and asset-backed securities, internationally recognized credit rating agencies play a lead role. Competition authorities have investigated selected business practices of credit rating agencies.²⁵ Competition between credit rating agencies often does not operate in the interest of providing unbiased, accurate ratings. While credit rating agencies may compete vigorously with each other for the business of securities issuers, this competition may lower the quality of ratings from the investor's perspective, by serving as competition to lower standards and creating a financial bias in favour of over-high ratings. In the recent past, the U.S. requirement that credit rating agencies be "nationally recognized statistical rating organization" created a significant barrier to entry for new credit rating agencies in the U.S..²⁶ Since a change in regulatory approach in September 2007, more credit rating agencies have been able to achieve the NRSRO status in the U.S., including at least three who accept payment only from investors. However, convincing investors to seek ratings from smaller firms can be a challenge. Similarly, it can be difficult to convince issuers to provide data to credit rating agencies that are not paid by the issuer, as issuers reportedly prefer to have a client relationship with credit rating agencies. The U.S. SEC has made the pro-competitive proposal to eliminate many regulations that mandate the use of ratings by an approved agency, believing that more care in using ratings would encourage better results from competition between agencies. Similarly, the European Commission has put forward some proposals, but these may not be sufficient to encourage new entry and may actively harm new entry by banning unsolicited ratings and potentially placing a high pre-requisite on registration of credit rating agencies like that recently removed by the U.S. SEC.²⁷ Recent proposals place high and perhaps excessive reliance on mandating firewalls.²⁸

²³ See the seminar paper by Akerlof (1970) or, more related to the financial markets, Sharpe (1990).

²⁴ See Degryse and Ongena (2007).

²⁵ In 2008, the U.S. Department of Justice opened an investigation into certain business practices of Moody's, following complaints that the company pursued an unjustified automatic downgrading strategy for securities issues in which the issuer did not retain Moody's and S&P as paid raters.

²⁶ The U.S. Department of Justice Antitrust Division stated in a March 1998 letter to the U.S. Securities and Exchange Commission "The Department opposes...a "recognition" requirement, as currently formulated. According to this requirement, a rating organization would have to be recognized as an issuer of credible and reliable ratings by the predominant users of securities ratings in the U.S. in order to receive NRSRO status. The adoption of such a criterion is likely to create a nearly insurmountable barrier to de novo entry into the market for NRSRO services. For this reason, the recognition requirement is likely to be anticompetitive and could lead to higher prices for securities ratings than would otherwise occur."

²⁷ Commissioner McCreevy (Credit Rating Agencies Press release, 12 November 2008) states, in discussing a new legislative initiative of the European Commission, that "Unsolicited ratings will be curtailed: A CRA [Credit Rating Agency] will not be able to issue such ratings if it does not have sufficient good quality information to do so." While unsolicited ratings have at times been used in an anti-competitive manner by incumbent rating agencies, restricting unsolicited ratings may have unintended and undesirable consequences. Issuing unsolicited ratings may be the only way for new entrants to progress and grow. Unsolicited ratings would not be used for anti-competitive purposes by ratings agencies that receive no reimbursement from issuers, and, arguably, it is precisely these sorts of rating agencies whose growth regulation should foster. Regulations that provide a wide ban on unsolicited ratings risk enhancing the dominance of the issuer-pays model, with all of its inherent conflicts of interest, and maintaining the high level of concentration that restricts beneficial competition. Even if unsolicited ratings are allowed, issuers may prefer not to provide information to independent credit rating agencies who are more likely to give lower ratings than a rating agency reimbursed by the issuer. Coffee (2008) suggests that a major barrier to

Many investors, or at times regulations, require two ratings by NRSROs in order to hold a security in their portfolio. To the extent that such conventions remain in place, regulators should consider how to ensure that at least one of these ratings comes from a source unbiased by issuer payments. One possibility would be a positive requirement that investors should be required to obtain at least one rating from a credit rating agency that receives no reimbursement from the issuers.²⁹ Such a requirement would help to ensure that competition would promote accurate ratings, produced in the primary interest of investors. This proposal could reduce the conflicts of interest that dominate in an issuer-pays environment. To ensure that independent rating agencies would have sufficient information to have a basis for making ratings, Coffee (2008) has suggested that equality of access to information should exist for all agencies, whether hired by the issuer or not, with appropriate confidentiality protections.

2.2.2 *Switching costs*

Customer mobility and choice is essential to stimulate competition in retail banking. However, the degree of customer mobility is low and the longevity of customer-bank relationships is long.³⁰ One reason that may explain limited switching of current accounts is that both the financial and non-financial costs of switching are significant. In moving from one bank to another, consumers incur costs associated with the physical change of accounts, transfers of bill payments or lack of information. Also contractual and psychological costs may be important.

Switching costs represent therefore an important source of market power in retail banking. The competitive effects of switching costs are twofold. On the one hand, they lead to the exercise of market power once banks have established a customer base which remains locked in. On the other hand, they induce fierce competition to enlarge the customer base. In this sense there is a strong element of competition *for* the market. Thus, switching costs may lead banks to offer high deposit rates initially to attract customers and to reduce them subsequently, when consumers are locked in. This pattern seems consistent with empirical observations and stylized facts.³¹

Policymakers can facilitate switching in a number of ways. First, they can help promoting greater consumer education and financial literacy about financial alternatives for example by inducing more information about prices and more transparency. Second, they can encourage the adoption of a self-regulatory code between banks for the use of “switching packs”. These consist in arrangements that simplify the administrative steps for switching and hence reduce costs. Third, policymakers may promote the use of account number portability although this arrangement still raises a number of important concerns related to the potential high costs of its installation, the lack of non-discriminatory access to the payment system and the risk of losing the ability to identify banks through account numbers.

competition would be resolved with a regulatory guarantee of equal access to proprietary data for any NRSRO, with an obligation that the receiver of data maintains its confidentiality.

²⁸ The proposals to ban involvement of analysts who establish a rating for a security in the creation of that product or the sale of that product is attractive on its surface. But there is little evidence that separation of tasks will create incentives for analysts to be more rigorous in the rating of new and existing securities issues, unless analysts are reimbursed in a way that does not reflect profitability of the ratings business.

²⁹ See Blundell-Wignall and Atkinson (2008).

³⁰ For example, in a survey of approximately 2000 UK consumers conducted in 2007, only 5% actually switched banks. This figure is significantly lower than for many other sectors (see DAF/COMP/WP2(2007)2/REV1.)

³¹ See Degryse and Ongena (2007) for an extensive description of the importance of switching costs in banking, and DAF/COMP/WP2(2007)2/REV1 for an outline of country experience with switching packs and account number portability.

2.2.3 Networks

Finally, the presence of networks also affects the degree of competition as it introduces elements of non-price competition in the interaction among banks. For example, the possibility for banks to share Automatic Teller Machine networks can be used as a strategic variable to affect price competition on the deposit market and deter potential entry.³² Competition in networks is also related to competition in two-sided markets. For example, in the context of credit cards, merchants can use card acceptance to increase customer base and relax price competition. Given, however, that the system has to attract two sides of the market, i.e., issuers and acquirers, merchants and consumers, changes in interchange fees and prices may affect the equilibrium outcome in different ways.³³

To sum up, competition in banking is inherently imperfect and many frictions and barriers to entry may generate rents.³⁴ In retail banking switching costs for customers are very important; and reputation and branch networks act as entry barriers. In corporate banking established lending relationships and asymmetric information give financial institutions some market power vis-à-vis both firms and investors.³⁵ Electronic banking pushes in the direction of contestability, but it is also subject to exogenous and endogenous switching costs.

2.3 Competition and stability

An important, and partly unresolved, question concerns the link between competition and stability. Until the 1980's, the prevailing view both in the academic literature and in the policy arena was that competition worsens stability. In particular, intense competition was perceived to favour excessive risk taking thus leading to a higher risk of individual bank failure, and regulation was believed to help mitigate this perverse link. The idea was that, by reducing banks' charter values (or rents available to shareholders and/or managers), greater competition increases the attractiveness of risky projects.³⁶

Recently, the view on a potential trade off between competition and stability has become more balanced. Recent work shows that panic runs can occur independently of the degree of competition in the market, although, by raising deposit rates, more competition may exacerbate the coordination problem among depositors³⁷ and increase the probability of runs.³⁸ Moreover, the negative relationship between competition and stability need not be robust, once the choice of the risk of the investment projects is analyzed more deeply. For example, when entrepreneurs –and not banks– choose the risk of the investment project, greater competition in the loan market reduces entrepreneurs' incentives to take risks, thus implying safer portfolios for banks.³⁹ Finally, some empirical evidence finds that fewer regulatory restrictions – lower barriers to bank entry and fewer restrictions on bank activities that foster competition –

³² See Matutes and Padilla (1994) and also Degryse (1996) for similar conclusions for postal or telephone services.

³³ Rochet and Tirole (2002).

³⁴ Degryse and Ongena (2008) provide evidence of those rents.

³⁵ See Degryse and Ongena (2008) for evidence of this market power in banking.

³⁶ See, for example, the influential work by Keely (1990), and also Hellmann et al. (2000); Matutes and Vives (2000), and Allen and Gale (2004).

³⁷ See Matutes and Vives (1996).

³⁸ See Goldstein and Pauzner (2005).

³⁹ See Boyd and De Nicoló (2005) and also Caminal and Matutes (2002).

lead to less banking fragility, suggesting that regulatory restrictions limiting competition are not beneficial in terms of stability.⁴⁰

All in all it seems plausible to expect that, once a certain threshold is reached, an increase in the level of competition will tend to increase risk-taking incentives and the probability of bank failure. This tendency may be contained by reputational concerns, by the presence of private costs of failure for managers or by regulation. In any case the question remains open as to what degree of market power should be allowed in banking and whether competition policy should be modulated in banking given the specificity of the sector. Also, it is important to clarify to what extent competition may have contributed to the recent crisis through the creation of a bubble in housing prices and the massive extension of loans to subprime borrowers, and more generally through the fierce search by banks for more profitable opportunities such as structured products and securitization.

3. The role of competition policy in financial sector rescue and restructuring

It emerges from the last section that the balance between competition and stability is delicate, and the extent to which competition policy should be applied to the financial sector remains unclear. Although, as already mentioned, the attitude towards competition in banking has changed dramatically in the last decades, several features of the development and current design of competition policy are worth describing in more depth, as they relate to specific exemptions due to stability concerns.

3.1. *Development of competition policy in the financial sector*

In the US mergers in the financial sector are subject to review by the government, but the criteria used are somewhat more lax than those used in other sectors. The safe haven thresholds for the Herfindahl index below which a merger is not challenged are higher for banking than for other industries.⁴¹ Furthermore, mergers are analyzed and decided upon by the relevant regulator (OCC, FDIC or FED) with the DOJ conducting a parallel review which may result in an appeal against the decision of the regulator.⁴² This arrangement created several problems in the past because of some disputes in a few cases between the DOJ and the sector regulators in the 1990's.

In Europe the design of competition policy in banking has also been substantially strengthened at the national level and many exceptions have been removed over the last two decades. For example, in Italy since December 2005 competition policy in banking is no longer enforced by the Bank of Italy but rather by the competition authority as in all other sectors. In the Netherlands, the Competition Act of 1998 applies to the banking sector, but only since 2000. Similarly, in Portugal, the banking system is subject to merger control since 2003, although with a delay of five years relative to the other sectors. Finally a decision of the French Supreme Court in 2003 concerning the merger between Credit Agricole and Credit Lyonnais made it clear that the banking sector was subject to merger control in France.⁴³

⁴⁰ Beck et al. (2004).

⁴¹ Bank mergers are not challenged – the so-called Screen A - if the HHI does not increase by more than 200 points above 1800 points, whereas in other industries mergers are typically not challenged unless they raise the HHI by more than 100 points and it is above 1800 (See Bianco, Ghezzi and Magnani, 1998).

⁴² For further details on the US system, see submission of the United States to this set of roundtables (DAF/COMP/WD(2009)11).

⁴³ See Carletti et al. (2006) and Carletti and Vives (2008).

3.2 *Remaining specificities of competition policy in the financial sector*

Despite these changes, some important specificity concerning the relationship between competition and stability remains in the institutional design of competition policy in banking. As stated in art. 21(3) of the European merger regulation, “Member States may take appropriate measures to protect legitimate interests other than those taken into consideration by the EC Merger Regulation (...). Public security, plurality of the media and prudential rules shall be regarded as legitimate interests (...).” Taking it literally, this provision implies that, at least in merger control, stability considerations may override competition concerns. In Canada a merger of financial institutions may be exempted from merger control if the Minister of Finance certifies that it is in the best interest of the Canadian financial system. In the Netherlands the Minister for Economic Affairs can overturn a merger decision of the competition authority if this conflicts with the one of the supervisory authority. In Switzerland the supervisor may replace the competition authority and approve a bank merger, if that is necessary to protect the interest of creditors.⁴⁴

3.3 *Competition policy in times of systemic financial crises*

Whereas it is plausible to assume a more lenient approach toward market power in banking, it remains unclear whether the presumption that stability considerations should override competition concerns is warranted. The question is rather to what extent stability considerations should influence the design as well as the application of competition policy. An even more important aspect given the current crisis situation is that the application of competition policy presupposes stable market conditions. At the current stage, competition policy is meant to address the potential anticompetitive effects stemming from individual cases rather than from a generalized situation. Most of the exemptions in the application of competition policy to the financial sector described above refer in fact to individual bank cases, but not to a generic, system-wide crisis, as the one that is currently ongoing.

Competition authorities are now faced with a massive intervention of the public sector in the banking system both by sector regulators and governments, as well as central banks. Myriad measures have been taken in the last months to help the financial markets, including sharp reductions in policy rates, changes in the liquidity injections in terms of the widening of collateral requirements, maturity and counterparties, and more direct asset purchases, capital injections and guarantee schemes covering the liabilities of financial institutions and interbank market transactions. Moreover, regulators around the world have been directly involved in time-sensitive rescues such as those of Bear Stearns, Morgan Stanley, Northern Rock, Fortis, ING, IKB, West LB, and Hypo Real Estate, just to mention a few cases. All of these measures seem to have been driven by the fear of contagion deriving from the failure of one institution and the risk of a systemic crisis stemming from a widespread loss of confidence in the financial system.

The depth of the crisis and the extent of public intervention are almost unprecedented. Competition authorities around the world are pressed to participate in these actions, and not just because of the intense time pressure for action. The application of competition policy to the financial sector is very much questioned once again. Some form of public intervention may be warranted given the exceptional circumstances, but the extent to which this should be allowed is very much open. Some argue that competition rules should be suspended for the duration of the crisis, thus allowing regulators to focus only on the objective of safeguarding the stability of the financial system. Overall it is not clear that competition is desirable at all when there is a systemic crisis. Some others have instead stressed the importance of applying strict competition rules in the current crisis in order to ensure a level playing field and a coordinated reaction to the crisis, and to avoid a wasteful subsidy race between countries to attract depositors and investors. Moreover, the long-term effects of relaxing competition policy can be serious. Mergers that lead to very concentrated markets in particular are almost impossible to reverse.

⁴⁴ See again Carletti et al. (2006) and Carletti and Vives (2008).

3.3.1 State aid regulation – The European experience

Some features of competition policy such as the failing firm doctrine in merger review may help in addressing the situation, but this again is meant to deal with individual distress situations more than with a generalized crisis. In order to facilitate the relationship between competition policy and public intervention, the Commission has recently published a Communication on how state aid rules apply to the measures taken in favour of financial institutions in the context of the current crisis.⁴⁵ While recognizing the exceptionality of the current circumstances and the systemic risk inherent to the financial system, the Communication makes it clear what elements of the public schemes are essential in order to prevent unnecessary distortions of competition between financial institutions operating in the market or negative spill over effects on other Member States, especially in the medium and long term.

The Communication distinguishes between support schemes in favour of individual institutions, in particular those of systemic relevance, and general schemes. Both forms of support can be assessed under Article 87(3)(c) of the Treaty and the general guidelines on state aid for rescuing and restructuring firms in difficulty.⁴⁶ These clarify which state aid may be allowed to remedy a serious disturbance in the economy of a Member State, such as the failure of the entire functioning of the financial system.

Concerning individual support, the Communication makes a clear distinction between institutions whose difficulties stem exclusively from general market conditions which have severely restricted access to liquidity and those that are in distress because of endogenous reasons linked to their business models or practices. Whereas schemes supporting the former type of institutions are warranted as they are less likely to lead to serious consequences in terms of excessive risk taking, schemes supporting the latter type require assessment within the normal state aid rules. Recapitalization schemes are to be used only to support fundamentally sound financial institutions. Although this is correct in theory, one concern relates to its practicability given the difficulties to distinguish, especially in a stress situation like the current one, between the two types of institutions. The risk is to end up with an indiscriminate aid to all institutions.

In order to avoid unnecessary distortions of competition, the Communication requires that the general guarantee schemes as well as the possibility of recapitalization are available to all market players operating within a certain national financial market. The eligibility criteria must be objective and non-discriminatory on the basis, for example, of nationality. Subsidiaries of foreign banks are eligible for the same guarantee as domestic institutions. The aim is to avoid undue distortive consequences on neighbouring markets and the internal market as a whole. Again, however, the challenge concerns the real applicability of this principle. Whereas the general access to all institutions operating within a certain financial market should not distort competition on that market, one issue is to what extent it is possible to confine the negative effects on the other national markets. Given the size and international competitiveness of many financial institutions in modern financial systems, it appears difficult to confine the competitive effects of general guarantee schemes to the national borders so as to guarantee a level playing field within the internal market even in the presence of national guarantee schemes. The worry is that national states may in reality protect national champions and interests under the umbrella of supports and rescues of systemic relevance for the financial system. Although discussed in the European context, this concern clearly extends also to other jurisdictions.

Concerning the extent of the coverage, the Communication requires the guarantees to cover only the necessary liabilities. In order to maintain confidence in the financial system, retail and to some extent wholesale deposits between intermediaries can be protected, but uninsured subordinated debt as well as

⁴⁵ Communication 2008/c 270/02 from the Commission on the Application of State aid rules to measures taken in relation to the financial institutions in the context of the current global financial crises.

⁴⁶ OJ C 244, 1.10.2004, p.2.

other form of debt should not. The rationale is to avoid unnecessary and inefficient runs by depositors, while at the same time maintaining –to the extent possible at least– market discipline and minimizing future imprudent behaviour. In the same spirit, to minimize moral hazard, shareholders should not be subsidized in any form, and management should be removed. Unfortunately, however, this does not seem to have always been the case.

Moreover, in order to avoid undue distortions of competition deriving from the guarantee schemes, some safeguards or other provisions may be needed, in particular in case of recapitalization schemes. These may include restrictions on commercial conducts through for example market share ceilings, limitations to the size of the balance-sheet of the beneficiary institutions or other behavioural constraints that may be needed to achieve the purpose of the guarantee. These provisions raise the issue as to how they can be properly monitored and enforced as financial services (and thus conducts) are typically not standardized products. Furthermore, some restrictions such as those on the growth of undertaking may themselves generate anticompetitive effects in terms of collusive agreements.

Another issue of paramount importance concerns the remuneration of the guarantee scheme or any other form of intervention such as the recapitalization schemes. In principle, the remuneration of any type of support such as the issuance of new shares or asset swaps should be determined on the basis of a market-oriented valuation and be as close as possible to the market rate. However, at the current moment, the pricing mechanism in the markets seems to have stopped working properly. In such a situation, an important question is how to explicitly calculate an appropriate remuneration for the public supports in a time when markets are so highly illiquid and volatile that market prices may no longer be tied to the value of fundamentals. This issue resembles the current debate in the application of mark-to-market accounting standards when markets do not work properly.⁴⁷

3.3.2 *Nationalization*

Despite the exceptionality of the current situation in the financial markets, the experience of previous crises should not be overlooked and all possible alternatives should be carefully considered and compared. For example, an alternative measure to deal with the crisis is the nationalization of the financial institutions. This method was pursued in many countries around the world in the 1930's and, more recently, for example, in Scandinavia in the early 1990's, when financial institutions were temporarily under the control of the State and privatized again after the end of the crisis, and in Ireland and in Iceland during the current crisis.

An open question is how this solution compares with the others in terms of competitive effects in the medium and long term. On the one hand, it may seem more transparent than public subsidies or public recapitalization schemes. Having control of the institutions, the State may find it easier to implement all necessary measures to restore the long-term viability of the undertakings. The management is removed and there is no need to monitor conduct or enforce safeguard clauses or other provisions.

On the other hand, however, public ownership is also not a panacea in terms of efficiency and competitiveness. Whereas a public system has the undeniable advantage relative to a private one of not encountering confidence crises because of the possibility of levying taxes, and issuing money or T-bills, it also faces a higher risk of being lax and not being rigorous enough.⁴⁸ This may delay the time of recovery

⁴⁷ There has been a spirited debate about the merits of mark-to-market accounting for financial institutions for some time now. Many argue that market prices provide the best estimate of value available and should always be used. However, others suggest that in times of crisis market prices are not a good reflection of value and their use can lead to serious distortions. See Allen and Carletti (2008a) and (2008b).

⁴⁸ See the discussion of the dichotomy "flexibility versus laxity" in Rochet and Tirole (1996).

and induce risk taking. The academic literature also supports the negative view of public ownership indicating that the presence of state-owned banks leads to less competition and lower financial development.⁴⁹ State-owned banks are also often found to be driven by political considerations rather than by efficiency objectives in their political decisions. Firms borrowing from state-owned banks pay less than firms borrowing from privately-owned banks but tend also to be less profitable and riskier on average.⁵⁰ All these considerations suggest that if nationalization may be a good solution to a crisis situation in the short run, it must be temporary.

3.3.3 *Mega mergers*

Another possibility is to deal with a systemic crisis through large mergers. The competitive effects of consolidation in the financial industry have been widely analyzed in the literature. Broadly speaking, consolidation seems to have negative consequences in terms of both interest rates on loans and deposits and availability of credit in the short run, but these seem to dissipate in the longer run.⁵¹ Whereas these results may look encouraging, it has to be noted that most of the mergers analyzed in the literature occurred in “normal” market conditions rather than in crisis situations, and therefore may not be well suited to draw conclusions about the potential consequences of mega mergers in crisis situations.

The most relevant example is perhaps the wave of Japanese mega mergers during the 1990’s, when many financial institutions were forced to merge in order to overcome the crisis and in particular recover the large proportion of non-performing loans. The creation of large financial institutions certainly increases the potential for market power and anticompetitive effects, also because of their irreversibility; and it may also exacerbate the problem of excessive risk taking because of the anticipation of future rescues due to the systemically relevant size of the institutions. This may lead, however, to the “too big to save problem” especially in small countries, that is to the situation where national governments are unable to save financial institutions because of their excessive size.

Mega mergers are rarely the only solution applied to crisis situations. Often they are accompanied by some form of public support. In Japan, for example, the government injected ¥ 10 trillion into a number of big banks in the years 1998-2003 in an effort to strengthen their capital base.⁵² Concerning the recent crisis, the arranged mergers of Bear Stearns and Merrill Lynch with JP Morgan and Bank of America, respectively, involved large amounts of public funds in the form of guarantees. By contrast, some other arranged mergers entailed the acquisition of part of the shares by the State, thus resulting de facto in partial nationalizations. An example of this is the recent arranged merger between Lloyds TBC and HBOS in the UK, where the State owns about 43% of the new combined entity. The future consequences in terms of competition of these hybrid solutions are very much unclear. Much will depend on the effective influence of the State in the running of the business activities of these institutions and on the duration of the public ownership of shares.

Just as a final point, it is worth recalling the important opposing decision adopted by the Secretary of State in 2001 relative to the planned acquisition of Abbey National by Lloyds. The concern at the time was that no remedies could have offset the potential anticompetitive effects deriving from this acquisition due to the highly oligopolistic structure of the British banking sector. The dramatic shift observed in the case of Lloyds/HBOS is witness to the extraordinary difficulty of the situation and the consequent subordination of competition concerns to stability concerns, at least in the short run.

⁴⁹ See Barth, Caprio and Levine (2004) and La Porta et al. (2002).

⁵⁰ See for example Sapienza (2004).

⁵¹ See Degryse and Ongena (2007, Appendix B) for an overview of the results of the literature.

⁵² Hanazaki and Horiuchi (2003).

4. The Real economy: Challenges for competition policy in periods of retrenchment

Differently from many other crises, the one that started in the summer of 2007 originated in the financial sector. The causes for its occurrence are not fully understood yet, but many attribute them to the bad incentives in the origination of mortgages and their securitization, the provision of ratings for securitizations and the risk management systems of investment firms. The large global impact of the crisis suggests, however, that the problems with subprime mortgages are a symptom rather than the cause. One main problem is that there was a bubble, first in stock prices and then in property prices and the economic system is now suffering the fallout from the collapse of that bubble. The monetary policies of central banks appear to have been too loose and have focused far too much on consumer price inflation ignoring asset price inflation. Moreover, the Asian crisis of 1997 and the policies of the IMF during that crisis led to a desire among Asian governments to save funds. This created important global imbalances that helped to fuel the bubble.

4.1 Challenges in the current crisis

Whatever the reasons behind the crisis are, its effects have now certainly spread to the real economy. Most industrialized and non-industrialized countries are experiencing problems with many of their industries entering into recession. The problems are multiple. On the one hand, the difficulties of the financial sectors induce intermediaries to tighten their credit standards thus making it more difficult for firms to obtain credit and at good rates. On the other hand, the sharp fall in consumer demand decreases sales and future orders. Again, as in the financial sectors, the problems are not confined to single firms but affect whole industries. The car industry is one dramatic example, but also other manufacturing industries, construction and many others are very much under pressure.

As for the financial sector, governments are under pressure to support distressed industries through subsidies and protections and again competition agencies are under pressure to loosen enforcement standards in order to favour economic recovery. In responding to these pressures, competition policy makers are challenged to show that competition is still part of the solution for benefiting consumers and fostering innovation, competitiveness and productivity.

One first aspect to be noted is that industries are typically not as special as the financial sector. The latter has a peculiar position in the economic system because of the different roles it plays and in particular because it channels funds from investors to productive firms thus directly influencing growth and general welfare. Moreover, as discussed above, the financial sector is subject to a much higher risk of contagion and systemic crisis than the other sectors because of the maturity mismatch between assets and liabilities and the inter-linkages among banks through the payment system and the interbank market. This tends to classify the financial sector as “special” and to justify public intervention. The same cannot be said for distressed industries. The failure of one firm –at least up to a certain size– is not likely to spread to too many others in a chain. The presence of excess capacity in many industries suggests that it may be more difficult to restore viability of the supported firms in the long run. Finally, differently from the financial sector, the standard competitive paradigm applies to the real-economy industries in that competition is likely to promote efficiency and benefit consumers and foster productivity.

The problem with the current crisis, however, is that entire industries - and not just individual firms- are in distress and their failure puts at risk a large fraction of national economies. As for financial institutions, many firms are experiencing problems because of exogenous factors and not because of endogenous business conduct. The burst of the bubble is creating enormous uncertainty in terms of both saving and investments. Exchange rates have been very variable and stock prices around the world have

been exceptionally volatile.⁵³ A few months ago the prices of commodities such as oil were at all time high, and now they are much lower – the difference seems too large to be justified by fundamental reasons. Given this great uncertainty, individuals do not know their wealth and how much they should be saving now that the asset price bubble has burst. Firms do not know how much to produce or what investments to make. These problems are considerably exacerbated by the financial crisis and the feedback effects it is having. The threat of recession is inducing firms to decrease production and lay off employees with heavy negative consequences on unemployment and consequently consumer demand.

Given these special circumstances, the question is again whether public support is warranted and if it is how competition policy should be applied at the time of a systemic crisis. The current price volatility also raises the issue as to what competition policy should be based on when applying anticompetitive rules. If prices do not reflect fundamentals, then they may not be adequate measures to judge the level of competition in the markets. Whereas this is of paramount importance for the financial sector, it has now become true also for real industries. The impact of price volatility on the approach to antitrust enforcement in a time of crisis warrants much attention. Price volatility seems to differentiate the current crisis from previous ones and it raises the issue of whether it justifies a different approach to antitrust enforcement.

4.2 *Experience from previous crises*

During times of recession and/or depression it is sometimes suggested that lighter enforcement of competition laws would be appropriate. In past crises, competition authorities have been under strong political pressure to suspend the importance of competition policy in entire industry sectors or to dilute antitrust enforcement standards, either by allowing governments to support companies in distress with public subsidies, or by relaxing the rules for anti-competitive mergers or cartels in order to reduce pressure on prices due to fierce competition.

In the merger area this meant a trend towards protectionist policies, which translated into a more benign approach to national champions (i.e. allowing otherwise anti-competitive mergers between domestic entities) and into sponsoring national ownership (i.e. prohibiting otherwise pro-competitive acquisitions of domestic entities by foreign entities). In the area of relationships between competitors, this meant allowing businesses to organize themselves to promote self-regulation and mutually agreed rules of conduct to compensate for shortcomings of the market. Such tight cooperation, however, often favored explicitly cooperative agreements between competitors which limited the ability of individual market players to determine their business strategy autonomously. These restrictions, which were often established and enforced by trade associations, eliminated the normal risk associated with business activity as it concerned prices, quantities and other competitive factors.⁵⁴

There is evidence that this is an unwise approach because it actually retards the process of recovering from recessions and depressions. Fingleton (2009) identifies empirical evidence showing that the

⁵³ See, for example, Allen and Carletti (2008c).

⁵⁴ In the 1930s, in the attempt to recover from the Great Depression, the Roosevelt administration promoted economic rationalization in order to limit ‘destructive’ competition. Trade associations represented the vehicle for implementing a system of cooperation and self-regulation. Members of trade associations were not only encouraged to exchange information but also to abide by ethical codes and codes of fair competition. Such codes were designed to limit aggressive market strategies and to promote cooperation and protection of existing market players. A great deal of attention was paid by these ethical codes to pricing practices, particularly those with a tendency to lower prices, which contributed to create an all-too-common impression of ‘price wars’, ‘price cutting’, and ‘cutthroat competition’, as symptoms of ‘unethical’ business behavior. See Butler, D. Shaffer, Trade Associations and Self Regulation, 20 Sw U.L. Rev. 289 (1991).

suspension of competition laws in the U.S. during the 1930s made the Great Depression last longer.⁵⁵ Similarly, he points to studies showing that when the Japanese government restricted competition in structurally depressed industries in the 1990s, the result was a prolongation of Japan's recession.⁵⁶ One of the reasons seems to be that crises such as the current one bring about long term benefits by facilitating the exit of inefficient firms from the market while facilitating the entry of new and better competitors. Reduced levels of competition enforcement can interfere with those normal market processes, though.

Nevertheless, Fingleton is careful to distinguish between banks and other sectors of the economy:

The fact that banks are fundamentally different from other businesses may exceptionally justify intervention. Bank failure risks contagion effects (i.e., the failure of one bank may lead to a run on others, as opposed to other sectors where the removal of one player would normally be in competitors' interests). The collapse of confidence in turn caused liquidity to disappear, and thus removed an essential lubricant for the banking system to function and brought us close to systemic collapse.

Similar considerations to those for the financial sector apply when considering the support of other industries. Governments should minimise the negative competitive impact of their interventions choosing the form that best allows them to do so. In designing their support schemes they should again follow non-discriminatory principles taking into account that any national support entails a high risk of creating negative spillovers in the other states given the global dimensions of many markets. There is a non-negligible risk that in order to protect national champions and national interest supporting national economies may generate a subsidy race between countries with disastrous consequences in terms of public deficits and taxpayer money. Moreover, public policies should not aim at supporting firms who were in distress before (and independently from) the crisis. Policies that would prevent the takeover, restructuring, loss of market share or simply the exit from the market of less efficient firms are likely to undermine the whole process of competition, whereby more efficient firms or business models replace less efficient ones. This process is the key to the long-term benefits of competition for consumers and for the economy as a whole in terms of growth and increased productivity. Competition policy may have a crucial role in preventing this. Differently from the financial sector, it may be easier to subject public schemes to safeguards and other provisions aimed at limiting competitive distortions because of the greater standardization of products and higher transparency of productive firms.

5. Going forward: Adaptation of competition rules, processes and institutions to current financial sector issues

Looking beyond emergency actions to stabilise financial markets, the current crisis has stressed the importance of reconsidering the role of competition policy and competition agencies in these markets in the medium and long term. Effective enforcement of merger and antitrust rules after consolidations and nationalisations in the banking sector may require improvements in rules and institutions. The question is whether there will be a change in the view on the trade-off between competition and stability and, if so, whether competition will again be limited in the financial sector going forward and/or changes will be introduced in the design of competition policy to improve the resolution of crisis situations. This requires a deep understanding of the causes of the current crisis as well as an assessment of its competitive effects in the medium and long run.

⁵⁵ See Cole and Ohanian (2004) cited in Fingleton (2009).

⁵⁶ See Hayashi and Prescott (2002), Porter et al. (2000) and Porter and Sakakibara (2004) cited in Fingleton (2009).

5.1 *Changes in competition policy in the financial sector in the last two decades and remaining exceptions*

As already mentioned above, in the last two decades there has been a substantial change across countries in that competition policy has been applied more effectively in the financial sector. This has reflected the shift in the theoretical view that competition does not need to be detrimental for stability and the fact that supervisors had more possibilities to control bank stability through, for example, capital regulation with the Basle accords. Overall, the strengthening of competition control in the banking sector has been successful in contrasting anticompetitive behaviours and potential anticompetitive mergers.⁵⁷ Also, it seems to have generated important externalities in that it has contributed to limiting the discretion of supervisory policies by creating a sort of “check and balance” system for the operating of the sector regulators.⁵⁸ In this sense, at least in the European case, the Commission has had an important role in contrasting national protectionism, in particular in the case of some cross-border mergers.⁵⁹

Despite this trend, in several countries there are some important exceptions in the design of the competition rules for the financial sector and in the institutions in charge of enforcing them. For example, in Canada, The Netherlands, Switzerland and in the European framework, the review of a bank merger by the competition authorities may be suspended or a negative decision may be reversed because of stability concerns. This “stability exception” is typically implemented by a political body such as a Minister or by the sector regulator itself. A first question arises as to whether the objectives of competition and stability should be weighted case by case or rather whether the competition objective should always be subordinate to the stability objective once a contrast occurs, as reflected, for example, in the Swiss arrangement. If the two objectives must instead be weighted, then the identity of the institution in charge of taking the final decision is clearly crucial in determining the weight given to the objectives of stability and competition. In principle, one may expect that a political body is more likely to give equal weight to the two objectives when deciding upon a specific case relative to a sector supervisor, but the argument is complex and much may depend on the reputation of the institutions involved and the levels of accountability, corruption and regulatory capture in the specific country. A further issue in the case of the European framework is whether the stability exception should be implemented by some kind of supranational authority rather than by the Member States, given the level of integration of financial markets and the supranational effects of mergers examined by the Commission. This issue is related to the current debate of whether a European banking regulator is needed, also in light of the attempt of some Member States to use the stability exception to put obstacles to financial integration.⁶⁰

5.2 *Issues looking ahead*

Several other important issues arise from looking at these exceptions. First, assuming that some limitations in the application of competition rules to the financial sector are warranted, one wonders whether there should be a more systematic attempt in trying to prevent the occurrence of crisis rather than only having exceptions in instruments that are more typically used for crisis management like mergers and public support. In other words, it may be important to reconsider the trade-off between competition and

⁵⁷ See Carletti and Vives (2008) for a critical review of the cases analyzed by the European Commission in the financial sector.

⁵⁸ Carletti et al. (2007) find that the strengthening of merger control over the last two decades has contributed to limit the discretion of supervisory authorities in determining merger outcomes due to the non-transparency of the review process thus leading also to a more efficient composition of the mergers that took place. The study analyzes nineteen countries for the period 1987-2004.

⁵⁹ Important examples are BSCH/Champalimaud, ABN-AMRO/Antonveneta and BBVA/BNL.

⁶⁰ See Vives (2001) and Carletti and Vives (2008).

stability, and if a trade-off exists in that competition enhances the risk of bank failures – at least after it reaches a certain threshold – it may be worth limiting excessive competition, for example, through appropriate regulation. The risk is, however, to go back to a situation of protectionism and tolerated market power and collusive agreements as in the times before the liberation process started.

Second, concerning more generally the objectives of competition policy, especially in the financial sector, the issue is whether competition policy should focus exclusively on consumer welfare or should also pursue other objectives like general economic and systemic stability. This could be done in several ways. One possibility is to explicitly incorporate objectives other than consumer welfare in the institutional design of competition policy. Another way is to let competition authorities focus on consumer welfare and let another institution or political body weight the importance of consumer welfare against other concerns in case it is needed. The former way implies having the competition authorities internalize objectives other than competition concerns in their decision making process, while the latter implies involving another institution in the decision making process. Examples of both systems can be already found in the existing institutional designs across countries besides those already described above in the Canada, Netherlands, Switzerland and the European framework that apply more specifically only to the financial sector. For instance, in Austria a concentration can be cleared if it is indispensable for the international competitiveness of the undertakings concerned and justifiable on macro-economic grounds. In Ireland, considerations linked to the continuity of supply or service, employment, regional development, efficiency, research and development, access to markets, etc. are taken into account by the competition authority when deciding upon a merger. Concerning the involvement of third agencies, in the United Kingdom the Secretary of State retains the decision-making power for mergers involving public interest with the Office of Fair Trade and the Competition Commission having only advisory power.⁶¹

Which system is better to eventually extend the objectives of competition policy in the financial sector is difficult to judge a priori. On the one hand, an enlargement of the objectives of competition authorities beyond consumer welfare has the benefit of keeping potential trade-offs between competition concerns and other concerns within the same institution with the advantage that competition may be given a higher weight. On the other hand, however, it may have the negative consequence of increasing the pressures on the competition authorities and thus the risk of regulatory capture. Furthermore, competition authorities may not be in the best position to judge the macro-economic effects of a concentration, a collusive agreement or any policy initiative because of lack of complete information or competence. In this respect, some form of cooperation between competition authorities and sector regulators seems inevitable.

A related issue concerns the need for competition authorities to adapt to the evolution of financial markets. Financial innovation and changes in the structure of markets may have not always been taken into account in past decisions and interventions. For instance, merger control is still very much focused on the effects of consolidation on retail banking and, in particular, on deposits and lending to small and medium enterprises. Whereas this is certainly warranted due to the presence of switching costs and relationship lending, it is also important to recognize the growing importance of electronic and online banking as well as other forms of innovation that may change the structure of retail banking. Concerning this, it may also be possible for competition policy to try and influence the structure of financial systems, for example, by removing barriers to entry or facilitating switching of depositors. One concern with this is, however, that greater facility of switching may also generate greater instability as depositors may be induced to withdraw their funds more easily thus potentially exacerbating simple illiquidity problems of financial institutions.

One final issue is whether competition authorities, especially in light of the current crisis, should pay greater attention to the risks taken by financial institutions. Given the characteristics of financial services, prices may not be fully indicative of the competitive situation in financial markets if taken in isolation. A

⁶¹ See Carletti et al. (2007).

financial institution offering high deposit rates, low lending rates or easy access to credit may be taking important risks on the asset side which may hinder rather than promote competition in the medium and long term.

In addition to the competition law responses identified here, it is also valuable to consider strategies to exit from distortions to competition that have occurred during the crisis.

5.3 *Exit strategies to address distortions to competition instituted by crisis responses*

Exceptional times require exceptional actions. However, as the financial markets achieve stability, many exceptional actions will no longer be necessary for achieving key government objectives, such as ensuring that financial institutions are liquid, solvent and lend to the real economy. Governments will then wish to consider eliminating anti-competitive developments that may have occurred during the crisis. Without such exit plans or incentives, financial firms may in fact become addicted to government aid and competitive distortions may be exacerbated over time. For example, if government aid is priced below a normal market rate, even when markets stabilize, financial firms will continue to seek government aid and those that are most successful in receiving such aid may obtain an undue competitive advantage. Exit strategies will be needed to prevent competitive distortions and promote better market functioning.

A number of government actions that may harm competition among financial firms have already occurred. More may develop in the future as new policy approaches are unveiled, in particular as public support is extended also to non-financial firms.⁶² As the crisis expands and reduces real economic activity, the focus of public aid is rapidly moving to industries with structural problems, such as auto makers and airlines that are threatened with insolvency. A key principle is to distinguish two different types of aid: that for financial firms for systemic reasons and that for non-financial firms with structural problems. For non-financial firms to receive aid, a prerequisite worth consideration is that structural reforms to a sustainable industry structure should be a condition for aid. Ensuring that structural reforms promote the long-term viability of these firms constitutes part of an exit strategy. Forms of aid that have been discussed in this paper include:

- nationalization of financial institutions or non-financial firms;
- state-sponsored capital injections;⁶³

⁶² Such support includes the recent U.S. loans to GM and Chrysler coming from the Emergency Economic Stabilization Act of 2008 (H.R. 1424) authorized funds. The European Commission has recently issued guidelines in light of the expanding scope of the crisis, Commission Communication on Temporary Community framework for State aid measure to support access to finance in the current financial and economic crisis, (OJ C 16, 22,1,2009, p.1).

⁶³ In the European Union, relevant competition decisions have included Commission Decision of 13 October 2008 in Case N 507/08 *Financial Support Measures to the banking Industry in the UK* (OJ C 290, 13.11.2008, p. 4), Commission Decision of 27 October 2008 in Case N 512/08 *Support measures for financial institutions in Germany* (OJ C 293, 15.11.2008, p. 2) and Commission Decision of 19 November 2008 in Case N 560/08 *Support measures for the credit institutions in Greece*, Commission Decision of 12 November 2008 in Case N 528/08 the Netherlands, *Aid to ING Groep N.V.*, Commission Decision of 25 November 2008 in Case NN 68/08 on *Latvian State support to JSC Parex Banka*. Commission Communication of 13 October on The application of State aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis (OJ C 270, 25.10.2008, p.8) and European Commission principles are outlined in Commission Communication of 5 December on The recapitalization of financial institutions in the current financial crisis: limitation of aid to the minimum necessary and safeguards against undue distortion of competition (OJ C 10, 15.1.2009 p.2).

- extended liquidity facilities;
- interbank lending guarantees; and
- state acquisition of so-called “toxic assets”.⁶⁴

Mergers that may distort competition have also occurred, often combined with state involvement or blessing. Examples are “megamergers” in which financial institutions with stronger balance sheets are combined with weaker financial institutions.⁶⁵ Thinking and designing exit strategies from anti-competitive megamergers is of paramount importance, given they are more structural than other forms of crisis management. In this respect, nationalizations are preferable to megamergers, because they create less market power and provide a clearer solvency guarantee. However, nationalizations are prone to excessive government direction over operational decisions of financial institutions and can burden a government’s balance sheet.

It is perhaps unwise to design strategies that clearly and directly provide for exit from anticompetitive mergers. The most direct actions (breakup in the case of certain megamergers) may have a chilling effect on other potentially beneficial mergers. Competition authorities are generally reluctant to undertake retrospective challenges to mergers because of these chilling effects and the concern that it is inequitable to challenge mergers that have already been consummated, particularly if there has been an approval prior to the challenge.

In the past, firms have been allowed to cooperate more freely or to adopt conduct that could limit entry or expansion by new firms as part of attempts to respond to systemic crises. But allowing firms to engage in anticompetitive conduct such as cartelization and abuse of dominance in, either financial markets or on real economy markets can have immediate detrimental effects on consumers (who will not benefit from more and better products at lower prices) and for the economy as a whole (that will not benefit in terms of growth and long-term productivity). Governments should remain truly committed to the benefits of competition.

In the best circumstances, exit strategies will be taken into account during rescue and rehabilitation activities.⁶⁶ A number of pro-competitive exit strategies merit consideration. Many have already been adopted within crisis measures, but their adoption is less than universal and methods used (e.g. for pricing interventions) vary significantly across jurisdictions, creating potential international distortions in competition that merit further study. A strategy that has not received much focus is the preservation of

⁶⁴ Some jurisdictions consider that retail deposit guarantees are state aid. This determination may merit further examination, given that deposit guarantees have a strong deterrent effect on panic runs and to the extent that ordinary depositors may be unable to judge risks of different deposit institutions.

⁶⁵ Future megamergers may occur among non-financial firms in which one is a failing firm.

⁶⁶ Capital injections in the form of preferred equity issued to governments may promote exit by having payments due to the government and other restrictions (e.g., on dividends or executive compensation) that give financial institutions an incentive to eliminate the government equity stake as soon as possible. Payments may step up gradually over time to encourage the transition to private equity participation. See Commission Communication of 5 December on The recapitalization of financial institutions in the current financial crisis: limitation of aid to the minimum necessary and safeguards against undue distortion of competition (OJ C 10, 15.1.2009 p.2).

competition on a domestic financial market by preferring international acquisitions of weak domestic banks.⁶⁷

The list below identifies a number of potential pro-competitive exit strategies, without claiming completeness. The list focuses only on those exit strategies considered most critical for promoting competition. Exit strategies may be different for financial firms and non-financial firms. These strategies are best considered in conjunction with competition authorities. Exit strategies with other objectives, such as improving corporate governance, are also of prime importance.

Box 1. Exit Strategies for Competition

1. Exit from Government Actions

- a) Sell public stakes in nationalized institutions:
 - within a time frame that is reasonable, transparent and foreseeable to limit the time in which there are potential distortions to competition;
 - ensuring that competition laws apply to ensure government divestments do not reduce market competition;
 - ensuring that any structural competition problems present (e.g. from excessive market power) are eliminated prior to or during privatization.
- b) Provide capital or other special aids as deemed appropriate while:
 - providing incentives, particularly financial incentives, that will encourage benefitting institutions to prefer private investment;
 - regularly reviewing the need for state funds and guarantees, as well as whether state funding and guarantees are handicapping a speedy return to normal market conditions;
 - conditioning aid to non-financial firms on restructuring to ensure a viable future business plan;
 - limiting the extent to which state subsidies can be used for purposes that were unintended by the government;⁶⁸
 - limiting the role of the government in day-to-day operational details of supported firms; and
 - ensuring financial incentives are present for the firms receiving support to redeem state investments or state sponsored loans.
- c) Reduce provision of capital or other special support when:
 - systemic concerns are less present;
 - institutions are solvent and more liquid; and
 - lending to the real economy starts returned to normal.
- d) Stop provision of capital or other special support when:

⁶⁷ While international mergers raise potentially complex questions over distribution of assets in case of insolvency, they can restrict increases in market power.

⁶⁸ This could occur when institutions find a way to borrow at below normal market rates in one jurisdiction and move funds for activities in another jurisdiction.

- systemic concerns are not present;
 - institutions are clearly solvent and liquidity problems are resolved;
 - counter-party confidence is returned;
 - a firm's business is fundamentally not viable for the future; and
 - lending to the real economy is operating normally.
- e) Review financial market regulations and regulatory structures for unintended or unnecessary restrictions on competition.⁶⁹

2. Exit from anticompetitive private actions

- a) Avoid anticompetitive business structures by preferring international bank takeovers of domestic banks where domestic takeovers risk increasing market power.
- b) To the extent that anti-competitive megamergers have already occurred, promote new entry that can reduce competitive concerns of such mergers by:
- Reducing regulatory barriers to entry to banking, both in formal regulation and process;
 - Increasing the availability of fine-grained credit-rating information available about SMEs and consumers; and
 - Ensuring that switching costs are limited, for example by implementing a regime that reduces the non-pecuniary costs of switching financial institutions (e.g., by implementing "switching packs")
- c) Consider, at an internationally coordinated level, whether structural separation is necessary for investment banking activities that are situated within a bank. If no structural separation is in place, investment banks may effectively gain access to low cost central bank lines of credit and to guarantees unavailable to independent investment banks. Allowing investment banks operating within a bank to benefit from a bank's low overall interest rates distorts competition with independent investment banks and creates a potentially dubious incentive for risky activities to be hidden, non-transparently, within larger, less risky entities. One possible solution that avoids creating an international Glass-Steagall Act would be to promote a non-operating holding company structure where the components of financial institutions, including banking and investment banking arms, are subsidiaries of a non-operating parent and borrow in their own name with no recourse to the parent or other members of the group.

⁶⁹ In order to promote rigor in this review process, governments can use pro-competitive regulatory guidance, such as that contained in the OECD's *Competition Assessment Toolkit* (www.oecd.org/competition/toolkit).

REFERENCES

- Akerlof, G. (1970). "The Market for `Lemons': Quality Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, 89, 488-500.
- Allen F. and E. Carletti (2006). "Credit Risk Transfer and Contagion," *Journal of Monetary Economics* 53, 89-111.
- Allen F. and E. Carletti (2008a). "Mark-to-Market Accounting and Cash-in-the-Market Pricing," *Journal of Accounting and Economics*, 45(2-3), 358-378.
- Allen F. and E. Carletti (2008b). "Should Financial Institutions Mark to Market?," *Banque de France Financial Stability Review*, 12, 1-6.
- Allen F. and E. Carletti (2008c). "The Role of Liquidity in Financial Crises," forthcoming in *Maintaining Stability in a Changing Financial System*, Federal Reserve Bank of Kansas City's 2008 Economic Symposium proceedings.
- Allen F. and D. Gale (1998). "Optimal Financial Crises," *Journal of Finance*, 47, 1245-1284.
- Allen F. and D. Gale (2000). "Financial Contagion," *Journal of Political Economy*, 108, 1-34.
- Allen, F. and D. Gale (2004a). "Competition and Stability," *Journal of Money, Credit and Banking*, 36(3), 453-480.
- Allen, F. and D. Gale (2004b). "Financial Fragility, Liquidity and Asset Prices," *Journal of the European Economic Association*, 2, 1015-1048.
- Bagehot, G. (1873), *London Street: A description of the money market*, H.S. King, London.
- Barth J.R., G. Caprio and R. Levine (2004). "Bank Regulation and Supervision: What Works Best?," *Journal of Financial Intermediation*, 13, 205-248.
- Beck, T., A. Demirguc-Kunt, and R. Levine (2004). "Bank Concentration, Competition and Crises," *Journal of banking and Finance*, 30, 1581-1603.
- Bianco, M., F. Ghezzi and P. Magnani (1998). "L'Applicazione della Disciplina Antitrust nel Settore Bancario Statunitense", in M. Polo (ed), *Industria Bancaria e Concorrenza*, Bologna: Il Mulino, 143-258.
- Blundell-Wignall, A. and Atkinson, P. (2008) "The Sub-prime Crisis: Causal Distortions and Regulatory Reform." In *Lessons from the Financial Turmoil of 2007 and 2008*, Ed. Reserve Bank of Australia, pp. 55-102.
- Boyd J. and M. Gertler, 1993, "U.S. Commercial Banking: Trends, Cycles and Policy" , NBER working paper, n. 4404.
- Boyd, J.H. and G. De Nicoló (2005). "The theory of bank risk-taking and competition revisited," *Journal of Finance*, 60 (3), 1329-1343.
- Broecker, T. (1990). "Creditworthiness tests and interbank competition", *Econometrica*, 58, 429-452.

- Brusco S. and F. Castiglionesi (2007). "Liquidity Coinsurance, Moral Hazard and Financial Contagion," *Journal of Finance*, 62, 2275-2302.
- Caminal, R. and C. Matutes (2002). "Market Power and Banking Failures", *International Journal of Industrial Organization*, 20(9), 1341-1361.
- Carletti, E. (2008). "Competition and Regulation in Banking," in A. Thakor and A. Boot (eds.), *Handbook of Financial Intermediation and Banking*, Elsevier, 449-482.
- Carletti, E., and P. Hartmann (2002). "Competition and Stability: What's Special About Banking?", in P. Mizen (ed.), *Monetary History, Exchange Rates and Financial Markets: Essays in Honour of Charles Goodhart*, vol. 2, Cheltenham, UK: Edward Elgar, 202-229.
- Carletti E., P. Hartmann and S. Ongena (2007). "The Economic Impact of Merger Control," European University Institute.
- Carletti E. and X. Vives (2008). "Regulation and Competition Policy in the Banking Sector" in X. Vives (ed.), *Assessment and Perspectives of Competition Policy in Europe*, Oxford University Press.
- Chari V.V. and R. Jagannathan (1988). "Banking Panics, Information and Rational Expectations Equilibrium," *Journal of Finance*, 43, 749-763.
- Cifuentes, R., G. Ferrucci, and H. Shin (2005). "Liquidity Risk and Contagion," *Journal of European Economic Association* 3.
- Coffee, J. C. (2008) "Turmoil in the U.S. Credit Markets: The Role of the Credit Rating Agencies," Testimony before the United States Senate Committee on Banking, Housing and Urban Affairs, April 22.
- Cole H. and L. Ohanian (2004). "New Deal Policies and the Persistence of the Great Depression: A General Equilibrium Analysis," *Journal of Political Economy*, 112, 779-816.
- Degryse, H. (1996). "On the Interaction Between Vertical and Horizontal Product Differentiation: An Application to Banking", *Journal of Industrial Economics*, 44(2), 169-182.
- Degryse H. and S. Ongena (2007). Background Note," in *Competition and Regulation in Retail Banking*, OECD, 15-58.
- Degryse H. and S. Ongena (2008), "Competition and Regulation in the Banking Sector: A Review of the Empirical Evidence on the sources of bank rents," in A. Thakor and A. Boot (eds.), *Handbook of Financial Intermediation and Banking*, Elsevier, 483-542.
- Dell'Ariccia, G. (2001). "Asymmetric Information and the Structure of the Banking Industry," *European Economic Review*, 45, 1957-1980.
- Diamond, D.W. and P.H. Dybvig (1983). "Bank Runs, Deposit Insurance and Liquidity", *Journal of Political Economy*, 91, 401-419.
- Fingleton, J. (2009). "Competition Policy in Troubled Times," speech given on 20 January 2009, available at www.oft.gov.uk/shared_ofst/speeches/2009/spe0109.pdf.
- Edwards F. and F. Mishkin, 1995, "The Decline of Traditional Banking: Implications for Financial Stability and Regulatory Policy", *Federal Reserve Bank of New York Economic Policy Review*, 1, 27-45.
- Freixas, X. and B. Parigi and J. Rochet (2000). "Systemic Risk, Interbank Relations and Liquidity Provision by the Central Bank," *Journal of Money, Credit and Banking* 32, 611-38.

- Goldstein, I. and A. Pauzner (2005). "Demand deposit contracts and the probability of bank runs," *Journal of Finance*, 60, 1293-1328.
- Goodhart C.A.E. (1987). "Why do Banks need a Central Bank?," *Oxford Economic Papers*, 39, 75-89.
- Gorton G. (1988). "Banking panics and business cycles", *Oxford Economic Papers*, 40, 751-781.
- Hanazaki K. and A. Horiuchi (2003). "A Review of Japan's Bank Crisis from the Governance Perspective", *Pacific-Basin Finance Journal*, 11, 305-325.
- Hayashi F. and E. Prescott (2002). "The 1990s in Japan: A Lost Decade," *Review of Economic Dynamics*, 5, 206-235.
- Hellman, T.F., K. Murdock and J. Stiglitz (2000). "Liberalization, Moral Hazard in Banking and Prudential Regulation: Are Capital Requirements Enough?," *American Economic Review*, 90(1), 147-165.
- Jacklin C.J. and S. Bhattacharya, 1988, "Distinguishing Panics and Information-based Bank Runs: Welfare and Policy," *Journal of Political Economy*, 96, 568-592.
- Jensen M. and W. Meckling (1976). "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure," *Journal of Financial Economics*, 3, 305-360.
- Keeley, M. (1990). "Deposit Insurance, Risk and Market Power in Banking," *American Economic Review*, 80, 1183-1200.
- Lagunoff, R. and S. Schreft (2001). "A Model of Financial Fragility," *Journal of Economic Theory* 99, 220-264.
- La Porta, R. F. Lopez-De-Silanes, and A. Shleifer (2002). "Government Ownership of Banks," *Journal of Finance* 57, 265-301.
- Matutes, C. and A.J. Padilla (1994). "Shared ATM Networks and Banking Competition," *European Economic Review*, 38, 1057-1069.
- Matutes, C. and X. Vives (1996). "Competition for Deposits, Fragility, and Insurance," *Journal of Financial Intermediation*, 5, 184-216.
- Matutes, C. and X. Vives (2000). "Imperfect Competition, Risk Taking and Regulation in Banking," *European Economic Review* 44. 1, 1-34.
- Porter, M., H. Takeuchi and M. Sakakibara (2000). "Can Japan Compete?," Basingstoke, England: Macmillan and Basic Books and Perseus Publishing, New York.
- Porter M. and M. Sakakibara (2004). "Competition in Japan," *Journal of Economic Perspectives*, 18, 27-50.
- Rochet J.C. and J. Tirole (1996), "Controlling Risk in Payment Systems", *Journal of Money, Credit and Banking*, 28, 832-862.
- Rochet, J.C. and J. Tirole (2002). "Cooperation Among Competitors: The Economics of Credit Card Associations," *RAND Journal of Economics*, 33(4), 1-22.
- Sharpe S.A. (1990) "Asymmetric Information, Bank Lending, and Implicit Contracts: A Stylized Model of Customer Relationships," *Journal of Finance*, 45, 1069-1087.
- Vives, X. (2001b). "Restructuring Financial Regulation in the European Monetary Union", *Journal of Financial Services Research*, 19(1), 57-82.