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## The economic impact of merger control legislation

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Prof. Volker Wieland, Ph.D.



## The Economic Impact of Merger Control Legislation\*

Elena Carletti<sup>1</sup>, Philipp Hartmann<sup>2</sup>, and Steven Ongena<sup>3</sup>

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### Abstract:

Based on a unique dataset of legislative changes in industrial countries, we identify events that strengthen the competition control of mergers and acquisitions, analyze their impact on banks and non-financial firms and explain the different reactions observed with specific regulatory characteristics of the banking sector. Covering nineteen countries for the period 1987 to 2004, we find that more competition-oriented merger control increases the stock prices of banks and decreases the stock prices of non-financial firms. Bank targets become more profitable and larger, while those of non-financial firms remain mostly unaffected. A major determinant of the positive bank returns is the degree of opaqueness that characterizes the institutional setup for supervisory bank merger reviews. The legal design of the supervisory control of bank mergers may therefore have important implications for real activity.

**JEL Classification:** G21, G28, D4

**Keywords:** Mergers and Acquisitions, Competition Policy, Legal Institutions, Financial Regulation

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## **I. Introduction**

A substantial body of evidence suggests that competition-friendly regulation positively affects the efficiency of the economy. Henry [2000], Laeven [2003], and Bekaert, Harvey and Lundblad [2005], among others, show that equity market liberalization decreases the cost of capital and spurs aggregate growth; while Jayaratne and Strahan [1996] and Huang [2007] study the beneficial effects of the deregulation permitting statewide branching and interstate banking in the US (see also Kobayakawa, de Serres, Slok and Vartia [2007]).

These studies focus on the direct impact of deregulation in a single sector, thus disregarding the role of sector specificities in explaining the potentially different effects of a legislative change across sectors. In contrast to the previous studies, this paper focuses on a legislative change that took place in many countries to guarantee and intensify competition across all sectors; and it analyzes the different effects of such a change across sectors. In particular, we analyze the changes in competition policy on mergers and acquisitions that occurred in 19 industrial countries over the last three decades and examine their impact on financial and non-financial firms. The analysis highlights the importance of the existing supervisory arrangements.

Competition policy is an important regulatory component affecting the size and market power of firms. With the exception of the United States, Canada and Germany, most industrial countries have introduced or strengthened this policy over the last three decades and have applied it to all (or almost all) sectors of the economy. Thus, competition policy has become an important reality in most countries only recently and its introduction (or strengthening) represents a significant policy shift in all countries involved. Within this policy domain, merger control has assumed a prominent role due to the high number and the value of the mergers and acquisitions that took place over the last three decades in the

United States (Andrade, Mitchell and Stafford [2001]) and other countries (Evenett [2004]), in most sectors including the financial sector (Berger, Kashyap and Scalise [1995], Dermine [2006]).

As competition policy is a general form of regulation, changes in its design are well suited to examine the distinct impact of the same regulation across different sectors. In this sense, the banking sector is ideal to investigate the potential role of sector specificities and regulation in determining the effect of a legislative change introduced across all sectors. Banking is one of the most regulated sectors in the economy. Its regulation is very pervasive and, in most countries, dates back to well before the introduction of competition policy.

Banking supervision entails a specific control of mergers and acquisitions for stability purposes, which interrelates directly with competition policy. Moreover, supervisory control is very different in nature. Apart from pursuing different objectives, supervisory control is in most instances opaque and more subject to discretion. This leads to the risk of implicit or opaque regulatory barriers in financial markets, which can be partly offset, or at least altered, by the introduction of a more transparent and more efficient-oriented form of regulation such as competition policy.

To assess the impact of the introduction or strengthening of competition policy, we collect a unique data set on legislative changes affecting the review (“control”) of mergers and acquisitions (M&As) in 19 industrial countries (United States, Canada and seventeen European countries) between 1987 and 2004. The data set covers the changes that occurred in the competition laws and competition authorities enforcing the merger control (both in banking and other sectors) as well as the legal arrangements of the supervisory control of bank merger reviews.

We aggregate this information and construct various indexes describing the crucial dimensions of the legal arrangements and examine the impact of changes in the competition control of mergers and acquisitions on non-financial firms and banks. Specifically, to isolate the effects from other institutional and macro changes, we conduct an event study to analyze the immediate changes in the market valuations. Our economic hypothesis comes from the standard industrial organization argument that the introduction or strengthening of merger control should decrease the future valuations of firms as it imposes limits to the growth and the market power of firms. Anticipating this, investors should react negatively to announcements of legislative changes leading to more competition-oriented control of M&As.

Our analysis finds striking differences between the impacts of the legislative changes on non-financial firms and banks. Legislative changes strengthening competition policy decrease the valuations of firms, but increase the market valuations of banks. The decrease in the valuations of firms is in line with our predictions, but the increase in the banks' stock returns is unexpected. The differential stock reactions are further underscored by the *Crédit Agricole-Crédit Lyonnais* and the *AMRO-Antonveneta-Banca Popolare Italiana* merger episodes that occurred respectively in France in 2003 and Italy in 2005 that we discuss as case studies, and by a balance-sheet analysis of merger targets and acquirers before and after the legislative changes.

To explain the differential effects, we perform a cross sectional analysis where we regress the individual bank stocks on a series of variables capturing important institutional aspects of the competition control, the supervisory control specific to the banking sector, general institutional quality and individual bank characteristics. The analysis identifies the transparency of the supervisory process as a key driver of the positive reaction of the

cumulative abnormal bank stock returns: The less transparent are the supervisory reviews in a given country – i.e., when the supervisory decisions are not published – the higher the valuation gains of banks in anticipation of changes in the competition control of M&As. Thus, the supervisory regime in place in a country at the time of legislative changes implementing a more competition-oriented control of M&As has an important effect on the banks' valuations.

These results show the importance of sector characteristics and of the interrelation between different regulations in explaining the effects of a particular legislative change. These results also point out important tradeoffs present in bank regulation. The fact that bank investors react positively to the introduction of a more competitive, efficiency-oriented control suggests that they consider supervisory control also as potentially value-reducing. Investors may consider the stability objective of the supervisory policy at times conflicting with efficiency and bank value maximization. For example, supervisors may occasionally promote specific mergers in order to save weak or failing banks.

More importantly, investors may discount in their valuations the negative effect on efficiency of the potential discretion embedded in the supervisory process, in particular when this process is opaque. Such discretion may lead to the attitude of the supervisors, often observed in cross border mergers, of using the supervisory review to favor domestic concentration over foreign penetration. An important example of the potential abuse of the supervisory review is the well-known takeover of *Antonveneta* by *ABN AMRO* (discussed in detail in the paper), which culminated in the resignation of the Governor of the Bank of Italy, Mr. Fazio, and, more importantly, a major legislative reform of the control of M&As in Italy and of the governance of the Italian supervisor. The attempt of Mr. Fazio to favor a domestic bidder, *Banca Popolare Italiana*, over *ABN AMRO* was widely perceived to be

linked to his desire to protect national interests rather than being motivated by stability considerations.

Overall our results suggest that the strengthening of the competition control of M&As can play an important role in limiting supervisory discretion, thereby offsetting the potential adverse side effects on openness and efficiency that are introduced through the supervisory policies. More generally, the exact configuration of legal arrangements governing competition and supervisory control of bank mergers matters for bank and firm performance in the economy.

The rest of the paper is organized as follows. We review the related literature in Section II and provide details on the institutional arrangements for the competition control of M&As in Section III. Section IV describes the data and the methodology we use in our econometric exercise; and Section V reports the estimated effects of the changes in competition control on firms and banks. Section VI describes the explanatory variables we use in the cross-sectional analysis and reports the results showing the importance of features of the supervisory control in determining the peculiar stock market valuations of individual banks across the sample countries. We conclude in Section VII.

## **II. Related Literature**

Our paper relates to several strands of literature. A vast literature has addressed the role of the legal architecture for the functioning of financial systems.<sup>1</sup> Rossi and Volpin [2004] for example have shown that legal origin and shareholder rights influence the volume of M&As (across all sectors) and the direction of cross-border deals. However no paper, as far

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<sup>1</sup> In their seminal work La Porta, Lopez-de-Silanes, Shleifer and Vishny [1998] have illustrated the influence of legal origins, formalism, and enforcement problems on the structure and efficiency of financial systems (see also Djankov, La Porta, Lopez-de-Silanes and Shleifer [2003] and Djankov, McLiesh and Shleifer [2007] for example).

as we are aware of, has analyzed the impact of changes in competition policy on merger valuation, despite the importance of this policy for the development of industry structures.

Our paper is also related to a more focused literature that deals with the effects of financial regulation on banking and real activity. Jayaratne and Strahan [1998], Demirgüç-Kunt, Laeven and Levine [2004], and Guiso, Sapienza and Zingales [2006] provide evidence that too restrictive banking regulations can lead to substantial costs in terms of growth and welfare, while Barth, Caprio and Levine [2006] document that banking regulation and supervisory interventions are often the cause of substantial inefficiencies in financial systems, in particular in developing countries. Recent empirical work by Donzé [2006] documents a correlation between measures of supervisory independence and adherence to law and banking sector health. Differently from this literature, we focus on the legal arrangements for supervisory review of bank mergers and point to their potential and often unintended side effects in terms of lower bank valuations.

By highlighting the differential effects of the competition control of M&As on banks' valuations and by explaining them with sector specificities, our paper is also related to the literature on the specialness of banks (Dewatripont and Tirole [1994], Goodhart, Hartmann, Llewellyn, Rojas-Suarez and Weisbrod [1998] and Herring and Litan [1995]); and to the literature on competition in banking (Keeley [1990] and Hellman, Murdock and Stiglitz [2000] for example; see Carletti [2008] for a survey). Our work provides support for the idea that more competition can be beneficial in the banking sector (as in Boyd and De Nicolo [2005], Beck, Demirgüç-Kunt and Levine [2006], Claessens and Laeven [2005]).

Finally, our paper is connected to the research dealing with the causes and consequences of banking consolidation (see Berger, Demsetz and Strahan [1999] for a detailed survey).<sup>2</sup> However this literature has so far mostly overlooked the effects of changes in the merger review procedures on the consolidation process (except for a discussion in Carletti and Hartmann [2003]).

### **III. Competition Control of Mergers and Acquisitions (M&As).**

Over the last three decades competition policy has become an important regulatory tool across all sectors of the economy. With the exception of the United States, where competition policy started with the Sherman Act of 1890 and the Clayton Act of 1914, and Germany, where it was formalized with the *Gesetz gegen Wettbewerbsbeschränkungen* in 1958,<sup>3</sup> most industrial countries introduced competition policy only in the early 1990s and/or strengthened it subsequently. In all cases, this policy shift constituted a significant change for the countries involved since it entailed limits to the growth and power of firms with potential consequent effects for the real activity. Furthermore, as a general policy affecting all (or almost all) sectors, the shift was most likely exogenous to changes or existing regulations in any particular industry and thus well suited to examine how the same, general policy may have different effects across sectors depending on sector characteristics.

Our aim is to document this important policy shift and to analyze its economic effects.

We focus in particular on the competition reviews of M&As (hence, competition control or

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<sup>2</sup> This literature has looked at the various effects of consolidation. Consolidation may soften competition and shrink loan supply (unless accompanied by *de novo* bank entry as documented by Berger, Saunders, Scalise and Udell [1998]), modify individual and aggregate liquidity (Carletti, Hartmann and Spagnolo [2007]), and increase bank riskiness (Boyd and Runkle [1993], Demsetz and Strahan [1997]).

<sup>3</sup> “Act against Restraints on Competition”. The merger control chapter was introduced in 1973.

merger control) and analyze the effects of their introduction or strengthening for banks and non-financial firms. We choose the dichotomy “non-financial firms versus banks” to highlight the potential differential effects across sectors since banking is subject to a specific sector regulation (which was already present in all our sample countries at the time of the legislative changes concerning competition control). This difference in regulation adds a key sectoral component to our analysis.

We start in this section by describing the general characteristics of competition control; and we turn to the specificity of the banking sector in the control of M&As in Section V.

#### A. Scope and Design

The main objective of the competition control of M&As is the prevention of excessive market concentration. The concern is that excessive concentration may cause a substantial lessening of competition or the creation (or strengthening) of a dominant position, which may lead to increase prices and reduce consumer welfare. Several factors need to be taken into account when evaluating the competitive effects of a proposed merger. These include the degree of concentration of the relevant markets (measured through either parties’ combined market share or the Herfindahl-Hirschman index), the possibility of entry and the presence of potential entrants, and the evolution of the market and of the parties’ market shares in the years before the proposed transaction. In some countries, it is also evaluated whether the merger leads to efficiency gains, for example through a larger scale, which would offset any price impacts of the increase in concentration (the so-called efficiency defense).

An important factor in the evaluation of merger proposals is also whether criteria other than competition are taken into account. In particular, the competition law in some countries contains a provision that allows the competent authorities to weigh competition

considerations against other presumed social or political benefits, such as the preservation of employment, technical achievements or certain services in a specific region. When this is the case, the competition control is weakened in the sense of being less competition oriented.

Another important element in the design of merger control is the identity of the authority enforcing it. In most countries a competition (or antitrust) authority or a court are in charge of taking decisions on proposed mergers. In others, the decision-making power is shared among several authorities, such as multiple antitrust authorities or the ministry of finance. Again in other countries, ministries or special sector regulators, as is sometimes the case in the banking sector, enforce competition control.

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

A last important component of the design of the merger control is the procedure followed in the merger review. In most countries the competition control is mandatory, i.e., a merger must be notified to the competent authority if it is large enough. In others, notification is instead voluntary but the enforcing authority can undo mergers *ex post* if they turn out to create adverse competitive effects. After the notification process, it is decided whether the merger has the potential to raise competition concerns and, if this is the case, the specific

transaction is reviewed in more depth. At the end of this process, the enforcer decides to approve, block or impose remedies on the proposed merger. In the latter case, parties are required to divest part of their business in particularly concentrated geographical areas or lines of product. In all countries the evaluation and decision process tend to be highly transparent in that decisions must be motivated and are made public.

The changes occurring in the competition control of M&As over the last three decades involved one or more of the dimensions of the control identified above. In most countries the control was introduced *de novo* (e.g., Italy, Netherlands, Denmark, Spain, Sweden), while in other instances it was modified in terms of a different enforcer (e.g., Ireland, Portugal) or a different notification procedure (e.g., Spain where notification became mandatory in 1999). All changes led to a more competition-oriented control of M&As.

#### B. An Example

Before analyzing econometrically the effect of changes in competition control, we describe here the economic hypothesis underlying our exercise with the help of a simple numerical example. The main ingredients of this example come from the standard theory of industrial organization (Tirole [1988]).

Consider an industry at time  $t=0$  with 16 firms divided in 8 firms of type X and 8 firms of type Y. Each firm has an initial value of 100; and in each period nature decides which firms can acquire another firm and merge with it. For simplicity, let half of the X firms and half of the Y firms turn out to be “natural” acquirers. Assume also that only mergers among different types of firms create synergies (and in particular they double the value) so that, depending on the type of the acquirers, we have  $X_t = 2(X_{t-1} + Y_{t-1})$  or  $Y_t = 2(Y_{t-1} + X_{t-1})$  and  $X_t = X_{t-1} + X_{t-1}$  or  $Y_t = Y_{t-1} + Y_{t-1}$ .

When there is no merger control, firms are free to merge and maximize their value. In each period the “natural” acquirers as selected by nature will each merge with a firm of the other type and will double their value. So, in  $t=1$ , each of the four “natural” X and Y acquirers will merge with a firm of the other type and each resulting firm will be worth 400. Repeating the same game in each period we obtain:

Period	Mergers taking place	Resulting Industry	Resulting value per firm	Resulting total industry value
0		8 X, 8 Y	100	1,600
1	4 (X + Y) 4 (X + Y)	4 X, 4 Y	400	3,200
2	2 (X + Y) 2 (Y + X)	2 X, 2 Y	1,600	6,400
3	X + Y Y + X	X, Y	6,400	12,800
4	X + Y or Y + X	X or Y	25,600	25,600

Let us now introduce competition control that, in order to avoid the creation of dominant positions, limits the market share of each firm to 25% and blocks any merger leading to a larger share.<sup>4</sup> Clearly the effect of this control on the valuation of firms will depend on the period in which it is introduced. Specifically, the earlier the control is introduced, the more it affects the structure of the industry and thus the more negative are its effects on the valuation of the firms and thus on investors’ reactions. For simplicity, suppose here that competition control is introduced at  $t=1$ . Then we have:

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<sup>4</sup> We assume the limit of 25% for simplicity as it reflects the threshold below which in many countries mergers are considered not to raise any competitive concerns and are reviewed according to a simplified procedure. The analysis does not change if we assume different thresholds.

Period	Mergers taking place	Resulting Industry	Resulting value per firm	Resulting total industry value	Expected value at $t \geq 4$
0		8 X, 8 Y	100	1,600	25,600
1	4 (X + Y) 4 (X + Y)	4 X, 4 Y	400	3,200	6,400
2	2 (X + Y) 2 (Y + X)	2 X, 2 Y	1,600	6,400	6,400
3	All blocked	2 X, 2 Y	1,600	6,400	6,400
4	All blocked	2 X, 2 Y	1,600	6,400	6,400

The exercise shows clearly that the introduction of competition control reduces the future valuation of firms and worsens investors' expectations. The negative effect of the competition control persists even when the control is introduced at a later date, even though it is reduced. Overall, the example shows that investors will react negatively to announcements of legislative changes leading to more competition-oriented control of M&As. We now test whether such a prediction finds support in our data.

#### IV. Data and Methodology

We use an event study approach to analyze the effects of the introduction and strengthening of competition control (henceforth, "changes" in competition control) in numerous industrial countries over the last three decades.<sup>5</sup> In order to identify the events, we collect detailed information on the legislative changes affecting the setup for

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<sup>5</sup> The application and the interpretation of the results from an event study require the events to be exogenous. We conjecture that no sectors, and in particular banks, can decisively lobby and induce a change of competition control that is applicable to all sectors. We then check this conjecture. For example, the results we present later in the paper do not differ between countries with large versus small banking sectors (proxied by total bank credit / GDP with a cutoff of 150 %). The size of the banking sector may represent a possible measure of lobbying power. Of course the introduction of competition control could itself be driven by developments in the domestic or neighboring economies, and the timing of the introduction of competition policy may be determined by country size (Forslid, Hackner and Muren [2005]).

competition reviews of M&As in the European Union (EU) and 18 individual countries: the United States and Canada, 14 EU countries, including Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and the United Kingdom, and two non-EU countries, Switzerland and Norway.<sup>6</sup> We focus on the time period January 1, 1987 to July 1, 2004 during which most of the changes occurred.

In the collection of the data, we relied on multiple sources. In a first step, we obtained and analyzed the exact text of all relevant legislation and regulation to identify the legal arrangements of the competition control in each country and the changes that took place over time. In a second step, we scrutinized the many publicly available reports on merger control to check our interpretation of the events (Appendix 1 contains a comprehensive list). Finally, we directly contacted experts of the various institutions dealing with merger control across all countries (Appendix 2 contains the list of agencies we contacted). We engaged these contacts, often in multiple and prolonged written and verbal communications, to confirm our understanding and “coding” of the data, to seek clarifications and corrections and to identify the most important aspects of merger control in practice.

#### A. Institutional Variables

A key contribution of the paper is to aggregate the information we collected and to construct various indexes capturing the crucial dimensions of the competition control of M&As (and of the supervisory control in the banking sector, as we will describe in more

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<sup>6</sup> In European Union countries a two-layer regime is in place for the competition review of concentrations. All mergers with a ‘community dimension’ are examined by the European Commission, whereas transactions without ‘community dimension’ are left to the competent national authorities. The dividing line between the two cases is drawn on the basis of the size and geographical dispersion of turnovers.

detail below). Four dimensions (which we formulate as the answers to four questions) shape the merger policy regime of any country:

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

From these questions we construct the four variables labeled as *Competition Criteria*, *Competition Enforcer*, *Competition Overturning*, and *Mandatory Notification* respectively, which range between 0 and 1, with higher values corresponding to a more competition-oriented design and implementation of the competition control. Our ranking of the answers reflects the simple idea that the merger review is more-competition oriented (at least from an *ex ante* perspective) when it has the single, narrower objective of preventing restrictions on competition, it is enforced by a single, independent agency, no other agency can intervene in the process, and notification is mandatory.

## B. Events

We report the coded answers to the questions at the beginning and at the end of our sample period in Table 1. The table shows the heterogeneity of the competition policy across the different countries and the substantial changes that occurred over time.<sup>7</sup> For

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<sup>7</sup> Competition control in banking was not introduced at the same time as in the other sectors in France, Netherlands and Portugal, but none of these cases turn out to be relevant for our analysis. In France the banking sector was perceived to be subject to the competition control of mergers and acquisitions according to the Competition Law of July 1977 until the Supreme Court stated on May 16, 2003 that the banking sector was not subject to any competition control (we return to this case later in the paper when we discuss the *Crédit Agricole-Crédit Lyonnais* episode). In the Netherlands, the Competition Act of May 22, 1997 did not apply to the banking sector (art. 32) but only temporarily for two years (art. 107.3). In Portugal merger control was introduced in all sectors except banking with the decree-law n. 428/88 of November 19, 1988. Bank mergers became subject to the control only with the law 18/2003 approved on April 10, 2003, which substantially

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

[INSERT TABLE 1 ABOUT HERE]

The changes in any of the four key institutional variables across the sample period define our set of events. Note, however, that for simplicity the table reports the answers to the questions only at the beginning and end of our time sample, thus under-representing the number of changes that occurred.

### C. Dating

The precise dating of the changes in competition laws regulating the control of mergers and acquisitions across the sample countries, combined with information on stock prices, constitutes the main ingredients of our empirical investigation. Figure 1 displays the main steps in most legislative procedures and the corresponding dates we use in our study.<sup>8</sup>

We divide the legislative process into three phases: approval, publication and implementation. Approval refers to the date of approval by either the Parliament or the

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reformed the merger control also for all the other sectors after a new, independent authority was created. However, for lack of readily accessible stock market data we drop the 1988 event and include only the 2003 sector-wide event.

<sup>8</sup> The legislative steps in Figure 1 reflect the general procedure. In practice the procedure may vary slightly across countries. For example, in some countries (such as Finland) the approval of the Head of State is not required. These differences do not affect our analysis.

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

[INSERT FIGURE 1 ABOUT HERE]

To capture the earliest time when investors can reasonably be expected to infer changes in the legislation, we study the stock price reaction around the earliest official date that we collect.<sup>9</sup> We consolidate the dates in this way for obvious reasons. The process of legislative codification varies substantially across countries. In some countries the official date of a law is the approval date (typically the approval by the Head of State), in other countries it is actually the publication or even the implementation date. Neglecting these differences across countries entails the risk of analyzing investors' reactions to widely divergent information sets. By focusing instead on the earliest official date with information context (i.e., often the approval in one of the chambers of the legislature), we try to harmonize the information investors have about the outcome of the legislative process across countries and

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<sup>9</sup> The precise dating in regulatory event studies of the change in the investors' expectations is of paramount importance. But we estimate excess returns for multiple intervals and link the estimates to country and bank characteristics (as recommended in Binder [1985]).

thus minimize the risk of misinterpreting investors' responses. Thus, we complement the 16 approval dates with 4 publication dates to obtain 20 Event dates.<sup>10</sup>

[INSERT TABLE 2 ABOUT HERE]

Table 2 lists the 20 event dates and the exact changes in competition control that occurred in the sample period in the countries we analyze. The table shows that, in many instances, the new law strengthened several dimensions of merger control at once (an additional reason not to link the event selection criteria to the outcomes). The table also includes characteristics of the supervisory policy regime in place at the time of the changes in competition control. We will discuss the dimensions of supervisory merger control more in detail later in the paper.

#### D. Event Windows

Once the event dates are selected, we analyze the impact of the changes on the event dates themselves as well as during an adequate period preceding them.<sup>11</sup> The reason for doing this is that most major legislation is typically prepared in parliamentary committees before it is brought to a chamber floor. Hence it is important to analyze also the period before the legislative changes as it captures the investors' potential reaction to the entire political debate and process preceding and surrounding any important committee work (party manifestos, government agreements, public lobby group endorsements, etc.).

Furthermore, as the process of codification unfolds differently in each country, we believe it is crucial to analyze the impact of the legislative changes also during the periods surrounding the other dates we identified in the legislative process. In particular, we analyze

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<sup>10</sup> There were no changes in competition control during the sample period and hence there are no events for Germany, Canada and the US.

<sup>11</sup> Short event windows limit the impact of confounding events and are conform to the presumption of market efficiency that is necessary to make the event study informative (McWilliams and Siegel [1997]).

the stock price reactions around the 20 implementation dates to capture investors' possible reactions to "last-minute details" that are specified in the implementation process of the legislative changes (such as the precise mandates, chairmanship and membership of committees and institutions, operational regulations, etc.).

#### E. Event Study Methodology

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

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

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

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

Our two event windows contain between 5 and 241 trading days, i.e., we vary  $\tau$  between 2 and 120. The coefficients  $\gamma_j^{before}$  and  $\gamma_j^{after}$  measure daily abnormal returns during the

event periods before and after the event. The market model is estimated over a period starting  $(-250 - \tau)$  days before the event and ending  $(250 + \tau)$  days after the event.<sup>12</sup>

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

For each event the cumulative abnormal returns (CARs) are the estimated coefficients  $\hat{\gamma}_j^{before}$  and  $\hat{\gamma}_j^{after}$ . For each event we estimate daily abnormal returns for both the domestic index of non-financial institutions (“firms”) and the domestic bank index (“banks”). We calculate the average and standard deviations of the CARs across the set of events and perform a standard t-test to assess statistical significance. We also report the number of positives and negatives and perform a standard sign test.

We further assess the difference between the CARs of both indices by performing a t-test assuming unequal variances and a sign test based on the number of differences that are positives or negatives. Finally, we perform the more general Fisher’s exact probability test of independence to detect differences between firms and banks in the signs of their reaction. This non-parametric test should alleviate any lingering concerns about event or country heterogeneity.

To address the potential concern of the independence of the events, we employ a Kolmogorov-Smirnov Goodness-of-Fit test.<sup>13</sup> After doing this we cannot reject the null hypothesis that the exact event dates (reported later) are uniformly distributed across the entire sample period (or for the EU countries across the period starting on December 21,

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<sup>12</sup> We *a priori* choose for a long estimation window around the event, as we are concerned about the impact of the changes in regulation on market risk (Grout and Zalewska [2006]). We check the robustness of the results to alternative estimation windows, the  $(-250 - \tau, \tau)$  window for example, and time-varying market betas.

1989, the approval date for EU competition legislation). We also regress the CARs on various specifications including a time trend, and again we cannot reject the null hypothesis that the coefficients on the trend variables are equal to zero. To conclude, events seem independent.

## **V. The Impact of Changes in Competition Control**

### **A. Main Results**

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

[INSERT TABLE 3 ABOUT HERE]

Most of the statistically significant results lie in the windows before and including the event date. This should not come as a surprise given our dating strategy. As described before, we select the earliest available date of the legislative process as the event date and therefore the most significant reaction is expected to occur immediately before and on this date. Put differently, the fact that investors appear to react most strongly in these windows confirms the accurateness of our dating strategy.

There are sporadically some significant reactions in the windows preceding and including the implementation date, although much less than for the event dates. This can also be easily understood since, as already mentioned, the implementation date removes in some cases the remaining doubts about the introduction and actual *modus operandi* of the new

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<sup>13</sup> See NIST/SEMATECH [2006] for example for details on the Kolmogorov-Smirnov Goodness-of-Fit test and Preacher and Briggs [2001] for details on the Fisher's exact probability test of independence.

piece of legislation. Overall, these results highlight that investors anticipate and react immediately to the outcomes of the legislative changes and no further effects are left in the windows after either the event or the implementation dates.

Moving to the analysis of the results, we see that changes in competition control have important economic effects for both the real and the banking sector. Changes in competition control lead on average to a decrease in non-financial firms' stock prices but to an increase in banks' stock prices. The negative effect on firms is in line with our predictions as described in Section III.B, but the positive effect on banks is somewhat surprising.

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

#### B. By Country

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

[INSERT TABLE 4 ABOUT HERE]

As the sign tests already indicated, almost all events lead to a decrease in firms' stock prices and to an increase in banks' stock prices.<sup>14</sup> Concerning banks, we notice a negative

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<sup>14</sup> The publication of the law strengthening merger control in Austria on January 1, 1993, coincides with the widely anticipated formal dissolution of neighboring Czechoslovakia. While the observed three-day CARs are

effect of the changes in competition policy only for the European Union, the Netherlands and Sweden.

Possible explanations for these cases can be found in some specific features of each of these “countries”. The negative effect for the European Union may be attributed to the possibility for Member States to contrast the power of the European Commission and pursue objectives other than competition by using prudential rules as legitimate interests (art. 21(3) of the Council Regulation N. 4064/89 and subsequent modifications). Attempts to use this provision to block foreign takeovers can be found in the well-known cases of *Champalimaud-Santander* in 1999, *Banca Nazionale del Lavoro-BBVA (Banco de Bilbao Vizcaya Argentaria)* and *ABN AMRO-Antonveneta* in 2005, and *HVB-Unicredito* in 2005.

The negative reaction of banks’ stock prices in the Netherlands may be due to the (possibly unexpected) delay of two years in the introduction of merger control in the banking sector relative to the other sectors (art. 32 and 108.3 of the Competition Act approved in date March 20, 1997). The delay prolonged the influence of the Minister of Finance on the concentration of economic power in the banking sector according to the Act on the Supervision of the Credit System of 1992 until January 2000.

Finally, the negative response of banks’ stock prices in Sweden may simply reflect the investors’ anticipation of a strict application of competition policy given the highly oligopolistic structure of the Sweden banking sector. In line with this conjecture, it is worth recalling the withdrawal of the proposed merger between *SE Banken* and *FöreningsSparbanken* in 2001 after the numerous objections raised by the European Commission. Also, we note that the supervisory control of M&As in Sweden is transparent

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

in that decisions are public. This leaves little scope for a potential positive externality between competition and supervision in banking (as developed further in the paper) and thus for an increase in banks' stock prices. In this respect, it is also curious to note an insignificant effect of the events also in other countries, like Finland and Norway, similarly characterized by a relatively transparent supervisory policy regime.

### C. Robustness

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

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

Finally, we perform again the exercise using individual bank stocks rather than indexes (we return to using individual bank stocks in Section V), although we initially chose the latter for reasons of coverage, selection, and relevant value weighting. We again estimate a market model employing the value-weighted index of all stocks in the country as a proxy for the market return. Averaging across the banks within each country and then across the

events or averaging immediately across the 323 individual bank stocks, we obtain average CARs that are broadly similar to our earlier results.

To summarize, firms' stock prices decrease and banks' stocks increase in anticipation and upon the approval of changes strengthening competition control. The reaction of firms is in line with the idea that competition control, if stringent, imposes limits on the market power of companies involved in mergers and thus on their market values. The reaction of banks is instead surprising and deserves further exploration. Before doing that though, we look for further evidence supporting the positive results on banks' stock prices. In particular, we first analyze two widely publicized bank merger episodes that led to clarifications or changes of existing legislation; and then study the characteristics of the mergers that took place before and after the implementation of the changes in competition control.

#### D. Two Case Studies

##### 1. *France March 2003: Crédit Agricole-Crédit Lyonnais*

When *Crédit Agricole* made a takeover bid for the ailing former state bank *Crédit Lyonnais* in December 2002, the French banking landscape – as became clear later – was characterized by some ambiguity concerning the implementation of the competition control in this sector and the identity of the authority enforcing it. The belief was that the *Comité des Etablissements de Credit et des Entreprises d'Investissement* (CECEI) – the supervisory authority in charge of licensing banks – was in charge of reviewing bank mergers both from a competition and a supervisory perspective. In line with this, the CECEI reviewed the proposed merger between *Crédit Agricole* and *Crédit Lyonnais* and approved it in March 2003 conditional on a number of remedies. In particular, the parties were required to divest 85 out of 9,275 branches and “freeze” the others in order to avoid the creation of dominant

positions in a number of local retail markets. The decision led to some concerns related to the loss of employment and induced a union (the *Fédération des employés et cadres*) and two employees to challenge it in front of the *Conseil de l'Etat*, the French supreme court for administrative justice. On May 16, 2003, the *Conseil de l'Etat* declared the conditions imposed for competition reasons invalid but not the decision to approve the transaction (from a supervisory perspective) on the basis that the CECEI was not legally in charge of the competition control of bank mergers.

This ruling implied an *unexpected weakening* of competition control in the banking sector and led to its substantial reform in August 2003. Given the extraordinary and judicial character of this case, we choose not to include it in our original set of events but rather to check its consistency relative to the previous results. Specifically, we perform an event study around the date of the ruling of the *Conseil de l'Etat* to see whether banks' stock prices react in line with our previous findings. Given this event entails a weakening of the competition control in banking, we expect a negative effect on banks' stock prices. The results of this event study are reported at the bottom of Table 3. Consistent with our predictions, the 3-day bank CARs in the interval  $[-2,0]$  equal  $-0.77^{***}$ . In the windows following the event bank CARs are negative, economically relevant, although never more than marginally significant.

## 2. Italy 2005: ABN AMRO-Antonveneta

Our second case attracted even greater international attention. At the beginning of 2005 the Dutch bank *ABN AMRO* made a takeover bid for the Italian banks *Banca Antoniana Popolare Veneta* (*Antonveneta*). As a response, a domestic bank, *Banca Popolare Italiana* (BPI, formerly *Banca Popolare di Lodi*), made a counter-bid thus triggering a takeover battle for the control of *Antonveneta* (henceforth, *Antonveneta* case). The takeover was

subject to the competition control of the European Commission and the supervisory control of the Bank of Italy. It was widely perceived that the Italian supervisory authority did not take a fully impartial attitude between the foreign and domestic bidders, supposedly for prudential reasons. The battle attracted media attention, it involved many political and regulatory bodies, and led to important legislative changes concerning the organization of the Bank of Italy as well as the control of bank M&As in Italy.

[FIGURE 2 ABOUT HERE]

For this reason, we choose to analyze the *Antonveneta* case as a further example illustrating the reaction of banks' stock prices in anticipation of legislative changes. Figure 2 focuses on the events related to the takeover battle and 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 this period. The first relevant date is February 8, 2005, when the EU Commissioner for the Internal Market, Mr. Charlie McCreevy, publicly warned the Governor of the Bank of Italy, Mr. Antonio Fazio, not to block foreign bank takeovers. Following this warning, the Italian bank stock index started a remarkable trend upwards possibly reflecting the expectations among investors of the eventual passage of a law (that had been idling in Parliament for a long time already) that would reform, *inter alia*, the control of M&As.

The increase in banks' excess returns came to a halt in mid 2005 but it resumed steadily in September 2005 after the Italian Prime Minister, Mr. Silvio Berlusconi, criticized officially the handling of the takeover case by the Bank of Italy and asked the resignation of its governor. The run-up of banks' stock prices terminated with the resignation of Mr Fazio on December 19<sup>th</sup> and the passage two days later of the law that transferred the

responsibility for competition reviews of bank mergers from the supervisor to the Italian antitrust authority.

The visual impression of the Italian bank stock prices reacting to the identified events is broadly corroborated by the stylized event study reported in the table at the bottom of Figure 2 (Appendix 3 provides more details on the key events). We regress daily bank stock index returns on a constant, daily national market index returns, and event period dummies. The estimation period starts on March 16, 2002, and ends on March 15, 2006.

As the event study shows, banks' 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 banks' stock prices became more pronounced.

In sum, the *Antonveneta* case provides further support to the results of the event study conducted in Section V.A. Differently from non-financial firms, banks react positively to legislative changes – or news about them – that make the control of M&As more-competition oriented. Also, the *Antonveneta* case clearly underlines the importance of competition control and sector specific regulation. The belief that the Bank of Italy was driven by objectives other than prudential considerations in handling the case and the numerous attempts to remove potential inefficiencies and favoritisms led investors to think that the potential, future legislative changes would increase the value of listed Italian banks.

#### E. Mergers Before and After the Changes in Competition Control

We now turn to the study of a comprehensive merger date set to analyze whether the changes in competition control affected the characteristics of the actual M&A transactions and the bank stock prices around their announcements. We start from *SDC Platinum* data

and complement it with additional records of bank M&As obtained from competition and supervisory authorities in the sample countries. This allows us to increase the number of bank mergers by more than 10% thus reaching a data set containing 15,148 bank M&A records and 101,441 firm M&A records for the sample countries during the period January 1, 1990 to June 1, 2004.

We study M&A characteristics and stock prices 250, 750 and 1,500 days before and after the implementation dates. We test the differences between the period before and after for the group of banks and firms, respectively. We then investigate the “differences-in-these-differences” between the banks and the firms. To control for country specific time trends, we assess the statistical significance of all differences by comparing their actual values with a distribution drawn randomly with replacement within the sample period (100 draws).

The results (which are available upon request) show that while the characteristics of M&As among firms are not altered much after changes in competition control, the characteristics of banks engaging in M&As differ substantially. The number of recorded bank mergers decreases, but bank targets more than double in terms of common equity or total assets and more than triple in terms of net income. Not surprisingly, the value of the transaction in bank M&As also doubles, but the percentage of the shares that is acquired, the percentage shares owned after the deal, and other standard deal characteristics seem mostly unaffected. Furthermore, bank target excess returns around the merger announcements increase by more than 10% after the implementation of changes in competition control relative to before the changes.

Taken together, these results suggest that the introduction and the strengthening of competition control “encourages” bank M&As with larger and more profitable target banks, while leaving firm M&As mostly unaffected. How can we reconcile the increase in bank

target size in the years around the implementation of changes in competition control with our main results of positive bank excess returns in the days preceding and upon their approval?

As is known from the literature (see Andrade, Mitchell and Stafford [2001]), target excess returns around the announcement are typically positive, statistically significant and as high as 30%, but lower for larger deal sizes. Thus, the positive reactions of investors before and upon the changes of competition control that we find in our analysis must be mostly driven by factors other than the simple increase in target size. Our conjecture is that the introduction of competition control, when non-binding, increases the likelihood that banks of high profitability become potential targets. Investors anticipate the future higher valuation of banks and react positively to legislative changes implementing more competition- and hence efficiency-oriented control of M&As. This is in line with existing results that anticipated components of returns around policy changes may be substantial (see Becher [2006] for example); and also with the result of larger bank target excess returns around the announcements of actual mergers, although the small number of observation prevents us from drawing strong conclusions.

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

We now turn to explaining the differential effects between firms and banks in terms of both the results of the event study and the changes in the type of M&As before and after the regulatory amendments. Why do banks react differently? What are the factors pushing up their stock prices? As is in the other sectors, the introduction of competition control in the banking sector should prevent excessive market power, thus reducing future monopoly profits and stock prices. Why don't we see this reflected in bank investors' reactions? And why do bank targets grow in size and profitability?

To tackle these questions, we regress individual bank CARs on a number of variables capturing important institutional aspects of the competition control in general, the supervisory control specific to the banking sector, country institutional quality and individual bank characteristics. Before reporting the results, we discuss below our economic hypotheses and the variables we use to test them. Table 5 provides an overview and the summary statistics of all the variables in the cross sectional exercise.

#### A. Supervisory Control of M&As in the Banking Sector

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

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<sup>15</sup> More generally, the Core Principles 4 and 5 for Effective Banking Supervision issued by the Basel\_Committee\_on\_Banking\_Supervision [1997] state that supervisors must have the authority to review and reject any changes in bank ownership or to establish criteria for reviewing major acquisitions or investments by a bank. The principles refer to the requirement that “banking supervisors have the authority to establish criteria for ... ensuring that corporate affiliations or structures do not expose the bank to undue risks or hinder effective supervision”. Factors that are considered include ownership structures, operating plan,

Looking at our sample countries, we notice that these reviews were already in place in most instances at the time of the introduction or strengthening of the competition control. This brings in the possibility of a different reaction of banks' investors as it may introduce a sort of "dialectics" between the two controls which is absent in other, non regulated sectors (see also Carlton and Picker [2006]).

To investigate whether the presence of the supervisory control of bank mergers contributes explaining the banks' different response to changes in competition control, we first document the institutional features of this control and then analyze their impact on banks' stock prices. Following the same structure as for the competition control in Section III, we describe the institutional features of the supervisory control according to the objectives and criteria applied, the authorities in charge and the modality of the review process.

The first aspect is captured by a variable denoted as *Supervisory Criteria*, which indicates whether the supervisory control focuses entirely on prudential and stability considerations or whether it follows also other criteria, such as for example the "convenience and needs of the community to be served" in the US.

The second feature of the supervisory control is covered by the variable *Supervisory Enforcer*. This variable takes on the value of one when a separate, independent supervisory authority enforces the supervisory control. Lower values indicate that an authority that is less focused on stability and prudential concerns or less independent is in charge of the control. Note also that the power and the decision making process of the supervisory enforcer may be altered by capture or political influence. For example, banks may try and

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systems of control and internal organization, fit and proper tests of directors and senior managers, and financial projections including capital. Overall, practice has however shown that the room for interpretation of the criteria and factors to be considered in the supervisory review can be very wide.

affect the outcome of the supervisory review by capturing the regulator; or politicians may lever control over the supervisory process by directing credit to pet projects for example. To check this, we will replace the *Supervisory Enforcer* variable in the robustness tests with proxies for the *Supervisory Independence from Banks* and *from Politicians* respectively, using measures gleaned from Barth, Caprio and Levine [2006].

Finally, concerning the process in which supervisory reviews are conducted, we note that this does not differ significantly across countries in terms of procedure. All mergers and all acquisitions entailing a “qualifying” percentage of shares (see art. 16 of the Second Banking Directive, EC, 1989, for example) must be notified to the competent authority and need to be approved. Differently from the competition control though, the notification procedure and the transparency of the review process differ significantly across countries.

To capture this cross sectional variation, we construct two variables that may be relevant for investors’ assessment. The first variable, *Supervisory Formal Decisions Not Public*, represents the degree of transparency of the supervisory final decisions and it can thus be seen as a proxy of the potential discretion that can be used in the supervisory process. The variable equals one when decisions are not made public and zero if decisions are fully transparent.

Looking at our sample countries, we note the high variability of this variable, as supervisory decisions are public only in a few countries (Finland, Norway, Sweden, the US, and to some extent in Canada and the UK, in which cases we give intermediate values). The idea is that if the supervisory decisions are public, there is less room for discretion and abuses in the supervisory process. Important examples of these potential distortions are the political interventions that happened around the above mentioned merger proposal of *Champalimaud* by *Santander* in 1999 and the takeover of *Antonventa* by ABN AMRO in

2005. In both cases, the supervisors were perceived to pursue objectives other than soundness and stability in an attempt to protect the national banking systems from foreign penetration. This attitude was certainly facilitated by the opaqueness of the decisions, which allowed the supervisory enforcers not to have to publicly motivate their actions.

The second process variable we construct, *Supervisory Informal Notification*, refers to the requirement prescribed in the regulation (e.g., in UK) or imposed *de facto* (e.g., in Denmark, Finland and Sweden) that parties planning to merge have to informally notify the supervisor enforcer of their intentions before starting the formal procedure. This variable captures the possibility for the supervisory control to precede (and thus prevent) the competition control. In this sense, also this variable is a proxy for the discretion that can be used in the supervisory process. To the extent that mergers can be blocked or at least discouraged during this phase, this variable indicates the potential for the supervisory control to have exclusive power over bank merger decisions.

Table 2 lists the level of the supervisory control that was in place in each country at the time of the changes in competition control. We note two features. First, as already mentioned, the table shows that the supervisory control preceded the competition control in most countries. Second, the table distinguishes between mergers and acquisitions for the variables Supervisory Criteria and Supervisory Enforcer. This is because in some cases the supervisory control differs in these two dimensions between mergers and acquisitions. While we document these differences here, we average across the two areas of control in the construction of the supervisory variables to keep the specifications parsimonious.

## B. An Example

To understand the contribution of the supervisory control of M&As in explaining the different reaction of bank investors to changes in competition control, we now return to our

example as described in Section III.B. Consider again the economy with 16 initial firms (which are now banks) of two different types, X and Y, and each with a value of 100. As before, nature selects the “natural” acquirers in each period and mergers take place. Mergers across types entail synergies while mergers within the same type of banks do not deliver any.

Mergers are now regulated by a supervisor who prefers banks to merge within the same type rather than across different types. The reasons behind this preference can be various. Supervisors concerned about stability may for example dislike mergers among different types of banks as they may create complex organizations with risks that are more difficult to manage (offsetting any potential effects of diversification) and supervise. Alternatively, the preference for mergers of the same type may reflect the policy, often observed in cross border mergers, that supervisors prefer domestic acquirers over foreign ones even though the former may not be the “best” acquirers. Finally, the supervisor may be “captured” by domestic banks and thus enjoy some form of private benefits from allowing mergers among the same types of banks.

Whatever the reason behind the supervisory policy, the result is that mergers among efficient banks may now not take place. To capture this in a simple way, we assume that only mergers among the same type of banks can occur when there is a supervisory control. Redoing the same exercise as in Section III.B, we obtain the following:

Period	Mergers taking place	Resulting Industry	Resulting value per firm	Resulting total industry value
0		8 X, 8 Y	100	1,600
1	4 (X + X) 4 (Y + Y)	4 X, 4 Y	200	1,600
2	2 (X + X) 2 (Y + Y)	2 X, 2 Y	400	1,600
3	X + X Y + Y	X, Y	800	1,600
4	All blocked	X, Y	800	1,600

This numerical example clearly shows how the presence of a supervisory control may put limits to the growth and market value of banks relative to a “free” market industry.

Let us now introduce the competition control of M&As that, as before, limits the growth of banks and blocks all mergers entailing a market share larger than 25% irrespective of the type of the parties. How does this influence the functioning and the structure of the merger process? The answer crucially depends on the interaction between the two policies. For simplicity, we assume that the introduction of competition control removes the imposition by the supervisor to allow only mergers of an equal type. That is, we consider that once the competition control is introduced the merger process in the industry follows the same pattern as described in Section III.B. This simplifies our exercise without altering the qualitative results, as we discuss further below. Given this simplification, we then have:

Period	Mergers taking place	Resulting Industry	Resulting value per firm	Resulting total industry value	Expected value at $t \geq 4$ (after intro)
0		8 X, 8 Y	100	1,600	1,600
1	4 (X + Y) 4 (X + Y)	4 X, 4 Y	400	3,200	6,400
2	2 (X + Y) 2 (Y + X)	2 X, 2 Y	1,600	6,400	6,400
3	All blocked	2 X, 2 Y	1,600	6,400	6,400
4	All blocked	2 X, 2 Y	1,600	6,400	6,400

As one can immediately see, the introduction of competition control improves the growth and market value of the banking industry relative to the situation where only the supervisory control is in place. The result hinges on the assumption that the competition control removes the “inefficiencies” of the supervisory control by allowing mergers across banks of different types; but it persists even if we relax this.

What matters is that the introduction of competition control entails another objective in the review of bank mergers and becomes more oriented to efficiency and market values than the existing supervisory control. When this is the case, the introduction (or strengthening) of competition control may positively affect the dynamics of the banking industry by promoting more efficient mergers and limiting the potential discretion or stability-oriented focus of the supervisory control. A clear example of this can be found in the already mentioned *Champalimaud-Santander* case, in which the European Commission convinced the Portuguese authorities to amend their initial leaning towards blocking the deal, thus succeeding in reversing this likely outcome.

To sum up, our simple example shows that the introduction of competition control may involve a positive externality by leading to a very different dynamics in terms of market structure and market values in a regulated sector (like the banking industry) relative to an unregulated sector. In particular, the example suggests that the competition control may lead to higher bank values and thus may trigger a positive response by bank investors relative to investors in other sectors.

Despite its stylized character, we can use the example to formulate economic hypotheses on the role of the four institutional variables describing the supervisory control that we have introduced earlier. Concerning the variables *Supervisory Criteria* and *Supervisory Enforcer*, the example suggests that a stronger focus on stability or a more stability-oriented enforcer

should lead to more positive bank CARs preceding and upon changes in the competition control of bank mergers. To the extent that pursuing the objective of stability more strictly entails larger costs in terms of foregone efficiencies, the future valuation of banks and thus investors' expectations should be more positive. In a similar spirit, higher values of the variables *Supervisory Formal Decisions Not Public* and *Supervisory Informal Notification* should lead to more positive bank CARs in expectation of changes in the competition control of bank mergers. The idea is that opaque procedures as well as informal power increase the potential for discretion and distortions in the supervisory review of bank mergers, thus improving investors' expectations of the positive effect of changes in competition control.

To conclude, all the considerations above suggest that the stock prices of banks should increase at the announcement of changes in the competition policy when the supervisory controls are important in the merger decisions. Competition policy by acting as “a-constraint-on-a-constraint” relaxes the latter constraint. The more independent and focused on stability the supervisory review and the less transparent and the more informal the supervisory process – allowing for the improper invocation of national interest clauses or an erratic implementation for example – the more positive should therefore be the increase in banks' stock prices.

#### C. Other Institutional Characteristics

Before testing the predictions related to the presence of the supervisory control of bank mergers, we describe below other variables, which we use in the cross-sectional analysis to capture other potential explanations for the positive reaction of banks CARs in our event study. In particular, we investigate some institutional characteristics of the competition

control that could play a special role in the banking sector as well as some bank characteristics.

### 1. *Efficiency Defense*

As already mentioned in Section III.A, in some countries efficiencies are explicitly taken into account in the competition review of mergers. When this is the case, the competition control is somewhat less stringent, as efficiencies represent an attenuating factor to the increase in market power. To the extent that banks can claim more than non-financial firms that the merger leads to important efficiency gains (through the presence of economies of scale for example or because of improper implementation), they may be subject to a less stringent competition control than other industries and thus benefit more (or be hurt less) from the introduction of competition control.

To control for this, we construct the variable *Efficiency Defense* that equals one if efficiency gains are being explicitly considered in the merger review as a factor mitigating anticompetitive effects, and equals zero otherwise.<sup>16</sup> We include the change in this variable ( $\Delta$ ) as a result of the strengthening in competition policy. The hypothesis is that of a positive correlation between this variable and the bank CARs. Also, we interact  $\Delta$ *Efficiency Defense* with  $\log(\text{Bank Assets})$ , a measure of bank size, to analyze whether larger banks benefit more from a more efficiency-oriented review.

### 2. *National Markets*

The introduction or the strengthening of competition policy should sustain and intensify competition. On the other hand, some observers claim that competition policy could

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<sup>16</sup> This variable captures only the situation where the efficiency defense is explicitly incorporated in the merger regulation. The case where the efficiency defense is only implicitly and informally used (as documented so far only for the US by DeYoung [1991]) is not captured by our variable.

sometimes act as a collusion-enhancing device, in particular in an oligopolistic sector. If competition control prevents external growth for the few large banks operating in the market, its introduction or strengthening may sustain more easily collusive behavior, and hence, consistently with investors' expectations, may result in higher future profits.

To capture this effect, we interact  $\Delta National Markets$  and  $C3$ . The variable *National Markets* refers to the geographical definition of the markets used in the competition reviews of bank mergers in the various countries ( $\Delta$  again stands for the change in this definition as a result of the change in competition control); while the variable  $C3$  is a simple measure of the level of concentration in the banking sector. Taken together, these two variables are indicative of the stringency of merger control (expected negative sign) or of the potential for collusive agreements (expected positive sign).

### 3. *Corruption and Regional Effects*

An important issue is also whether the positive bank CARs may be driven by the general quality of governmental and regulatory institutions rather than by institutional features specific to the competition and supervisory policies. In order to check whether our institutional variables just pick up this more general institutional quality, we introduce proxies for the latter. This is the variable *Corruption* that accounts for the degree to which bribes, nepotism and ties between politics and business are prevalent in a given country and a variable *Bureaucratic Quality* that accounts for the strength and expertise of the national bureaucracy.

We further include regional random effects to control for economic and financial development,<sup>17</sup> including for example past growth in productivity in the financial services' sector.

#### D. Bank Characteristics

Certain bank characteristics may also contribute determining excess returns. One of the most obvious is bank size. Consider for example bank mergers that are driven by managerial hubris rather than by value enhancing considerations (Berger, Dick, Goldberg and White [2007]). In such cases, investors at the largest banks should benefit most from the tightening of the competition control, as these banks are most likely to be limited in their merger plans. Opaque and small banks may gain most if the strengthening of competition control would actually intensify and increase the quality of the “supervisory auditing” of consolidating banks. Finally, stocks of medium-sized banks may gain most if investors expect these banks to be more likely targets in domestic or cross border transactions as the strengthened competition control may block any future mergers between large banks.

To control for all these possibilities, we include the log of *Bank Assets* in level and squared in all specifications. We also interact bank size with some characteristics of the supervisory control in the robustness checks to confirm the precise source of the bank stock gains.

Banks could further benefit indirectly from the introduction or the strengthening of merger control in the other, non-financial sectors. For example, if merger control imposes

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<sup>17</sup> Too few banks are listed in some countries to include a complete set of country effects. Regions include Scandinavia, the British Isles, Western Europe, Iberia and Southern Europe. Hausman-tests consistently indicate random effects are to be preferred. Results for fixed effects model are very similar and we report their adjusted R-squared statistics.

“binding” limits to firms’ external growth, firms are obliged to expand through greenfield investments rather than through M&As. To the extent that this leads to greater leverage for firms and thus more borrowing, banks could benefit in terms of higher profits from interest income. Alternatively, firms may need advice and expertise to comply with the new set up of the merger control. To the extent that banks provide this service, they could benefit in terms of higher fees. We control for these two possibilities by including the variables  $\% \text{ Interest Income/Assets}$  and  $\% \text{ ROA}$  interacting them with  $\log(\text{Bank Assets})$  as a measure of bank size in some specifications.

#### E. Results

Table 6 reports the results of the various specifications. It is immediately clear that the variable *Supervisory Formal Decisions Not Public* plays a key role in explaining the excess returns on individual bank stocks. The coefficient on this variable in Model V for example suggests that the introduction of competition control in a country where supervisory formal decisions are not public results in an excess return on individual bank stocks that is one and a half percent larger than the excess return in a country where the formal decisions are public ( $= (1 - 1/2) * 3.80$ ). The effect of the opaqueness of supervisory decisions is not to be attributed to the general institutional quality, since we control for *Corruption* for example, and its coefficient turns out not to be significant.

[INSERT TABLE 6 ABOUT HERE]

The other variable which is significant in most specifications is *National Markets \* C3*. However, in contrast with our prediction, its coefficient has a fairly consistent negative sign and magnitude. Thus, the collusion hypothesis is strongly rejected. In contrast, the negative sign of this coefficient suggests that the “standard” negative effect of changes in competition control prevails. Bank CARs are more negative (or less positive) when the

control is introduced in more concentrated markets as it is more expected to be binding and block further future concentration.

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

The strong performance of the variable *Supervisory Decisions Not Public* is consistent with the main hypothesis put forward above. The introduction or strengthening of the competition reviews of mergers seems to exert a positive externality in the financial system. This externality is stronger the more opaque the supervisory reviews are. The underlying idea is that the competition control limits somehow the working of the supervisory control by introducing more transparency in the review of bank mergers. This has the potential to limit the discretion with which the opaqueness of supervisory reviews can be used to pursue actions that hinder foreign entry or the efficient restructuring of the banking sector.

#### F. Robustness

In Model VI we introduce *Bureaucracy Quality* as an additional country control. The coefficient on this variable turns out not to be significant and results are further unaffected. We also include the variables *% Interest Income/Assets* and *% ROA* interacting them with *log(Bank Assets)* as a measure of bank size in Models VII and VIII (employing a reduced sample). The coefficient on *Supervisory Formal Decisions Not Public* increases somewhat in size but otherwise results are unaffected.

The basic findings also hold when *Supervisory Formal Decisions Not Public* is interacted with the log of bank assets and after including all the control variables introduced before (we do not tabulate these results). Stocks of medium-sized banks almost always gain the most ground upon the changes in competition policy, presumably because, as already indicated, investors expect these banks to be the most likely targets that are still acceptable to the newly introduced or strengthened antitrust enforcer in banking.

[INSERT TABLE 7 ABOUT HERE]

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

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

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

## **VII. Conclusion**

In the last three decades competition policy has been substantially strengthened. We construct an event study around the announcements of legislative changes governing competition reviews of mergers and acquisitions in a sample of nineteen industrial countries over the period 1987-2004. In line with our predictions, stock prices of non-financial firms react negatively to the announcement of a change strengthening competition control whereas banks' stock prices react unexpectedly positively. The cross-sectional exercise suggests that the differential responses of banks and firms to the announcements of legislative changes in competition control can be explained, at least partly, by the specific institutional environment of the banking sector that already existed before the introduction of the competition review.

The supervisory focus on stability, discretionary "sound and prudent" management provisions, an affinity for avoiding or deferring bank failures (Kroszner and Strahan [1996] and Brown and Dinc [2005]), and a penchant for confidentiality may prevent efficient entry, restructuring and consolidation from taking place in the banking sector. The robust relevancy of a variable capturing the publication of the decisions of the supervisory process in all cross-sectional specifications suggests that the transparency of the merger review process is a particular important feature of the supervisory regime.

The idea is that investors anticipate that the introduction of an independent and transparent control reduces the discretion of the regulatory process and enhances the efficiency of envisioned bank M&As. In particular, more profitable target banks can be engaged, also by foreign acquirers, presumably leading to more efficient combinations. Overall the results show that the supervisory control of bank mergers may have important implications for real activity as it has significant effects on investors' evaluations.

Our results should not be interpreted as meaning that the supervisory control is problematic *per se* or that it is generally badly implemented. Neither can one infer from our results that competition policy is always and everywhere “wholesome” and never swayed by institutional or political agendas (Duso, Neven and Röller [2006], Aktas, De Bodt and Roll [2004], Aktas, de Bodt and Roll [2007]). Rather, our results suggest that the discretion which can be pursued under the objective of “sound and prudent management” of the supervisory control may hurt the evaluations of banks and the expectations of the investors.

The importance of the transparency of the supervisory process as a way to improve the supervisory control is in line with the results in a survey on obstacles to cross-border consolidation conducted by the European Commission: The “misuse of supervisory power” is an important obstacle to cross-border mergers. Consequently, the Commission has advanced formal proposals to revise the Banking Directive governing the supervisory control of M&As, in order to make supervisory control more uniform and more transparent (see for example European\_Commission [2005]).

Our analysis can be extended in several directions. 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.

Another interesting question for future research is whether the strengthening in competition control similarly affects firms in a wider range of sectors that are also subject to special regulators (such as energy, health-care, and telecom for example). It should be noted, however, that if this was the case the special effects on banks we find would stand

out even more, as the negative impact on non-financial firms should be higher if other special sectors were excluded from them.

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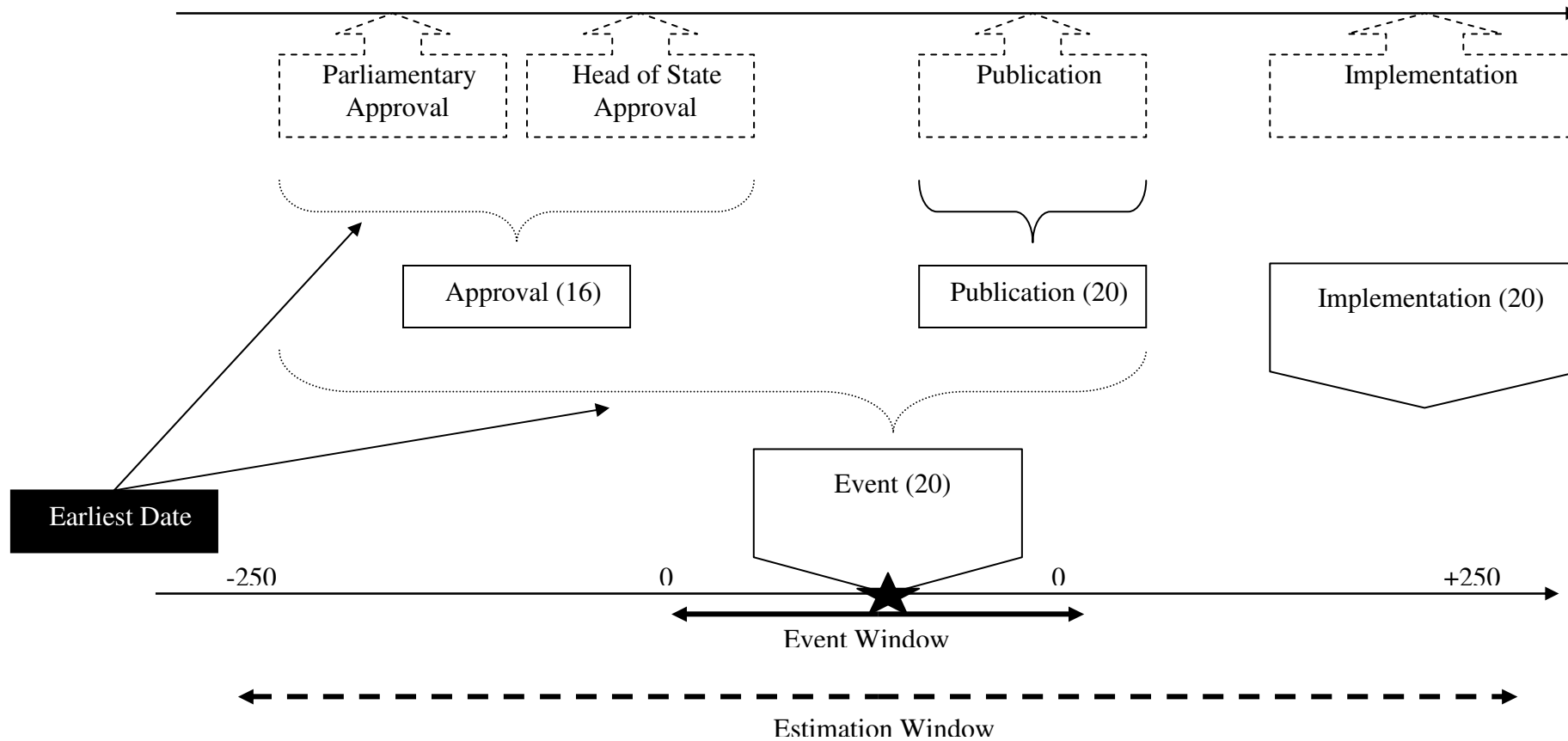
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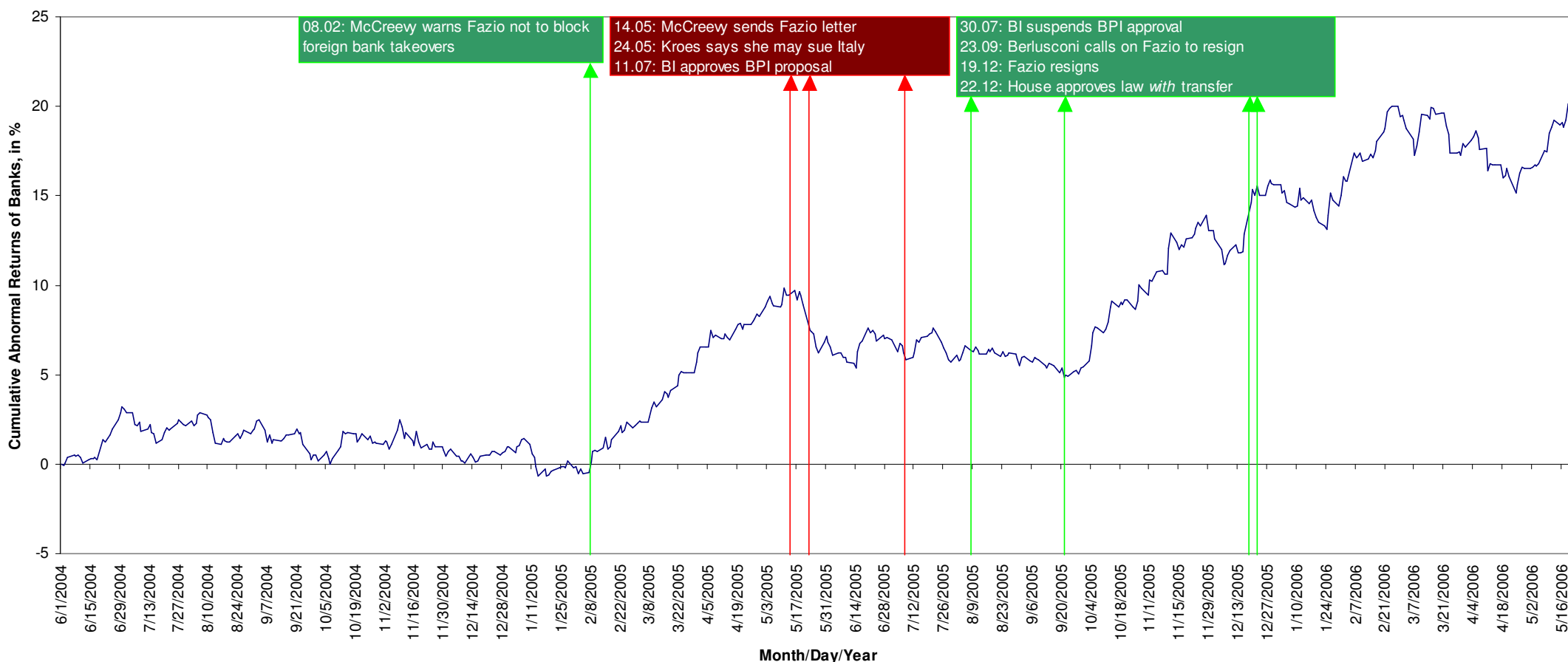
**FIGURE 1. TIME LINE OF THE LEGISLATIVE PROCEDURE AND EVENTS**

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



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

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



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

The table defines the key competition control variables and reports values for the sample countries on January 1<sup>st</sup>, 1987 and as of July 1<sup>st</sup>, 2004. We use two-letter ISO codes to indicate countries (that are alphabetized according to the country names). Lightly shaded countries experience no changes and are consequently not included in the event study.

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

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

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

**TABLE 3. CUMULATIVE ABNORMAL RETURNS FOR FIRMS AND BANKS AROUND CHANGES IN COMPETITION POLICY**

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

Change in Control (Number of Cases)		[-120,0]		[-60,0]		[-20,0]		[-2,0]		[1, 2]		[1,20]		[1,60]		[1,120]	
Country Market Index																	
Event (20)	Banks	8.3		5.0	*	2.3	*	0.8		0.1		-0.7		1.7		8.5	
		13:7		13:7		14:6	*	16:4	***	11:9		11:9		10:10		11:9	
	Firms	-2.8	*	-2.5	**	-1.0	**	-0.3		-0.1		-0.2		-0.9		-1.7	
		6:14	*	6:14	*	6:14	*	5:15	**	10:10		9:11		10:10		8:12	
Implementation (20)	Banks \ Firms	11.1	*	7.6	***	3.3	**	1.1	*	0.2		-0.5		2.6		10.2	*
		13:7		13:7		14:6	*	15:5	**	12:8		11:9		10:10		11:9	
	7:7	**	7:7	**	8:8	**	11:11	***	1:1		2:2		0:0		3:3		
	Banks	5.4		3.4		1.6		0.7		0.6		3.2		1.7		2.3	
		10:10		12:8		13:7		9:11		11:9		12:8		10:10		8:12	
	Firms	-0.9		-1.2	*	-0.6	*	-0.2	*	-0.1		0.1		-0.1		0.2	
10:10			7:13	*	6:14	*	10:10		8:12		10:10		6:14	*	12:8		
Banks \ Firms	6.3		4.6		2.2		1.0		0.6		1.1		3.3		2.1		
	10:10		11:9		14:6	*	10:10		12:8		11:9		13:7		8:12		
	0:0		5:4		8:8	**	-1:-1		3:3		2:2		4:4		-4:-4		
Country & European Market Index <sup>EU</sup>																	
Event (20)	Banks \ Firms	10.9	*	8.3	***	3.6	**	1.2	*	0.2		-0.3		3.2		9.8	*
		12:8		13:7		14:6	*	16:4	***	12:8		14:6	*	12:8		14:6	*
Implementation (20)	Banks \ Firms	7.2		5.2		2.5	*	1.0		0.6		1.5		4.1		1.7	
		8:12		12:8		13:7		10:10		12:8		11:9		13:7		8:12	
World Market Index																	
Event (20)	Banks \ Firms	7.9		6.9		4.3		1.0	**	0.3		-0.2		2.4		10.0	*
		10:10		13:7		14:6	*	13:7		12:8		11:9		13:7		13:7	
Implementation (20)	Banks \ Firms	4.1		4.6		2.9	*	1.2	**	0.7		1.1		3.5		1.3	
		8:12		11:9		15:5	**	12:8		10:10		12:8		13:7		7:13	
Case Weakening Competition Control France, May 16 <sup>th</sup> , 2003																	
	Banks	6.3		0.4		-0.0		-0.8	***	-0.1	*	-2.4		-1.9		-12.1	

\*\*\* Significant at the 1% level, \*\* significant at the 5% level, and \* significant at the 10% level. <sup>EU</sup> World Market Index in case of an EU event.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## APPENDIX 1: PUBLICLY AVAILABLE SOURCES DEALING WITH COMPETITION CONTROL AND SUPERVISORY CONTROL OF MERGERS AND ACQUISITIONS IN BANKING

The table reports the sources we have used to collect the legal and institutional country characteristics on general competition control and supervisory control of mergers and acquisitions in banking. We report only documents and sources other than the laws.

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

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

## APPENDIX 2. CONTACTED AGENCIES DEALING WITH COMPETITION CONTROL AND SUPERVISORY CONTROL OF MERGERS AND ACQUISITIONS IN BANKING

The table reports the agencies we would like to thank for helping us with the collection of the legal and institutional country characteristics on general competition control and supervisory control of Mergers and Acquisitions in banking. 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.

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

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

BAPV: 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)

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