

The Economic Impact of Merger Control Legislation

Elena Carletti

Bocconi University, IGIER, CESifo and CEPR

Philipp Hartmann

European Central Bank and CEPR

Steven Ongena *

University of Zurich, Swiss Finance Institute and CEPR

This Draft: January, 2015

* Corresponding author. Department of Banking and Finance, Plattenstrasse 14, 8032 Zürich, Switzerland. Email: steven.ongena@bf.uzh.ch. We are grateful to Franklin Allen, Thorsten Beck, Brian Bucks, Dennis W. Carlton, Hans Degryse, Giovanni Dell’Ariccia, Mariassunta Giannetti, Iftekhhar Hasan, Campbell Harvey, Augusto Hasman, Eric Helland (managing editor), Martin Hellwig, Michael Koetter, Jan Pieter Krahen, Ricardo Lago, Francisco Marcos Fernandez, Andrea Mattozzi, Phebe Miller Olcay, Thomas Piquerau, Eduardo Martinez Rivero, Katja Neugebauer, Jörg Rocholl, Isabel Schnabel, Jan-Peter Siedlarek, 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 2nd 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 Claudio Calcagno, Sandrine Corvoisier, Marco lo Duca, Adriana Paola Morales Acevedo 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. This paper is produced as part of the project ‘Politics, Economics and Global Governance: The European Dimensions’ (PEGGED) funded by the Theme Socio-economic sciences and humanities of the European Commission’s 7th Framework Programme for Research. Grant Agreement no. 217559. Ongena acknowledges the hospitality of the European Central Bank while writing this paper. Any views expressed are only those of the authors and should not necessarily be attributed to the European Central Bank or the Eurosystem.

The Economic Impact of Merger Control Legislation

Abstract

We investigate the impact of legislative reforms in merger control legislation in nineteen industrial countries between 1987 and 2004. We find that strengthening merger control decreases the stock prices of non-financial firms, while increasing those of banks. Cross sectional regressions show that the discretion embedded in the supervisory control of bank mergers is a major determinant of the positive bank stock returns. One explanation is that merger control introduces “checks and balances” that mitigates the potential abuse and wasteful enforcement of supervisory control in the banking sector.

Keywords: merger control, legal institutions, financial regulation.

JEL codes: G21, G28, D4.

1. Introduction

Merger control refers to the set of procedures and regulations dealing with the reviewing of mergers and acquisitions under antitrust (or competition) law. 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 reforms of merger control legislation have marked an important shift in the economic policy of the countries involved as they imply limits on 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 during the last three decades in the United States (Andrade, Mitchell, & Stafford (2001)) and other countries (Evenett (2004)). The European Commission for example adopted final decisions in 270 cases during 2010 only, including many that attracted widespread media attention (e.g., Oracle / Sun Microsystems, Monsanto / Syngenta and Unilever / Sara Lee Body). The UK Office of Fair Trading dealt with 77 cases in the same year.¹

Despite the importance of merger control in practice, its economic impact on firms' 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 in greater detail or to impose conditions (Ellert (1976), Aktas, De Bodt, & Roll (2004), Aktas, de Bodt, & Roll (2007), and Duso, Neven, & Röller (2007)). Not surprisingly, these studies confirm that regulatory actions affect firms' valuation, but the effects are somewhat mixed in terms of their economic relevancy and time of realization. In

¹ Merger notification is voluntary in the U.K.. This means that the OFT decides on cases that are either voluntarily notified by the parties or are opened on its own initiative.

particular, it remains controversial whether all effects on firms' 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 merger policy (an exception is Brady & Feinberg (2000)), thereby ignoring the effects that the introduction or changes in the policy itself may have on investors' expectations and thus stock prices. Some studies have indeed shown that the effects at the time of regulatory reforms can be important and even larger than those at the time of the merger announcements. For example, Becher (2009) finds that this was the case with the passage of the Riegle Neal Act of interstate bank deregulation in the US in 1994, although the Act itself was the culmination of almost two decades of state-by-state reform (Kroszner & Strahan (1999)). Another potential reason for the mixed findings on the impact of merger control legislation is that the existing studies do not distinguish across different sectors. Therefore, they disregard sector specificities and the potentially important interaction between merger control and sector regulation.

In this paper we contribute to the existing literature by investigating further the economic impact of merger control. Our focus is to analyze the impact on firms' valuation of the legislative changes introducing or substantially reforming merger control regulation rather than of its actual enforcement. As mentioned above, this allows us to measure investors' expectations about the potential future effects of merger control on the competitiveness of industries. To do this, we study merger control legislation in detail and we construct a unique data set covering 19 industrialized countries over the last three decades.

Our interest is twofold. On the one hand, we analyze the impact of merger control on investors' evaluation. On the other one, we explore potential differences across sectors and the interaction between merger control and sector specific regulation by distinguishing between regulated and non-regulated sectors. In particular, we analyze separately the

effects of the reforms of merger control legislation on non-financial firms (henceforth, also firms) and banks. Our choice is motivated by the fact that the financial sector – and in particular the banking sector – is the most regulated sector of the economy. Banking regulation is pervasive and, differently from the regulation in other industries, it includes a specific supervisory control of mergers and acquisitions among banks for reasons of financial stability. Moreover, as banking regulation dates back in all our sample countries to well before the reforms of merger control, the sector is particularly suited to analyze the effects of the introduction of merger control in a regulated sector.

Our analysis is based on a stock market event study. As a first step, we construct four indices – defined as Criteria, Enforcer, Overturning and Mandatory Notification – that describe the most important institutional characteristics of merger control. We rank these indices from 0 to 1, with higher values corresponding to a more competition-oriented design and enforcement of merger control, and study their variation across country and time. Then, we analyze in an event study the impact of the changes in these indices on the stock prices of non-financial firms and banks.

In line with the monopolistic hypothesis that a properly enforced merger control prevents anticompetitive mergers and thus future monopolistic rents (Ellert (1976)), we find that the introduction or the strengthening 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 excess returns on firm and bank stocks is both statistically significant and economically relevant, and is robust to the use of either sector price indices or firm-level data in the event study.

To exploit sector characteristics further, we then investigate the reaction of stocks of firms in other regulated industries including insurance, telecommunication, utilities and healthcare sectors. Again, we find negative excess returns in response to the changes in

merger control legislation in all sectors except in the insurance sector, where excess returns are positive. This suggests that there may be something specific to the financial industry that induces investors to react differently.

We then turn again to the banking sector, and perform a cross sectional analysis to investigate what can explain the differential effects on firm and bank stocks. We find that the characteristics of the supervisory control are the main explanatory variables of investors' reactions. In particular, the potential discretion embedded in the supervisory control deriving from unspecified valuation criteria and lack of disclosure of formal decisions is a key driver of the positive reaction of bank abnormal returns. This suggests that the more the supervisory control can be implemented with discretion, the higher is the valuation gains of banks in anticipation of changes in merger control.

The results are consistent with different hypotheses. One possibility is that, in line with the political economy literature, investors anticipate the strengthening of the merger control in the banking sector as the creation of a value-increasing "separation of powers" and "checks and balances" mechanism to the supervisory control. This would mean that merger control represents an efficient regulation which reduces the potential for abuse of power and wasteful outcomes of the supervisory decisions, in particular when these are not transparent. However, a second interpretation is that the strengthening of merger control creates inefficiencies, thus weakening previously efficient bank regulation. This would suggest a fall in the stock prices of firms, which are now burdened by a new regulatory apparatus, but a rise in the stock prices of banks as these can play regulators off against each other to increase rents in a so-called "race to the bottom".

To shed some light between the two hypotheses, we analyze in detail the well-known takeover battle that occurred in 2005 between *ABN AMRO* and *Banca Popolare Italiana* for the control of the Italian bank *Antonveneta*. The results support the "checks and balances"

explanation over the “race to the bottom” explanation, although they must be read within the context of a case study.

Our paper makes three distinct contributions to the literature. First, differently from existing studies, it constructs a very detailed cross-country data set capturing the main institutional characteristics of merger control legislation. The data document the existence of considerable variation in the institutional design of merger control across countries and time. Second, it shows how the documented variation in the design of merger control affects firms’ valuation. Third, it examines and explains how these valuation effects may differ across sectors. In particular, we focus on the difference between non-financial firms and banks, and we closely investigate the role that banking sector-specific regulation may have in explaining these differential effects. Our estimates highlight the importance of sector characteristics and existing sector regulation for the effects of legislative changes in merger control.

The paper relates to several 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, & Vishny (1998)), including its impact on the volume of M&As and the direction of cross-border deals (Rossi & Volpin (2004)). Second, it relates to studies by Jayaratne & Strahan (1998), Demirgüç-Kunt, Laeven, & Levine (2004), Guiso, Sapienza, & Zingales (2006), Barth, Caprio, & Levine (2006) and Donzé (2006), which provide evidence that excessively 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 & Tirole (1994), Goodhart, Hartmann, Llewellyn, Rojas-Suarez, & Weisbrod (1998) and Herring & Litan (1995)), competition in banking (Keeley (1990), Hellman, Murdock, & Stiglitz (2000), Boyd & De Nicolo (2005), Claessens & Laeven (2005) and Beck, Demirgüç-Kunt,

& Levine (2006); see Carletti (2008) for a survey), and the causes and consequences of banking consolidation (Berger, Saunders, Scalise, & Udell (1998)), Boyd & Runkle (1993), Demsetz & Strahan (1997), Carletti & Hartmann (2003), and Carletti, Hartmann, & Spagnolo (2007); see Berger, Demsetz, & Strahan (1999) for a survey).

The rest of the paper is organized as follows. Section 2 summarizes briefly the history and institutional arrangements of merger control, and it describes the main economic hypothesis driving the evaluation of its economic impact. Section 3 describes the data and the methodology we use in our econometric exercise. Section 4 reports the estimated effects of the changes in merger control on firms and banks, discusses a cross sectional analysis showing the importance of the characteristics of the supervisory control in determining the stock market valuations across the sample countries, and provides a case-study further supporting our findings. Section 5 concludes.

2. Merger Control: History and Hypothesis

2.1. History

The reform of merger control legislation offers a unique opportunity to study the economic impact of regulatory reforms on firms' valuation. With the exception of the United States, where regulatory limits on industry concentration existed already in 1914 (e.g., Eckbo (1992)), Germany, where it was formalized in the "Act against Restraints on Competition" in 1973, and Canada, where the Federal Competition Act in its present form was adopted in 1986, most industrial countries introduced or reformed merger control starting in the early 1990s. Since then, merger control became an important regulatory tool for the development and functioning of industries in these countries.

As a regulation limiting anticompetitive effects of mergers and acquisitions, merger control is a tool of competition policy. However, in most countries it was introduced later

than legislation covering antitrust practices through a separate law or it was the most significant change in subsequent modifications of an already existing antitrust act. For example, the European Union introduced merger control explicitly only in 1989, whereas the regulation on anticompetitive behavior and abuse of dominant position dates back to the Treaty of Rome of 1957. Similarly, Austria and Portugal introduced merger control in 1993 and 2003, whereas the competition acts date back to 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. In Finland the chapter on merger control was written into the competition act of 1992 only in 1998.

This history makes it possible to isolate the specific effects of reforms in merger control from those of other antitrust regulation. Moreover, the reforms of merger control seem to be well defined also in terms of identification of the relevant events. Most of the countries in our study did not experience other industry or country specific events in the same time period when the reform of merger control legislation occurred. This allows us to identify the reforms of merger control legislation as the relevant events driving the results of our study. Finally, as a general regulation affecting all sectors, the reforms of merger control in our sample countries were most likely exogenous to existing regulations or occurrences in any particular industry.² Thus, they are well suited to examine how a general policy change may have different effects across sectors depending on their characteristics and regulation.

² It is likely that no sector can decisively lobby and induce a change of merger control that is applicable to all sectors. Lobbying could occur, for example, in expectation of positive valuation effects. In terms of the results that we present later, it is important that the reforms of merger controls are not induced by lobbying by the banking sector. It is possible to show that the results do not differ between countries with large versus small banking sectors (proxied by total bank credit / GDP, with a cutoff of 150 percent). Interpreting the size of the banking sector as a possible measure of lobbying power, we conclude that the reforms of merger control are not induced by the lobbying in this sector.

2.2. Economic Hypothesis

There is a long-standing debate about the objective of merger control and its effectiveness. The debate centers on the goals of antitrust regulation and the reasons why companies find it profitable to merge (e.g., Ellert (1976), Eckbo (1983), Eckbo (1992), Brady & Feinberg (2000), Aktas, De Bodt, & Roll (2004), Dinc & Erel (2013)).

According to the so-called “monopolistic hypothesis” (Ellert (1976)), mergers, particularly when involving large companies, are likely to be motivated by considerations of monopoly power or other anticompetitive advantages associated with increases in size and market shares. By contrast, according to the so-called “benign merger” hypothesis, companies merge to realize efficiency gains and eliminate redundancies.

Both types of mergers improve companies’ profits and thus stockholders’ returns. However, mergers motivated by monopoly power are anticompetitive as they lead to higher output prices and lower consumer welfare; while those creating substantial efficiency gains are pro-competitive and beneficial to consumers.³ The objective of merger control is to prohibit mergers or acquisition producing anticompetitive effects and thus harm to consumers. The emphasis in the merger regulation on market share as a criterion to discern anticompetitive effects varies across jurisdictions. For example, in the United States, the Clayton Act prohibits mergers or acquisitions that may substantially lessen competition or tend to create a monopoly. In Europe, the Council Regulation No 4064/89 prohibits concentrations which create or strengthen a dominant position as result of which effective competition would be significantly impeded.⁴ In line with the monopolistic hypothesis

³ Evidence is mixed on what type of mergers is more likely to occur in practice. Results depend on the valuation method used and the industry considered (Singal (1996)).

⁴ The Council Regulation No 139/2004 modifies the previous regulation by prohibiting concentrations which would significantly impede effective competition, in the common market, in particular as a result of the creation or strengthening of a dominant position. Similarly, the national legislation in various European

described above, the concern is that excessive concentration may cause a substantial lessening of competition or the creation of a dominant position, which may increase prices and reduce consumer welfare.

This implies that, if effectively enforced, merger control should prevent concentrations leading to substantial reductions of competition, while it should allow those producing sufficient efficiency gains to bring benefits to consumers and the economy. This means that merger control should limit firms' external growth and profit possibilities, if generated by excessive market power. If this is anticipated by investors, the introduction of merger control or of reforms strengthening leads to a decline in companies' stock value relative to the situation where merger control is absent. Such an effect will be more pronounced for those companies most likely to be involved in (large) mergers (see also Brady & Feinberg (2000)).⁵

3. Data and Methodology

3.1. Data Collection

We use an event study approach to analyze the effects of the introduction or modifications in merger control in numerous industrial countries over the period January 1, 1987 to July 1, 2004. 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,

countries stresses the importance of the market share of the new entity as a potential indication that the concentration will have anticompetitive effects.

⁵ An alternative possibility is that the anticipation of stringent merger control enforcement induces companies to become more efficient, thus potentially increasing their stock value. However, there is evidence that antitrust policy does not produce efficiency gains (Bittlingmayer & Hazlett (2000)).

Netherlands, Portugal, Spain, Sweden, and the United Kingdom, and two additional non-EU countries, Switzerland and Norway.⁶

In the collection of the institutional data, we relied on multiple sources. In a first step, we analyzed the 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 examined the many publicly available reports on merger control to check our interpretation of the events (Appendix 1 contains a comprehensive list). Finally, we contacted experts of the various institutions dealing with merger control across all countries (Appendix 2 contains the list of agencies we contacted). We communicated extensively with them 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.

3.2. *Institutional Variables*

A key contribution of the paper is to aggregate and code the institutional information we collected. We capture the main features of the design of merger control through four variables that vary across country and time: *Criteria*, *Enforcer*, *Overturing*, and *Mandatory Notification*. These variables are formulated as the answers to four questions:

1. What assessment criteria are used in merger control?
2. Who is (are) the decision-making agency(ies) for merger control?
3. Can a third agency intervene in the process to replace / overturn the decision-making agency(ies)?

⁶ 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.

4. Is merger notification mandatory above (statutory) thresholds?

The variable Criteria measures whether criteria other than competition are considered in the review of M&As. Examples are general or public interests, preservation of employment or international competitiveness of the national industry. The idea is that when these other objectives are taken into account (e.g., Austria, Ireland, Spain, Sweden and UK till 2002), the enforcement of merger control is likely to be weakened in the sense of being less competition oriented.

The second variable, defined as Enforcer, captures the identity of the authority in charge of merger control. In most jurisdictions (e.g., Austria, Belgium, EU, Germany, Greece, Ireland since 2002, Netherlands, Norway, Portugal since 2003, Switzerland) an independent antitrust authority or a court is in charge of merger control. In others (e.g., Canada, Denmark, Finland, Sweden, UK and US), the decision-making power is shared among several authorities. Yet in some other countries (e.g., France and Spain), a political body enforces merger control. The idea is that merger control is more likely to be effectively implemented when the enforcer is an independent antitrust authority or a court rather than a political body.

The variable Overturning measures whether another authority can intervene, take over the review process or overturn the decisions of the agency enforcing merger control for reasons other than competition. This is the case for example in Germany, where the Ministry of Economics may clear a concentration prohibited by the competition authority if the restraint of competition is outweighed by public interest or advantages to the economy as a whole. Similar procedures exist in Belgium, the EU, Greece, the Netherlands, Norway, Portugal, Switzerland and the UK since 2002. The potential interference of another authority is likely to weaken the enforcement of merger control, similarly to when criteria other than competition are taken into account in merger decisions.

The last variable, defined as Mandatory Notification, measures whether a merger must be notified to the competent authority (if above a certain size) or whether notification is voluntary, as is the case in the UK and in Norway till 2004. The idea is that mandatory notification is associated with a stricter enforcement of merger control.

All variables range between 0 and 1, with higher values corresponding to a more competition-oriented design and enforcement of merger control. Changes in any of the four institutional variables during the sample period define our set of events. These are shown in Table 1 for the countries we analyze. As the values in the table shows, in most instances the event consists in the introduction of merger control in a country and as such it affects all the variables describing merger control (e.g., Austria, Belgium, Denmark, EU, Finland, Greece, Italy, Netherlands, Norway in 1993, Spain in 1989, Sweden in 1992 and Switzerland). In a few other cases, the event captures a reform changing the existing merger regulation, thus affecting only some of the variables (e.g., France, Ireland, Norway in 2004, Portugal, Spain in 1999, Sweden in 2000, and the UK). This underlines the importance of carefully analyzing the institutional details of merger control and their variation over time.⁷

3.3. Dating

The precise dating of the change in investors' expectations in legislative event studies is of paramount importance (Schwert (1981), Binder (1985)). To tackle this issue, we study the legislative process in detail. We first divide it into two phases: approval and publication, as described in Figure 1. *Approval* refers to the date of approval by either the Parliament or the Head of State. When available, we collect this as the earliest date in the official approval process. In a bi-cameral parliamentary system, for example, we use the date when

⁷ 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.

the first chamber approves the law. *Publication* refers to the date when the legislation is published in the country's official journal.

Second, to capture the earliest time when investors can reasonably be expected to infer reforms in the merger control legislation, we study the stock price reaction around the *earliest official date* of the legislative process that we collect. This coincided with the approval date (typically by the Head of State) in some countries, and with the publication date in others. As shown in Figure 1, we then obtain 20 *Event* dates as deriving from 16 approval dates and 4 publication dates. This methodology allows us to take account of the heterogeneity in the codification of the legislative process across countries and harmonize the information investors have about its outcome. Neglecting these differences across countries entails the risk of analyzing investors' reactions to widely divergent information sets.

3.4. Event Windows and Confounding Effects

We analyze the impact of the introduction or modifications of merger control on the stocks of the firms around the event dates identified above. In particular, we analyze investors' reactions during an adequate period preceding them, i.e., we study event windows that commence 120, 60, and 20 days prior to the event (and also include the event). Using large windows allows us to capture investors' potential reactions during the whole parliamentary process. Major legislative changes such as the reform of merger control legislation involve indeed long and partially public discussions during which there may be significant information leakages to the market.

While considering large event windows is essential in an event study looking at the impact of legislative reforms, it may, however, cast doubt on the absence of confounding effects and hence the interpretation of the estimated excess returns. To address this issue, we investigate the presence of confounding effects from other events that may take place

during the studied event windows (McWilliams & Siegel (1997)). In particular, we check whether any confounding events such as macroeconomic shocks, introduction of sector specific regulations and large privations occurred in our sample countries in the same time period when the reforms of merger control legislation took place. We then assess the importance of these confounding events for our events.

The result of our assessment process for each of the exact event dates is reported in Table 2. The vast majority of countries did not experience any major confounding event. In only three countries (Greece, Portugal and Spain) potentially important confounding events in the form of privatization programs took place during our sample period (but results are unaffected by their exclusion). We conclude that the reforms in merger control legislation are well defined events and can be interpreted as the driving force behind the changes in firms' stock prices.

3.5. Event Study Methodology

We base our analysis of the impact of the reforms in merger control legislation on a stock market event study. We start by examining separately the impact on the stock prices of non-financial firms and banks. Then, we examine the reaction of other regulated industries. The aim is to examine whether merger control may have different effects in industries that are also subject to sector specific regulation. In all the event studies that we conduct, we analyze the effects of our relevant events on daily sector price indices as well as on firm-level stock prices. All series are from Datastream.⁸ The sector indices capture all listed firms in the respective category and are value-weighted.

⁸ 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.

We estimate daily abnormal returns using standard market model regressions. We regress the daily returns for index or stock j , r_{jt} , on a measure of the market return, r_{mt} , and two event dummies, δ_t^{before} and δ_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:

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

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

We analyze τ equal to 20, 60 and 120. The coefficients γ_j^{before} and γ_j^{after} measure daily cumulative abnormal returns (CARs) 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.⁹ As a proxy for the market return we include the value-weighted index of all stocks in the country (for the EU we employ the EU-15 Market Index) and the Morgan Stanley All Country World Index.¹⁰ For each event the CARs are the estimated coefficients $\hat{\gamma}_j^{before}$ and $\hat{\gamma}_j^{after}$.

For each event we estimate daily abnormal returns for both indices and stocks. We calculate the mean 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 assuming an equal binomial probability of occurrence for the number of positives versus negatives. This test

⁹ 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 & 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. 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.

¹⁰ In unreported robustness we replace all country indices with the EU-15 Market Index, and exclude the Morgan Stanley All Country World Index. Results are unaffected. 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.

does not require the abnormal returns to have the same variance or to be normally distributed and is unaffected by outliers. In a second step (and as recommended by McWilliams & Siegel (1997) for example), we regress the daily abnormal returns of the firm and bank stocks cross-sectional on measures capturing the potential discretion embedded in the supervisory control in each country.

To start with, we assess the (null) hypothesis that the exact event dates 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). 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, of 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, the data are consistent with the events being independent.

4. The Impact of Changes in Merger Control

4.1. Univariate Analysis

The results of the event study for both the stock indices and the individual stock prices of non-financial firms and banks assessed across events are reported in Table 3. Indices differ from individual stocks in terms of coverage, selection, and relevant value weighting. Analyzing both is therefore informative. For brevity, we report only selected windows around the legislative changes as identified by the event dates. We assess the results broadly across all events, time windows, and estimates.

We note two 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 we expect the most significant reaction to occur before this date. The results are broadly consistent with this and thus confirm the accurateness of the dates we use (Schwert (1981), Binder (1985)). There are sporadically some significant reactions in the windows following the event dates. This may reflect the fact that in some cases the formal end of the legislative process may remove remaining uncertainties about the actual *modus operandi* of the new legislation.

Second, moving to the analysis of the results, Table 3 shows that the reforms of merger control legislation have important economic effects that differ between the non-financial and the banking sector. Changes in merger control lead on average to a *decrease* in firms' stock prices but to an *increase* in banks' stock prices. This result holds when we conduct the event study using the industry as unit of observation as well as when we employ firm-level data. The negative effect on firms is in line with our hypothesis as described in Section 2.2, but the positive effect on banks is not.

The difference between the reactions of bank and firm stock prices is positive and statistically significant. We assess this key difference in three different ways. First, we perform a t-test assuming unequal variances on the difference in mean CARs on bank and firm indices or individual bank and firm stocks. Second, we conduct a Mann Whitney Wilcoxon test to assess the difference in median CARs on individual bank and firm stocks. Third, we report the Pearson value of the Chi-Square test for the number of bank positives and negatives versus firm positives and negatives (in terms of CARs), for either the bank and firm indices or individual bank and firm stocks.

The difference between the reactions of banks and firms is also economically relevant. For example, in the 20, 60 and 120-day windows before and including the event date the

difference in mean CARs equal 3.3**, 7.5*** and 10.4* percent for the indices, and -0.5, 2.3* and 7.5*** percent for the individual stocks.¹¹ Firm and bank stocks differ significantly also in the direction of their reaction. For the [-120, 0] window for example 12 bank index CARs are positive and 8 are negative, while 12 firm index CARs are negative and 8 are positive. Similarly, 77 individual bank stock CARs are positive and 54 are negative, while 964 individual firm stock CARs are negative and 771 are positive. Similar results hold for the other event windows.

In Table 3 we also investigate the difference in reactions for large and small banks and firms (the median size by total assets in each group is the cut-off). We find that the difference in CARs between small banks and firms is somewhat larger than the one between large banks and firms. This result highlights yet another difference between the banking and the non-financial sector.

To investigate further the impact of merger control reforms across different industries, in Table 4 we investigate the reaction of firms' individual stocks in other regulated sectors, i.e., the insurance, telecommunication, utilities and healthcare sector. The results are interesting. Excess returns are positive and significant in the insurance sector, which is the sector closest in activity and regulation to banking, while they are mostly negative in the other three sectors.¹² The different reaction of stocks in the banking and insurance sectors suggest that there may be something specific to the financial industry that may interfere with merger control. We now turn to analyze the specificity of the financial industry more

¹¹ *** Significant at 1 percent, ** significant at 5 percent, and * significant at 10 percent. For convenience we will also indicate the significance levels of the estimates that are mentioned further in the text.

¹² Similar results are obtained when using returns for indices. However, we choose not to report these estimates as indices are not consistently defined and available across countries and time. We also study large and small firms in each sector (and many other sectors) but find no immediate differences. To conserve space these results are left unreported.

in depth. In particular, we examine whether banking regulation may explain the positive impact of the reforms of merger control legislation on banks' stock prices.

4.2. Cross-Sectional Analysis

Why do banks react differently to the reforms of merger control legislation? As in the other sectors, also in the banking industry, the introduction or the strengthening of merger control should lead to a more effective prevention of anticompetitive mergers, and thus to a reduction of future profits and stock prices. Why don't we see this reflected in bank investors' reactions?

To tackle this question, we investigate several economic hypotheses which may explain the positive reaction in banks' stock prices. Our focus is on a unique feature of the banking sector, namely the existence of a prudential supervisory control of M&As among banks. Whilst such a regulation is (at least partly) present in the insurance sector, it is absent in other, non-financial sectors, even if regulated. The regulation of sectors like telecommunications, utilities or healthcare concerns in fact more general aspects of firm behavior, product standards, access to networks or pricing, but it does not have any role in the approval of M&As in these sectors.

In addition to prudential regulation, in our regressions we also consider other variables capturing some institutional aspects of merger control, country institutional quality, sector concentration measures and bank characteristics. Whereas our goal is to analyze the reasons behind the positive response in banks' stock prices upon legislative changes in merger control, in one robustness test we use firms' individual CARs as explanatory variable to control for any potential omitted variables bias.

We discuss below our economic hypotheses and the variables we use to assess them in the cross-sectional exercises. Table 5 describes all the variables and their summary

statistics, showing a high variability of the variables across countries. Table 6 reports the Pearson's correlation coefficients among our explanatory variables.

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

A striking feature of the banking sector is the existence of a very specific and pervasive sector regulation and supervision having as its main goal the stability of the system. In particular for the purpose of our study, bank M&As are subject to a supervisory control that aims to ensure the soundness and stability of the newly created entities. Such control requires that the new entity is well capitalized, has a good quality of assets, a good earnings performance, suitable shareholders, etc.¹³

The supervisory control of bank M&As dates back to well before the relevant legislative events in our sample countries. This means that the legislative reforms in merger control introduced (or strengthened) a second form of control in the banking sector. In contrast to any other non-financial sector, M&As among banks had to be cleared both from a competition and a supervisory perspective. For this double control to explain the positive change in banks' stock prices in our event study, it must be that investors anticipate that the reforms of the merger control will improve the way the supervisory control is enforced and thus the overall efficiency of the banking sector or, alternatively, the possibility for them to extract rents and benefit from future merger activities. These hypotheses requires explaining and measuring why the supervisory control may be regarded by investors as been detrimental to banks' stocks; and how the introduction of the strengthening of a

¹³ For example, the Core Principles 4 and 5 for Effective Banking Supervision issued by the Basel Committee on Banking Supervision (1997) state that supervisors must establish criteria for reviewing, and eventually reject, changes in ownerships and major acquisitions by banks. The goal is to ensure that the new structure does not lead 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. For more details on the supervisory control of bank M&As in the U.S. see the Bank Merger Act, §128 and the Bank Holding Company Act, §1842, and European Council (1989), article 5, for Europe.

regulatory agency in charge of merger control can improve shareholders' gains upon having a single prudential regulator. We start by describing briefly the relationship between the two forms of control. Then, we look at some institutional characteristics of the supervisory control that can explain potential inefficiencies in its enforcement.

The relationship between the supervisory and merger controls varies across jurisdictions. In most countries, the responsible agencies share the control in that each of them has to approve the transaction according to its respective mandate. In others (e.g., the Netherlands), a third body, typically a minister or the government, decides upon any conflicts between the two responsible authorities. Yet, in some others (e.g., Canada and Switzerland), the supervisory control may prevail, particularly when the merger helps protect the interests of creditors or the general interests of the domestic financial sector. Finally, in countries like Italy until 2005 and the US the supervisory agency is also responsible for the merger control of bank M&As.¹⁴

In all these circumstances – possibly to a different extent depending on the precise institutional design – the presence of an agency responsible for merger control is likely to affect the way in which the review of bank M&As is conducted and its outcome. There are two possibilities: First, to the extent that investors perceive the supervisory control as a value-decreasing mechanism, the introduction or strengthening of merger control may be seen as a mechanism that creates a “separation of powers” in the regulation of bank mergers and thus reduces the discretion for the prudential regulator to take wasteful decisions (e.g., Laffont & Martimort (1999)), or improves its accountability through a process of “checks and balances” (e.g., Persson, Roland, & Tabellini (1997)). The idea is

¹⁴ In the U.S. the Department of Justice may challenge the decision of the central bank in court, while in Italy the competition authority is only requested to issue an opinion on the transaction. The institutional arrangement in Italy was reformed in 2005 after the *ABN AMRO-Antonveneta* case. See Section 4.3 for a detailed analysis of this case.

that a single (nonbenevolent) regulatory agency can be subject to abuse of power if it can use its discretion and the private information it obtains on the regulated firms to pursue personal agendas and take wasteful decisions. In this case, creating a separation of powers between two institutions that take separate decisions but have access to the same (or parts of the same) information and have to agree on the final outcome – in our case, whether to approve the merger – limits the scope for abuse of power and increases the likelihood of more value enhancing bank M&As.

Another possibility is instead that merger control is an inefficient regulation and its introduction allows banks' managers and shareholders to play the two regulators off against each other to increase rents. In other words, the introduction or strengthening of merger control allows banks to pursue a strategy of “racing to the bottom” and thus weaken previously efficient bank supervision.

Analyzing empirically which of the two hypotheses may be more warranted is not an easy task, as both of them lead to the same prediction that the introduction or strengthening of merger control would lead to lower firm stock prices but higher bank stock prices. We therefore proceed as follows. We first analyze more in detail the institutional design of the supervisory merger control in the banking sector to see in what circumstances the introduction of merger control would be more likely to have an effect on bank stock prices. Then, we turn to analyze a case study in detail. This will help us to provide some further support to either the “checks and balance” or the “race to the bottom” hypothesis.

We note that various institutional elements of the supervisory control are not well specified so that there is potential scope for discretion in the implementation of the supervisory control. For example, the criteria for evaluating bank M&As are often left unspecified so that they can be interpreted widely, in particular when the supervisory control pursues objectives other than the stability of the new entity. This problem is

exacerbated by the fact that in most jurisdictions decisions adopted in the supervisory review of bank M&As are not made public. This reduces the accountability of prudential authorities and increases the effect that the introduction of a new form of regulation may have on the way bank supervision is implemented.

We measure the potential discretion embedded in a given supervisory control system through various variables – each ranging from 0 and 1 – that capture its main institutional features. We then consolidate these measures into an index representing the average degree of potential discretion of the supervisory control. The first two variables, denoted as *Supervisory Criteria* and *Supervisory Enforcer*, measure the strength of the stability objective in the supervisory control of bank M&As. The former takes higher values when the supervisory review takes into account also criteria other than ensuring stability such as the “convenience and needs of the community to be served” in the US. The latter captures the identity of the authority in charge of the prudential control. The idea is that a ministry, a central bank (having also other objectives), or a combination of them, may be less focused on stability considerations than an independent supervisor. Thus, higher values of both variables may indicate a greater potential for discretion in the enforcement of the supervisory control of bank M&As.

To next two variables capture the degree of transparency of supervisory control. The first one, denoted as *Supervisory Formal Decision Not Public*, measures the extent to which the decisions taken by the responsible agencies have to be made public. The second variable, i.e., *Supervisory Informal Notification*, measures whether either by regulation or imposed *de facto* banks planning to merge have to notify the supervisor informally of their intentions before starting the formal procedure. Higher values of both of these variables correspond to greater opaqueness in the prudential control and thus to potentially more discretion. According to either the “checks and balances” or the “race to the bottom” hypothesis, we

expect the coefficients of all the four supervisory variables to be positive in our regressions. To sidestep in our estimations the possible problems of multicollinearity, as captured by the high positive correlation coefficients among the four supervisory variables shown in Table 6, we further aggregate these variables in one index denoted as *Mean of Supervisory Strength Indices*. Again we expect its sign to be positive in the regressions.

4.2.2. Efficiency Defense in Merger Control

Some characteristics of merger control may also help explain bank CARs in our event study. As mentioned above, mergers can be motivated by the exercise of market power or economic synergies deriving from the creation of efficiencies. Merger control shall challenge the former types of mergers, but not the latter.

In recent decades, there has been an increasing recognition of the creation of efficiencies in the review of mergers and in some jurisdictions they have been formally incorporated in the merger regulation as a factor mitigating potential anticompetitive effects of mergers. When this is the case, merger control becomes less stringent in that profit-enhancing mergers are not challenged if they generate sufficient efficiencies to reverse the potential to harm to consumers.

To control for this, we construct the variable defined as *Efficiency Defense* that equals one if efficiency gains are explicitly considered in the merger review as a factor mitigating anticompetitive effects, and equals zero otherwise.¹⁵ The hypothesis is that of a positive coefficient on this variable. To the extent that banks can claim more than non-financial

¹⁵ 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 is not captured by our variable.

firms that mergers lead to important efficiency gains,¹⁶ they may be subject to a less stringent merger control than other industries and thus benefit more (or be hurt less) from the reform of merger control.

4.2.3. Other Institutional and Firm-specific Characteristics

One important issue is whether the positive bank CARs may be driven by other country characteristics, such as the general quality of governmental and regulatory institutions rather than by institutional features specific to the competition and supervisory policies. In order to check this, we introduce the variable *Bureaucracy Quality* that accounts for the strength and expertise of the national bureaucracy; and the variable *Corruption* that accounts for the degree to which bribes, nepotism and ties between politics and business are prevalent in a given country. As shown in Table 6, both variables are negatively correlated with the supervisory variables and their mean, suggesting that in countries with better bureaucratic quality and less corruption also the supervisory control tends to be better in terms of objectives, enforcer and transparency. This suggests that both of these institutional variables should have a negative sign in our regression, since the potential benefit of merger control for bank stock prices should be lower in countries where institutions are of good quality and corruption is limited.

Certain sector and bank characteristics may also contribute to explain excess returns. For example, a greater level of sector concentration at the time of the legislative change can be seen as a proxy for the tightness of merger control if associated with lower competition and greater potential for anticompetitive mergers. To see if this is the case, we measure sector concentration by the Herfindahl-Hirschman index (*Bank Sector HHI*), which is calculated

¹⁶ The empirical evidence on the ability of banks to generate efficiencies through mergers is mixed. Few studies find that banks are able to generate scale efficiencies even at larger sizes (e.g., Berger & Mester (1997) and Hughes, Mester, & Moon (2001)) and as result of mergers (Focarelli & Panetta (2003)).

as the sum of the squared shares of the exchange-listed banks by stock market capitalization, and we expect it to have a negative sign in our regressions.

Bank size may also contribute to explain excess returns. Large banks should be more hit by a stringent merger control regime if their large size is a proxy for greater market power, while smaller banks should eventually benefit from a more competitive environment. By contrast, if bank mergers are driven by managerial hubris rather than by value enhancing considerations (Berger, Dick, Goldberg, & White (2007)), then investors, especially at the largest banks, should benefit from the tightening of merger control if this limits the wasteful merger plans of these banks. To control for these possibilities, we include as *Bank Size* the market capitalization of the bank, and the interaction of sector concentration with bank size (*Bank Sector HHI * Bank Size*). We expect the sign of both variables to depend on which of these two hypotheses dominates.

4.2.4. Results

Table 7 reports the results of the various specifications. In Models I to VII the dependent variable in the linear models is the percentage cumulative abnormal returns (CARs) for exchange-listed banks within an event window that starts 20, 60 or 120 days prior to the event day and runs until (and includes) the event day. As a robustness test, in Models VIII to X we use CARS for exchange-listed firms.¹⁷ All errors are clustered at the event level.

The results are consistent with our main hypotheses. As the results of Models I-VII show, the characteristics of the supervisory control consistently matter for investors' reactions and bank CARs. Investors seem to anticipate the strengthening of the merger control in the banking sector as the introduction of a positive mechanism of separation of powers and checks and balances to the supervisory control. The positive coefficients on the supervisory

¹⁷ In these specifications, concentration is calculated per country for each sector as defined by the three-digit Industry Classification Benchmark code provided by Datastream; and size refers to firm size.

variables suggest that this effect is more pronounced the greater the potential discretion embedded in the enforcement of the supervisory control. The finding is robust across every individual measure of supervisory strength, holds for the 20 and 60 day windows, and is independent of the inclusion of the various controls (the estimated coefficients on these controls themselves are hardly ever statistically significant).

The estimated coefficients also indicate the economic relevance of the results. For example, an increase of a standard deviation in the mean of the supervisory indices increases the bank CARs by 439 and 502 basis points in the 20 and 60 day windows, respectively ($= 15.14 * 0.29$; $= 17.34 * 0.29$).

None of the other explanatory variables turns out to be statistically significant and economic relevant. The coefficient of the variable Efficiency Defense changes sign in the various specifications and is (marginally) significant only in the 120 day window. This suggests that investors do not anticipate banks to be able to generate significant efficiencies from mergers.

Although not significant, the broadly negative sign of the coefficient on Bureaucracy Quality is in line with our prediction that in countries with better general institutions, bank CARs react less positively to the strengthening of merger control. By contrast, the coefficient of the variable Corruption changes sign. The insignificance of both of these variables reinforces our main result that the specific features of the competition and supervisory policies –and not the general quality of governmental and regulatory institutions– drive the positive bank CARs.

The sign of the coefficient on the concentration variable is consistent with the prediction of more stringent enforcement of merger control in more concentrated countries, while that of the variables Bank Size and Bank Sector HHI * Bank Size gives some support to the hubris hypothesis. However, the very weak significance of these coefficients prevents us

from drawing any conclusions, and it rather suggests that concentration and size may not be good proxies for the strength of competition and market power (e.g., Carletti (2010), and Antitrust Modernization Commission (2007)).

The results of Models VIII-X reported in the last three columns of Table 7 are also interesting. First, they show that the Mean of Supervisory Indices does not have strong and consistent effects on firm CARs (and results are qualitatively similar if we include the individual supervisory indices one by one), whereas Corruption has consistent negative sign and stronger significance.¹⁸ This brings further support to our hypothesis on the explanatory power of the characteristics of the supervisory control for bank CARs. Second, the stronger significance and the positive sign of the coefficient on the Efficiency Defense variable suggest that investors perceive mergers among firms to produce stronger efficiencies than mergers among banks (Berger, Demsetz, & Strahan (1999)).¹⁹

4.3. Case Study

We now analyze 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). This case study provides a unique opportunity to assess the effects of the discretion embedded in the supervisory control of bank mergers on bank stock prices.²⁰ In particular, it helps to disentangle which one of the two main alternative hypotheses could be the more relevant one.

¹⁸ These results are further robust to variations in the sets of independent variables that are included and to the replacement of Firm Sector HHI by industry fixed effects.

¹⁹ One explanation for this is that some efficiency gains seem to take a long time to materialize in the banking sector (Focarelli & Panetta (2003)), possibly due to the acute difficulties integrating different institutions (Vander Venet (2002)).

²⁰ Another example of the discretion embedded in the supervisory control and of how merger control can help reducing the abuse of the prudential controls is the Champalimaud-Santander case in 1999 (e.g., Veron (2008)).

The proposed takeover was subject to the competitive control of the European Commission as well as the supervisory control of the Bank of Italy. Whereas the Commission cleared the proposal takeover by ABN AMRO, the Bank of Italy tried repeatedly to wield its supervisory power to favor the bid of BPI. The case attracted substantial media attention, as many political and regulatory bodies intervened to limit the power and the decisions of the Bank of Italy. The battle led to a profound reform of the governance of the Bank of Italy and of 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 (Appendix 3 describes all the events). 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. The index continued increasing after any other 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.

To analyze the reaction of the Italian bank stock prices to the events during the Antonveneta case, we perform an event study around them and we report the results in the table placed below 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 clear support for the “checks and balances” hypothesis which implies that bank investors’ regard the potential discretion embedded in the supervisory control of bank mergers as not being value-enhancing. And investors react positively to events – such as legislative changes – that limit it.

5. Conclusion

In the last three decades merger control has been introduced or substantially strengthened in many developed countries. In this paper we construct an event study around the announcements of the legislative reforms of merger control in a sample of nineteen industrial countries over the period 1987-2004. The results confirm that such reforms have a significant economic impact on firms’ valuation. In line with the standard monopolistic hypothesis that merger control should challenge anticompetitive mergers and thus limit firms’ future profits if generated by greater market power, stock prices of (non-financial) firms react negatively to the announcement of pro-competitive changes in merger control. However, in contrast to non-financials, bank stock prices react positively.

The cross-sectional exercises suggest that the specific characteristics of the supervisory control of bank M&A activity are the main explanatory variables for the different responses of banks to the strengthening of merger control. In particular, bank stock prices react more positively upon legislative changes in merger control when more discretion is embedded in the enforcement of the supervisory control. This result suggests that bank investors see the potential for discretion in the supervisory control of bank M&As as value-decreasing and

anticipate the strengthening of the merger control as a way to increase their rents. Two hypotheses are consistent with these results. The first is that merger control creates separation of powers and thus a “checks and balances” mechanism to the supervisory control; the second is that the introduction of an antitrust agency allows investors to play regulators off against each other in a race to the bottom strategy. Either of these is consistent with negative firm stock prices and positive stock prices upon the announcements of the legislative reforms of merger control. However, the analysis of the Antonveneta case tends to support the former hypothesis.

Our results suggest also that any attempt to increase the transparency and the accountability of the supervisory control of bank M&As should improve the efficiency and the profitability of the banking system. This is in line with the results of a survey conducted by the European Commission that the “misuse of supervisory power” is an important obstacle to cross-border consolidation. This has led the Commission to revise the Banking Directive governing the supervisory control of M&As, in order to make supervisory control more uniform and more transparent across Europe (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 (Aktas, De Bodt, & Roll (2004), Aktas, de Bodt, & Roll (2007), Duso, Neven, & Röller (2007), Dinc & Erel (2013)). 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 investor expectations and thus valuations of banks.

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.

References

- Aktas, N., De Bodt, E., & Roll, R. 2004. Market Response to European Regulation of Business Combinations. *Journal of Financial and Quantitative Analysis*, 39, 731-758.
- Aktas, N., de Bodt, E., & Roll, R. W. 2007. Is European M&A Regulation Protectionist? *Economic Journal*, 117, 1096-1121.
- Andrade, G., Mitchell, M., & Stafford, E. 2001. New Evidence and Perspectives on Mergers. *Journal of Economic Perspectives*, 15, 103-120.
- Antitrust Modernization Commission. 2007. Report and Recommendations. In. Washington DC: Antitrust Modernization Commission.
- Barth, J., Caprio, G., & Levine, R. 2006. *Rethinking Bank Regulation: Till Angels Govern*. Cambridge UK: Cambridge University Press.
- Basel Committee on Banking Supervision. 1997. Core Principles for Effective Banking Supervision. In. Basel: Basel Committee on Banking Supervision.
- Becher, D. A. 2009. Bidder Returns and Merger Anticipation: Evidence from Banking Deregulation. *Journal of Corporate Finance*, 15, 85-98.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. 2006. Bank Concentration, Competition and Crises: First Results. *Journal of Banking and Finance*, 30, 1581-1603.
- Berger, A. N., Demsetz, R., & Strahan, P. 1999. The Consolidation of the Financial Services Industry: Causes, Consequences, and Implications for the Future. *Journal of Banking and Finance*, 23, 135-194.
- Berger, A. N., Dick, A. A., Goldberg, L. G., & White, L. J. 2007. Competition from Large, Multimarket Firms on the Performance of Small, Single-Market Firms: Evidence from the Banking Industry. *Journal of Money, Credit, and Banking*, 39, 331-368.
- Berger, A. N., & Mester, L. J. 1997. Inside the Black Box: What Explains Differences in the Efficiencies of Financial Institutions? *Journal of Banking and Finance*, 21, 895-947.
- Berger, A. N., Saunders, A., Scalise, J. M., & Udell, G. F. 1998. The Effects of Bank Mergers and Acquisitions on Small Business Lending. *Journal of Financial Economics*, 50, 187-230.
- Binder, J. J. 1985. Measuring the Effects of Regulation with Stock Price Data. *RAND Journal of Economics*, 16, 167-183.
- Bittlingmayer, G., & Hazlett, T. W. 2000. DOS Kapital: Has Antitrust Action Against Microsoft Created Value in the Computer Industry? *Journal of Financial Economics*, 55, 329-359.
- Boyd, J. H., & De Nicolo, G. 2005. The Theory of Bank Risk Taking and Competition Revisited. *Journal of Finance*, 60, 1329-1343.
- Boyd, J. H., & Runkle, D. E. 1993. Size and the Performance of Banking Firms: Testing the Predictions of Theory. *Journal of Monetary Economics*, 31, 46-67.
- Brady, U., & Feinberg, R. M. 2000. An Examination of Stock-Price Effects of EU Merger Control Policy. *International Journal of Industrial Organization*, 18, 885-900.
- Carletti, E. 2008. Competition and Regulation in Banking. In A. V. Thakor & A. W. A. Boot (Eds.), *Handbook of Financial Intermediation and Banking* (pp. 449-482). London: North Holland.
- Carletti, E. 2010. Competition, Concentration and Stability in the Banking Sector. In *Competition, Concentration and Stability in the Banking Sector* (pp. 13-37). Paris FR: Organization for Economic Cooperation and Development.

- Carletti, E., & Hartmann, P. 2003. Competition and Stability: What's Special About Banking? In P. Mizen (Ed.), *Monetary History, Exchange Rates and Financial Markets: Essays in Honour of Charles Goodhart* (Vol. 2, pp. 202-229). Cheltenham: Edward Elgar.
- Carletti, E., Hartmann, P., & Spagnolo, G. 2007. Bank Mergers, Competition and Liquidity. *Journal of Money, Credit and Banking*, 39, 1067-1107.
- Claessens, S., & Laeven, L. 2005. Financial Dependence, Banking Sector Competition, and Economic Growth. *Journal of the European Economic Association*, 3, 179-207.
- Demirgüç-Kunt, A., Laeven, L., & Levine, R. 2004. Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation. *Journal of Money, Credit, and Banking*, 36, 563-583.
- Demsetz, R., & Strahan, P. 1997. Diversification, Size, and Risk at Bank Holding Companies. *Journal of Money, Credit, and Banking*, 29, 300-313.
- Dewatripont, M., & Tirole, J. 1994. *The Prudential Regulation of Banks*. Cambridge MA: MIT.
- Dinc, S., & Erel, I. 2013. Economic Nationalism in Mergers and Acquisitions. *Journal of Finance*, Forthcoming.
- Donzé, S. 2006. Bank Supervisor Independence and the Health of Banking Systems: Evidence from OECD Countries. In. London: London School of Economics.
- Duso, T., Neven, D., & Röller, L.-H. 2007. The Political Economy of European Merger Control: Evidence Using Stock Market Data. *Journal of Law and Economics*, 50, 455-489.
- Eckbo, B. E. 1983. Horizontal Mergers, Collusion, and Stockholder Wealth. *Journal of Financial Economics*, 11, 241-273.
- Eckbo, E. 1992. Mergers and the Value of Antitrust Deterrence. *Journal of Finance*, 47, 1005-1029.
- Ellert, J. C. 1976. Mergers, Antitrust Law Enforcement and Stockholder Returns. *Journal of Finance*, 31, 715-732.
- European Commission. 2007. Directive 2007/44/EC of the European Parliament and of the Council. *Official Journal of the European Union*, L 247, 1-16.
- European Council. 1989. Second Banking Directive in the European Union. In. Brussels: European Council.
- Evenett, S. J. 2004. The Cross Border Mergers and Acquisitions Wave of the Late 1990s. In R. E. Baldwin & L. A. Winters (Eds.), *Challenges to Globalization* (pp. 411-467). Chicago: University of Chicago.
- Focarelli, D., & Panetta, F. 2003. Are Mergers Beneficial to Consumers? Evidence from the Market for Bank Deposits. *American Economic Review*, 93, 1152-1171.
- Goodhart, C., Hartmann, P., Llewellyn, D., Rojas-Suarez, L., & Weisbrod, S. 1998. *Financial Regulation: Why, How and Where Now?* London: Routledge.
- Grout, P. A., & Zalewska, A. 2006. The Impact of Regulation on Market Risk. *Journal of Financial Economics*, 80, 149-184.
- Guiso, L., Sapienza, P., & Zingales, L. 2006. The Cost of Banking Regulation. In. Evanston IL: Northwestern University.
- Hellman, T. F., Murdock, K. C., & Stiglitz, J. E. 2000. Liberalization, Moral Hazard in Banking and Prudential Regulation: Are Capital Controls Enough? *American Economic Review*, 90, 147-165.
- Herring, R., & Litan, R. 1995. *Financial Regulation in the Global Economy*. Washington DC: The Brookings Institution.

- Hughes, J. P., Mester, L. J., & Moon, C.-G. 2001. Are Scale Economies in Banking Elusive or Illusive? Evidence Obtained by Incorporating Capital Structure and Risk-Taking into Models of Bank Production. *Journal of Banking and Finance*, 25, 2169-2208.
- Jayaratne, J., & Strahan, P. E. 1998. Entry Restrictions, Industry Evolution, and Dynamic Efficiency: Evidence from Commercial Banking. *Journal of Law and Economics*, 41, 239-274.
- Keeley, M. C. 1990. Deposit Insurance Risk and Market Power in Banking. *American Economic Review*, 80, 1183-1200.
- Kroszner, R. S., & Strahan, P. E. 1999. What Drives Deregulation? Economics and Politics of the Relaxation of Bank Branching Restrictions. *Quarterly Journal of Economics*, 124, 1437-1467.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. 1998. Law and Finance. *Journal of Political Economy*, 106, 1113-1155.
- Laffont, J. J., & Martimort, D. 1999. Separation of Regulators Against Collusive Behavior. *RAND Journal of Economics*, 30, 232-262.
- McWilliams, A., & Siegel, D. 1997. Event Studies in Management Research: Theoretical and Empirical Issues. *Academy of Management Journal*, 40, 626-657.
- Persson, T., Roland, G., & Tabellini, G. 1997. Separation of Powers and Political Accountability. *Quarterly Journal of Economics*, 112, 1163-1202.
- Rossi, S., & Volpin, P. F. 2004. Cross-Country Determinants of Mergers and Acquisitions. *Journal of Financial Economics*, 74, 277-304.
- Schwert, G. W. 1981. Using Financial Data to Measure Effects of Regulation. *Journal of Law and Economics*, 1, 121-158.
- Singal, V. 1996. Airline Mergers and Competition: An Integration of Stock and Product Prices Effects. *Journal of Business*, 69, 233-268.
- Vander Venet, R. 2002. Cost and Profit Efficiency of Financial Conglomerates and Universal Banks in Europe. *Journal of Money, Credit, and Banking*, 34, 254-282.
- Veron, N. 2008. Europe's Banking Challenge: Reregulation without Refragmentation. *CESifo Forum*, 4, 51-59.

FIGURE 1

TIME LINE OF THE LEGISLATIVE PROCEDURE AND NUMBER OF EVENTS

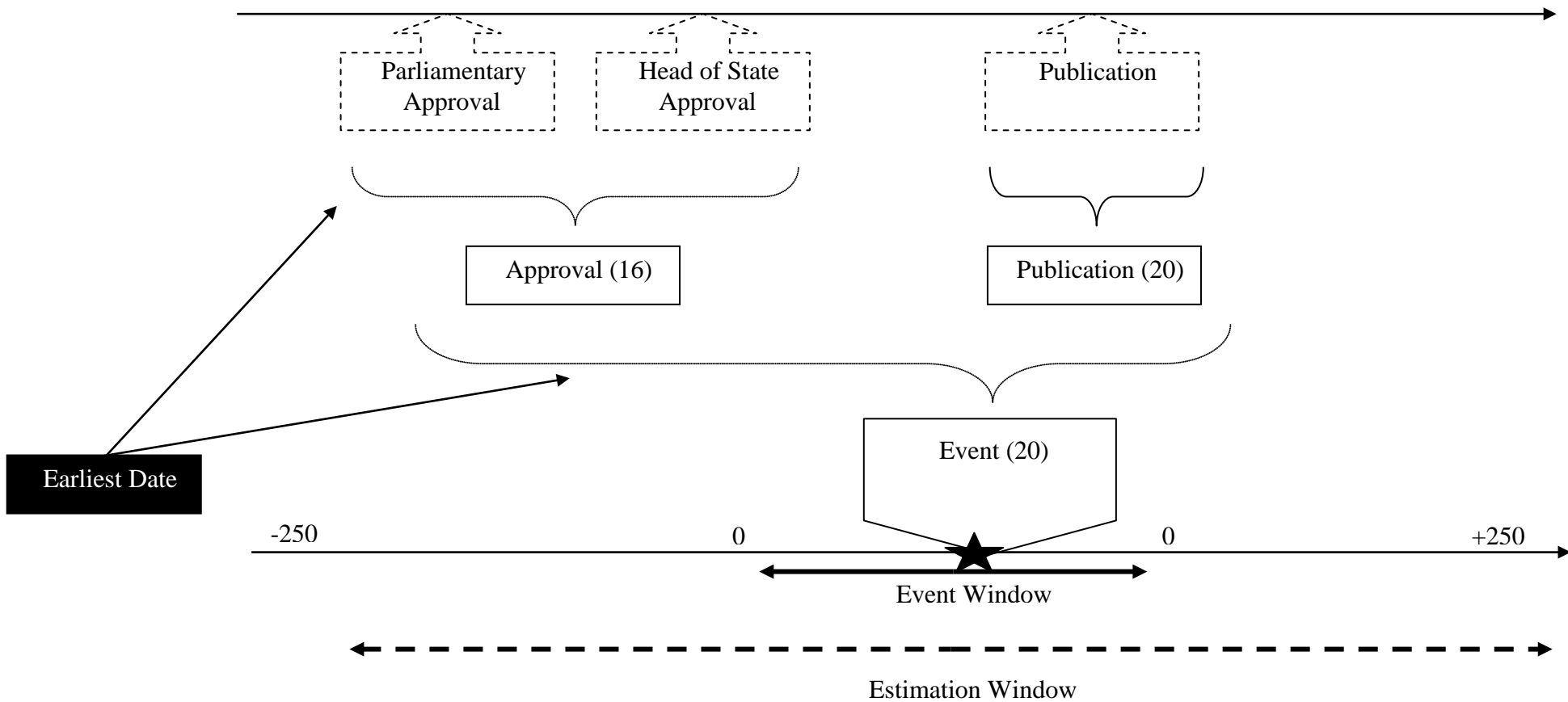
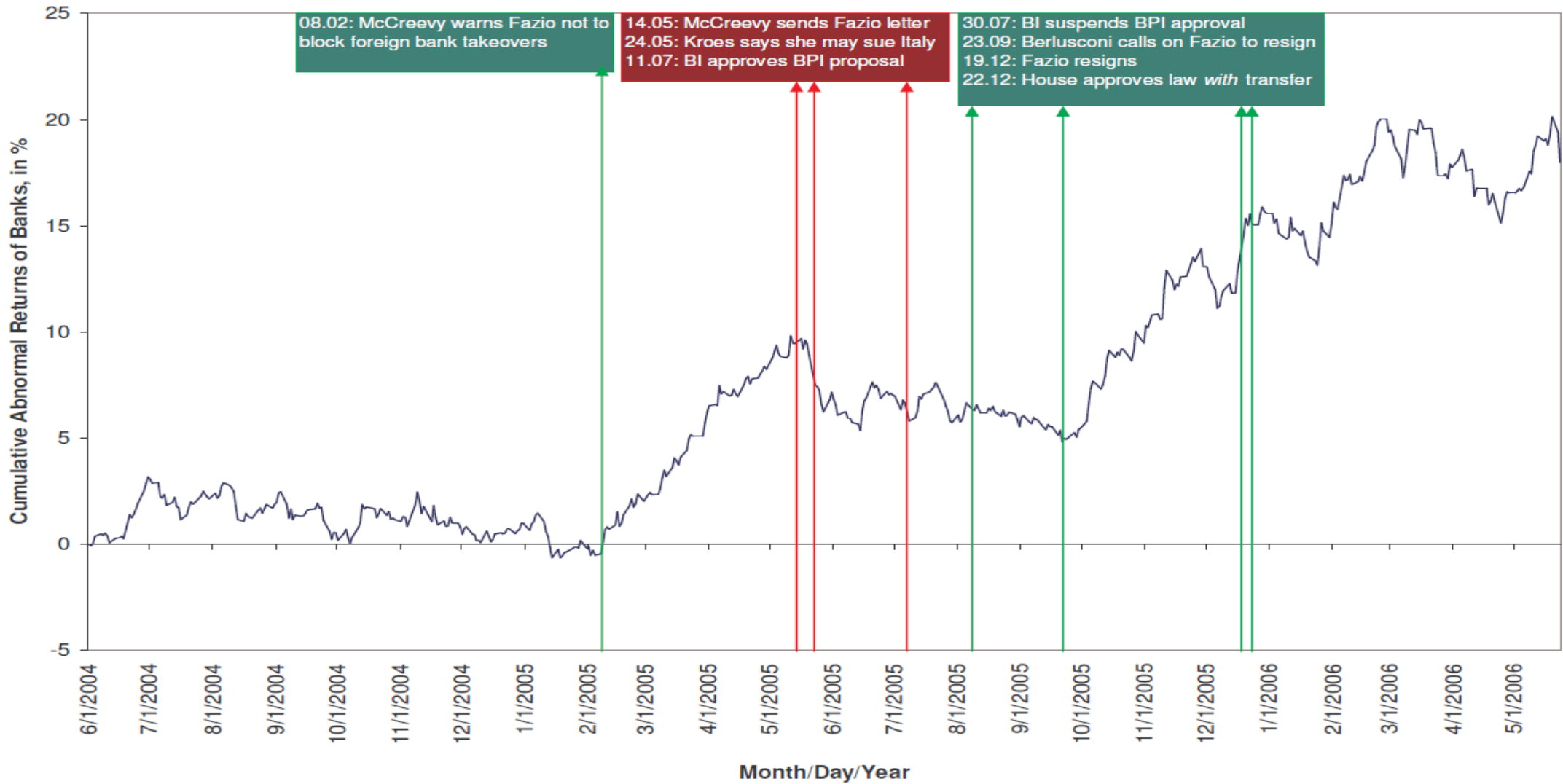


FIGURE 2

CUMULATIVE ABNORMAL RETURNS OF ITALIAN BANK STOCKS DURING THE TAKEOVER BATTLE FOR THE CONTROL OF ANTONVENETA



Event	Date	CAR(0, 2)			CAR(0, 20)			CAR(0, 60)		
		All Banks	BPI	BAPV	All Banks	BPI	BAPV	All Banks	BPI	BAPV
1 McCreevy 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

NOTE. -- 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.

TABLE 1
CHANGES IN KEY MERGER CONTROL VARIABLES DEFINING THE EVENTS

Country	Event Date	Changes in Competition Control			
		Δ Criteria	Δ Enforcer	Δ Overturning	Δ Mandatory Notification
Austria	gennaio 1, 1993	0.5	1	1	1
Belgium	agosto 5, 1991	1	1	0.66	1
Denmark	maggio 26, 2000	1	0.8	1	1
EU	dicembre 21, 1989	1	1	0.8	1
Finland	aprile 30, 1998	1	0.8	1	1
France	maggio 15, 2001	0	0	0	0.5
France	agosto 1, 2003	0	0	0	0.5
Greece	marzo 8, 1991	1	1	0.66	1
Ireland	aprile 10, 2002	0.25	0.6	0.34	0
Italy	ottobre 10, 1990	1	1	1	1
Netherlands	marzo 20, 1997	1	1	0.66	1
Norway	giugno 9, 1993	1	1	1	0.5
Norway	marzo 2, 2004	0	0	-0.34	0.5
Portugal	aprile 10, 2003	0	0.6	-0.34	0
Spain	luglio 17, 1989	0.5	0.4	1	0.5
Spain	aprile 16, 1999	0	0	0	0.5
Sweden	dicembre 17, 1992	0.5	0.8	1	1
Sweden	aprile 1, 2000	0.25	0	0	0
Switzerland	ottobre 6, 1995	1	1	0.66	1
UK	novembre 5, 2002	0.5	0.4	-0.5	0

NOTE. -- *Criteria* is based on the question: *What assessment criteria are used in merger control?* 1=only competition criteria; ½=also other criteria; 0=none, no merger control. *Enforcer* is based on: *Who is (are) the decision-making agency(ies) for merger control?* 1=antitrust authority or court; 4/5=multiple antitrust agencies; 3/5=antitrust and other agencies (e.g., minister); 2/5=only other agencies (e.g., minister); 1/5=sector regulator; 0= none, no merger control. *Overturning* on: *Can a third agency intervene in the process and replace / overturn the decision-making agency(ies)?* 1=not possible; 2/3=public (ex-post) overturning of case-specific decisions; 1/3 =appropriation of decision-making power; 0= none, no merger control. *Mandatory Notification* on: *Is merger notification mandatory above (statutory) thresholds?* 1=yes; 1/2=no; 0=none, no merger control.

TABLE 2
 IMPORTANT CHANGES IN THE COUNTRY IN THE 120-DAY PERIOD PRIOR TO THE EVENT DAY

<i>Country</i>	<i>Event Date</i>	<i>Source Database</i>	<i>Hits</i>	<i>Importance</i>	<i>Changes in the 120-Day Period prior to the Event Date</i>
Austria	gennaio 1, 1993	LexisNexis	139	Low	
Belgium	agosto 5, 1991	Le Soir	136	Low	
Denmark	maggio 26, 2000	LexisNexis	181	Low	
EU	dicembre 21, 1989	European Commission	355	Low	
Finland	aprile 30, 1998	LexisNexis	112	Medium	Signing up for EMU
France	maggio 15, 2001	Les Echos	469	Low	
France	agosto 1, 2003	LexisNexis	274	Low	
Greece	marzo 8, 1991	LexisNexis	110	High	Privatisations
Ireland	aprile 10, 2002	The Irish Times	146	Low	
Italy	ottobre 10, 1990	La Repubblica	965	Low	
Netherlands	marzo 20, 1997	LexisNexis	120	Low	
Norway	giugno 9, 1993	LexisNexis	106	Low	
Norway	marzo 2, 2004	LexisNexis	106	Low	
Portugal	aprile 10, 2003	LexisNexis	119	High	Privatisations; new FDI agency; corporate tax reform; labour reform
Spain	luglio 17, 1989	LexisNexis	126	Medium	Major stockmarket reform; announcement to join EMS
Spain	aprile 16, 1999	LexisNexis	150	High	Privatisations, exchange rates with Euro are fixed
Sweden	dicembre 17, 1992	LexisNexis	125	Low	
Sweden	aprile 1, 2000	LexisNexis	66	Low	
Switzerland	ottobre 6, 1995	LexisNexis	143	Low	
UK	novembre 5, 2002	Financial Times	213	Low	

NOTE. -- The table reports the number of hits, our assessment of importance and the relevant content when searching in the reported source databases for the country name and one of the words "shock", "privatisation", or "regulation" (or equivalent word in the foreign language) appearing in articles published in the 120-day period prior to the event date.

TABLE 3

CUMULATIVE ABNORMAL RETURNS IN PERCENT FOR ANNOUNCEMENTS OF MERGER CONTROL LEGISLATION FOR BANKS AND FIRMS

Event Windows		[-120, 0]	[-60, 0]	[-20, 0]	[1, 20]	[1, 60]
Firm indices	Mean	-2.6 *	-2.4 **	-1.0 **	-0.3	-1.0
	Median	-0.5	-1.8	-0.5	-0.1	0.0
	{{(≥0)-(<0)}}	{8-12}	{6-14} *	{6-14} *	{9-11}	{10-10}
Bank indices	Mean	7.8 *	4.9 *	2.3 *	-0.5	1.9
	Median	1.7	2.8	1.0	0.1	0.2
	{{(≥0)-(<0)}}	{12-8}	{13-7}	{13-7}	{11-9}	{10-10}
Bank-Firm indices	Mean	10.4 *	7.5 ***	3.3 **	-0.2	2.8
	Median	1.8	4.2 **	1.9 **	0.2	0.6
	{{(≥0)-(<0)}}{{(≥0)-(<0)}}	{12-8}{8-12}	{13-7}{6-14} **	{13-7}{6-14} **	{11-9}{9-11}	{10-10}{10-10}
Firm stocks	Mean	-3.8 ***	-2.1 ***	0.4 *	0.7 ***	-1.1 ***
	Median	-2.9 ***	-2.1 ***	0.0	-0.1	-1.8 ***
	{{(≥0)-(<0)}}	{771-964} ***	{776-1,008} ***	{905-897}	{888-914}	{778-1,006} ***
Bank stocks	Mean	3.7 **	0.2	-0.1	0.6	0.8
	Median	2.5 **	-0.5	0.1	0.1	0.1
	{{(≥0)-(<0)}}	{77-54} **	{63-70}	{67-66}	{67-66}	{67-66}
Bank-Firm stocks	Mean	7.5 ***	2.3 **	-0.5	-0.1	2.4 *
	Median	5.4 ***	1.6	0.0	0.2	1.9 *
	{{(≥0)-(<0)}}{{(≥0)-(<0)}}	{77-54}{771-964} ***	{63-70}{776-1,008}	{67-66}{905-897}	{67-66}{888-914}	{67-66}{778-1,006}
Large Bank-Large Firm stocks	Mean	5.7 **	1.9	-0.7	0.6	2.7
	Median	3.6 *	0.4	-0.4	0.8	2.9
	{{(≥0)-(<0)}}{{(≥0)-(<0)}}	{379-485}{37-30} *	{403-488}{31-37}	{466-433}{33-35}	{420-479}{35-33}	{370-521}{38-30} **
Small Bank-Small Firm stocks	Mean	9.3 ***	2.6 *	-0.4	-0.9	2.1
	Median	6.9 ***	2.5 *	0.5	-0.6	1.0
	{{(≥0)-(<0)}}{{(≥0)-(<0)}}	{392-479}{40-24} ***	{373-520}{32-33}	{439-464}{34-31}	{468-435}{32-33}	{408-485}{29-36}

NOTE. -- Percentage cumulative abnormal returns (CARs) for exchange-listed banks and firms are estimated around the announcement of changes in merger control using both the value-weighted country and world index in the market model. The first rows in each cell lists the Mean and Median CARs across events while the last row reports the number of positive minus the number of negative CARs between parentheses. The reported significance levels are based on standard t-tests for the Means, binomial probabilities assuming equal probability of occurrence for the number of positives versus negatives, the Mann Whitney Wilcoxon test for the difference in medians, and the Pearson value of the Chi-Square test for the number of bank positives and negatives versus firm positives and negatives. Banks and firms are grouped in large and small size categories according to market capitalization.

TABLE 4
CUMULATIVE ABNORMAL RETURNS IN PERCENT FOR ANNOUNCEMENTS OF MERGER CONTROL LEGISLATION ACROSS INDUSTRIES

Event Windows		[-120, 0]	[-60, 0]	[-20, 0]	[1, 20]	[1, 60]
Insurance stocks	Mean	6.4 **	2.1	2.3 **	2.2 **	1.9
	Median	3.5 **	-1.1	1.6 **	1.4	-3.9
	{{≥0}-(<0)}	{37-21} **	{29-32}	{39-23} **	{34-28}	{25-36}
Telecom stocks	Mean	2.4	-1.2	-1.6	-1.4	-1.0
	Median	-0.4	-3.4	-0.4	-1.7	-2.8
	{{≥0}-(<0)}	{9-9}	{8-10}	{7-11}	{7-11}	{8-10}
Utilities stocks	Mean	-2.9	-3.5 *	-0.7	-0.2	0.5
	Median	-3.1	-4.5 ***	-1.5 **	-1.0 *	0.6
	{{≥0}-(<0)}	{23-28}	{16-38} ***	{21-36} **	{22-35} *	{28-26}
Healthcare stocks	Mean	-0.6	-4.6	-1.5	-0.4	-10.0 ***
	Median	-0.9	-1.4 *	-1.1	-1.2 **	-4.0 ***
	{{≥0}-(<0)}	{36-39}	{35-44} *	{38-41}	{30-49} **	{27-52} ***

NOTE. -- Percentage cumulative abnormal returns (CARs) for exchange-listed firms in the indicated industry are estimated around the announcement of changes in merger control using the value-weighted country and world index in the market model. The first rows in each cell lists the Mean and Median CAR across events while the last row reports the number of positive minus the number of negative CARs between parentheses. The reported significance levels are based on standard t-tests for the Means and binomial probabilities assuming equal probability of occurrence for the number of positives versus negatives.

TABLE 5
INDEPENDENT VARIABLE NAMES, DEFINITION AND DESCRIPTIVE STATISTIC¹

		Banks					Firms				
		N	Mean	StDev	Min	Max	N	Mean	StDev	Min	Max
Supervisory Criteria	What assessment criteria are used in supervisory merger/acquisition control? <i>1=not only supervisory criteria (i.e., stability, soundness, prudence) but also other criteria; 1/2=only supervisory criteria; 0=none, no supervisory merger/acquisition control in banking</i>	133	0.36	0.24	0	1	1,802	0.42	0.26	0	1
Supervisory Enforcer	Who is (are) the decision-making agency(ies) for supervisory merger/acquisition control? <i>1=minister; 4/5=central bank and minister; 3/5= independent supervisor and minister; 2/5=central bank; 1/5= independent supervisor; 0=none, no supervisory merger/acquisition control in banking</i>	133	0.31	0.27	0	1	1,802	0.32	0.26	0	1
Supervisory Formal Decisions Not Public	Are supervisory decisions following formal notification public? <i>1=no; 1/2=yes; 0=no supervisory control</i>	133	0.67	0.45	0	1	1,802	0.68	0.39	0	1
Supervisory Informal Notification	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>	133	0.45	0.32	0	1	1,802	0.57	0.36	0	1
Mean of Supervisory Strength Indices	= (Supervisory Criteria + Supervisory Enforcer + Supervisory Formal Decisions Not Public + Supervisory Informal Notification)/4 <i>1=unfocused, politically-motivated and informationally opaque supervisory control possible; ...; 0=no supervisory control</i>	133	0.45	0.29	0	0.80	1,802	0.50	0.27	0	0.87
Efficiency Defense	Are efficiency gains explicitly considered as a factor mitigating anticompetitive effects? <i>1=yes; 0=no</i>	133	0.36	0.48	0	1	1,802	0.29	0.45	0	1
Bureaucracy Quality	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>	133	3.62	0.57	2.17	4	1,802	3.78	0.42	2.17	4
Corruption	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>	133	4.76	0.99	2.25	6	1,802	4.61	1.05	2.25	6
Sector HHI	The sum of squared sector shares of exchange-listed banks (firms) by market capitalization (sectors are based on the three-digit Industry Classification Benchmark codes provided by <i>Datastream</i>). <i>1=concentrated; ...; 0=unconcentrated</i>	133	0.3082	0.1779	0.103	1	1,789	0.40	0.29	0.04	1
Bank (Firm) Size	Market capitalization of the bank (firm). Source: <i>Datastream</i> <i>in billion Euros</i>	133	17,599	34,865	178	268,892	1,802	7,998	26,504	1	406,552
HHI * Bank (Firm) Size	= HHI * Bank (Firm) Capitalization	133	6,374	14,688	22	89,518	1,789	4,082	19,482	0	395,567

NOTE. -- The table lists the the number of observations (N), mean, standard deviation (StDev), mimimum (Min) and maximum (Max).

TABLE 6
CORRELATION COEFFICIENTS

Banks		ID	N	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Dependent Variables	CAR[-20,0]	(1)	133	1													
	CAR[-60,0]	(2)	133	0.60 ***	1												
	CAR[-120,0]	(3)	131	-0.31 ***	0.29 ***	1											
Supervisory Variables	Supervisory Criteria	(4)	133	0.30 ***	0.28 ***	-0.17 *	1										
	Supervisory Enforcer	(5)	133	0.23 ***	0.28 ***	-0.14	0.80 ***	1									
	Supervisory Formal Decisions Not Public	(6)	133	0.32 ***	0.31 ***	-0.18 **	0.88 ***	0.68 ***	1								
	Supervisory Informal Notification	(7)	133	0.33 ***	0.29 ***	-0.21 **	0.87 ***	0.71 ***	0.84 ***	1							
	Mean of Supervisory Indices	(8)	133	0.32 ***	0.32 ***	-0.19 **	0.96 ***	0.84 ***	0.94 ***	0.93 ***	1						
Other Variables	Efficiency Defense	(9)	133	0.14 *	0.06	-0.22 **	0.41 ***	0.10	0.55 ***	0.43 ***	0.43 ***	1					
	Bureaucracy Quality	(10)	133	-0.23 ***	-0.21 **	0.12	-0.38 ***	-0.41 ***	-0.49 ***	-0.50 ***	-0.49 ***	-0.29 ***	1				
	Corruption	(11)	133	0.03	-0.13	-0.16 *	-0.20 **	-0.26 ***	-0.24 **	-0.17 **	-0.24 ***	0.15 *	0.36 ***	1			
	Bank Sector HHI	(12)	133	0.17 *	0.17 *	-0.18 **	0.74 ***	0.69 ***	0.63 ***	0.60 ***	0.71 ***	0.32 ***	-0.02	0.04	1		
	Bank Size	(13)	133	0.14	-0.02	-0.22 **	0.12	0.12	-0.05	0.19 **	0.09	-0.20 **	0.14	0.19 **	0.15 *	1	
	Bank Sector HHI * Bank Size	(14)	133	0.17 **	0.02	-0.19 **	0.25 ***	0.26 ***	0.03	0.26 ***	0.19 **	-0.15 *	0.12	0.19 **	0.33 ***	0.91 ***	1
Firms		ID	N	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(13)	(12)	(14)
Dependent Variables	CAR[-20,0]	(1)	1,802	1													
	CAR[-60,0]	(2)	1,784	0.43 ***	1												
	CAR[-120,0]	(3)	1,735	0.17 ***	0.64 ***	1											
Supervisory Variables	Supervisory Criteria	(4)	1,802	0.03	0.13 ***	0.01	1										
	Supervisory Enforcer	(5)	1,802	0.01	0.17 ***	0.15 ***	0.81 ***	1									
	Supervisory Formal Decisions Not Public	(6)	1,802	0.07 ***	0.13 ***	0.05 *	0.76 ***	0.58 ***	1								
	Supervisory Informal Notification	(7)	1,802	0.09 ***	0.05 **	-0.23 ***	0.67 ***	0.36 ***	0.64 ***	1							
	Mean of Supervisory Indices	(8)	1,802	0.07 ***	0.14 ***	-0.02	0.93 ***	0.76 ***	0.89 ***	0.81 ***	1						
Other Variables	Efficiency Defense	(9)	1,802	0.02	0.22 ***	0.27 ***	0.36 ***	0.32 ***	0.44 ***	0.17 ***	0.38 ***	1					
	Bureaucracy Quality	(10)	1,802	-0.02	-0.12 ***	-0.14 ***	-0.16 ***	-0.32 ***	-0.41 ***	-0.24 ***	-0.34 ***	-0.43 ***	1				
	Corruption	(11)	1,802	-0.06 **	-0.07 ***	-0.11 ***	-0.07 ***	-0.11 ***	-0.38 ***	-0.03	-0.19 ***	-0.03	0.46 ***	1			
	Firm Sector HHI	(12)	1,789	-0.05 **	0.07 ***	0.19 ***	0.24 ***	0.42 ***	0.24 ***	-0.07 ***	0.22 ***	0.30 ***	-0.22 ***	-0.06 ***	1		
	Firm Size	(13)	1,802	0.01	0.01	0.01	0.01	0.09 ***	-0.06 **	0.00	0.00	-0.03	0.08 ***	0.19 ***	0.11 ***	1	
	Firm Sector HHI * Firm Size	(14)	1,789	-0.02	0.01	0.01	0.05 **	0.11 ***	-0.02	0.01	0.04	0.00	0.04 *	0.12 ***	0.22 ***	0.89 ***	1

NOTE. -- The table displays the Pearson's correlation coefficients between all dependent and independent variables for the bank and firm samples, respectively, in the upper and lower panel. The significance levels are determined by calculating for each correlation coefficient r and number of observations N : $t=r/\sqrt{(1-r^2)/(N-2)}$, which is approximately distributed as Student-t with $N-2$ degrees of freedom. ***, **, and * indicates statistical significance at the 1, 5, and 10 percent level, respectively.

TABLE 7
CROSS-SECTIONAL REGRESSIONS

Model	I	II	III	IV	V	VI	VII	VIII	IX	X
Sample	Banks							Firms		
Dependent Variable: CAR	[-20,0]	[-20,0]	[-20,0]	[-20,0]	[-20,0]	[-60,0]	[-120,0]	[-20,0]	[-60,0]	[-120,0]
Supervisory Criteria	14.04 ** (6.07)									
Supervisory Enforcer		5.21 (3.71)								
Supervisory Formal Decisions Not Public			10.07 *** (2.78)							
Supervisory Informal Notification				9.22 ** (3.30)						
Mean of Supervisory Indices					15.14 *** (4.99)	17.34 *** (5.13)	2.69 (6.43)	3.10 *** (0.90)	3.45 (2.38)	-21.03 ** (9.28)
Efficiency Defense	0.26 (1.76)	2.18 (1.98)	-1.45 (2.19)	0.26 (1.87)	0.04 (1.77)	-2.79 (2.39)	-6.30 * (3.18)	0.59 (0.74)	7.67 *** (1.64)	19.77 *** (4.64)
Bureaucracy Quality	-3.20 (2.14)	-3.74 (2.27)	-2.27 (2.45)	-2.63 (2.62)	-1.79 (2.66)	-0.55 (2.65)	5.34 (3.15)	1.02 (0.86)	0.27 (1.34)	1.45 (5.80)
Corruption	1.28 (0.88)	0.84 (1.11)	1.53 * (0.79)	1.00 (1.28)	1.41 (0.94)	0.17 (1.23)	-2.49 (1.63)	-0.83 ** (0.31)	-1.09 * (0.54)	-4.12 (2.64)
Bank (Firm) Sector HHI	-5.28 (7.88)	1.71 (8.30)	-7.32 (5.52)	-1.28 (7.34)	-9.32 (7.70)	-7.62 (5.11)	-17.43 * (9.20)	-2.07 (1.53)	-0.02 (1.75)	14.06 * (7.52)
Bank (Firm) Size	0.02 (0.07)	0.03 (0.06)	-0.01 (0.05)	0.00 (0.06)	0.00 (0.06)	0.05 (0.09)	0.25 ** (0.10)	0.05 (0.03)	0.06 (0.04)	0.12 (0.12)
Bank (Firm) Sector HHI * Bank (Firm) Size	0.05 (0.19)	0.04 (0.17)	0.14 (0.15)	0.08 (0.16)	0.10 (0.16)	0.09 (0.26)	0.34 (0.24)	0.01 (0.00)	0.07 * (0.04)	-0.14 (0.12)
Constant	1.18 (6.46)	5.66 (7.12)	-3.94 (7.87)	0.28 (8.58)	-4.88 (8.45)	-2.63 (8.21)	4.97 (9.33)	-0.64 (2.98)	-2.23 (5.80)	8.44 (16.35)
Number of Observations	133	133	133	133	133	133	131	1,789	1,771	1,722
Adjusted R-squared	0.1508	0.1266	0.1701	0.1457	0.1611	0.1230	0.1528	0.0174	0.0531	0.1278

NOTE. -- The dependent variable in the linear models is cumulative abnormal returns (CARs) in percent for exchange-listed banks and firms within an event window that starts 20, 60 or 120 days prior to the event day and runs until (and includes) the event day. Standard errors are clustered at the event level. ***, **, and * indicates statistical significant at the 1, 5, and 10 percent level, respectively.

APPENDIX 1

PUBLICLY AVAILABLE SOURCES DEALING WITH MERGER AND SUPERVISORY CONTROL

Country	Source	Www
All	Getting the Deal Through, Merger Control	http://www.gettingthedealthrough.com/main_fs.cfm?book=MergerControl
	International Competition Network, Merger Review Laws, Related Materials, and Templates.	http://www.internationalcompetitionnetwork.org/mergercontrollaws.html
	OECD, Competition.	http://www.oecd.org/infobycountry/0,2646,en_2649_37463_1_1_1_1_37463,00.html
	OECD, Competition Law and Policy.	http://www.oecd.org/infobycountry/0,2646,en_2649_34685_1_1_1_1_1,00.html
	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.	http://www.gbld.org/
Austria	Global Competition Review, Austria	http://www.globalcompetitionreview.com/ear/eur_atr.cfm
Denmark	Global Competition Review, Denmark.	http://www.globalcompetitionreview.com/ear/eur_atr.cfm
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.	http://www.globalcompetitionreview.com/ear/eur_atr.cfm
France	Fried Frank, Client Memoranda, 2002, The New Features of French Antitrust Law by Eric Cafritz and Omer Tene.	http://www.ffhsj.com/cmemos/021102_newfeat.htm
	Global Competition Review, France: Merger Control.	http://www.globalcompetitionreview.com/ear/eur_atr.cfm

	Jurismag, 2001, Le magazine rédigé par des professionnels du droit, The New French Rules for Merger Control, by A. Condomines, Avocat à la Cour.	http://www.jurismag.net/articles/artiGB-concent.htm
	Practical Law Company, Global Council Web, Merger Control – France.	http://global.practicallaw.com/jsp/article.jsp?item=:1138832
	Olcay Miller, P., 20004, Authorisation of Bank Mergers—Recent French Experience, mimeo, Queen Mary and Westfield College.	
Germany	Global Competition Review, Germany.	http://www.globalcompetitionreview.com/ear/eur_atr.cfm
Ireland	Global Competition Review, Ireland.	http://www.globalcompetitionreview.com/ear/eur_atr.cfm
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.	http://www.globalcompetitionreview.com/ear/eur_atr.cfm
	International Law Office (ILO), Competition - Norway 1998, 1999, 2001, 2004.	http://www.internationallawoffice.com/lettersresults.cfm?Newsletters__WorkAreas=Competition
Portugal	Global Competition Review, Portugal.	http://www.globalcompetitionreview.com/ear/eur_atr.cfm
Spain	Banco de Espana, 2001, “Basic Regulatory Structure of the Spanish Banking System”, Annex I to Annual Report.	
Sweden	Global Competition Review, Sweden.	http://www.globalcompetitionreview.com/ear/eur_atr.cfm
	International Law Office (ILO), “Competition – Sweden”.	http://www.internationallawoffice.com/lettersresults.cfm?Newsletters__WorkAreas=Competition
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.	

NOTE. -- 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.

APPENDIX 2

CONTACTED AGENCIES DEALING WITH MERGER AND SUPERVISORY CONTROL

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 European Central Bank
US	Federal Reserve Board

NOTE. -- 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.

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)