

FDIC Center for Financial Research

Working Paper

No. 2008-12

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December 2008

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Federal Deposit Insurance Corporation • Center for Financial Research

# **The Economic Impact of Merger Control Legislation\***

**Elena Carletti**

*European University Institute and Wharton Financial Institutions Center*

**Philipp Hartmann**

*European Central Bank and CEPR*

**Steven Ongena**

*CentER - Tilburg University and CEPR*

This Draft: May 15, 2009

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\* We are grateful to Franklin Allen, Thorsten Beck, Brian Bucks, Hans Degryse, Giovanni Dell’Ariccia, Mariassunta Giannetti, Iftekhar Hasan, Campbell Harvey, Augusto Hasman, Martin Hellwig, Michael Koetter, Jan Pieter Krahn, Ricardo Lago, Francisco Marcos Fernandez, Phebe Miller Olcay, Thomas Piquerau, Eduardo Martinez Rivero, Katja Neugebauer, Jörg Rocholl, Isabel Schnabel, David Smith, participants at the CEPR Conference on the Effectiveness of Competition Policy (Paris), the CEPR European Summer Symposium in Financial Markets (Gerzensee), the JFI and World Bank Conference on Bank Regulation and Corporate Finance (Washington), the European Finance Association (Zurich), the ECB-CFS Network Conference on Financial Integration and Stability (Madrid), the Finlawmetrics Conference (Milano), the *Sveriges Riksbank* Workshop on the Governance of Central Banks (Stockholm), the DG ECFIN Research Conference on the Adjustment under Monetary Union (Brussels), the 2<sup>nd</sup> Conference of Banking Regulation, Integration, and Financial Stability (Mannheim), the Croatian National Bank Dubrovnik Economic Conference, the Tor Vergata Conference (Rome), the University of Johannesburg Conference on Adding Value in the Financial World (Sun City), and the CFR-FDIC Fall Workshop (Washington DC), as well as seminar participants at American University, the European University Institute, the *Fondation Banque de France*, the Max Planck Institute (Bonn), *Norges Bank*, TILEC-Tilburg University and the Universities of Frankfurt and Virginia for helpful comments. We thank Sandrine Corvoisier, Marco lo Duca and Jan-Peter Siedlarek for excellent research assistance. We are particularly grateful (without implicating them) to a large number of public officials from our sample countries and to the ECB’s financial law division for supporting us generously in providing information on national laws, regulations and procedures. Carletti and Ongena gratefully acknowledge financial support from the FDIC’s Center for Financial Research and from the Pierre Werner Chair Programme on Monetary Unions. Any views expressed are only those of the authors and should not necessarily be attributed to the European Central Bank, the Eurosystem, or the FDIC.

**Correspondence addresses:** Elena Carletti, European University Institute, Via della Piazzuola 43, 50133 Firenze, Italy, email: elena.carletti@eui.eu; Philipp Hartmann, European Central Bank, DG Research, Kaiserstraße 29, 60311 Frankfurt, Germany, email: philipp.hartmann@ecb.int; Steven Ongena (*corresponding author*), Tilburg University, Department of Finance, P.O. Box 90153, 5000 LE Tilburg, The Netherlands, email: steven.ongena@uvt.nl.

# **The Economic Impact of Merger Control Legislation**

## **Abstract**

We construct a unique dataset of legislative changes in merger control that occurred in nineteen industrial countries in the period 1987-2004, and test the impact of these changes on the stock prices of both non-financial firms and banks. In line with the standard monopolistic hypothesis, we find that pro-competitive changes in merger control decrease the stock prices of firms. In stark contrast, we find that bank stock prices increase. Cross sectional regressions show that the opaqueness of the prudential control of bank mergers is a major determinant of the positive bank stock returns. This suggests that merger control is anticipated to act as a check and balance on prudential control. We provide case studies further supporting this interpretation.

Keywords: merger control, legal institutions, financial regulation.

JEL codes: G21, G28, D4.

## **I. Introduction**

Merger control is an important regulatory component affecting the size and market power of firms. With the exception of the United States, Canada and Germany, most industrial countries have introduced or strengthened this policy over the last three decades. In all cases, the policy shift constituted a significant change for the countries involved since merger control limits industry structure and firm growth in concentration and market shares.

The importance of merger control has also increased due to the large number and the high value of the mergers and acquisitions that took place in the last three decades in the United States (Andrade, Mitchell and Stafford (2001)) and other countries (Evenett (2004)). The scrutiny of these cases by the relevant competition authorities has become increasingly important, both for the merging parties and the rival firms involved. The European Commission for example adopted final decisions in 396 cases during 2007, including many that attracted widespread media attention (e.g., Porsche / Volkswagen, Ryanair / Air Lingus, and Fortis / ABN AMRO). The UK Office of Fair Trading dealt with 98 cases in the same year, comprising almost 10 percent of the 1,061 acquisitions that took place in the UK in that period.

Merger control is typically the only regulation affecting mergers and acquisitions, except in the banking sector where in most countries mergers and acquisitions have been regulated for a much longer time to ensure financial stability. Given the well-recognized and important relationship between the structure of the banking sector and financial stability, there is an issue of whether the introduction of explicit merger control affects banks differently than non-financial firms. This is the question that we address in the paper.

The economic impact of merger control on company valuation is much debated in the academic literature. Most studies focus on the effects of actual regulatory actions, such as the decision of an antitrust enforcer to investigate a merger proposal more in depth or to impose conditions (Ellert (1976), Aktas, de Bodt and Roll (2004), Duso, Neven and Röller (2007) and Aktas, de Bodt and Roll (2007)). Not surprisingly, these studies confirm that regulatory actions affect company valuation. But the effects are somewhat mixed in terms of their economic relevancy and time of realization (that is, whether all effects on company valuation are anticipated on the announcement day or realized later during the antitrust investigation).

One potential reason for the mixed findings is that these studies only look at the actual enforcement of the merger policy, thereby ignoring the substantial effects that the introduction or changes in the policy itself may have on the investors' expectations and thus stock prices.<sup>1</sup> Some studies have indeed shown that the effects at the time of regulatory changes can be important and even larger than those at the subsequent merger announcements. Becher (2009) shows this was the case with the passage of the Riegle Neal Act of interstate bank deregulation in the US in 1994, even though the Act itself was the culmination of almost two decades of state-by-state reform (Kroszner and Strahan (1999)).

Another potential reason for the mixed findings – and of particular interest to us – is that the existing studies do not distinguish the effects of merger control across the different sectors. These studies thus largely disregard sector specificities and the potentially important interaction between merger control and banking regulation in particular (OECD (1999)).

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<sup>1</sup> An exception is Brady and Feinberg (2000) who analyze the stock price effects of the adoption of the EU merger control.

In this paper we analyze the wealth effects of legislative changes introducing or substantially modifying merger control regulation in 19 industrialized countries over the last three decades. Our aim is twofold. We first study in depth the legislative changes affecting merger control regulation and construct four indices that describe its most salient institutional characteristics. We then analyze in an event study the impact of the changes in the indices on the companies' stock prices, distinguishing between the reaction of non-financial firms and banks.

In line with the standard monopolistic hypothesis that a vigorously enforced merger control prevents future concentration and thus monopolistic rents (Ellert (1976)), we find that pro-competitive legislative changes of merger control lead to negative excess returns on the stocks of (non-financial) firms. In contrast to this, however, we find that bank stock returns are positive. The difference in the excess returns on firm and bank stocks is both statistically significant and economically relevant. These findings are further supported by the results of an independent case study of the valuation effects of an unexpected French court ruling in 2003 on the merger between *Credit Agricole* and *Credit Lyonnais*.

To explain the differential effects on firm and bank stocks, we then perform a cross sectional analysis to directly test several economic hypotheses which may explain the positive reaction in bank stock prices. In particular, we regress individual bank stock returns on a number of variables capturing important institutional aspects of merger control, and of the supervisory control specific to mergers and acquisitions in the banking sector. We also include general institutional quality and individual bank characteristics. The results identify the transparency of the supervisory process as a key driver of the positive reaction of bank abnormal returns: The less transparent are the supervisory merger reviews in a given country – i.e., when the supervisory decisions are not published – the higher the valuation gains of banks in anticipation of changes in merger control.

The result supports the hypothesis that merger control plays an important function as a check and balance on the supervisory control. The idea is similar to that in political constituencies (e.g., Persson, Roland and Tabellini (1997)): When decisions are not public, there is more scope for discretion and abuse of power. Separation of power between two independent constituencies helps to prevent such abuse with appropriate checks and balances. In the supervisory process the lack of transparency may create obstacles to value-enhancing combinations. Examples of this behavior may be found in the penchant of national supervisors to orchestrate acquisitions of failing banks or to favor the build-up of “national champions” and domestic concentration over cross border deals and foreign penetration. The introduction of merger control and its more vigorous enforcement increases the accountability of the supervisory enforcer, thus making such questionable arrangements or favoritism less likely and thereby increasing the valuations of the currently existing banks.

This hypothesis is further supported by the analysis of the well-known takeover battle that occurred in 2005 between *ABN AMRO* and *Banca Popolare Italiana* for the control of the Italian *Antonveneta* bank. We show that bank stock prices increased significantly in response to the various interventions of the European Commission and the passage of new Italian legislation that were limiting the discretion of the Bank of Italy and thus creating more favorable conditions for value-creating mergers.

Our paper makes three distinct contributions to the literature. First, differently from existing studies, we construct precise indexes measuring the pro-competitive focus and stance of merger control legislation. Second, with the use of these indexes we document considerable variation in the institutional design of merger control across countries and time. Third, we study how legislative changes in merger control, as measured by changes in the indexes we constructed, affect the valuation of both firms and banks. The opposite

valuation effects that we find underscore the importance of sector characteristics and existing sector regulation for the effects of legislative changes.

The paper relates to several other strands of literature. First, it fits in a vast literature that studies the role of the legal architecture for the functioning of financial systems (La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998)), including its impact on the volume of M&As and the direction of cross-border deals (Rossi and Volpin (2004)). Second, it relates to studies by Jayaratne and Strahan (1998), Demirgüç-Kunt, Laeven and Levine (2004), Guiso, Sapienza and Zingales (2006), Barth, Caprio and Levine (2006) and Donzé (2006), who provide evidence that too restrictive, inefficient or discretionary banking regulation weakens the banking sector and leads to substantial welfare costs. Finally, our paper is connected to the literature on the specialness of banks (Dewatripont and Tirole (1994), Goodhart, Hartmann, Llewellyn, Rojas-Suarez and Weisbrod (1998) and Herring and Litan (1995)), competition in banking (Keeley (1990), Hellman, Murdock and Stiglitz (2000), Boyd and De Nicolo (2005), Claessens and Laeven (2005) and Beck, Demirgüç-Kunt and Levine (2006); see Carletti (2008) for a survey), and the causes and consequences of banking consolidation (Berger, Saunders, Scalise and Udell (1998)), Boyd and Runkle (1993), Demsetz and Strahan (1997), Carletti and Hartmann (2003), and Carletti, Hartmann and Spagnolo (2007)); see Berger, Demsetz and Strahan (1999) for a survey).

The rest of the paper is organized as follows. Section II provides details on the history and institutional arrangements of merger control, and it describes the main economic hypothesis that we test to evaluate the impact of merger control. Section III describes the data and the methodology we use in our econometric exercise. Section IV reports the estimated effects of the changes in merger control on firms and banks. Section V describes the hypotheses we test in the cross sectional analysis and reports the results showing the importance of the characteristics of the supervisory control in determining the peculiar

stock market valuations of individual banks across the sample countries. Section VI concludes.

## **II. Merger Control: History, Hypothesis and Characteristics**

### A. History

Over the last three decades merger control has become an important regulatory tool across all sectors of the economy. With the exception of the United States, where antitrust authorities have placed strict regulatory limits on permissible levels of industry concentration and market shares of merging firms (e.g., Eckbo (1992)) and Germany, where it was formalized in the “Act against Restraints on Competition” in 1973, most industrial countries introduced merger control starting in the early 1990s and/or strengthened it subsequently.

Moreover, in most countries merger control was introduced later than the other antitrust practices through a separate law or it was the most significant change in subsequent modifications of an already existing antitrust act. The European Union introduced merger control only in 1989 whereas the regulation on anticompetitive behavior and abuse of dominant position dates back to the Treaty of Rome of 1958. Similarly, Austria and Portugal introduced it in 1993 and 2003 whereas the competition acts became law in 1988 and 1983 respectively. In Denmark merger control was introduced *de facto* in 2000 as part of a law modifying the competition act of 1989; and in Finland the chapter on merger control was written into the competition act of 1992 only in 1998. These later introductions of merger control make it possible to analyze the specific effects of legislative changes in merger control and distinguish them from the effects of general antitrust regulation.

Finally, as a general policy affecting all (or almost all) sectors, the introduction of merger control in the various countries and subsequent modifications were most likely exogenous

to existing regulations in any particular industry and thus well suited to examine how the same, general policy change may have different effects across sectors depending on its characteristics and regulation.

B. Economic Hypothesis

There is a long standing debate about the objective of merger control and its effectiveness. The debate centers on the objectives of antitrust regulation and the reasons why companies find it profitable to merge (e.g., Ellert (1976), Eckbo (1983), Eckbo (1992), Brady and Feinberg (2000), Aktas, de Bodt and Roll (2004)).

The prevailing view is that mergers involving large companies are likely to be motivated by considerations of monopoly power or other anticompetitive advantages associated with increases in size, i.e., the so-called “monopolistic hypothesis” (Ellert (1976)). Thus merger policy should aim at the prevention of excessive market concentration and monopoly power.<sup>2</sup> The concern is that excessive concentration may cause a substantial lessening of competition or the creation (or strengthening) of a dominant position, which may increase prices and reduce consumer welfare.

If vigorously enforced, merger control should therefore affect the industry structure by imposing limits on companies’ external growth and profit possibilities. This implies that firms, at least those most likely to be involved in (large) mergers, should experience a decline in stock value at the time of the introduction of or changes in merger control as

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<sup>2</sup> Another view is that mergers are motivated by efficiencies (the so-called “benign merger” hypothesis) and thus merger control represents only a regulatory tax on wealth accumulation. This hypothesis finds, however, little empirical support (Ellert (1976)).

investors anticipate the reduction in the valuations of the firms (see also Brady and Feinberg (2000)).<sup>3</sup>

### C. Characteristics

Before testing whether this hypothesis finds support in our data, we describe in depth the process of merger control in order to identify the key variables that are likely to influence investors' reaction.

The institutional design of merger control shares some common features across countries, but it also presents substantial differences. General factors that are taken into account in the evaluation of potential anticompetitive effects of a proposed merger include the degree of concentration of the relevant markets (measured through either parties' combined market share or the Herfindahl-Hirschman index), the possibility of entry and the presence of potential entrants, and the evolution of the market and of the parties' market shares in the years before the proposed transaction. In some countries (e.g., in the US), there is also an evaluation to establish if the merger leads to efficiency gains, through a larger scale for example, which would offset any price impacts of the increase in concentration (the so-called efficiency defense).

We capture the design of merger control through four variables that vary across country and across time, and are likely to have a significant influence on investors' reaction. The first characteristic we analyze is whether criteria other than competition are taken into account in the evaluation of a merger. The competition law in some countries contains a provision that allows the competent authorities to weigh competition considerations against other general or public interests, such as the preservation of employment, technical

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<sup>3</sup> Alternatively, the anticipation of stringent merger control enforcement could induce companies to become more efficient, thus potentially increasing their stock value. Evidence shows, however, that antitrust policy

achievements, international competitiveness of the national industry or certain services in a specific region (e.g., Austria, Ireland, Spain, Sweden and UK until 2002). When this is the case, the enforcement of merger control is weakened in the sense of being less competition oriented.

Another important element in the design of merger control is the identity of the authority enforcing it. In most countries an antitrust authority (e.g., Belgium, EU, Germany, Greece, Ireland since 2003, Italy, Netherlands, Norway, Portugal since 2003, Switzerland) or a court (e.g., Austria) are in charge of taking decisions on proposed mergers. In others, the decision-making power is shared among several authorities, such as multiple antitrust authorities or the ministry of finance (e.g., Canada, Denmark, Finland, Sweden, UK and US). Again in other countries, ministries or special sector regulators, as is sometimes the case in the banking sector, enforce merger control (e.g., France and Spain). Our idea is that merger control is more likely to be vigorously implemented when the enforcer is an antitrust authority or a court rather than a political body or a sector regulator.

The strength of the enforcement depends also on whether another authority can intervene, take over the review process or overturn decisions. In Germany the Ministry of Economics and Labor may, upon application, clear a concentration prohibited by the competition authority if the restraint of competition is outweighed by advantages to the economy as a whole or it is justified by an overriding public interest (“*Ministerialerlaubnis*”). In the US the review by the Federal Reserve or other competent regulator in the banking sector is followed by an independent review by the Department of Justice. In case of conflict the case is brought to court. Similar procedures exist in Belgium, the EU, Greece, the Netherlands, Norway, Portugal, Switzerland and UK since 2002. Our

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does not produce efficiency gains (Bittlingmayer and Hazlett (2000)).

idea is that this institutional feature is likely to weaken the enforcement of merger control, similarly to when criteria other than competition are taken into account in merger decisions.

A last important component of the design of merger control concerns the procedure that is used. In most countries the merger control is mandatory, i.e., a merger must be notified to the competent authority if it is large enough. In others, notification is instead voluntary but mergers can be undone *ex post* if they turn out to create adverse competitive effects (e.g. UK and Norway till 2004). After a merger is notified or an investigation is opened upon the initiative of the enforcing authority, it is decided whether the merger has the potential to raise competition concerns and, if this is the case, the specific transaction is reviewed in more depth. At the end of this process, the enforcer decides to approve, block or impose remedies on the proposed merger. In the latter case, parties are required to divest part of their business in particularly concentrated geographical areas or lines of product. In all countries the evaluation and decision process tend to be highly transparent in that decisions must be motivated and are made public.

The changes occurring in the merger control of M&As over the last three decades involved one or more of the dimensions of the control identified above. In most countries the control was introduced *de novo* (e.g., Italy, Netherlands, Denmark, Spain, and Sweden), while in other instances it was modified in terms of a different enforcer (e.g., Ireland, Portugal) or a different notification procedure (e.g., Spain where notification became mandatory in 1999). All changes led to a more competition-oriented control of M&As and we want to test whether these were associated with a negative reaction on the side of investors leading to a decrease in firm stock prices.

### III. Data and Methodology

#### A. Data Collection

We use an event study approach to analyze the effects of the introduction or of changes in merger control in numerous industrial countries over the last three decades.<sup>4</sup> In order to identify the events, we collect detailed information on the legislative changes affecting the institutional design of merger policy in the European Union (EU) and 18 individual countries: the United States and Canada, 14 EU countries, including Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and the United Kingdom, and two non-EU countries, Switzerland and Norway.<sup>5</sup> We focus on the time period January 1, 1987 to July 1, 2004 during which most of the changes occurred.

In the collection of the data, we relied on multiple sources. In a first step, we obtained and analyzed the exact text of all relevant legislation and regulation to identify the legal arrangements of the merger control in each country and the changes that took place over time. In a second step, we scrutinized the many publicly available reports on merger control to check our interpretation of the events (Appendix 1 contains a comprehensive list). Finally, we directly contacted experts of the various institutions dealing with merger

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<sup>4</sup> The application and the interpretation of the results from an event study require the events to be exogenous. We conjecture that no sectors, and in particular banks, can decisively lobby and induce a change of merger control that is applicable to all sectors. We then check this conjecture. For example, the results we present later in the paper do not differ between countries with large versus small banking sectors (proxied by total bank credit / GDP with a cutoff of 150 %). The size of the banking sector may represent a possible measure of lobbying power. Of course the introduction of merger control could itself be driven by developments in the domestic or neighboring economies, and the timing of the introduction of merger control may be determined by country size (Forslid, Hackner and Muren (2005)).

<sup>5</sup> In European Union countries a two-layer regime is in place for the competition review of concentrations. All mergers with a ‘community dimension’ are examined by the European Commission, whereas transactions without ‘community dimension’ are left to the competent national authorities. The dividing line between the two cases is drawn on the basis of the size and geographical dispersion of turnovers.

control across all countries (Appendix 2 contains the list of agencies we contacted). We engaged these contacts, often in multiple and prolonged written and verbal communications, to confirm our understanding and “coding” of the data, to seek clarifications and corrections and to identify the most important aspects of merger control in practice. Our efforts resulted in a unique data set covering a wide range of information about merger control and documenting important cross-country and time-wise variation.

#### B. Institutional Variables

A key contribution of the paper is to aggregate the information we collected and to construct various indexes capturing the crucial dimensions of the merger control of M&As. We construct four variables, *Criteria*, *Enforcer*, *Overturing*, and *Mandatory Notification* around the main characteristics of merger control discussed in Section II. These variables are formulated as the answers to four questions:

- What assessment criteria are used in merger control?
- Who is (are) the decision-making agency(ies) for merger control?
- Can a third agency intervene in the process to replace / overturn the decision-making agency(ies)?
- Is merger notification mandatory above (statutory) thresholds?

All variables range between 0 and 1, with higher values corresponding to a more competition-oriented design and implementation of the merger control. Our ranking of the answers reflects the simple idea that the merger review is more-competition oriented (at least from an *ex ante* perspective) when it has the single, narrower objective of preventing restrictions on competition, it is enforced by a single, independent agency, no other agency can intervene in the process, and notification is mandatory. The changes in any of the four key institutional variables across the sample period define our set of events.

### C. Events

We report the coded answers to the questions at the beginning and at the end of our sample period in Table 1. The table shows the heterogeneity of merger control across the different countries and the substantial changes that occurred over time.<sup>6</sup> Note, however, that for simplicity the table reports the answers to the questions only at the beginning and at the end of our time sample, thus under-representing the number of changes that occurred.

[INSERT TABLE 1 ABOUT HERE]

Consider the European Union as an example. Table 1 shows that in the period between 1987:01 and 2004:07 the EU introduced merger control that (1) employs only competition criteria, (2) is enforced by a single antitrust authority (the DG Competition of the European Commission), (3) can be overturned only *ex post* on a case-specific basis, and (4) requires mandatory notification. On the other hand the UK modified the competition-orientation of the merger control by introducing legislation that (1) removed other criteria in merger control and (2) shifted decision-making from the ministry to multiple antitrust agencies, but that also (3) made overturning possible.

### D. Dating

The precise dating in regulatory event studies of the change in the investors' expectations is of paramount importance (Schwert (1981), Binder (1985)). To tackle this issue, we study

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<sup>6</sup> Our events refer to changes in merger control that were enforced in all sectors. It is worth pointing out that merger control was not introduced at the same time as in the other sectors in France, Netherlands and Portugal, even though none of these cases turns out to be relevant for our analysis. In France the banking sector was perceived to be subject to merger control according to the Competition Law of July 1977 until the Supreme Court stated on May 16, 2003 that it was not subject to any competition control (we return to this case later in the paper when we discuss the *Crédit Agricole-Crédit Lyonnais* episode). In the Netherlands, the Competition Act of May 22, 1997 did not apply to the banking sector (art. 32) but only temporarily for two years (art. 107.3). In Portugal merger control was introduced with the decree-law n. 428/88 of November 19, 1988, but bank mergers became subject to the control only with the law 18/2003 approved on April 10, 2003, which substantially reformed the merger control also for all the other sectors after a new, independent

the legislative process in detail. We first divide it into three phases: approval, publication and implementation. Figure 1 displays the main steps in most legislative procedures and the corresponding dates we use in our study.<sup>7</sup>

[INSERT FIGURE 1 ABOUT HERE]

*Approval* refers to the date of approval by either the Parliament or the Head of State. When available, we collect from our sources and contacts the earliest date in the official approval process. In a bi-cameral parliamentary system, for example, we use the date when the first chamber approves the law. *Publication* refers to the date when the legislation is published in the country's official journal. *Implementation* is the official date when the legislation enters into force. The process leading up to implementation varies substantially across countries and type of legislation. In general, a law comes into force either after a certain (fixed) time period starting from the day when it is published or following a decree implementing it. In the latter case, the process may contain more uncertainty, as some aspects of the policy regime may be specified in the implementing decree only.

Second, to capture the earliest time when investors can reasonably be expected to infer changes in the legislation, we study the stock price reaction around the *earliest official date* that we collect.<sup>8</sup> We consolidate the dates in this way for obvious reasons. The process of legislative codification varies substantially across countries. In some countries the official date of a law is the approval date (typically the approval by the Head of State), in other countries it is actually the publication or even the implementation date. Neglecting these

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authority was created. However, for lack of readily accessible stock market data we drop the 1988 event and include only the 2003 sector-wide event.

<sup>7</sup> The legislative steps in Figure 1 reflect the general procedure. In practice the procedure may vary slightly across countries. For example, in some countries (such as Finland) the approval of the Head of State is not required. These differences do not affect our analysis.

<sup>8</sup> As recommended in Binder (1985), we also estimate excess returns for multiple intervals and link the estimates to country and bank characteristics.

differences across countries entails the risk of analyzing investors' reactions to widely divergent information sets. By focusing instead on the earliest official date with information context (i.e., often the approval in one of the chambers of the legislature), we try to harmonize the information investors have about the outcome of the legislative process across countries and thus minimize the risk of misinterpreting investors' responses. Thus, we complement the 16 approval dates with 4 publication dates to obtain 20 *Event* dates.<sup>9</sup>

Table 2 lists the 20 event dates and the exact changes in merger control that occurred in the sample period in the countries we analyze. As the table shows, in many instances the legislative changes consisted in the introduction of merger control *ex novo* and as such they affected multiple dimensions of merger control at once (e.g., Austria, Belgium, Denmark, Finland). Differently, in other cases, the legislative changes involved modifications of an existing regulation and as such they affected only one or a few dimensions of merger control (e.g., France, Ireland, Norway, Spain, Sweden, and UK). This underlines the importance of analyzing the institutional details in depth to assess investors' reaction to all possible legislative changes affecting merger control.

[INSERT TABLE 2 ABOUT HERE]

#### E. Event Windows

Once the event dates are selected, we analyze the impact of the changes on the event dates themselves as well as during an adequate period preceding them.<sup>10</sup> The reason for doing this is that most major legislation is typically prepared in parliamentary committees

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<sup>9</sup> Note that there were no changes in merger control during the sample period and hence there are no events for Germany, Canada and the US.

<sup>10</sup> Short event windows limit the impact of confounding events and are conform to the presumption of market efficiency that is necessary to make the event study informative (McWilliams and Siegel (1997)).

before it is brought to a chamber floor. Hence it is important to analyze also the period before the legislative changes as it captures the investors' potential reaction to the entire political debate and process preceding and surrounding any important committee work (party manifestos, government agreements, public lobby group endorsements, etc.).

Furthermore, as the codification process of new legislation unfolds differently in each country, we believe it is crucial to analyze the impact of the legislative changes also during the periods surrounding the other dates we identified in the legislative process. In particular, we analyze the stock price reactions around the 20 implementation dates to capture investors' possible reactions to "last-minute details" that are specified in the implementation process of the legislative changes (such as the precise mandates, chairmanship and membership of committees and institutions, operational regulations, etc.).

#### F. Event Study Methodology

To answer the question of how changes in laws governing merger control affect the market valuations of both (non-financial) firms and banks, we employ daily sector and total market price indices for the 18 countries and the EU-15 region and the Morgan Stanley All Country World Index from Datastream in the period January 1, 1987 to July 1, 2004. The bank indices have the Datastream code BANKSCC, where CC stands for the respective two-digit country code. The non-financial sector indices have the code TOTLICC. The total market indices are labeled TOTMKCC. The indices capture all listed firms in the respective category and are value-weighted.

We estimate daily abnormal returns using standard market model regressions. We regress the daily returns for index  $j$ ,  $r_{jt}$ , on a measure of the market return,  $r_{mt}$ , and two event dummies,  $\delta_t^{before}$  and  $\delta_t^{after}$ , that take the value of one when day  $t$  is inside the event windows  $[-\tau, 0]$  and  $[1, \tau]$  respectively, and zero otherwise:

$$r_{jt} = \alpha_j + \beta_j r_{mt} + \gamma_j^{before} \delta_t^{before} + \gamma_j^{after} \delta_t^{after} + \varepsilon_{jt}, \quad (1)$$

$$t = -250 - \tau, -249 - \tau, \dots, 249 + \tau, 250 + \tau.$$

Our two event windows contain between 5 and 241 trading days, i.e., we vary  $\tau$  between 2 and 120. The coefficients  $\gamma_j^{before}$  and  $\gamma_j^{after}$  measure daily abnormal returns during the event periods before and after the event. The market model is estimated over a period starting  $(-250 - \tau)$  days before the event and ending  $(250 + \tau)$  days after the event.<sup>11</sup>

For the results reported in the paper, we *a priori* choose to use the value-weighted index of all stocks in the country as a proxy for the market return, by itself or in combination with the EU-15 Market Index, and the Morgan Stanley All Country World Index.

For each event the cumulative abnormal returns (CARs) are the estimated coefficients  $\hat{\gamma}_j^{before}$  and  $\hat{\gamma}_j^{after}$ . For each event we estimate daily abnormal returns for both the domestic index of non-financial institutions (“firms”) and the domestic bank index (“banks”). We calculate the average and standard deviations of the CARs across the set of events and perform a standard t-test to assess statistical significance. We also report the number of positives and negatives and perform a standard non-parametric sign test which does not require the abnormal returns to have the same variance or to be normally distributed and which is unaffected by outliers.

We further assess the difference between the CARs of both indices by performing a t-test assuming unequal variances and a sign test based on the number of differences that are positives or negatives. Finally, we perform the more general Fisher’s exact probability test of independence to detect differences between firms and banks in the signs of their

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<sup>11</sup> We *a priori* choose for a long estimation window around the event, as we are concerned about the impact of the changes in regulation on market risk (Grout and Zalewska (2006)). We check the robustness of the results to alternative estimation windows, the  $(-250 - \tau, \tau)$  window for example, and time-varying market betas.

reaction. This non-parametric test does not require the abnormal returns of the firms and banks to be normally distributed or to share a common covariance matrix (Preacher and Briggs (2001)).

Next, we assess the (null) hypothesis that the exact event dates (we report later) are randomly distributed across the entire sample period to address the potential concern of the independence of the events (which could give rise to clustering in time).<sup>12</sup> We cannot reject the random distribution of the events across the sample period. For the EU countries we further check the distribution across the period starting on December 21, 1989, the approval date for EU competition legislation, but again we cannot reject the null hypothesis. Finally, we regress the CARs in various specifications on a time trend, to see if investor expectations are affected by the relative time of the introduction of merger control in each country (which could be indicative of the lack of independence of the events). Again we cannot reject the null hypothesis that the coefficients on the trend variables are equal to zero. To conclude, events seem independent.

#### **IV. The Impact of Changes in Merger Control**

##### **A. Main Results**

The results of the event study for the stock indexes of firms and banks averaged across events are reported in Table 3. For brevity, we report only various windows within the interval [-120,120] around the legislative changes as identified by the event and implementation dates.

[INSERT TABLE 3 ABOUT HERE]

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<sup>12</sup> See NIST/SEMATECH (2006) for example for details on the Kolmogorov-Smirnov Goodness-of-Fit test.

We note two most important results. First, most of the statistically significant results lie in the windows before and including the event date. As described before, we select the earliest available date of the legislative process as the event date and therefore the most significant reaction is expected to occur immediately before and around this date. There are sporadically some significant reactions also in the windows preceding and including the implementation date, although much less than for the event dates. This is line with the fact that, as already mentioned, the implementation date removes in some cases the remaining doubts about the introduction and actual *modus operandi* of the new piece of legislation. Overall, the fact that investors react most strongly in the windows before the event date and sporadically around the implementation date and that no further effects are left in the windows after those dates confirms the accurateness of the dates we use (Schwert (1981), Binder (1985)).

Second, moving to the analysis of the results, Table 3 shows that the legislative changes in merger control have important economic effects for both the real and the banking sector. Changes in merger control lead on average to a *decrease* in firm stock prices but to an *increase* in bank stock prices. The negative effect on firms is in line with our hypothesis as described in Section II.B, but the positive effect on banks is not.

The difference between the reactions of banks and firms is positive and highly statistically significant (we report significance levels for both standard t-tests and sign tests). The difference is also economically relevant, reaching the value of 1.1%\*, 3.3%\*\* , 7.6%\*\*\* and 11.1%\*, respectively for the 2, 20, 60 and 120 day windows before and including the event date. Both the sign test on the differences and the more general Fisher's test of independence indicate that firm and bank stocks differ in the direction of their reaction.

## B. Results by Country

To further analyze the effects of the changes in merger control, we report the results by event for each country in Table 4 for the 2, 20 and 60-day windows before and including the event date.

[INSERT TABLE 4 ABOUT HERE]

As the sign tests already indicated, almost all events lead to a decrease in firm stock prices and to an increase in bank stock prices.<sup>13</sup> Concerning banks, we notice a negative effect of the changes in merger control only for the European Union, the Netherlands and Sweden.

Some specific features in the application of merger control to the banking sector or in the characteristics of the sector in these three “countries” can provide potential explanations for these different reactions. According to the European merger regulation Member States have the possibility to contrast the power of the Commission and pursue objectives other than competition by using prudential rules as legitimate interests (art. 21(3) of the Council Regulation N. 4064/89 and subsequent modifications). This led some Member States in several occasions to make use of this provision to contrast foreign takeovers and potentially prevent wealth improving mergers (e.g., in *Champalimaud-Santander* in 1999, *Banca Nazionale del Lavoro-BBVA* and *ABN AMRO-Antonveneta* in 2005, and *HVB-Unicredito* in 2005).

The negative reaction of bank stock prices in the Netherlands may be due to the (possibly unexpected) delay of two years in the application of merger control to the banking sector relative to the other sectors (art. 32 and 108.3 of the Competition Act approved in date

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<sup>13</sup> The publication of the law strengthening merger control in Austria on January 1, 1993, coincides with the widely anticipated formal dissolution of neighboring Czechoslovakia. While the observed three-day CARs

March 20, 1997). This prolonged the influence of the Minister of Finance on the competitiveness of bank mergers according to the Act on the Supervision of the Credit System of 1992 until January 2000.

Finally, the negative response of bank stock prices in Sweden may simply reflect the investors' anticipation of a strict enforcement of merger control given the highly oligopolistic structure of the Swedish banking sector. In line with this conjecture, it is worth recalling the withdrawal of the proposed merger between *SE Banken* and *FöreningsSparbanken* in 2001 after the numerous objections raised by the European Commission. Also, it is worth noting already now that the supervisory control of M&As in Sweden is transparent in that the decisions taken by the supervisory authority are to be made public. As we will discuss later in the paper, this leaves little scope for a potential positive externality between competition and supervision in banking and thus for an increase in bank stock prices. In this respect, it is also curious to note an insignificant effect of the events also in other countries, like Finland and Norway, where the supervisory control is also transparent.

### C. Robustness

Before trying to explain the different impact of the introduction and strengthening in merger control on firm and bank stocks, we subject our findings to a variety of robustness checks. We report the key results in the lower four panels of Table 3. We first report results using (1) the value-weighted index of all stocks in the country in combination with the EU-15 Market Index, and (2) the Morgan Stanley All Country World Index as proxies for the market return. Results are almost unaffected.

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are large, the returns in the other windows don't seem unusual. Removing this event hardly affects the median of the three-day CARs or any other result.

We also conduct the event study using reasonable combinations of the domestic, EU-15, and world indices with the MS All Country Non Financial Index and the MS All Country Bank Index. Results are again almost unaffected and we choose not to report them. We further alter our estimation windows. In particular we estimate the beta coefficients using only pre-event stock returns. Again, results are unaffected and we choose not to report these findings.

We perform again the exercise using individual bank stocks rather than indexes (we return to using individual bank stocks in Section V), although we initially chose the latter for reasons of coverage, selection, and relevant value weighting. We again estimate a market model employing the value-weighted index of all stocks in the country as a proxy for the market return. Averaging across the banks within each country and then across the events or averaging immediately across the 323 individual bank stocks, we obtain average CARs that are broadly similar to our earlier results.

Finally, we investigate the reaction of stocks of firms in other sectors that are often also subject to a sector specific regulation, i.e., the insurance, telecommunication, utilities and healthcare sector. Though not consistently defined and available across countries and time, the indices for these sectors are mostly comprised in the firm indices we employ in our event study. Results are interesting. In insurance, the sector closest in activity and regulation to banking, excess returns are also positive and significant. In contrast, in the other three sectors excess returns are mostly negative (the lack of significance is possibly partly caused by the lower number of events and the higher volatility of these sector indices due to the limited number of stocks that are included). This suggests that financial regulation may indeed present special characteristics that may interfere differently with merger control.

D. France 2003: *Crédit Agricole-Crédit Lyonnais*

Before turning to explore in more detail the different reaction in the banking sector, we look for further evidence supporting the positive results on bank stock prices. In particular, we first perform a case study around the merger between *Crédit Agricole* and *Crédit Lyonnais* that occurred in France in 2003.

Until then, there was the belief in France that the *Comité des Etablissements de Credit et des Entreprises d'Investissement* (CECEI) – the supervisory authority in charge of licensing banks – was responsible for reviewing bank mergers both from a competition and a supervisory perspective. In line with this, when *Crédit Agricole* made a takeover bid for the former state bank *Crédit Lyonnais* in December 2002, the CECEI reviewed the proposed merger and approved it in March 2003 conditional on a number of remedies. In particular, the parties were required to divest 85 out of 9,275 branches and “freeze” the others in order to avoid the creation of dominant positions in a number of local retail markets. The decision led to some concerns related to the loss of employment and induced a union (the *Fédération des employés et cadres*) and two employees to challenge it at the *Conseil de l'Etat*, the French supreme court for administrative justice. On May 16, 2003, the *Conseil de l'Etat* declared the conditions imposed for competition reasons invalid but not the decision to approve the transaction (from a supervisory perspective) on the basis that the CECEI was not legally in charge of applying merger control to bank mergers.

This ruling implied an *unexpected weakening* of merger control in the banking sector and led to its substantial reform in August 2003. Given the extraordinary and judicial character of this case, we choose not to include it in our original set of events but rather to check its consistency relative to the previous results. Specifically, we perform an event study around the date of the ruling of the *Conseil de l'Etat* to see whether bank stock prices react in line

with our previous findings. Given that this event entails a weakening of the merger control in the banking sector, we expect a negative effect on bank stock prices. The results of this event study are reported in the bottom panel of Table 3. Consistent with our predictions, the 3-day bank CARs in the interval  $[-2,0]$  equal  $-0.77^{***}$ . In the windows following the event bank CARs are negative, economically relevant, although never more than marginally significant.

## **V. Explaining the Effect on Bank Stocks**

We now turn to analyzing the different investors' reaction to changes in merger control on bank stock prices. Why do banks react differently? What are the factors pushing up their stock prices? As in the other sectors, also in the banking sector the introduction of a pro-competitive change in merger control should prevent excessive market power, thus reducing future monopoly profits and stock prices. Why don't we see this reflected in bank investors' reactions?

To tackle these questions, we test several economic hypotheses which may explain the positive reaction in bank stock prices by regressing individual bank CARs on a number of variables capturing important institutional aspects of the merger control, the supervisory control specific to the banking sector, country institutional quality and individual bank characteristics. We discuss below our economic hypotheses and the variables we use to test them. Table 5 provides an overview and the summary statistics of all the variables in the cross sectional exercise.

[INSERT TABLE 5 ABOUT HERE]

## A. Merger Control Characteristics

Some characteristics of merger control may help explain the positive reaction in bank CARs in our event study. These relate to the potential importance of efficiency generation and of collusion in the banking sector.

### 1. *Efficiency Defense*

As already mentioned in Section II.A, in some countries efficiencies are explicitly taken into account in the competition review of mergers. When this is the case, merger control is somewhat less stringent as efficiencies represent an attenuating factor to the increase in market power.

There is evidence in the banking literature that banks are able to generate scale efficiencies even at larger sizes (e.g., Berger and Mester (1997) and Hughes, Mester and Moon (2001)) and as result of mergers (Focarelli and Panetta (2003)). To the extent then that banks can claim more than firms that the merger leads to important efficiency gains, they may be subject to a less stringent merger control than other industries and thus benefit more (or be hurt less) from the introduction of merger control.

To control for this, we construct the variable *Efficiency Defense* that equals one if efficiency gains are being explicitly considered in the merger review as a factor mitigating anticompetitive effects, and equals zero otherwise.<sup>14</sup> We include the change in this variable ( $\Delta$ ) as a result of the changes in merger control. The hypothesis is that of a positive correlation between this variable and the bank CARs. Also, we interact  $\Delta$ *Efficiency Defense*

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<sup>14</sup> This variable captures only the situation where the efficiency defense is explicitly incorporated in the merger regulation. The case where the efficiency defense is only implicitly and informally used (as documented so far only for the US by DeYoung (1991)) is not captured by our variable.

with  $\log(\text{Bank Assets})$ , a measure of bank size, to analyze whether larger banks benefit more from a more efficiency-oriented merger review.

## 2. *National Markets*

According to our main hypothesis, pro-competitive changes in merger control should promote competition and thus lead to a reduction in companies' valuations. On the other hand, some have argued that competition policy can act as a collusion-enhancing device, in particular in an oligopolistic sector (e.g., Harrington (2004)). To the extent that merger control prevents external growth for the few large banks operating in the market, it may sustain more easily collusive behavior and hence it may result in higher future profits and positive investors' expectations. This effect may be more pronounced in a system like banking which is already more prone to collusion because of existing institutional features like information sharing (Bouckaert and Degryse (2006)) or forms of collaborations in payment systems (Carletti and Vives (2009)).

To test whether merger control may actually lead to the expectation of higher collusion in banking, we construct a measure of the likelihood with which merger control is going to be enforced in the banking sector. In particular, we construct a variable,  $\Delta\text{National Markets}$ , and interact it with  $C3$ . The variable *National Markets* refers to the geographical definition of the markets used in the competition reviews of bank mergers in the various countries ( $\Delta$  again stands for the change in this definition as a result of the change in merger control); while the variable  $C3$  is a simple measure of the level of concentration in the banking sector. A higher value of this measure means a higher probability that merger control will be vigorously enforced and will have a greater effect on bank stocks. Thus, we expect the sign of this variable to be negative according to the "monopolistic" hypothesis

that merger control reduces future monopoly rents; whereas we expect it to be positive if the potential for collusive agreements prevails.

B. Supervisory Control of M&As in the Banking Sector

A crucial difference between the banking sector and most other sectors is that banks are subject to a very specific and pervasive sector regulation and supervision having as main rationale the need to maintain the stability of the system and consumer protection. In particular, bank M&As are subject to a prudential control aiming at ensuring the soundness and stability of the new entities. The US Bank Merger Act for example stipulates that “In every case, the responsible agency shall take into consideration the financial and managerial resources and future prospects of the existing and proposed institutions and the convenience and needs of the community to be served” (§128; see also the Bank Holding Company Act, §1842). The Federal Reserve Board considers particularly capital adequacy, but also asset quality, earnings performance and other aspects under this provision. Similarly, the Second Banking Directive states that national bank supervisors in the European Union “shall refuse authorization (of mergers; insertion by the authors) if, taking into account the need to ensure the sound and prudent management of a credit institution, they are not satisfied as to the suitability of the ... shareholders” (European Council (1989), article 5).<sup>15</sup>

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<sup>15</sup> More generally, the Core Principles 4 and 5 for Effective Banking Supervision issued by the Basel Committee on Banking Supervision (1997) state that supervisors must have the authority to review and reject any changes in bank ownership or to establish criteria for reviewing major acquisitions or investments by a bank. The principles refer to the requirement that “banking supervisors have the authority to establish criteria for ... ensuring that corporate affiliations or structures do not expose the bank to undue risks or hinder effective supervision”. Factors that are considered include ownership structures, operating plan, systems of control and internal organization, fit and proper tests of directors and senior managers, and financial projections including capital. Overall, practice has however shown that the room for interpretation of the criteria and factors to be considered in the supervisory review can be very wide.

The prudential control of bank M&As dates back in all our sample countries well before the legislative changes in merger control that constitute our events. This implies a direct relationship between merger control and supervisory control which is absent in any other regulated sector such as the health care and the airline industry or utilities, where regulation concerns more general aspects of firm behavior, product standards and pricing.

The reason why the interaction between the competition and the prudential control of bank M&As may be beneficial for investors in bank stocks is twofold. First, the same objective of maintaining a stable banking system may not necessarily be consistent with efficiency and value-enhancing mergers and acquisitions. Take for example the case of mergers designed to shore up a failing or a weakened bank. These are typically orchestrated for stability reasons, but are not necessarily value-enhancing for the acquiring institutions, as the findings in Koetter, et al. (2007) demonstrate. Then, to the extent that it can contribute selecting a more appropriate partner or structuring the merger in a more efficient way, the introduction or a more stringent enforcement of merger control may lead to more value-enhancing combinations thus benefitting investors.

Second, differently from the merger control, the design of the prudential control of bank M&As leaves room for a substantial degree of discretion in the implementation stage. In fact, prudential regulation of bank M&As does not often specify fully the criteria to be used in the evaluation of bank M&As and, most importantly, it is often not transparent in that the final decisions adopted by the enforcing institutions are not public. This reduces the accountability of the enforcing institutions and leads to abuses or misuses of the prudential control which may create obstacles to value-enhancing combinations. In this context, merger control may contribute to a system of “checks and balances” on the discretion of the prudential control of bank M&As and thus make the future realization of more value-enhancing mergers and acquisitions more likely. The idea is similar to that in political

constituencies (e.g., Persson, Roland and Tabellini (1997)): In a context where contracts are incomplete – as is the case in the implementation of the prudential control of bank M&As – there is scope for abuse of power. Creating a separation of power between two institutions that take separate decisions but that have to agree on the final outcome – in our case, whether to approve the merger – introduces a form of discipline which may benefit bank shareholders.

Examples of the potential for an abuse of power on the side of the supervisory authority and of the beneficial effect of merger control can be found in the *Champalimaud-Santander* case in 1999 and in the takeover of Antonveneta by ABN AMRO in 2005, in which the European Commission managed to amend the initial negative decision of the national supervisory authorities and thus their attempt to protect the national banking systems from foreign penetration rather than their stability.

To test for these hypotheses, we construct a few variables – going again from 0 to one – that describe the institutional features of the prudential control according to the objectives pursued, the authorities in charge and the modality of the review process; and we then formulate some predictions around them.

We capture the strength of the stability objective in the prudential control of bank M&As with two variables, denoted as *Supervisory Criteria* and *Supervisory Enforcer*. The former indicates whether the prudential control focuses entirely on stability considerations (e.g., in Austria, Belgium, Denmark, etc.) or whether it follows also other criteria such as the “convenience and needs of the community to be served” as specified in the US. The latter takes on the value of one when a separate, independent supervisory authority enforces the control. Lower values indicate that an authority that is less independent is in charge of the control. To the extent that, as described above, a stricter stability objective or enforcer entail larger costs in terms of foregone efficiencies and the presence of merger control

improves the value creation of future combinations, we expect a positive sign of both of these variables in the cross sectional regressions.

In the robustness tests, however, we replace the *Supervisory Enforcer* variable with proxies for the *Supervisory Independence from Banks* and *from Politicians* respectively, using measures gleaned from Barth, Caprio and Levine (2006). The idea is to check the extent to which the value of banks is negatively affected when the enforcer is subject to lobbies or political influence rather than an independent supervisor.

Finally, to measure the potential discretion in the prudential control of bank M&As, we construct two variables relating to the notification procedure and the transparency of the review process. The first variable, *Supervisory Informal Notification*, refers to the requirement prescribed in the regulation (e.g., in UK and in Italy until 2006) or imposed *de facto* (e.g., in Denmark, Finland and Sweden) that parties planning to merge have to informally notify the supervisor of their intentions before starting the formal procedure. This variable captures the possibility for the supervisory control to precede the merger control and thus prevent its check and balance function. In fact, to the extent that mergers can be blocked or at least discouraged during the initial informal phase, this variable indicates the potential for the supervisory control to have exclusive power over bank merger decisions. Therefore, we expect the sign of this variable to be negative in our regression.

The second variable, *Supervisory Formal Decisions Not Public*, which equals one when decisions are not made public and zero otherwise, represents the degree of transparency of the supervisory final decisions and we expect its sign to be positive. The idea is that an opaque procedure increases the potential for discretion and abuses of power in the supervisory process so that the positive effect on bank stock prices of the checks and balances function of the merger control should be greater.

Table 2 lists the supervisory control that was in place in each country at the time of the changes in merger control. Some features are worth to be noted. First, as already mentioned, the table shows that the supervisory control preceded merger control in most countries. Second, the table distinguishes between mergers and acquisitions for the variables Supervisory Criteria and Supervisory Enforcer. This is because in some cases the supervisory control differs in these two dimensions between mergers and acquisitions. While we document these differences here, we average across the two areas of control in the construction of the supervisory variables to keep the specifications parsimonious. Third, the table shows a high variability of the supervisory variables across countries. In particular, supervisory decisions are public only in a few countries (Finland, Norway, Sweden, the US, and to some extent in Canada and the UK, in which cases we give intermediate values).

#### C. Other Institutional Characteristics: Corruption and Regional Effects

Another important issue is whether the positive bank CARs may be driven by the general quality of governmental and regulatory institutions rather than by institutional features specific to the competition and supervisory policies. In order to check whether our institutional variables would just pick up this more general institutional quality, we introduce proxies for the latter. We use the variable *Corruption* that accounts for the degree to which bribes, nepotism and ties between politics and business are prevalent in a given country; and the variable *Bureaucratic Quality* that accounts for the strength and expertise of the national bureaucracy. We expect both of these variables to have a negative sign if the strengthening of merger control involves yet another layer or “grabbing hand” of governmental bureaucracy that requires additional time, effort and/or kick-backs from businesses for mergers to be approved.

We further feature regional random effects to control for economic and financial developments,<sup>16</sup> such as past growth in productivity in the financial services' sector. This represents a proxy for the prospects of future growth and value increasing potential of mergers so that we expect it to have a positive sign in our regressions.

#### D. Bank Characteristics

Certain bank characteristics may also directly cause positive excess returns. Consider bank size. If bank mergers are driven by managerial hubris rather than by value enhancing considerations (Berger, Dick, Goldberg and White (2007)), then investors, especially at the largest banks, should benefit from the tightening of merger control. The reason is that merger control now limits the wasteful merger plans of these banks. By contrast, stocks of small and medium-sized banks gain most if investors expect these banks now to be more likely targets in domestic or cross border transactions as merger control blocks future mergers between large banks. To control for these possibilities, we include the log of *Bank Assets* in level and squared in all specifications. The hubris hypothesis predicts a positive sign on Bank Assets.

Banks could further benefit indirectly from the changes in merger control in the other, non-financial sectors. If merger control imposes “binding” limits to firms’ external growth, firms are obliged to expand through greenfield investments rather than through M&As. To the extent that this leads to greater leverage for firms and thus more borrowing, banks could benefit in terms of higher profits from interest income. Alternatively, firms may need advice and expertise to comply with the new set up of the merger control. To the extent that

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<sup>16</sup> Too few banks are listed in some countries to include a complete set of country effects. Regions include Scandinavia, the British Isles, Western Europe, Iberia and Southern Europe. Hausman-tests consistently indicate random effects are to be preferred. Results for fixed effects model are very similar and we report their adjusted R-squared statistics.

banks provide this service, they could benefit in terms of higher fees. We control for these two possibilities by including the variables *% Interest Income/Assets* and *% ROA* interacting them with *log(Bank Assets)* as a measure of bank size in some specifications, and we expect these variables to have a positive sign.

#### E. Results

Table 6 reports the results of the various specifications. The variable *Supervisory Formal Decisions Not Public* plays a key role in explaining the excess returns on individual bank stocks. Its positive sign is consistent with our hypothesis of merger control checking and balancing prudential control in the review process of bank M&As. This role is stronger the more opaque the supervisory reviews are, because this increases the potential for discretion to pursue actions that hinder foreign entry or the efficient restructuring of the banking sector. The coefficient on this variable in Model V for instance suggests that the introduction of merger control in a country where supervisory formal decisions are not public results in an excess return on individual bank stocks that is one and a half percent larger than the excess return in a country where the formal decisions are public ( $= (1 - 1/2) * 3.80$ ). The effect of the opacity of supervisory decisions is not to be attributed to the general institutional quality, since we control for *Corruption*, and its coefficient turns out not to be significant. Also, the coefficient of the variable *Supervisory Informal Notification* has the right, negative sign in line with our prediction that the check and balance function of the merger control is more difficult to take place when the supervisor can have exclusive power over bank mergers, but it is not statistically significant.

[INSERT TABLE 6 ABOUT HERE]

The other variable which is significant in most specifications is *National Markets \* C3*. Its negative coefficient rejects the collusion hypothesis and supports the monopolistic

hypothesis that pro-competitive changes of merger control in more concentrated markets leads to more negative (or less positive) bank CARs as investors expect future concentration to be more likely blocked.

None of the coefficients on the other variables turns out to be statistically significant and economically relevant, except for the coefficients on *Supervisory Criteria* and *Supervisory Enforcer* which are positive and significant but only in models I and II. The sign of both of these coefficients is in line with our predictions that bank CARs respond more positively to changes in merger control when the supervisory control is more stability oriented or is implemented by a separate, independent supervisor. This suggests that investors do not perceive the stability orientation of the prudential control as being efficiency enhancing. However, given the weak significance of all of these coefficients, we prefer not to draw any strong conclusions.

In Model VI we introduce *Bureaucracy Quality* as a country control. The coefficient on this variable turns out not to be significant and results are further unaffected. To control for the indirect effects of the introduction of merger control in the non-financial sectors, we feature the variables *% Interest Income/Assets* and *% ROA* interacting them with  $\log(\text{Bank Assets})$  as a measure of bank size in Models VII and VIII (employing a reduced sample). The coefficient on *Supervisory Formal Decisions Not Public* increases somewhat in size but otherwise results are unaffected.

#### F. Robustness

The basic findings hold when *Supervisory Formal Decisions Not Public* is interacted with the log of bank assets and after including all the control variables introduced before (we do not tabulate these results). Stocks of medium-sized banks almost always gain the most upon changes in merger control, presumably because, as already indicated, investors

expect these banks to be the most likely targets that are still acceptable to the newly introduced or strengthened merger control.

In Table 7 we subject our results to a number of other straightforward robustness checks. In Models I and II we replace our *Supervisory Enforcer* measure by proxies for the *Supervisory Independence from Banks* and *from Politicians* respectively. However, the coefficients on these measures are not significant and results are further unaffected.

[INSERT TABLE 7 ABOUT HERE]

The results for a wider 21-day event window reported in Models III to VI, though less statistically significant in general and in particular when all competition variables are introduced in one specification (not reported), broadly confirm the findings in the three-day window.  $\Delta$ *Efficiency Defense* and the interaction of  $\Delta$ *Efficiency Defense* with  $\log(\text{Bank Assets})$  turn statistically significant negative/positive in all four specifications. This result is in line with our prediction and the findings in Hughes and Mester (1998) that larger banks benefit from efficiency gains in risk management.

Finally, we investigate if the results are robust to our specific assignment of values to the competition variables in the model. While we presume that our ordinal rankings provide an adequate characterization of the legal arrangements of the merger control, we cannot know if our assignment of cardinal values equidistantly is the most appropriate. Hence, we square and (in another set of specifications) take the square root of all competition variables. Results are mostly unaffected and are not reported.

#### G. Italy 2005: ABN AMRO-Antonveneta

We now analyze more in detail the takeover battle that took place in 2005 between the Dutch bank ABN AMRO and the Italian *Banca Popolare Italiana* (BPI) for the control of the Banca Antoniana Popolare Veneta (*Antonveneta*). The series of events that took place

during the battle provide a unique opportunity to assess the effects on bank stock prices of the discretion embedded in the prudential control of bank mergers (Appendix 3 describe all the key events).

The proposed takeover was subject to the competitive control of the European Commission and the supervisory control of the Bank of Italy. Whereas the Commission cleared the proposal takeover by ABN AMRO, the Bank of Italy did not take a fully impartial attitude between the foreign and domestic bidders, and tried repeatedly to abuse its supervisory power to favor BPI. The battle attracted substantial media attention, as many political and regulatory bodies intervened to limit the power and the decisions of the Bank of Italy; and it led to important legislative changes concerning the organization of the Bank of Italy as well as the control of bank M&As in Italy.

Figure 2 plots the cumulative abnormal returns on the Italian bank stock index in the year 2005. The vertical arrows in the figure point to key dates representing crucial events during the takeover battle. As the figure shows, the Italian bank stock index started increasing after February 8, when the EU Commissioner for the Internal Market, Mr. McCreevy, publicly warned the Governor of the Bank of Italy, Mr. Fazio, not to block foreign bank takeovers, and after any other subsequent intervention, such as the intervention of the Italian Prime Minister on September 23, aimed at limiting the power and the decisions of the Bank of Italy. The run-up of bank stock prices terminated with the resignation of Mr Fazio on December 19, and the passage two days later of a law that reformed the organization of the Bank of Italy and transferred the responsibility for the competition reviews of bank mergers from the supervisor to the Italian antitrust authority.

[FIGURE 2 ABOUT HERE]

To analyze the reaction of the Italian bank stock prices to the identified events during the Antonveneta case, we perform an event study around them and we report the results in the

table at the bottom of Figure 2. In particular, we regress daily bank stock index returns on a constant, daily national market index returns, and event period dummies for a three-year estimation period between March 16, 2002 and March 15, 2006. As the event study shows, bank stock prices reacted positively during the takeover battle after the Commissioner's call in early February 2005, which presumably represented a signal for investors of a future change in the supervisory control in Italy. Such a change was effectively implemented in December 2005, and in anticipation of this, the increase in bank stock prices became more pronounced.

In sum, the *Antonveneta* case provides further support for our results that bank investors' regard the potential discretion embedded in the supervisory control of bank mergers as not being value-enhancing. Investors therefore react positively to events – such as legislative changes – that limit it. The belief that the Bank of Italy was driven by objectives other than prudential considerations in handling the case and the numerous attempts to remove these potential inefficiencies and favoritisms led investors to think that the potential, future legislative changes would increase the value of listed Italian banks.

## **VI. Conclusion**

In the last three decades merger control has been substantially strengthened in many developed countries. In this paper we construct an event study around the announcements of the legislative changes of merger control in a sample of nineteen industrial countries over the period 1987-2004. In line with the standard monopolistic hypothesis, stock prices of (non-financial) firms react negatively to the announcement of pro-competitive changes in merger control, whereas, in contrast, bank stock prices react positively.

The cross sectional exercises suggest that the different responses of banks can be explained, at least partly, by key characteristics of the prudential control of bank mergers

and acquisition. In particular, bank stock prices react more positively upon legislative changes in merger control when the prudential control is opaque and thus more open to potential discretion in its implementation. This result suggests that bank investors do not see the discretion embedded in the supervisory control of bank M&As as value-enhancing and that they anticipate the merger control to check and balance the supervisory control.

The importance of the transparency of the supervisory process as a way to improve the supervisory control is in line with the results in a survey on obstacles to cross-border consolidation conducted by the European Commission: The “misuse of supervisory power” is an important obstacle to cross-border mergers. Consequently, the Commission has revised the Banking Directive governing the supervisory control of M&As, in order to make supervisory control more uniform and more transparent (e.g., European Commission (2007)).

Our results should not be interpreted as meaning that the supervisory control is problematic *per se* or that it is generally badly implemented. Neither can one infer from our results that competition policy is always and everywhere “wholesome” and never swayed by institutional or political agendas (Duso, Neven and Röller (2007), Aktas, de Bodt and Roll (2004), Aktas, de Bodt and Roll (2007)). Rather, our results suggest that the discretion which can be pursued under the objective of “sound and prudent management” of the supervisory control may hurt the evaluations of banks and the expectations of the investors.

An important area for future research is to assess the stability implications of the more competition oriented reviews in the banking sector. This extension would allow for an overall welfare evaluation of the observed policy changes. It would also add to the active debate about whether there is a trade-off or complementarity between competition and stability in banking.

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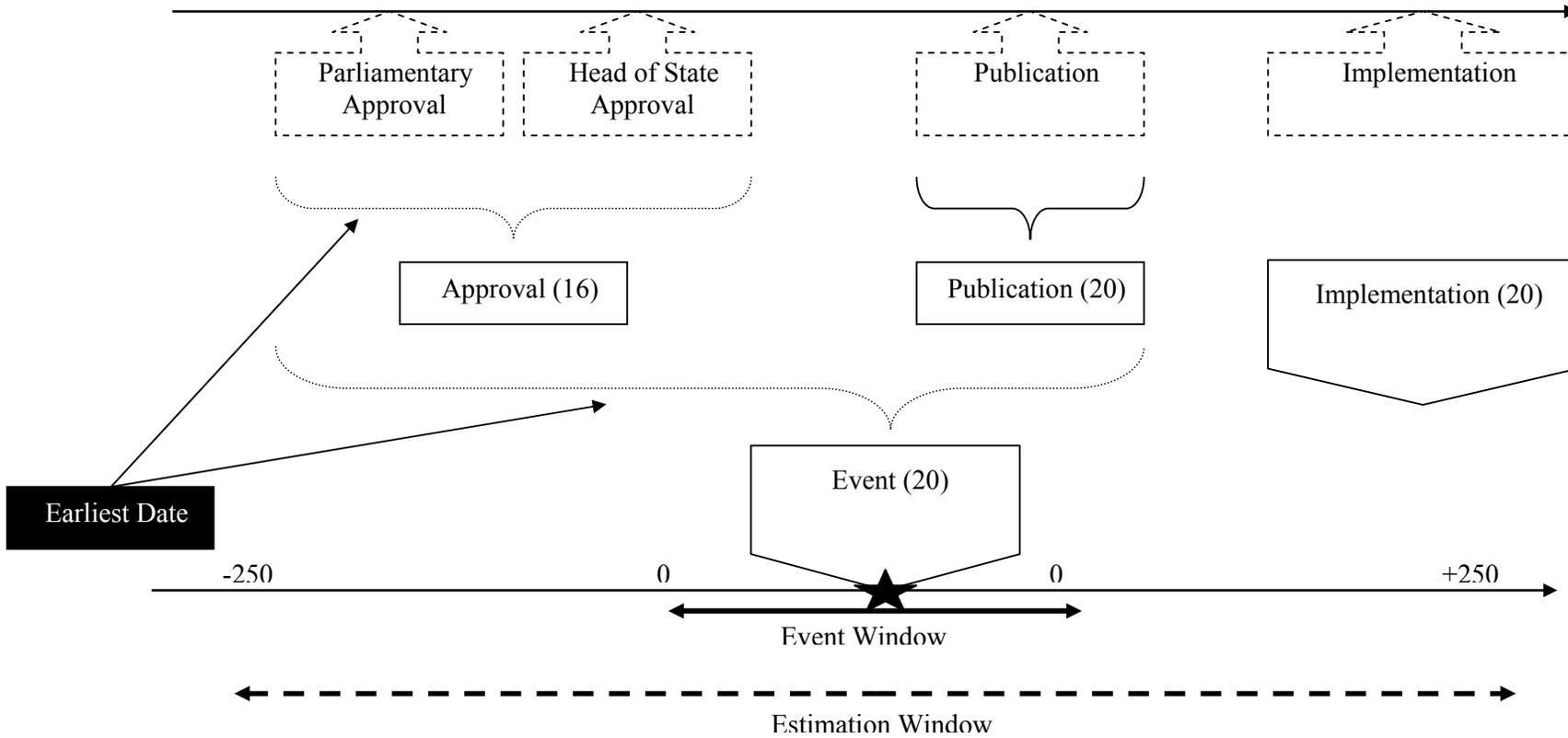
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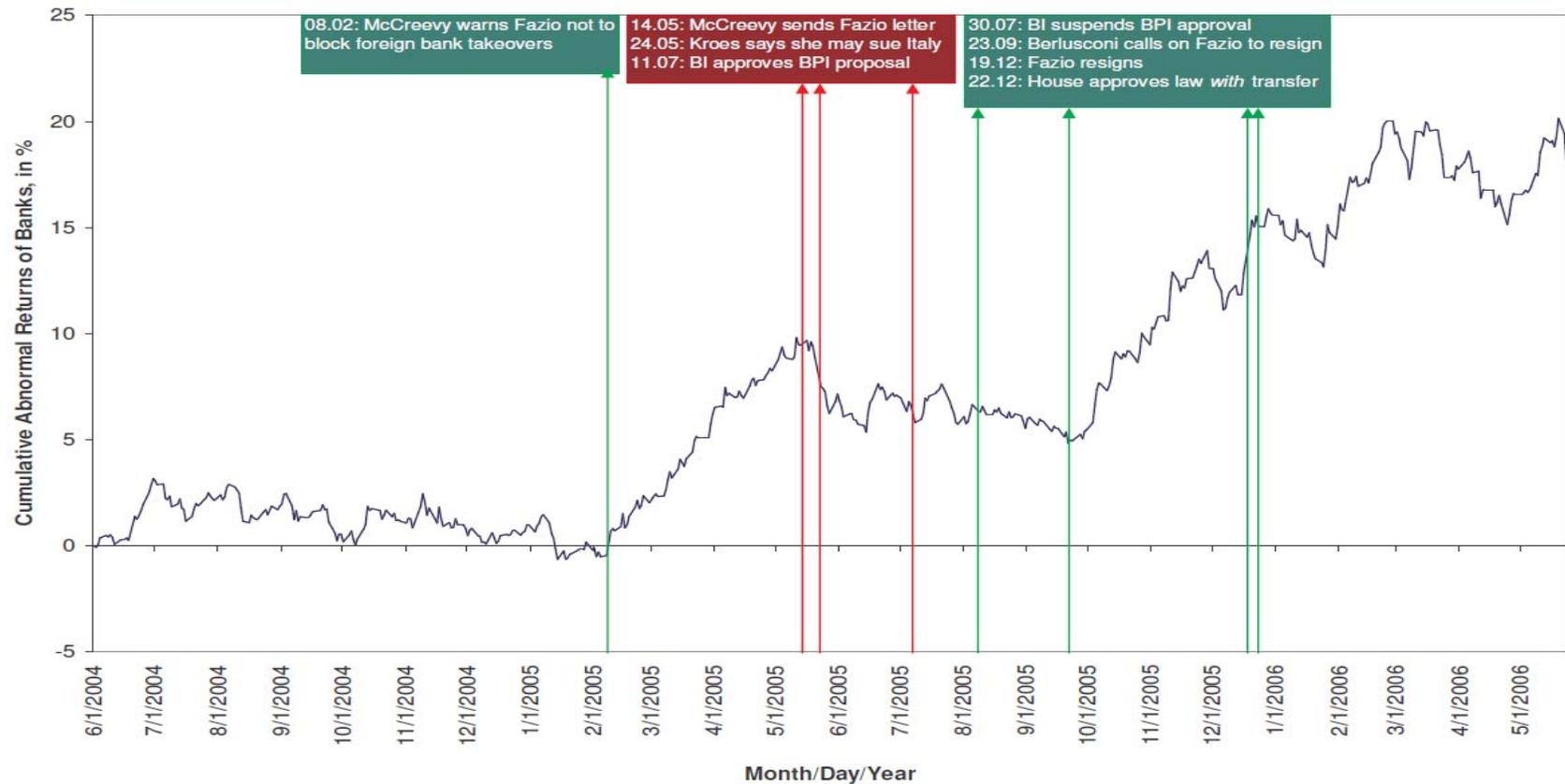
**FIGURE 1. TIME LINE OF THE LEGISLATIVE PROCEDURE AND EVENTS**

The figure reports the various steps in the procedure creating the merger control laws and the corresponding events used in this study. The boxes list the type of event and between parentheses the number of events.



## FIGURE 2. RECENT EVENTS IN ITALY AND CUMULATIVE ABNORMAL RETURNS ON ITALIAN BANK STOCKS

The figure reports the cumulative abnormal returns of Italian bank stocks while the panel below reports the percentage cumulative abnormal returns (CARs) for all exchange-listed banks in Italy (All Banks), *Banca Popolare Italiana* (BPI), and the *Antonveneta Bank (Banca Antoniana Popolare Veneta, BAPV)*. Excess returns are estimated using the value-weighted Italian country index in the market model around the announcement of the indicated events. The first cell lists the CAR, the second the significance levels. The reported significance levels are based on standard t-tests. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, and \* significant at the 10% level.



Event	Date	CAR(0, 2)			CAR(0, 20)			CAR(0, 60)		
		All Banks	BPI	BAPV	All Banks	BPI	BAPV	All Banks	BPI	BAPV
1 McCreedy warns Fazio not to block foreign takeovers	8-Feb-05	1.21	0.54	0.79	3.23	-1.53	10.47 *	10.62 **	-5.38	25.54 ***
2 Banca d' Italia aproves proposal of BPI to acquire control of BAPV	July 11, 2005	0.92	4.23	-0.77	-0.04	2.58	-8.18	-5.40	47.93 **	-27.57 *
3 Banca d' Italia suspends proposal given to BPI	July 30, 2005	0.03	-3.11	-0.45	0.59	-7.51	3.87	5.87	-58.15 ***	28.29 *
4 Berlusconi calls on Fazio to resign	September 23, 2005	0.05	-1.27	-0.94	4.89 *	-25.73 ***	4.04	6.59	-3.23	-8.12
5 Fazio resigns / House approves law with transfer	December 19-22, 2005	1.67 *	11.02 ***	-0.92	0.31	17.17 **	-1.65	5.03	28.64 **	-7.37



**TABLE 2. CHANGES IN MERGER CONTROL AND LEVELS OF SUPERVISORY CONTROL**

The table reports the changes in the key merger control variables and the levels of the key supervisory control variables.

<i>Country</i>	<i>Event Date</i>	<i>Changes in Merger Control</i>				<i>Level of Supervisory Control</i>					
		<i>Criteria</i>	<i>Enforcer</i>	<i>Overturing</i>	<i>Mandatory Notification</i>	<i>Supervisory Criteria Mergers</i>	<i>Supervisory Criteria Acquisitions</i>	<i>Supervisory Enforcer Mergers</i>	<i>Supervisory Enforcer Acquisitions</i>	<i>Supervisory Formal Decisions Not Public</i>	<i>Supervisory Informal Notification</i>
Austria	January 1, 1993	0.5	1	1	1	1	1	0.2	0.2	1	0.66
Belgium	August 5, 1991	1	1	0.66	1	1	0	1	0	1	0.33
Denmark	May 26, 2000	1	0.8	1	1	1	1	0.6	1	1	0.66
EU	December 21, 1989	1	1	0.8	1	0	0	0	0	0	0
Finland	April 30, 1998	1	0.8	1	1	1	1	0.2	1	0.5	0.66
France	May 15, 2001	0	0	0	0.5	1	1	0.8	0.8	1	0.33
France	August 1, 2003	0	0	0	0.5	1	1	0.8	0.8	1	0.83
Greece	March 8, 1991	1	1	0.66	1	1	1	0.8	0.8	1	0.66
Ireland	April 10, 2002	0.25	0.6	0.34	0	1	0.5	0.2	0.4	1	0.66
Italy	October 10, 1990	1	1	1	1	1	1	0.8	0.8	1	0.66
Netherlands	March 20, 1997	1	1	0.66	1	0.5	0.5	0.4	0.4	1	0.66
Norway	June 9, 1993	1	1	1	0.5	0.5	0.5	0.2	0.2	0.5	0.66
Norway	March 2, 2004	0	0	-0.34	0.5	0.5	0.5	0.2	0.2	0.5	0.66
Portugal	April 10, 2003	0	0.6	-0.34	0	1	1	0.8	0.8	1	0.66
Spain	July 17, 1989	0.5	0.4	1	0.5	1	1	0.2	0.8	1	0.66
Spain	April 16, 1999	0	0	0	0.5	1	1	0.2	0.8	1	0.66
Sweden	December 17, 1992	0.5	0.8	1	1	1	0	0.2	0	0.5	0.66
Sweden	April 1, 2000	0.25	0	0	0	1	1	0.6	1	0.5	0.66
Switzerland	October 6, 1995	1	1	0.66	1	1	1	1	1	1	0.5
UK	November 5, 2002	0.5	0.4	-0.5	0	1	1	1	1	0.75	1

**TABLE 3. CUMULATIVE ABNORMAL RETURNS FOR FIRMS AND BANKS AROUND CHANGES IN MERGER CONTROL**

Percentage cumulative abnormal returns (CARs) for exchange-listed firms and banks are estimated around the announcement of changes in merger control using the value-weighted country (European, world) index in the market model. The first row in each cell lists the CAR averaged across events while the second row reports (in italics) the number of positive versus (“:”) the number of negative CARs. The reported significance levels are based on standard t-tests (for the differences assuming unequal variances) and sign tests. The third row in the difference cells reports the difference between bank and firm positives and firm and bank negatives and the significance level of the Fisher’s exact test of independence assessing the number of firm positives/negatives versus bank positives/negatives (one-sided).

Change in Control (Number of Cases)		[-120,0]	[-60,0]	[-20,0]	[-2,0]	[1, 2]	[1,20]	[1,60]	[1,120]	
<b>Country Market Index</b>										
<i>Event (20)</i>	Firms	-2.8 * <i>6:14</i>	-2.5 ** <i>6:14</i>	-1.0 ** <i>6:14</i>	-0.3 ** <i>5:15</i>	-0.1 <i>10:10</i>	-0.2 <i>9:11</i>	-0.9 <i>10:10</i>	-1.7 <i>8:12</i>	
	Banks	8.3 <i>13:7</i>	5.0 * <i>13:7</i>	2.3 * <i>14:6</i>	0.8 <i>16:4</i>	0.1 <i>11:9</i>	-0.7 <i>11:9</i>	1.7 <i>10:10</i>	8.5 <i>11:9</i>	
	Banks \ Firms	11.1 * <i>13:7</i>	7.6 *** <i>13:7</i>	3.3 ** <i>14:6</i>	1.1 * <i>15:5</i>	0.2 <i>12:8</i>	-0.5 <i>11:9</i>	2.6 <i>10:10</i>	10.2 * <i>11:9</i>	
<i>Implementation (20)</i>	Firms	-0.9 <i>10:10</i>	-1.2 * <i>7:13</i>	-0.6 * <i>6:14</i>	-0.2 * <i>10:10</i>	-0.1 <i>8:12</i>	0.1 <i>10:10</i>	-0.1 <i>6:14</i>	0.2 <i>12:8</i>	
	Banks	5.4 <i>10:10</i>	3.4 <i>12:8</i>	1.6 <i>13:7</i>	0.7 <i>9:11</i>	0.6 <i>11:9</i>	3.2 <i>12:8</i>	1.7 <i>10:10</i>	2.3 <i>8:12</i>	
	Banks \ Firms	6.3 <i>10:10</i>	4.6 <i>11:9</i>	2.2 <i>14:6</i>	1.0 <i>10:10</i>	0.6 <i>12:8</i>	1.1 <i>11:9</i>	3.3 <i>13:7</i>	2.1 <i>8:12</i>	
<b>Country &amp; European Market Index <sup>EU</sup></b>										
<i>Event (20)</i>	Banks \ Firms	10.9 * <i>12:8</i>	8.3 *** <i>13:7</i>	3.6 ** <i>14:6</i>	1.2 * <i>16:4</i>	0.2 <i>12:8</i>	-0.3 <i>14:6</i>	3.2 <i>12:8</i>	9.8 * <i>14:6</i>	
<i>Implementation (20)</i>	Banks \ Firms	7.2 <i>8:12</i>	5.2 <i>12:8</i>	2.5 * <i>13:7</i>	1.0 <i>10:10</i>	0.6 <i>12:8</i>	1.5 <i>11:9</i>	4.1 <i>13:7</i>	1.7 <i>8:12</i>	
<b>World Market Index</b>										
<i>Event (20)</i>	Banks \ Firms	7.9 <i>10:10</i>	6.9 <i>13:7</i>	4.3 <i>14:6</i>	1.0 ** <i>13:7</i>	0.3 <i>12:8</i>	-0.2 <i>11:9</i>	2.4 <i>13:7</i>	10.0 * <i>13:7</i>	
<i>Implementation (20)</i>	Banks \ Firms	4.1 <i>8:12</i>	4.6 <i>11:9</i>	2.9 * <i>15:5</i>	1.2 ** <i>12:8</i>	0.7 <i>10:10</i>	1.1 <i>12:8</i>	3.5 <i>13:7</i>	1.3 <i>7:13</i>	

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**Other Sectors**

<i>Event (16)</i>	Insurance	5.5		9.4 ***	3.9 **	-0.6	-0.1	1.7	4.8	-2.2
		11:5 **		10:6	13:3 ***	8:8	7:9	10:6 ***	8:8	7:9
<i>Event (11)</i>	Telecom	-2.8		2.2	-0.5	0.5	-0.2	-0.3	-3.1	-8.4
		2:9 ***		5:6	6:5	7:4	3:8 **	4:7	4:7	5:6
<i>Event (14)</i>	Utilities	-12.2 **		-6.0 *	-3.2 **	-0.3	-0.0	-1.2	2.7	-0.9
		4:10 **		5:9 *	2:12 ***	6:8	6:8	7:7	7:7	8:6
<i>Event (16)</i>	Healthcare	0.6		-5.3	0.2	-0.3	-0.1	-2.3 **	-4.0	-3.0
		6:10		5:11 **	7:9	7:9	7:9	5:11 **	5:11 **	8:8

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**Case Weakening Merger Control  
France, May 16<sup>th</sup>, 2003**

Banks	6.3	0.4	-0.0	-0.8 ***	-0.1 *	-2.4	-1.9	-12.1
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\*\*\* Significant at the 1% level, \*\* significant at the 5% level, and \* significant at the 10% level. <sup>EU</sup> World Market Index in case of an EU event.

**TABLE 4. CUMULATIVE ABNORMAL RETURNS FOR FIRMS AND BANKS AROUND CHANGES IN MERGER CONTROL, BY EVENT**

The percentage cumulative abnormal returns (CARs) for exchange-listed firms and banks are estimated prior to the announcement of changes in merger control using the value-weighted country (European) index in the market model. The table lists countries, event dates, and the CARs for three representative event windows. The reported significance levels are based on standard F-tests of the summation of the estimated coefficients on the event dummies (country), standard t-tests for the averages and sign tests for the medians.

<i>Country</i>	<i>Event Date</i>	<i>Firms</i>			<i>Banks</i>		
		<i>(-60,0)</i>	<i>(-20,0)</i>	<i>(-2,0)</i>	<i>(-60,0)</i>	<i>(-20,0)</i>	<i>(-2,0)</i>
Austria	January 1, 1993	-5.3	-4.2	-3.6 ***	7.7	7.6	10.1 ***
Belgium	August 5, 1991	0.6	-0.1	0.0	-2.6	-0.5	0.5 ***
Denmark	May 26, 2000	-3.3	-0.7	-0.1	17.7	3.0	0.6
EU	December 21, 1989	-1.0	-0.4	-0.1 ***	2.7	-0.1	-0.3 ***
Finland	April 30, 1998	0.4	0.1	0.2 ***	6.2	0.5	0.1
France	May 15, 2001	0.2	0.1	-0.1 *	2.3	-2.1	1.1 ***
France	August 1, 2003	-0.2	-0.6 *	-0.1 ***	-2.4	1.1	0.5 ***
Greece	March 8, 1991	-3.0	-2.4	-0.2	1.0	0.8	0.3 ***
Ireland	April 10, 2002	-19.7 **	-4.7 ***	-0.5 ***	27.4 **	5.4 **	0.5 ***
Italy	October 10, 1990	-6.2 ***	-1.2 *	-0.3 ***	6.7 *	0.0	0.2
Netherlands	March 20, 1997	-0.5	0.4	0.6 ***	-1.6	-2.8	-1.0 ***
Norway	June 9, 1993	-3.2	-0.3	-0.1 **	28.5	0.2	0.7
Norway	March 2, 2004	1.6	0.3	0.0	-12.6	-2.4	0.1
Portugal	April 10, 2003	3.0	3.8 *	-0.2 **	-7.7	-8.0 *	0.3 *
Spain	July 17, 1989	2.3	0.4	0.1 ***	-1.5	0.2	-0.1
Spain	April 16, 1999	-8.4 **	-5.8 **	-1.8 ***	15.6 **	10.5 **	3.1 ***
Sweden	December 17, 1992	-1.9	-0.2	0.1	14.0	14.3	-3.0 ***
Sweden	April 1, 2000	-2.1	-1.0	0.0	-7.3	7.0	0.4
Switzerland	October 6, 1995	-2.0	-1.5	0.0	2.8	4.7	0.2 ***
UK	November 5, 2002	-1.6	-2.7 ***	-0.6 ***	4.0	6.7 *	1.5 ***
	<i>Average</i>	-2.5 **	-1.0 **	-0.3	5.0 *	2.3 *	0.8
	<i>Median</i>	-1.8 *	-0.5 *	-0.1 **	2.7	0.7 *	0.3 ***

\*\*\* Significant at the 1% level, \*\* significant at the 5% level, and \* significant at the 10% level.

**TABLE 5. VARIABLES USED IN THE CROSS-SECTIONAL ANALYSIS OF INDIVIDUAL BANK CARs FOLLOWING CHANGES IN MERGER CONTROL**

The table lists the variables that are used in the cross-sectional analysis to explain individual bank CARs.

		Mean	StDev	Min	Max	Obs
<b>Efficiency Defense</b>	Are efficiency gains explicitly considered as a factor mitigating anticompetitive effects? <i>1=yes; 0=no</i>	0.33	0.47	0	1	323
<b>National Markets</b>	Are relevant markets defined from a geographical point of view at least as national markets (i.e., no markets are local)? <i>1=yes; 2/3=possible, but not defined; 1/3=no; 0=no competition control in banking</i>	0.12	0.33	0	1	323
<b>C3</b>	Percentage assets of largest three banks in the national market	0.32	0.38	0	1	323
<b>Supervisory Criteria</b>	What assessment criteria are used in supervisory merger/acquisition control? <i>1=only supervisory criteria (stability, soundness, prudence); ½=also other criteria; 0=none, no supervisory merger control in banking</i>	0.61	0.46	0	1	323
<b>Supervisory Enforcer</b>	Who is (are) the decision-making agency(ies) for supervisory merger/acquisition control? <i>1= independent supervisor; 4/5=central bank; 3/5= independent supervisor and minister; 2/5=central bank and minister; 1/5=minister; 0=none, no supervisory acquisition control in banking</i>	0.44	0.38	0	1	323
<b>Supervisory Informal Notification</b>	Is there any informal communication and/or notification between the supervisory agency(ies) and the parties before formal notification? <i>1=yes, formally in the law and mandatory; 2/3=yes, but only as common practise; 1/3=no notification; 0=no supervisory control</i>	0.43	0.33	0	1	323
<b>Supervisory Formal Decisions Not Public</b>	Are supervisory decisions following formal notification public? <i>1=no; 1/2=yes; 0=no supervisory control</i>	0.60	0.45	0	1	323
<b>Corruption</b>	Assessment of corruption within the political system Accounts for financial corruption (e.g., demands for special payments and bribes connected with import and export licenses) and actual/potential corruption in the form of excessive patronage, nepotism, job reservations, 'favor-for-favors', secret party funding, and suspiciously close ties between politics and business. Source: <i>International Country Risk Guide</i> <i>6=not corrupt; ...; 1=very corrupt</i>	4.85	0.97	2.25	6	323
<b>Bureaucracy Quality</b>	Assessment of the quality of the bureaucracy Accounts for the strength and expertise of the bureaucracy to govern without drastic changes in policy or interruptions in government services. In that case the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training. Source: <i>International Country Risk Guide</i> <i>4=high quality; ...; 1=low quality</i>	3.75	0.47	2.167	4	323

<b>Bank Assets (in bln Euros)</b>	of the individual banks	55.98	135.20	0.11	709.33	226
<b>% Interest Income</b>	of the individual banks	0.35	0.91	-0.09	5.33	226
<b>% ROA</b>	of the individual banks	1.06	0.93	-1.88	6.47	164
<b>Supervisory Independence from Banks</b>	The degree to which the supervisory authority is protected by the legal system from the banking industry Are supervisors legally liable for their actions? Source: <i>Barth, Caprio, Levine</i> <i>1=independent; 0=dependent</i>	0.25	0.43	0	1	323
<b>Supervisory Independence from Politicians</b>	The degree to which the supervisory authority is independent within the government from political influence To whom are the supervisory bodies responsible or accountable? How is the head of the supervisory agency (and other directors) appointed? How is the head of the supervisory agency (and other directors) removed? Source: <i>Barth, Caprio, Levine</i> <i>1=independent; 0=dependent</i>	0.58	0.49	0	1	323

**TABLE 6. CROSS-SECTIONAL ANALYSIS OF INDIVIDUAL BANK CARs FOLLOWING CHANGES IN MERGER POLICY**

The dependent variable is the three-day percentage cumulative abnormal return, CAR(-2,0), for exchange-listed banks estimated prior to changes in merger policy using the value-weighted country index in the market model. All models include regional random effects.

Model	I	II	III	IV	V	VI	VII	VIII
ΔEfficiency Defense	-0.42 (1.75)	-0.73 (1.72)	0.25 (1.74)	-1.02 (1.72)	-1.30 (1.73)	-1.31 (1.74)	-1.84 (1.87)	-2.80 (2.15)
ΔEfficiency Defense * log(Bank Assets)	0.05 (0.11)	0.06 (0.11)	0.03 (0.11)	0.08 (0.11)	0.10 (0.11)	0.10 (0.11)	0.14 (0.11)	0.20 (0.13)
ΔNational Markets * C3	-0.49 (0.51)	-0.28 (0.50)	-0.58 (0.54)	-1.48 ** (0.61)	-1.75 ** (0.83)	-1.76 ** (0.86)	-2.40 *** (0.83)	-2.32 ** (0.96)
Supervisory Criteria	1.32 ** (0.67)				-2.00 (1.46)	-1.97 (1.47)	-0.54 (1.29)	-2.55 (1.67)
Supervisory Enforcer		1.60 *** (0.54)			1.47 (0.95)	1.45 (0.96)	0.00 (0.00)	1.49 (1.06)
Supervisory Informal Notification			-0.79 (0.92)		-0.92 (0.97)	-1.07 (1.13)	-1.18 (1.02)	-1.01 (1.20)
Supervisory Formal Decisions Not Public				2.82 *** (0.93)	3.80 ** (1.67)	3.90 ** (1.71)	4.55 ** (1.88)	5.25 *** (2.00)
Corruption	-0.03 (0.17)	-0.11 (0.16)	-0.07 (0.17)	0.21 (0.18)	0.18 (0.22)	0.21 (0.24)	0.40 (0.25)	0.28 (0.25)
Bureaucracy Quality						-0.15 (0.62)		
log(Bank Assets)	0.27 (0.53)	0.33 (0.52)	0.34 (0.53)	0.39 (0.51)	0.49 (0.52)	0.48 (0.53)	-0.03 (0.72)	0.00 (0.94)
log(Bank Assets) <sup>2</sup>	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.02 (0.02)	0.00 (0.02)	0.00 (0.03)
% Interest Income * log(Bank Assets)							-0.04 (0.03)	-0.03 (0.03)
% ROA * log(Bank Assets)								-10.07 (10.46)
Constant	-2.05 (4.14)	-2.06 (4.09)	-0.83 (4.23)	-4.76 (4.16)	-4.75 (4.38)	-4.30 (5.03)	-2.73 (5.67)	-1.77 (7.50)
Number of Observations	226	226	226	226	226	226	219	161
Adjusted R-squared	0.08	0.03	0.08	0.13	0.13	0.13	0.13	0.16

\*\*\* Significant at the 1% level, \*\* significant at the 5% level, and \* significant at the 10% level.

**TABLE 7. CROSS-SECTIONAL ANALYSIS OF INDIVIDUAL BANK CARs FOLLOWING CHANGES IN MERGER CONTROL: FURTHER ROBUSTNESS**

The dependent variable is the three-day or twenty-one-day percentage cumulative abnormal return, CAR(-2,0) or CAR(-20,0), for exchange-listed banks estimated prior to changes in merger control using the value-weighted country index in the market model. All models include regional random effects.

Model	I	II	III	IV	V	VI
Dependent Variable	(-2,0)	(-2,0)	(-20,0)	(-20,0)	(-20,0)	(-20,0)
ΔEfficiency Defense	-2.93 (2.20)	-2.33 (2.27)	-31.26 *** (8.50)	-31.39 *** (8.22)	-26.44 *** (8.96)	-30.09 *** (9.05)
ΔEfficiency Defense * log(Bank Assets)	0.21 (0.13)	0.18 (0.14)	1.82 *** (0.53)	1.77 *** (0.51)	1.56 *** (0.56)	1.78 *** (0.56)
ΔNational Markets * C3	-3.01 *** (0.94)	-3.47 *** (1.18)	3.40 (2.23)	4.29 ** (2.12)	4.32 * (2.43)	1.36 (2.87)
Supervisory Criteria	-1.41 (1.43)	-2.67 (2.33)	8.16 *** (2.39)			
Supervisory Enforcer				8.79 *** (2.25)		
Supervisory Independence from Banks	-0.11 (0.51)					
Supervisory Independence from Politicians		0.91 (1.27)				
Supervisory Informal Notification	-1.44 (1.22)	-1.46 (1.17)			4.42 (4.21)	
Supervisory Formal Decisions Not Public	6.29 *** (2.12)	6.66 *** (2.16)				6.94 * (3.96)
Corruption	0.48 * (0.28)	0.53 * (0.28)	-0.70 (0.70)	-1.02 (0.64)	-0.69 (0.80)	-0.25 (0.87)
log(Bank Assets)	0.00 (0.94)	-0.03 (0.94)	-4.50 (3.89)	-4.27 (3.83)	-2.32 (3.94)	-2.85 (3.94)
log(Bank Assets) <sup>2</sup>	0.00 (0.03)	0.00 (0.03)	0.11 (0.13)	0.11 (0.12)	0.04 (0.13)	0.06 (0.13)
% Interest Income * log(Bank Assets)	-0.03 (0.04)	-0.03 (0.04)	-0.03 (0.04)	-0.04 (0.04)	-0.02 (0.03)	-0.03 (0.03)
% ROA * log(Bank Assets)	-7.52 (10.61)	-7.74 (10.31)	-3.10 (10.54)	-7.60 (10.54)	-3.49 (10.63)	-5.06 (10.16)
Constant	-3.10 (7.59)	-3.22 (7.57)	40.75 (30.03)	41.68 (29.84)	28.64 (31.02)	28.80 (30.69)
Number of Observations	161	161	161	161	161	161
Adjusted R-squared	0.16	0.16	0.16	0.16	0.13	0.13

\*\*\* Significant at the 1% level, \*\* significant at the 5% level, and \* significant at the 10% level.

## APPENDIX 1: PUBLICLY AVAILABLE SOURCES DEALING WITH MERGER AND SUPERVISORY CONTROL

The table reports the sources we have used to collect the legal and institutional country characteristics on merger and supervisory control. We report only documents and sources other than the laws.

Country	Source	Www
All	Getting the Deal Through, Merger Control	<a href="http://www.gettingthedealthrough.com/main_fs.cfm?book=MergerControl">http://www.gettingthedealthrough.com/main_fs.cfm?book=MergerControl</a>
	International Competition Network, Merger Review Laws, Related Materials, and Templates.	<a href="http://www.internationalcompetitionnetwork.org/mergercontrollaws.html">http://www.internationalcompetitionnetwork.org/mergercontrollaws.html</a>
	OECD, Competition.	<a href="http://www.oecd.org/infobycountry/0,2646,en_2649_37463_1_1_1_1_37463,00.html">http://www.oecd.org/infobycountry/0,2646,en_2649_37463_1_1_1_1_37463,00.html</a>
	OECD, Competition Law and Policy.	<a href="http://www.oecd.org/infobycountry/0,2646,en_2649_34685_1_1_1_1_1,00.html">http://www.oecd.org/infobycountry/0,2646,en_2649_34685_1_1_1_1_1,00.html</a>
	OECD, 1996, Failing Firm Defence, CLP Report, (96)23, Paris.	
	OECD, 1998, Enhancing the Role of Competition in Bank Regulation, DAFEE/CLP Report, (98)16, Paris.	
	OECD, 1999, Relationship between Regulators and Competition Authorities, DAFEE/CLP Report, (99)8, Paris.	
	OECD, 2000, Mergers in Financial Services, DAFEE/CLP Report, (2000)17, Paris.	
	OECD, 2002, The Role of Competition Policy in Regulatory Reform, DAFEE/CLP Report, (2002), Paris.	
	World Bank and International Monetary Fund, Global Banking Law Database.	<a href="http://www.gbld.org/">http://www.gbld.org/</a>
Austria	Global Competition Review, Austria	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>
Denmark	Global Competition Review, Denmark.	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>
EU	Ghezzi F. and P. Magnani, 1998, L'applicazione della disciplina antitrust comunitaria al settore bancario, in M. Polo (ed.), <i>Industria Bancaria e Concorrenza</i> , Il Mulino, 143-259.	
Finland	Finnish Competition Authority, Annual Reports, 2001, 2002, 2003.	
	Global Competition Review, Finland.	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>
France	Fried Frank, Client Memoranda, 2002, The New Features of French Antitrust Law by Eric Cafritz and Omer Tene.	<a href="http://www.ffhsj.com/cmemos/021102_newfeat.htm">http://www.ffhsj.com/cmemos/021102_newfeat.htm</a>
	Global Competition Review, France: Merger Control.	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>

	Jurismag, 2001, Le magazine rédigé par des professionnels du droit, The New French Rules for Merger Control, by A. Condomines, Avocat à la Cour.	<a href="http://www.jurismag.net/articles/artiGB-concent.htm">http://www.jurismag.net/articles/artiGB-concent.htm</a>
	Practical Law Company, Global Council Web, Merger Control – France.	<a href="http://global.practicallaw.com/jsp/article.jsp?item=:1138832">http://global.practicallaw.com/jsp/article.jsp?item=:1138832</a>
	Olcay Miller, P., 20004, Authorisation of Bank Mergers—Recent French Experience, mimeo, Queen Mary and Westfield College.	
Germany	Global Competition Review, Germany.	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>
Ireland	Global Competition Review, Ireland.	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>
Italy	Bianco, M., F. Ghezzi, W. Negrini and P. Signorini (1998b), ‘Applicazioni della disciplina antitrust al settore bancario in Italia’, in M. Polo (ed), <i>Industria Bancaria e Concorrenza</i> , Bologna: Il Mulino, 329-374.	
Norway	Global Competition Review, Norwegian competition law: overview and recent developments.	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>
	International Law Office (ILO), Competition - Norway 1998, 1999, 2001, 2004.	<a href="http://www.internationallawoffice.com/lettersresults.cfm?Newsletters__WorkAreas=Competition">http://www.internationallawoffice.com/lettersresults.cfm?Newsletters__WorkAreas=Competition</a>
Portugal	Global Competition Review, Portugal.	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>
Spain	Banco de Espana, 2001, “Basic Regulatory Structure of the Spanish Banking System”, Annex I to Annual Report.	
Sweden	Global Competition Review, Sweden.	<a href="http://www.globalcompetitionreview.com/ear/eur_atr.cfm">http://www.globalcompetitionreview.com/ear/eur_atr.cfm</a>
	International Law Office (ILO), “Competition – Sweden”.	<a href="http://www.internationallawoffice.com/lettersresults.cfm?Newsletters__WorkAreas=Competition">http://www.internationallawoffice.com/lettersresults.cfm?Newsletters__WorkAreas=Competition</a>
US	Bianco, M., F. Ghezzi and P. Magnani, 1998a, “L’applicazione della disciplina antitrust nel settore bancario statunitense”, in M. Polo (ed), <i>Industria Bancaria e Concorrenza</i> , Bologna: Il Mulino, 143-258.	

## APPENDIX 2. CONTACTED AGENCIES DEALING WITH MERGER AND SUPERVISORY CONTROL

The table reports the agencies we would like to thank for helping us with the collection of the legal and institutional country characteristics on merger and supervisory control. It is not our intention to implicate these agencies or their affiliated institutions and we consider all the remaining errors in the reporting as ours. For each country we order the contacts we had as follows: (1) the competition authorities, (2) the national supervisors and/or central banks, and if applicable (3) the European Central Bank.

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Country	Agency
Austria	Cartel Court Federal Competition Authority (of Austria) Austrian Financial Market Authority (FMA) European Central Bank
Belgium	Federal Public Service Economy European Central Bank
Canada	Competition Bureau
Denmark	Danish Competition Authority Danish Financial Supervisory Authority
Finland	Finnish Competition Authority European Central Bank
France	Queen Mary and Westfield College European Central Bank
Germany	German Competition Authority Deutsche <i>Bundesbank</i> European Central Bank
Greece	Hellenic Competition Authority Bank of Greece European Central Bank
Ireland	Department of Enterprise, Trade and Employment Irish Competition Authority
Italy	Italian Competition Authority Bank of Italy
Netherlands	Netherlands Competition Authority Nederlandsche Bank
Norway	Norwegian Competition Authority Ministry of Finance Norges Bank
Portugal	Portuguese Competition Authority European Central Bank
Spain	Banco de Espana European Central Bank
Sweden	Swedish Competition Authority Finansinspektionen
UK	Office of Fair Trading Financial Service Authority
US	European Central Bank Federal Reserve Board

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### APPENDIX 3. LEGAL AND OTHER DEVELOPMENTS IN ITALY AND EUROPE IN 2005

BAPV: Antoveneta Bank (Banca Antoniana Popolare Veneta), Berlusconi: prime minister of Italy; BI: Banca d' Italia, BPI: Banca Popolare Italiana; CONSOB: the stock market regulator; EC: European Commission; Fazio: former governor of the Banca d' Italia; Govt: Government; McCreevy is the European Internal Market Commissioner; Kroes is the European Competition Commissioner.

#### Law Transfer Competition Control

14.01: Govt proposes law WITHOUT transfer, but  
Parliamentary Committee will add it  
03.03: Lower House votes NOT to transfer

03.09: Govt proposes law WITHOUT transfer, but  
Press expects Senate to add it  
11.10: Senate approves law WITHOUT transfer

#### ABN AMRO versus BPI for BAPV

12.01: ABN Amro seeks new shareholder pact to  
control BAPV  
21.01: BPI seeks to split BAPV to acquire control

11.07: BI approves proposal BPI to acquire BAPV

25.07: Court confiscates shares of BPI & allies  
CONSOB suspends BPI's bid

30.07: BI suspends BPI approval

01.08: House arrest for BPI top management

23.09: Berlusconi calls on Fazio to resign

15.10: BI cancels BPI approval

19.10: ABN Amro wins bid

19.12: Fazio resigns

#### European Commission

08.02: McCreevy warns Fazio against blocking  
foreign bank takeovers

12.02: Fazio says cross-border banking mergers  
can be "difficult"

14.05: McCreevy sends letter with concerns

24.05: Kroes says she may sue Italy

22.12: Lower House approves law WITH transfer  
23.12: Senate approves law WITH transfer  
28.12: President approves law (published 12.01.06)