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THE CROSS BORDER MERGERS AND ACQUISITIONS WAVE OF THE LATE 1990s

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ABSTRACT

To establish a benchmark, the cross border mergers and acquisitions wave of the late 1990s is compared to its predecessor in the late 1980s. It is found to be at least five times larger (in real terms), to involve firms from more OECD nations, and to include many more service sector transactions. However, in comparison to the size of national stock market capitalizations, foreign mergers with and acquisitions of domestic firms during this latest wave were small, especially in the Group of Seven leading industrial economies. The effect of cross border mergers and acquisitions on performance in one important service sector, banking, is also examined. Specifically, the relative importance of cross border mergers and acquisitions, domestic mergers and acquisitions, domestic entry and exit, and strategic alliances and joint ventures for interest rate spreads was estimated for 13 industrial nations. The principal findings suggest that the effects of these firm-driven changes in banking market structure differ markedly between EU member states and non-EU industrialized economies. This highlights the importance of differentiating between types of cross border inter-firm agreements and the pitfalls of generalising about the effects of the latest wave of cross border mergers and acquisitions—as many of the harshest critics of globalization do.

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1. Introduction

As nations' markets continue to become more closely integrated through the process commonly referred to as globalization, a concern has arisen both popularly and among policy makers about the consequences for the degree of competition between firms. Critics of globalization often charge that it extends the reach of abusive oligopolies and monopolies[1], and policy makers in developing countries worry whether increased openness to trade and foreign direct investment flows makes then more vulnerable to "exploitation" by multinational firms.[2] Such

[1] See, for example, the following remarks by Mr. Martin Khor, Director of the Third World Network to the opening session of the UN's Millennium Forum on 22 May 2000:

> "Our age is also defined by the process of globalisation. There are different approaches to this phenomenon. Some say it is inevitable and basically good, you just have to adjust to it and learn to reap the benefits. Others worry about the costs and advocate some safety nets to catch the losers as they fall. In truth, the essence of globalisation is the push by big companies and financial institutions to have more power, to grow bigger through taking over others, and make more profits. They have lobbied their governments, of the rich countries, to break down the national barriers that prevent them from totally free access to markets across the world, especially in the developing countries."

The text of this speech can be downloaded from http://www.twnside.org.sg/title/mk7.htm.

[2] See, for example, the following statement in a November 1998 submission by the Government of India to the WTO's Working Group on the Interaction Between Trade and Competition Policy:

> "In contributions of intergovernmental organizations, a dominant theme along with the issue of mergers and acquisitions is the issue of contestability of markets. Although not clearly defined, an impression is created that every aspect of domestic government policy, economic and social - would, in one way or the other, affect fair trade and the contestability of markets. In a more concrete sense this debate on contestability of markets has been witnessed during the so-called Structural Impediments Initiative in the US-Japan context. With developing countries, the dangers of the doctrine of contestability of markets eroding their ability to take domestic social and economic action are even greater. Moreover, in the name of contestability, an increase in market access for MNCs may be sought by suggesting that all sectors of WTO, in one way or another, be put to the test of contestability. This may have implications for services, intellectual property rights, subsidies and a host of other areas, not to mention investment. It will, therefore, be necessary to define it clearly and narrowly in relation to specific issues and disciplines that we wish to address in the WTO regime. Some issues to be addressed would be market allocation, refusal to deal (boycott), price fixing, collusive dealing, and differential pricing (all of which are vertical RBPs). All of these practices distort or restrict trade and affect the international contestability of markets. This action is particularly called for as developing country markets and their commercial entities are more vulnerable to the effects of such RBPs and at their receiving end. Experiences with RBPs encountered by developing country firms in developed country markets illustrate how RBPs by the large MNCs put these firms at a competitive disadvantage. Instances of other so-called privately led restrictive business practices such as debarring Indian participation in the Dutch Flower Auction or the Basle Jewellery and Watch Fair are also relevant."

MNC and RBP are abbreviations for multinational corporations and restrictive business practices, respectively. This text was taken from paragraph two of WTO document number WT/WGTCP/W/111, which can be downloaded from the WTO's website (www.wto.org). See also the examples described in Mehta and Nanda (2003).

policymakers wonder if they have—or can ever have—the national tools to tackle private anti-competitive practices.[3]

There is also a vibrant debate about the potential for international accords on competition law and enforcement. Policy makers worldwide are engaged in discussions about the desirability and viability of a multilateral framework on competition policy under the auspices of the World Trade Organization (WTO).[4] Proponents of such a framework have called for disciplines on so-called hard core cartels, so-called core principles for competition law and enforcement, modalities for voluntary cooperation, and for the progressive strengthening of competition policy-related institutions in developing countries.[5] Others argue for the development of best practices for competition law and enforcement in fora such as the International Competition Network and the Organisation for Economic Cooperation and Development.[6] And, others have called on industrialized economies to tackle the alleged anti-competitive practices of their multinational firms in developing economies. This proposal would involve antitrust enforcement officials expanding their traditional concern about harm done within their jurisdiction to harm done abroad. It is argued that such an approach would reduce the outlays on antitrust enforcement by developing economies.[7]

In principle, integrating national markets both reduces and enhances the opportunities and viability of anti-competitive conduct by private firms. On the one hand, as countries open up their domestic markets to foreign competition by reducing their tariffs and other trade-distorting policies,

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[3] A recent study of the experience in implementing competition law in seven developing countries offered the following remark about the ability of these countries' antitrust enforcers to address international mergers and acquisitions and anti-competitive practices:

> "Whether countries have special provisions for extra-territorial jurisdiction or apply the 'effects' doctrine is not important when they have no means to enforce their decisions. Often the companies involved are beyond the reach of the competition agencies, which also causes problems in obtaining the information necessary to make a decision." (CUTS 2003, page 75).

[4] For an excellent overview of the discussions within the WTO's Working Group on the Interaction Between Trade and Competition Policy, see that Working Group's Annual Report for 2002 (WTO, 2002).

[5] The European Commission is one of the leading proponents of such a framework. It's proposals can be downloaded from the WTO's website. The Commission has further clarified its proposals in discussions at the WTO's Working Group, see WTO (2002). The doubts of critics and sceptics are also reported in WTO (2002). For an analysis of the implications of such a framework for the design and implementation of national competition law, for industrial policy and development policy options, and for the resource costs faced by developing countries, see Evenett (2003a).

[6] For several proposals on best practices in the merger enforcement area, see the contributions to Rowley (2002). More generally, discussions on best practices in competition law and enforcement are undertaken often in the OECD's Competition Committee. Many of the relevant documents can be found at http://www.oecd.org/EN/document/0,,EN-document-768-nodirectorate-no-22-20233-768,00.html. A number of interesting and informative documents on best practices in merger review can be found on the website of the mergers working group of the International Competition network, http://www.internationalcompetitionnetwork.org/wg1.html.

[7] See Hoekman and Mavroidis (2002).

domestic incumbents that have been protected from international competition by these trade barriers are now more likely to be forced to abandon their price-raising and anti-competitive practices.[8] Moreover, the increased opportunities for international mergers and acquisitions can bring cost-reducing efficiencies that may be passed on to customers, be they private consumers, firms, or governments. On the other hand, globalization also presents new opportunities for firms to form hard core cartels[9] with international reach and other various anti-competitive arrangements. Thus, whether globalization promotes or reduces competitive behavior on balance is largely an empirical rather than theoretical issue.

In this chapter, I first describe in considerable detail the nature of the wave of cross border mergers and acquisitions (M&A) that occurred during the period of rapid globalization in the 1990s and then focus on one particular service sector, namely banking, to investigate if there is evidence that cross-border M&A in this industry resulted in greater spreads between the interest rates paid by borrowers and those rates paid to depositors. Of course, there are limits to what can be learned from a single sector study, but hopefully this analysis will contribute to the factual record, to the literature on consolidation in the banking sector, as well as shedding light on the importance of a number of factors that should be considered when coming to a view on the welfare consequences of the latest wave of cross-border mergers and acquisitions.

My analysis yields several findings. First, the recent cross border M&A wave is in real terms at least five times larger than its predecessor in the 1980s. Even after correcting for the rising price of financial assets[10], in this latest wave cross border M&A is much much larger. Second, although the latest wave involved firms from more countries than in the 1980s, the overwhelming bulk of such M&A still took place among the members of the OECD. Third, despite its greater scale in real terms, the latest wave of cross border M&A represents purchases of only a small fraction of the publicly-traded corporate assets in industrial economies, especially in the Group of Seven leading industrial economies. Foreigners are, therefore, not taking over large tranches of national economies through cross border M&A. Fourth, the preponderance of cross border M&A in the late 1990s were in service sectors, many of which are pretty much immune to import competition.

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[8] For a classic statement of this perspective, see Bhagwati (1968).
[9] For evidence on private international cartels see Evenett (2003a), Levenstein and Suslow (2001), and OECD (2003).
[10] As proxied for by national stock market indices, see below.

Fifth, in one important service sector—banking—estimating the effects of cross border mergers and acquisitions requires paying careful attention to sample composition. Furthermore, controlling for changes in regulatory regimes and other changes in market structure in banking are important. Of the thirteen OECD nations' banking sectors considered here, eight are members of the European Union. The determinants of the latters' banking spreads during the 1990s is found to be much different from those in non-EU economies. In the banking sectors of EU member states, domestic M&A and strategic alliances are found to have no net effect on bank spreads. Cross border mergers and acquisitions are found to depress spreads, suggesting that substantial efficiencies resulted from such consolidation. In contrast, the evidence suggests that cross border strategic alliances result in higher spreads—a finding that is consistent with the view that some such alliances have been formed to forestall further market integration and to preserve the independence of banks in Europe.

The parameters in the non-EU sample are less precisely estimated, reflecting in large part a smaller number of observations. Only cross border strategic alliances are found to influence bank spreads in a statistically significant manner—in this case depressing them (which is the opposite of my finding in the EU sample.) Nevertheless, taken together this chapter's results for the banking section imply that it is hazardous to make sweeping generalizations about the net effect of cross border transactions, especially as the latter can have both pro-competitive and anti-competitive effects.

Sixth, the estimated parameters are used to forecast the net effect of all of these domestic and cross border inter-firm agreements on bank spreads in each of the thirteen countries considered in my EU and non-EU samples. In each EU member state, the combined effect of cross border inter-firm agreements on interest rate spreads is an order of magnitude larger than for domestic inter-firm agreements. Moreover, the overall beneficial effect of cross-border M&A in banking[11] in the EU has, in all of the eight EU members considered here, been completed reversed by the harm done by cross-border strategic alliances. This implies that the combined effect of the latter may not be as benign or as inconsequential as they first appear.[12] Moreover, as the number of cross-border strategic alliances in banking in the EU appears to have increased considerably after the cross-border M&A spurt began, my findings are consistent with the explanation that banks eventually

[11] This is not to say that every cross-border merger or acquisition in the banking sector generates enough efficiencies that bank customers benefit.
[12] This is not say that every cross-border strategic alliance detrimentally affects the welfare of bank customers.

took rearguard actions to increase their market power after the spread-reducing effects of efficiency-enhancing cross-border mergers and acquisitions were felt. If this view is correct, then regulators in the banking sector and competition policy officials should not focus solely on the potential consequences of mergers and acquisitions and should keep a beady eye on perhaps more innocently-looking public announcements of strategic alliances.

This paper is organised as follows. The next section describes the recent wave of cross border mergers and acquisitions. The third section focuses on the consolidation in the banking system in 13 industrialized economies, establishing the factual record first and then conducting econometric analyses. The final section contains some concluding remarks.

2. The cross border mergers and acquisitions wave of the late 1990s

Preliminaries

Before turning to the factual record it may be helpful to clarify the terms used in this chapter. An important distinction is between foreign direct investment (FDI) and cross border mergers and acquisitions. As the principal source of data on cross border M&A used here is the United Nations Conference on Trade and Development's (UNCTAD's) annual *World Investment Report*, I reproduce below UNCTAD's description of the difference between cross border M&A and FDI:

"A firm can undertake FDI in a host country in either one of two ways: greenfield investment in a new facility or acquiring or merging with an existing local firm. The local firm may be privately or state owned: privatisations involving foreign investors count as cross border M&As, which entails a change in the control of the merged or acquired firm. In a cross border merger, the assets and operation of the two firms belonging to two different countries are combined to establish a new legal entity. In a cross border acquisition, the control of assets and operations is transferred from a local to a foreign company, the former becoming an affiliate of the latter." (UNCTAD, 2000, page 99)

Although this quotation clarifies the distinction between investments in *new* productive entities and investments in *existing* entities it would be incorrect to infer that, in practice, the reported value of cross border M&A transactions is always less than the reported amount of foreign direct investment. In fact, measured cross border M&A received by a nation is taken to be the sum of (i) foreign investments in existing domestic firms which result in equity stakes greater than ten percent, (ii) foreign investments in existing domestic firms which result in equity stakes less than ten percent, and (iii) foreign investments in existing domestic firms that are paid for using capital or funds raised in the nation of the acquiring firm. In contrast, the reported amount of FDI received by a nation includes (i), (iii), plus the value of overseas investments paid for by reinvested earnings of foreign firms already resident in the nation. Consequently, as UNCTAD (1996) notes:

"It is, therefore, possible to witness a large increase in M&As that is not fully reflected in FDI flows...[and]…movements in FDI flows can take place independently of movements in M&A. In practice, however, there is a close relationship between movements in M&As and FDI flows." (Box I.1, UNCTAD, 1996).

To underscore the differences between measured cross border M&A and FDI into industrial countries, Table 1 reports the ratio of the former to the latter in 13 OECD nations during 1995-1999. In some countries (Australia, France, Spain, and Japan) the ratio is far from one—suggesting that recorded cross border M&A and FDI differ markedly.

In collecting data on cross border M&A UNCTAD attempts, whenever possible, to establish the location of the "ultimate" corporate owner of a given firm, not an "intermediate" owner that too may be owned by another firm. This is done by examining newspaper announcements of actual and proposed transactions complemented by the use of databases that identify which firms own other firms. By locating the headquarters of an ultimate corporate owner, one can assign a "nationality" to the owner. This, of course, sidesteps the fact that a publicly traded company may have shareholders/stockholders who are resident in more than one country—a wrinkle that is easy (and important) to state but is difficult to address adequately.

Factual record[13]

Turning now to the data, using 1987 constant dollars, Table 2 and Figure 1 report the extent of cross border mergers and acquisitions activity from 1987 to 2000, the peak year of the latest boom. (In 2001, reports suggest that cross border M&A fell 40 percent in nominal terms.) As Figure 1 makes clear, the recent wave of cross border M&A accelerated after 1996 and reached a peak of $828 billion in 2000 (which is equivalent to $1.1 trillion dollars in year 2000 dollars). The previous wave of cross border M&A, which took place from 1987 to 1990, reached a peak of $135 billion in 1990—less than a fifth of the peak in the latest wave. Furthermore, developing economies played next to no role in the 1980s wave and a modest in the most recent wave.[14] Perhaps for this

[13] For two descriptions of the factual record that include more discussion than is presented here of mergers and acquisitions in selected sectors, see Kang and Johansson (2000) and OECD (2001). For a recent account and analysis of foreign mergers and acquisitions in the United States, see Feliciano and Lipsey (2002).

[14] Having said that, see Mody and Negishi (2000) for an account of the growing role of cross border M&A in overseas investments in the East Asia in the late 1990s.

reason, it might be more accurate to call the latest wave an "international" wave rather than a "global" wave of cross border M&A.

For further perspective on the growth of cross border M&A in the 1990s, see Figure 2. This shows that the real growth of cross border M&A dwarfs that of world GDP and of world merchandise trade, the latter of which almost doubled in real terms in the 1990s. In Figure 2 I deflated current values of total cross border M&A by the same GDP deflator that I used to compute real World GDP—a procedure which can be objected to on the grounds that stock markets soared in the 1990s, raising the possibility that the price of financial capital has grown more quickly than the GDP deflator. To examine this matter further I deflated country-by-country values of nominal inward cross border M&A by the changes in the value of each country's major stock market index[15], and normalised the amount of cross border M&A received in 1990 at 100. (The year 1990 was the peak of the wave of cross border M&A that started in the late 1980s.) Figures 3a and 3b report this new calculation of the real value of cross border M&A received by the ten industrialized economies throughout the 1990s. In all but two economies, real inward M&A is much lower in 1990 than in 2000, confirming that for the major markets in the world economy the latest cross border M&A wave was on a much larger scale than its predecessor in the 1980s.

Having said that, the growth of cross border M&A is from a relatively small base and when the level of cross border M&A that a nation received in the late 1990s is compared to its stock market's capitalization, the amount of assets acquired by foreign firms tends to be quite small (see Table 3). Only the smaller—and relatively more open—industrial economies saw the total value of foreign mergers and acquisitions exceed five percent of their total stock market capitalizations. For the Group of Seven leading industrial economies the inflows of cross border M&A are even smaller relative to the size of their stock markets. The image of aggressive foreign executives snapping up large shares of productive domestic assets conjured up during the contentious merger of Vodafone and Mannesmann AG in 2000, for example, finds little support in the data.

Figures 4 and 5 provide further indications of the broader participation in the latest wave of cross border M&A, compared to its predecessor in the 1980s. The latter was essentially an American and British affair, with some French firms making acquisitions towards the end of the boom (principally in 1990). In contrast, the current wave involved considerable transactions by

[15] For nine of the ten industrialized economies choosing the major stock market index was straightforward. For the United States, however, one could choose either the S&P 500 index or the Dow Jones Industrial Index. I chose the latter index, but note that both indicies rose by similar percentages throughout the 1990s.

German, French, Spanish, and Nordic firms—joining the long standing Anglo-American interest in cross border M&A. Figure 5 compares the cumulative distribution of cross border M&A across OECD nations in both waves, confirming the less skewed nature of the latest wave.

Another critical feature of the latest cross border M&A wave is the important role played by so-called mega deals, those transactions whose value exceeded one billion U.S. dollars. The number of such deals nearly quadrupled from 1996 to 2000 (see Figure 6); and the (constant dollar) value of such transactions more than quadrupled (see Figure 7). In Appendix Table One, I have listed the mega deals that were announced in 2000. It is evident that the majority of such deals involved the service sector, notably the financial and telecommunications sectors. Few manufacturing firms can be found on this list, a point I shall return to below.

An examination of the sectoral breakdown of cross border M&A during the 1980s and 1990s waves is revealing too (see Table 4 and Figures 8a and 8b). One striking finding is the relatively smaller importance of manufacturing cross border M&A in the late 1990s, accounting for only 35.1 percent of the total value of such transactions. In the previous wave, such transactions accounted for 62.2 percent of the total. What is more, just three service sectors (transport, storage, and communications; finance; and business services) account for just under a half of total cross border M&A in the late 1990s.

Policy regimes facing cross border mergers and acquisitions

Much has been made in the literature and in the reports of international organizations[16] of the falling barriers to greenfield FDI during the 1990s. UNCTAD goes so far as to tally up, on an annual basis, the number of economies that have relaxed or tightened their FDI regimes.[17] However, in industralized economies (and in some developing economies too) cross border mergers and acquisitions are typically influenced by two different policy regimes: merger review policies (which are described in some detail below) and sectoral regulations. The latter can involve reviews of M&A deals (both domestic and cross border) that occur within a given sector. Regulators in financial services, banking, telecommunications, and air transportation have been active in the 1990s reviewing proposals to merge or acquire firms. What is more, some jurisdictions allow for M&As in some sectors to be reviewed both by the relevant sectoral regulator and by the national

[16] See, for example, World Bank (2000) and the annual *World Investment Reports* published by UNCTAD.
[17] See UNCTAD's annual *World Investment Reports* for details.

competition enforcement agency.[18] This raises the question of the extent to which observed levels of cross border M&A are affected by the potential for multiple official reviews within the same jurisdiction.

In contrast to policies towards greenfield FDI it is quite possible that, as a general proposition, policies towards M&As have become more stringent throughout the 1990s. For starters, the number of jurisdictions with merger review regimes rose sharply in the 1990s (see Figure 9).[19] According to White & Case (2001), a publication of an international law firm that conducts an annual survey of merger enforcement around the world, sixty five economies had merger review laws in 2000 (plus the European Commission's supranational merger enforcement regime.) Thirty of these merger review laws have been enacted since 1990. It is also noteworthy that merger review laws are a relatively new phenomenon in some industrial economies—in other words, the spread in the last twenty years is not just a phenomenon found in developing countries. For instance, the European Commission's Merger Regulation only came into force in 1990, Italy's merger review regime was enacted in 1990, Denmark's and the Netherlands' in 1997, and France's antitrust authority only celebrated its fifteenth birthday in 2002. Finally these remarks suggest that, when studying cross border flows associated with corporate investments abroad, it is important to locate which policy regime or regimes has the greatest bearing on the flows being examined. In many cases, measures of (or proxies for) the strength of the policy regime towards greenfield investments may provide a misleading guide to the strength of the merger review regime or of the sectoral regulatory regime.

Commentary and related literature

This change in sectoral composition reflects a number of factors. First, lower trade barriers and more intense competition in world markets for manufactures are likely to reduce the incentive to engage in cross border M&A so as to accumulate market power or to jump tariffs. Indeed, any

[18] For examples, see the case studies in Evenett, Lehmann, and Steil (2000).

[19] Figure 9 reports not only the total number of merger review laws enacted since 1970 but also the total number of such laws requiring notification of proposed mergers and acquisitions before deals are completed. Among legal practitioners and scholars the latter type of merger review regime are, by and large, regarded as the most stringent form of merger review law (see ICPAC, 2000, for a statement of what might be called conventional legal wisdom in this regard. See, also, Evenett (2002) which confirms that of the three main types of merger review laws, those requiring mandatory pre-notification curtail cross border M&A the most.) In the light of these remarks, it is noteworthy that a growing proportion of the merger review laws enacted in the 1980s and 1990s are of the mandatory pre-notification type (see Figure 9). This is further evidence in favor of the proposition that *worldwide* the policy regime towards M&A has become stricter over time. (It may well be the case that the policy regimes towards M&A in individual countries have been relaxed throughout the 1990s.)

increments in market power are likely to result in greater supplies from competitors located at home and abroad. This suggests the following hypothesis: in those industries where international competition is fiercest, M&A is more likely to be motivated by cost-cutting rationales. Second, the increase in service sector M&A reflects deregulation, privatization, and the relaxation on restrictions on foreign ownership in many industrial economies. Although such reforms began in the 1980s in a few industrial economies (notably Britain, New Zealand, and the United States), in many other countries they were not implemented on a wider scale until the 1990s. This is not to say that the all the major service sectors are deregulated, but rather that the pace of deregulation picked up in the 1990s and that this presented opportunities for foreign investors. In many continental European economies the pace gathered in response to the Single Market Programme and the liberalization initiatives that ensued.

Although the corporate finance literature on the causes and financial effects of mergers and acquisitions is quite voluminous, there are relatively few papers on the determinants and consequences of *cross border* M&A[20] and on *economic analyses* of the policy regimes governing such cross border transactions.[21] Black (2000a,b) describes a number of political and economic factors that, in his opinion, account for the recent surge in cross border M&A. He points to the "breakdown of the old antitakeover coalition" (Black, 2000a, page 10). Unions have weakened and managers own more stock options, which ties their remuneration more closely to corporate performance—reducing, he claims, the incentive to defend against the takeover of a poorly performing firm. Lower inflation and a surging stock markets, it is argued, have reduced the costs of financing M&A (although this explanation surely applies to domestic M&A as well as to cross border M&A.) Finally, Black notes that there is now less opposition to concentrations of wealth and that integrating national markets have encouraged firms to aspire to activities on a worldwide scale. Pryor's (2001) focus, in contrast, is on documenting the consequences for the United States of the recent boom in domestic and cross border M&A. He argues that such transactions have increased the concentration of manufacturing industries in the 1990s and, in his opinion, can be expected to continue to do so in the future.

An econometric approach was taken in Evenett (2002, 2003b). Employing a gravity equation approach in both studies, Evenett estimated the contribution of different factors to the

[20] This paucity of studies on cross border M&A is to be contrasted with the voluminous literature on FDI, which the earlier discussion suggests is a distinct but related phenomenon.
[21] There are a number of legal analyses of the policy regimes influencing cross-border mergers and acquisitions.

value of American outward M&A that 49 foreign economies received in 1999, including the effect of national merger review regimes. In both studies, several nation-specific factors are found to be important determinants of cross border M&A including the recipient nation's gross domestic product, the distance from the United States, the recipient nation's corporate tax rate and average tariff rate, and whether or not the recipient nation was once a British colony (and is, therefore, more likely to use English as the language of business and to have a common law system, which the United States has too.) Evenett (2003b) also found that the presence of merger review laws tend to cut in half the amount of American M&A received. This constitutes a substantial barrier to the international trade in corporate assets, and is especially important given the 1990s saw more and more developing economies adopt merger review laws—in particular those developing nations that hoped to join the European Union at some point in the future.

Evenett (2002) also found that the combined effect of merger enforcement by national authorities in the European Union and by the European Commission curtailed American overseas M&A by the same percentage[22] as comparable non-European merger enforcement agencies. This finding may be of interest in the light of the sharp transatlantic dispute over the proposed merger between General Electric and Honeywell in 2001, where accusations were made that the European merger authorities discriminated against proposed American mergers.[23]

The economic impact of cross border M&A depends on a number of considerations which make it unlikely that sweeping claims can be made with any confidence about the desirability (or otherwise) of such international trade in corporate assets. By reducing the number of firms that supply a market, cross border M&As may enhance the market power of the surviving firms. However, such changes in ownership may also result in the combined entity attaining greater economies of scale and scope which, in turn, may benefit consumers in the form of lower prices, a wider range of services offered, or higher quality goods and services. One often-mentioned mechanism is that foreign firms transfer so-called cutting edge technologies and better managerial practices to domestic firms that they have merged with or acquired—suggesting that the beneficial effects of mergers and acquisitions could be greater in the cross border case, compared to a

[22] In this case, fifty percent.
[23] Note that this finding in Evenett (2002) does not speak to the issue as to whether EC merger enforcement procedures tends to discriminate more against transactions involving American firms than transactions involving non-American firms.

domestic transaction. However, there are no guarantees that these pro-competitive aspects of cross border M&As will necessarily completely offset any anticompetitive effects of such transactions.[24]

The strength of each of these considerations is likely to vary from industry to industry. For example, as noted above, those sectors that face aggressive import competition are *ceterius paribus* less likely to see cross border M&A result in higher prices. Sectors, such as banking, where firms increasingly offer a wide range of financial products to customers, are especially likely to gain from merging or acquiring a financial institution that sells complementary products. Another sector, telecommunications, has seen rapid technological progress in the 1990s and cross border M&As are often mentioned as one of the conduits by which such innovations are diffused across national borders—along with the managerial practices that are needed to make good the profitable opportunities created by these technological improvements. In terms of general findings, therefore, a sector-by-sector evaluation of the effects of cross border M&A is probably the most one can ever realistically expect, and in the next section I attempt such an evaluation of the recent consolidation in the banking system in 13 OECD nations.

A final point, whose implications tend to be thought through in many other international economic policy matters but which has, until now, received less attention in discussions of international antitrust matters, is that cross border M&A may well have economic effects that spill across national borders and that national antitrust or competition authorities tend to focus only on the effects within their own jurisdictions. Therefore, no government entity exists to aggregate the effects of a proposed transaction across all the affected national markets.[25] This may lead to situations where a transaction is vetoed in some jurisdictions (where the economic consequences are thought to be adverse) even though there is a positive effect *on net* across all the affected markets.

[24] One important—and contentious—issue is to what extent ownership changes are needed to secure the pro-competitive benefits of mergers and acquisitions. Direct contracting and collaborative (or so-called strategic) alliances may provide the means by which a domestic firm can market a foreign firm's range of products, or by which a domestic firm can expand its output (potentially reaping economies of scale) by producing goods under contract for a foreign firm. This raises the possibility that all the resource allocation benefits of cross border M&As can be obtained by signing inter-firm agreements which do not involve reducing the number of suppliers. However, the point need not to be taken too far as transactions costs arguments often point to the need for cross-holding of equity to attenuate incentive problems. Furthermore members of an inter-firm alliance or contracting, that starts off with pro-competitive effects, may well soon figure out how to turn their collaboration to price-raising ends.

[25] Within the European Union, for example, the European Commission could play such an aggregating role. This is not to say that it does play such a role!

Essentially, the *absence of any compensation mechanism* between states implies that multiple national vetoes can lead to suboptimal enforcement of cross border mergers and acquisitions. In recent years, a leading antitrust American official has given attention to the issue of multiple national vetoes (see Muris 2001), but the importance of the lack of any compensation mechanism for resource misallocation has yet to receive much attention in legal and economic discourse on merger reviews. Indeed, the absence of such a mechanism is one of the key characteristics that differentiates the international effects of the national antitrust enforcement from trade policy negotiations. In the latter, it has long been understood that any losses to a nation in one sector are compensated for by concessions in other sectors by trading partners. Without suggesting that cross-sectoral tradeoffs are the optimal means to conduct multi-jurisdictional merger reviews, there is probably some value in thinking through the implications of compensation mechanisms across merger cases that prevent a proposed merger or acquisition whose total effects worldwide are welfare improving from being blocked by a single jurisdiction in which it is thought that the transaction's effects are adverse.[26]

3. Consolidation of the banking systems in thirteen industrial nations

I now turn to an econometric evaluation of the effects of cross border mergers and acquisitions in the banking systems of 13 industrial economies. When conducting such evaluations the importance of controlling for changes in regulatory structure, for sample composition, and for other determinants of market structure in the banking sector—such as domestic M&As, domestic entry and exit of banking, and the formation of joint ventures and strategic alliances between banks—will become evident. But, first, I review the facts on banking consolidation as presented in Tables 5 and 6, which were assembled from a detailed report on bank consolidation during the 1990s that was published by the Bank of International Settlements (BIS, 2001). This report referred to consolidation in thirteen OECD nations, namely, Australia, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

During the 1990s these thirteen OECD economies experienced 3563 mergers and acquisitions that involved a domestic bank and another domestic bank. This domestic consolidation dwarfed in number (and in value) the amount of cross border M&A in banks (which totalled 338 transactions worth in current dollars approximately $73 billion (see Table 5). What is more, many

[26] For more discussion on the potential for resource misallocation in multi-jurisdictional merger review see Evenett (2003c) and Neven and Roller (2001).

banks engaged in joint ventures and in strategic alliances during this period, in particular in the United States, Japan, and Canada (Table 6). In short, cross border M&A was not the only factor influencing the concentration and the market structure of these nations' banking systems.

Research on banking mergers points to a number of rationales for this observed consolidation. Carow and Kane (2001), for example, point to the following potential benefits of mergers and acquisitions: cost-based economies of scale, brand-based economies of scale, revenue-based economies of scale, safety net-based economies of scale, revenue-based economies of scope, X-inefficiency, market power, and managerial agency costs (Table 1, Carow and Kane 2001). Dermine (1999), whose analysis Carow and Kane developed, noted that the following attractions to bank M&As has been asserted in the literature: that size can bring "defense based economies of scale" (that is "achieving size…that acts as a defensive measure against takeovers" (Dermine, 1999, page 16), and the long standing "quiet life" hypothesis. Moreover, to the extent that strategic alliances between banks enable them to enhance the range of products that they supply (and in so doing market their partners' products too), and to the extent that alliance partners can share costs in supplying products (perhaps by reducing any duplication in distribution networks), then such alliances can generate cost efficiencies too.

My interest here is in the market power and efficiency-related aspects of bank mergers and acquisitions. In particular, I focus on the effects on one important observable variable, the interest rate spread; that is, the difference between the interest rates paid by borrowers and those paid to depositors. Part of that spread will be determined by the costs associated with collecting deposits, but more importantly by the costs associated with locating and screening potential borrowers. Another determinant of the spread is market power, and this depends on the number of options available to both depositors and the borrowers. If potential depositors have few choices as to where to place their savings, then incumbent banks can offer lower deposit rates which *ceterius paribus* raises spreads. Likewise, if potential borrowers have few alternatives to seeking funds from the incumbent banks, then the interest rate paid by the former will be higher, raising spreads.

In the absence of efficiencies, bank M&As can be expected to raise spreads as the number of banking options facing depositors and borrowers declines. Only if there is sufficient rivalry between banks after a merger takes place will any efficiencies created by the merger be passed onto consumers in the form of lower spreads.[27] It is an empirical question whether market power or

[27] For a more sophisticated overview of the causes and consequences of market power in banking, see Vives (2001), section III.

efficiencies dominates. To date, the empirical literature on bank mergers is mixed on the relative importance of these two factors (see the discussions in Berger, DeYoung, Genay, and Udell, 2000, Calomiris and Karceski, 2000, and Vives, 2001.)

To estimate the effects on interest rate spreads of the changes in the national banking sectors documented in Tables 5 and 6, I assembled from BIS (2001) and the World Bank's *World Development Indicators* (WDI) an unbalanced panel comprising the thirteen nations in the BIS study. The unbalanced nature of the panel resulted from the fact that in some countries the five firm concentration ratios in the banking sectors were not reported in the BIS study for every year from 1990 to 1999. The BIS study provided annual data on the number of banks in each country, the number and types of strategic alliances, and the number and types of M&A.

The dependent variable for this study—the interest rate spread—was taken from the WDI CD-ROM. This source defines the interest spread as

"the interest rate charged by banks on loans to prime customers minus the interest paid to by commercial or similar banks for demand, time, or savings deposits." (WDI CD-ROM)[28]

The mean value of this spread for each economy is reported in Table 7, which sorts the economies according to the annual average number of cross border mergers and acquisitions. The highest mean spread (6.35 percent) is in Germany and the lowest spread is in Canada (1.34 percent). Data on three macroeconomic series—gross domestic products, GDP price deflators, and stock market capitalization—used to form control variables (which are described later) was also assembled from the WDI. Both GDP growth and the inflation rate are intended to proxy for the stage of the business cycle, whereas the size a nation's stock market is supposed to proxy for the extent to which financial markets can act as an alternative source of finance for borrowers and as an alternative destination for personal savings.

The objective of the econometric strategy is to discern—after stripping out the variation created by the business cycle and any competition for funds created by the stock market and by the impact of regulatory changes—whether interest rate spreads in the 1990s have been influenced by the formation of the numerous strategic alliances and the consummation of bank M&As. Of especial interest is whether cross border M&A and cross border strategic alliances have different

[28] Some seminar participants have questioned the accuracy of the WDI data on bank spreads. I checked other available series on bank spreads—specifically, those from the International Monetary Fund and the comprehensive DATASTREAM financial database—and found that these confirmed the data on spreads reported in the WDI.

effects from their domestic counterparts. So that my econometric estimates are not determined entirely by the boom years of cross border M&A (1997-2000), the dataset used covers as much of the 1990s as the data sources employed here would allow.

I proceed from a parsimonious specification to richer ones. The first specification purges the variation in bank spreads of variation associated with a set of macroeconomic controls and includes country-specific fixed effects. The estimation equation is as follows:

$$(1) \qquad \ln\left(\frac{1+L_{it}}{1+D_{it}}\right) = a_i + b\ln(M_{it}) + \varepsilon_{it}$$

where

$$\ln(M_{it}) = b_1 \ln\left(\frac{GDP_{it}}{GDP_{i(t-1)}}\right) + b_2 \ln\left(\frac{P_{it}}{P_{i(t-1)}}\right) + b_3 \ln(SM_{it}) + b_4 \ln(t) + \ldots$$

and

i=1,…..,N, N=13
t=1990,… ,1999.

a_i	is a country-specific fixed effect for economy i.
L_{it}	is the prime rate paid to borrowers from banks in economy i in year t.
D_{it}	is the interest paid to depositors in banks in economy i in year t.
GDP_{it}	is the gross domestic product of economy i in year t.
P_{it}	is the GDP deflator in economy i in year t.
SM_{it}	is the total stock market capitalization of economy i in year t as a percentage of GDP_{it}.

The vector M_{it} includes the four macroeconomic controls outlined above plus the (six) two-way interaction between these four controls. The parameter estimates, obtained by confronting specification 1 with the data from my unbalanced panel of thirteen economies, account for 6.43 percent of the within variation, see Table 8. The estimation procedure used weighted least squares to take account of any country-specific (or group wise) heteroskedacity.[29]

Specifications 2 and 3 (in Table 8) include parsimonious controls for changes in market structure. Specification 2 includes the logarithm of the five firm concentration ratio as an

[29] Specifically, the weight applied to each country's data in a second stage regression is the estimate of the standard deviation of the residuals that were recovered from an unweighted first stage regression using ordinary least squares.

independent variable. Specification 3 goes further and introduces as two additional distinct independent variables the logarithms of (one plus) the number of annual strategic alliances and (one plus) the number of annual M&As consummated since 1990. Both specification yield the traditional finding that increases in the concentration ratio raises interest rate spreads. Specification 3 provides the first evidence that strategic alliances appear to raise interest rate spreads, whereas M&As tend to have no statistically significant effect on them.

One objection to specification 3 is that the observed concentration ratio in a given year may well, in turn, be influenced by the number of strategic alliances and mergers and acquisitions that have occurred in the past or are taking place currently. Consequently, in addition to allowing for time invariant country-specific determinants of concentration, I also purged the variation of the five firm concentration ratio of the observed levels of strategic alliances and M&As.[30] This purged concentration ratio was used in specification 4 instead of the actual concentration ratio in specification 3. The upshot: precious little changes.[31]

Another objection to specifications 1-4 is that they do not take into account the entry and exit of domestic banks that is independent of M&A. Specification 5 includes as an independent variable the logarithm of the number of banks in an economy. With this additional explanatory variable, the effect of the concentration ratio on interest rate spreads still has the correct sign and the parameter estimate on the strategic alliance variable remains little changed. Entry of banks is found to depress spreads, but not in a statistically insignificant manner.

As the BIS data source enables me to differentiate between domestic and cross border strategic alliances and between domestic and cross border M&A, I entered them as separate independent variables in specification 6. Interestingly, domestic M&A and domestic strategic alliances are found to raise spreads, with the estimated parameter on the former 50 percent larger than on the latter. In contrast, cross border M&A does appear to reduce spreads. However, in

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[30] Specifically, in specification 4 I regressed the concentration ratio on country-specific dummies and the logarithm of one plus the total number of strategic alliances and the total number of mergers and acquisitions. Following standard procedures, the estimate of the "purged" concentration ratio is the estimated residual of the regression described above in this footnote.
[31] Note that in specifications 4-7 I purged the concentration ratio of country-specific fixed effects plus each of the M&A and strategic alliance variables included in a given specification. Moreover, in specifications 5-7 I also purged the concentration ratio of the logarithm of the number of banks. In specification 7, I also purged the concentration ration of the explanatory power of the dummies picking up changes in bank regulatory regimes. In each specification, the goal of this "purging" procedure is to identify that component of the concentration ratio that cannot be attributed to the changes in national market structures in the banking sector, to national regulatory changes, or to other national characteristics that do not vary over the years of data in the sample (1990-1999).

specification 6 these findings do not survive the inclusion of controls for regulatory changes in the thirteen OECD nations during the 1990s.[32] Specification 7 includes these controls and the parameter on the cross border M&A variable loses its significance. Nonetheless, the estimated parameters do suggest that domestic consolidation and strategic alliances in the banking system have raised spreads—whereas their cross border counterparts do not.

The next step was to examine whether these qualitative findings held up to changes in sample composition. First, I eliminated each country one at a time from the sample and re-estimated the parameters. The new parameter estimates varied little from previously. Second, I eliminated the North American economies (Canada and the United States) from the sample—again with little effect. Third, I eliminated Japan and Australia from the sample and found not much changed. This seemingly robust set of regression findings was overturned when I split the thirteen nation sample into a sample comprising of European Union (EU) members and a sample comprising the rest. Arguably, the former's banking sectors have been affected by the implementation of two European Banking Directives (and other measures to enhance the integration of European markets). Such considerations may result in banking consolidation in Europe having different effects than in other parts of the industrialized world. Table 9 and 10, which report the parameters estimated in Table 8 for the eight nation EU sample and the five nation non-EU sample respectively, confirm that differences do exist between these samples.

In the EU sample, cross border strategic alliances are found to increase spreads. Perhaps such alliances in Europe were formed to frustrate entry and segment markets, rather than to enhance economies of scale and scope. Interestingly, where EU banks have gone beyond such alliances and have actually merged with banks located in another EU member, the evidence suggests that spreads do fall (see specification 7, Table 9). In contrast, domestic inter-bank alliances in EU member states appear to have no effects on bank spreads—suggesting that any economies reaped are probably offset by a diminution in competition.

The performance of the specifications in the non-EU sample is rather mixed. For sure, with the inclusion of the regulatory controls (in specification 7, Table 10), over half of the variation in the dependant variable is explained. However, few of the market structure variables—such as the purged concentration ratio—are found to have had a statistically significant effect on interest rate spreads. This may reflect the fact that the degrees of freedom in the sample is quite small (less than

[32] Appendix Table 2 lists the major banking sector-related changed identified in Annex II.3 of BIS (2001).

30). Even so, outside the EU cross-border strategic alliances were found to depress interest rate spreads, suggesting that such corporate agreements generate efficiencies.

The parameter estimates from specification 7 (in both Tables 9 and 10) can be used to quantify the total effect of the observed domestic and cross border consolidation in the banking sectors that occurred in the 1990s, as well as the total effect of the formation of strategic alliances. Table 11 reports country-by-country the point estimates of the total effect on interest rate spreads of the domestic and cross border banking changes observed throughout the 1990s. In every non-EU country considered here, the combined effect of the domestic banking changes was to raise spreads, but this was offset by the beneficial effects created by cross border strategic alliances and M&A. In each EU economy the net effect of domestic banking changes on spreads is almost zero and is dominated by the spread-increasing effects of cross-border strategic alliances. Indeed, had those cross border strategic alliances not occurred in the 1990s, bank spreads (as measured by the dependent variable) in each EU country considered here would have been at least two whole percentage points lower in 1999. In contrast, in the five non-EU economies cross border strategic alliances and mergers have helped reduce spreads by between 1.3 and 3 percentage points.

These findings suggest that inter-bank agreements and consolidation in the 1990s had important effects on interest rates and, therefore, on the welfare of lenders or borrowers. What is doubtful, however, is that sweeping statements about the effects of cross-border inter-bank agreements can be made with any confidence. Indeed, the emphasis in much commentary on globalization on the role of cross-border M&A is somewhat misplaced, at least in banking, as it appears that the consequences of cross-border strategic alliances are a more important part of the story.

4. Concluding remarks

The cross border mergers and acquisitions wave of the 1990s was on a different scale than its predecessor in the late 1990s: it included more firms from more countries, it saw a greater number of transactions many of which were mega deals; and it was dominated by service sector transactions—in fact, three sectors (namely, transportation and communication; finance; and business services) accounted for just under half of the value of all M&A from 1997 to 2000. An evaluation of this recent cross border mergers and acquisitions wave is, thus, in large part an evaluation of its effects on these three sectors. What is more, in each case there are good reasons for suspecting that cross border M&A was not the only major change in their market structures in the 1990s. The telecommunications sector saw much deregulation and technological advances, as did business services. In banking, whose consolidation was studied in more detail in this chapter, strategic alliances and domestic M&As were consummated in large numbers in the 1990s. Correcting for these other developments was found to be important when accurately gauging the effect of cross border mergers and acquisitions in the banking sector.

My empirical analysis of thirteen OECD economies' banking sectors points to a discernable impact of openness to foreign banking activities on bank spreads. In eight EU economies the beneficial consequences of cross border M&As was more than offset by the deleterious impact of cross border strategic alliances. In contrast, the net effect of openness to foreign banking activities has been to benefit customers in non-European industrialized economies.

This chapter speaks to a number of themes discussed throughout this book. First, by documenting the factual record on cross-border mergers and acquisitions, a better sense of the scale of this phenomenon emerged. Facts replace assertions. For sure, cross border mergers and acquisitions in the late 1990s were greater than in the late 1980s. However, the former still only represent a small fraction of the stock market capitalizations of all but the smallest industrialized economies. Indeed, in almost every industrial country foreigners are hardly snapping up domestic assets at a rate that some might find alarming.

The second important finding of this chapter relates to the concern that changes in the global economy in recent years have sought to reinforce the market power of corporations. The sectoral study of banking presented here points to the importance of correctly identifying all of the changes in a given sector's structure and its regulations before drawing any inferences about the effects of consolidation on customers. In the banking sector in the EU the evidence suggests that cross-border M&As has actually benefited bank customers rather than harming them. In contrast, cross-border strategic alliances have probably hurt customers in the EU; suggesting that not all cross-border corporate acts have the same effects. More nuance is clearly needed in policy debates so that cross-border inter-firm measures are not automatically branded as bad or anti-consumer.

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Table 1: Ratio of Inward M&A flows to Inward FDI flows for 13 OECD economies

Economy	Year					Mean ratio
	1995	1996	1997	1998	1999	
Spain	20.40	22.22	63.91	48.05	56.14	42.14
France	31.81	61.82	76.59	57.25	59.02	57.30
Sweden	65.39	76.19	30.35	56.71	99.42	65.61
Netherlands	29.52	23.51	131.73	46.44	113.95	69.03
Belgium and Luxembourg	18.62	63.82	78.65	30.41	153.98	69.10
United States	90.58	80.60	77.46	112.47	84.57	89.14
Canada	124.95	112.48	72.36	75.71	99.07	96.92
Switzerland	166.08	143.18	53.42	71.25	120.54	110.89
Germany	62.34	181.44	106.84	90.00	156.36	119.39
Italy	84.72	77.95	90.86	146.17	225.24	124.99
United Kingdom	182.24	127.98	119.50	143.10	152.59	145.08
Australia	140.27	213.79	191.33	232.26	192.77	194.09
Japan	1387.18	859.50	96.34	126.00	124.46	518.70
Weighted mean (across economies)	84.60	87.16	86.75	96.89	102.75	
Coefficient of variation	4.32	2.51	0.47	0.58	0.48	

Source: Appendices of the World Investment Report 2000.

Table 2: Total cross border mergers and acquisitions 1987-2000, Constant 1987 US dollars

Class of economies	Year													
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
All	74.51	111.81	130.76	135.00	69.84	66.95	68.50	102.65	147.44	175.89	232.06	400.02	567.59	828.43
Developed countries	71.87	109.67	126.47	128.40	67.18	62.86	59.79	94.16	137.27	153.61	207.08	384.81	523.48	792.38
Developing countries	2.61	2.11	3.72	6.31	2.65	4.08	8.61	8.21	10.10	21.79	24.77	14.45	42.75	30.52

Note: Figures refer to billions of US dollars
Source: World Investment Reports.

Figure 1: The latest wave of cross border M&A (1997-2000) is much larger than its predecessor (1987-1990)

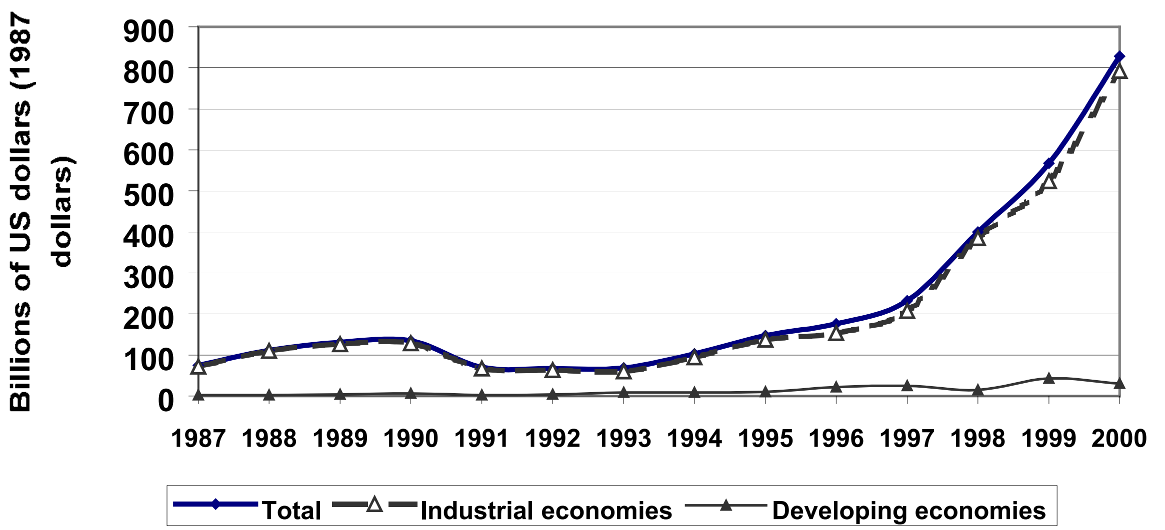

Figure 2: The real increase in cross border M&A throughout the 1990s dwarfs that of world trade and GDP

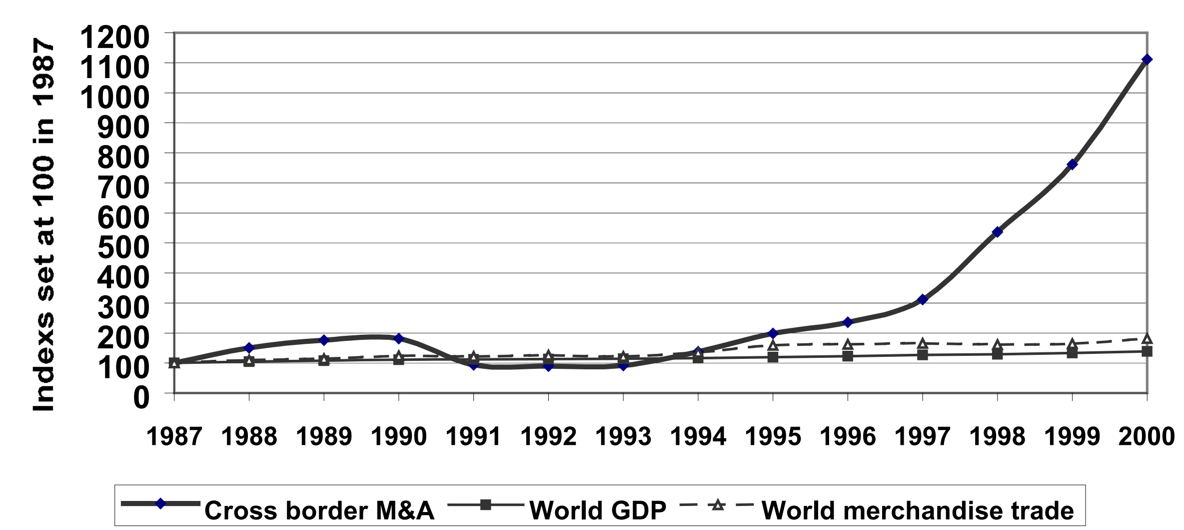

Figure 3a: Comparing inward M&A across booms: economies with relatively moderate increases

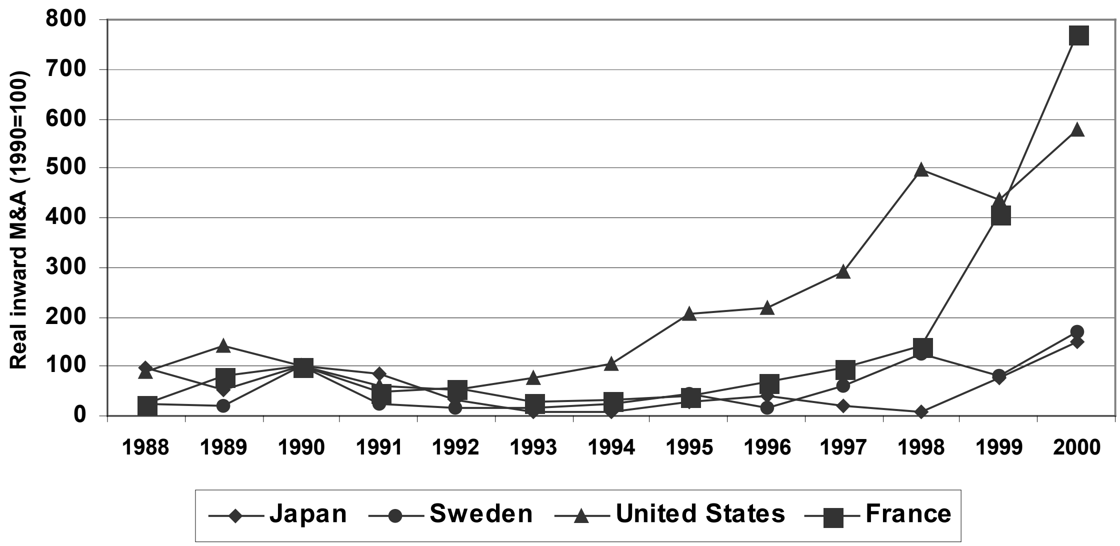

Figure 3b: Comparing inward M&A across booms: economies with large increases

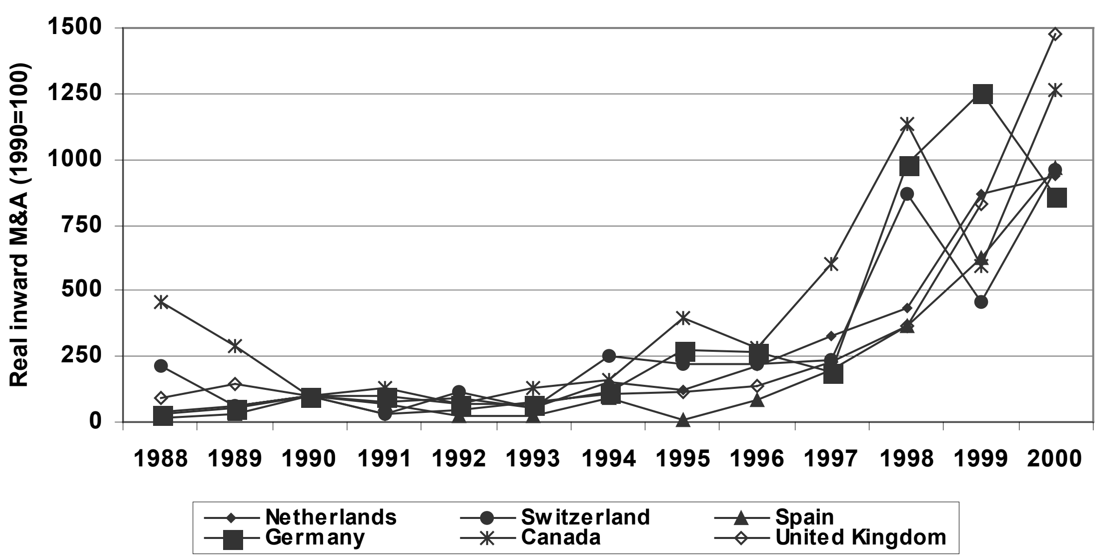

Table 3:

Economy	**Total value of annual cross border M&A deals as a percentage of stock market capitalization**							
	1980s wave				1990s wave			
	1988	1989	1990	Mean	1997	1996	1999	Mean
Luxembourg	0.01	0.00	5.08	1.70	10.30	0.10	20.48	10.29
Sweden	0.19	1.55	4.58	2.11	1.22	3.98	15.99	7.06
Belgium	1.35	1.08	6.83	3.08	4.34	2.79	13.51	6.88
Norway	1.67	2.38	2.56	2.20	4.00	2.10	13.66	6.59
New Zealand	10.03	5.00	41.92	18.98	4.41	9.28	5.64	6.44
Austria	2.85	0.14	1.65	1.55	6.32	10.41	1.15	5.96
Netherlands	1.04	2.51	1.24	1.60	4.06	3.21	5.61	4.30
Australia	3.17	3.34	2.34	2.95	5.00	4.48	2.80	4.10
United Kingdom	2.58	3.21	3.43	**3.07**	1.99	3.84	4.52	**3.45**
Denmark	0.72	0.56	1.27	0.85	0.60	3.85	4.38	2.94
Canada	3.61	3.57	2.37	**3.19**	1.50	3.02	2.99	**2.50**
France	1.23	0.91	2.60	**1.58**	2.63	1.70	1.62	**1.98**
Germany	0.52	1.18	1.75	**1.15**	1.44	1.74	2.76	**1.98**
Finland	0.27	0.75	0.22	0.41	1.00	3.09	0.90	1.67
Spain	0.79	1.30	3.44	1.84	1.40	1.42	1.35	1.39
United States	2.29	1.96	1.79	**2.01**	0.72	1.56	1.51	**1.26**
Italy	2.29	1.77	1.46	**1.84**	0.98	0.79	1.54	**1.10**
Switzerland	1.67	0.57	2.85	1.70	0.62	0.78	0.59	0.66
Portugal	0.15	7.23	2.31	3.23	0.22	0.68	0.32	0.41
Japan	0.00	0.04	0.01	**0.01**	0.14	0.16	0.36	**0.22**
Greece	0.51	0.00	0.76	0.42	0.29	0.03	0.09	0.14

Figure 4: Cumulative distribution of cross border M&A in 1987-90 and 1997-2000

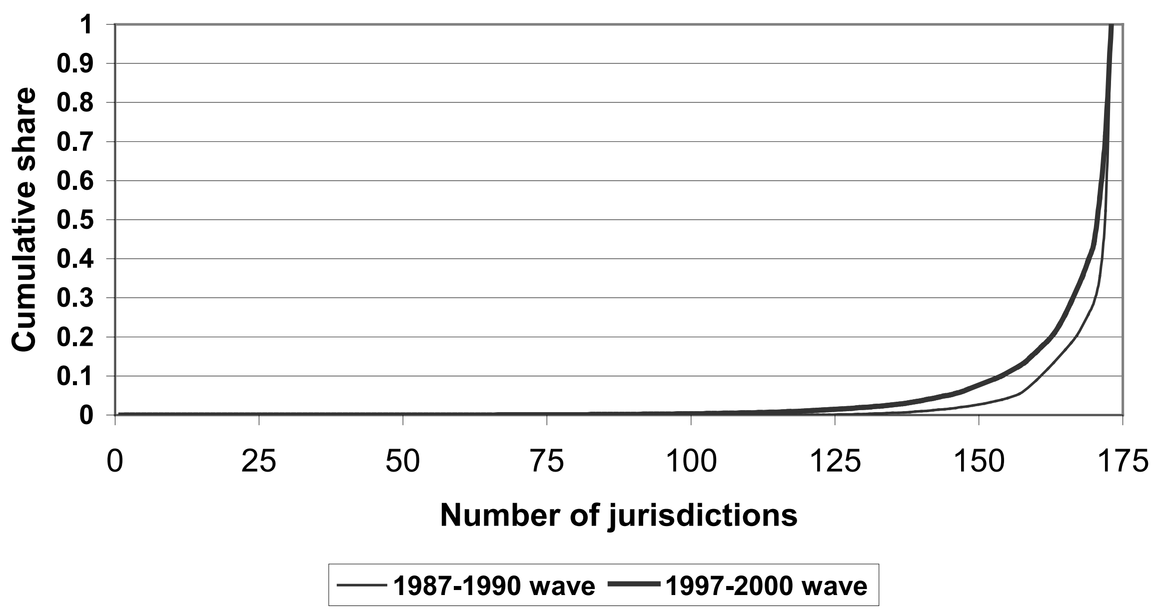

Figure 5: The latest M&A wave involved more OECD nations

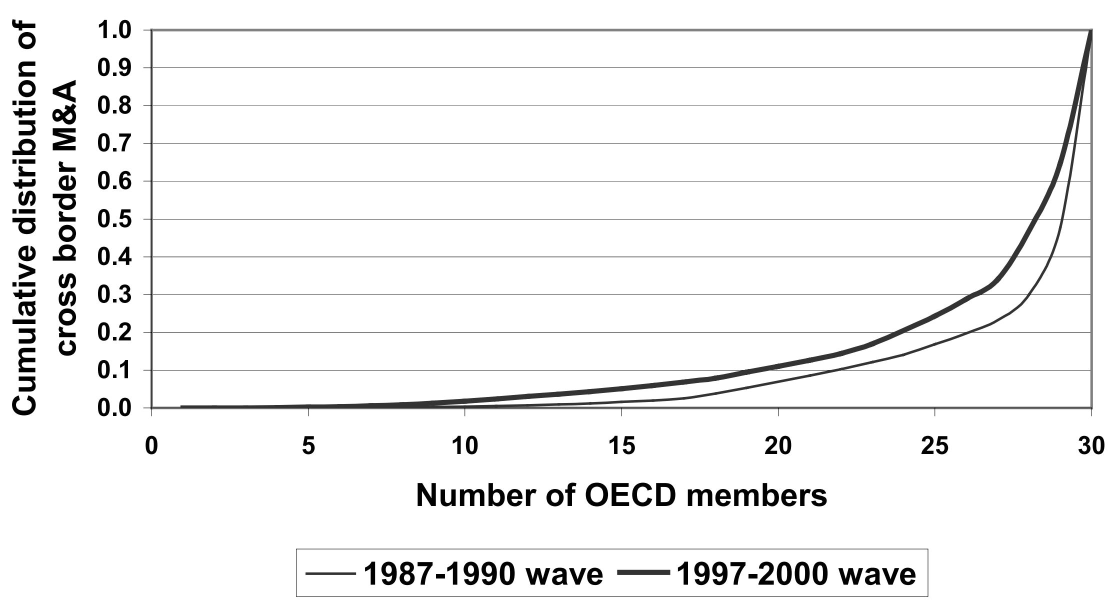

Figure 6: The growing number of billion dollar-plus M&A deals

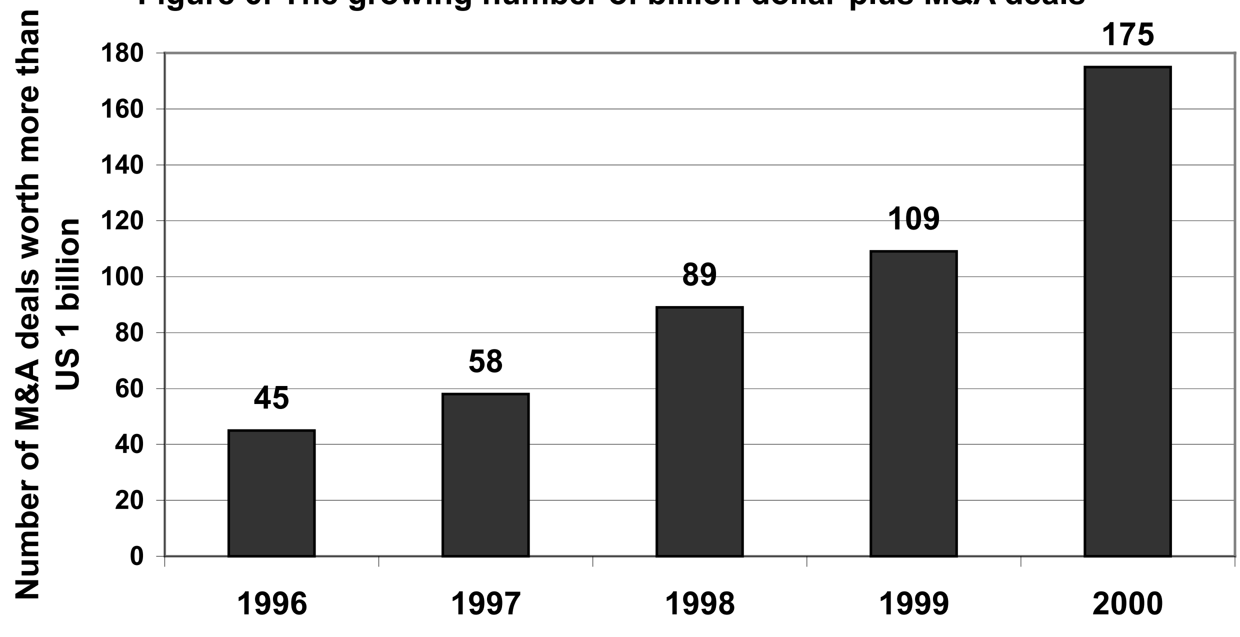

Figure 7: Mega deals drove the latest wave of cross border M&A

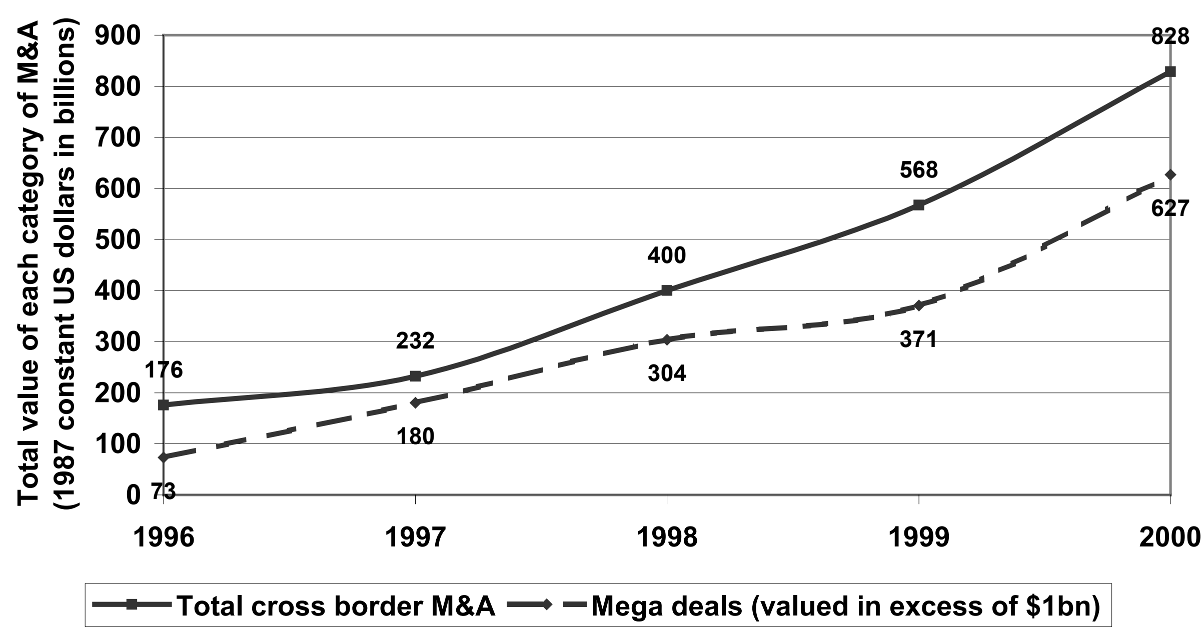

Figure 8a: Manufacturing dominated the 1987-1990 wave

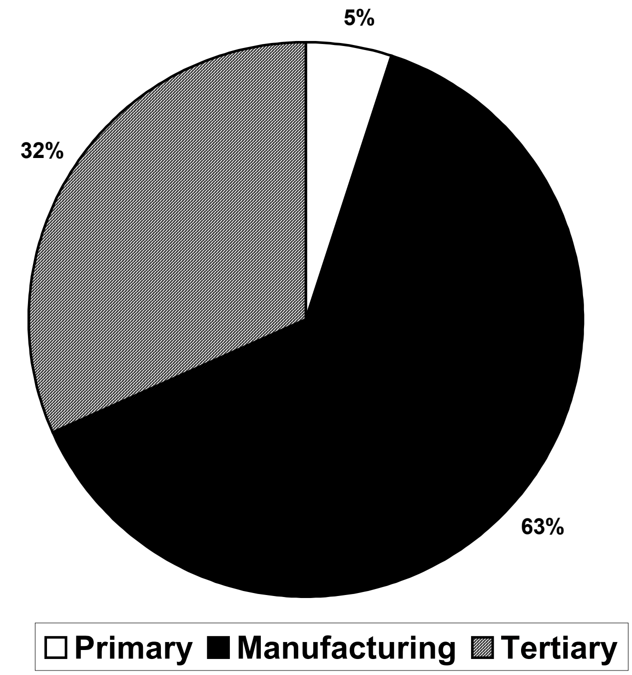

Figure 8b: ...but services dominated the 1997-2000 wave

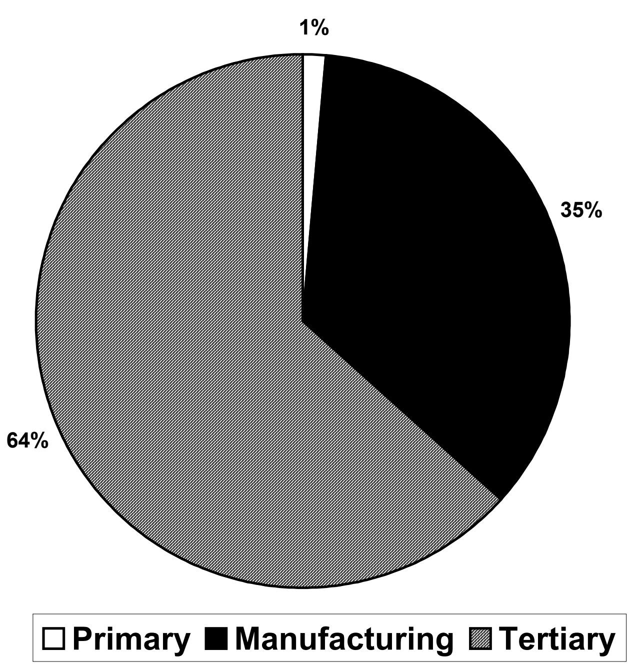

Table 4: Sectoral composition of cross border M&A

Sector	Industy	Share of total cross border M&A in	
		1987-1990	1997-2000
Primary		**5.04**	**1.43**
	Agriculture, hunting, forestry, and fishing	0.72	0.38
	Mining, quarrying and petroleum	4.32	1.04
Manufacturing		**62.24**	**35.11**
	Food, beverages and tobacco	8.16	4.28
	Textiles, clothing and leather	0.95	0.41
	Wood and wood products	3.93	1.72
	Publishing, printing, and reproduction of recorded media	5.89	1.11
	Coke, petroleum and nuclear fuel	9.38	5.33
	Chemicals and chemical products	12.17	6.70
	Rubber and plastic products	2.03	0.48
	Non-metallic mineral products	2.30	1.39
	Metal and metal products	2.86	1.67
	Machinery and equipment	1.75	1.69
	Electrical and electronic equipment	8.14	5.44
	Precision instruments	2.20	1.21
	Motor vehicles and other transport equipment	1.94	3.60
	Other manufacturing	0.53	0.11
Tertiary		**32.72**	**63.46**
	Electric, gas, and water	0.36	5.44
	Construction	0.46	0.38
	Trade	8.08	5.07
	Hotels and restaurants	3.77	0.82
	Transport, storage and communications	1.84	**21.94**
	Finance	11.03	**16.19**
	Business services	4.39	**9.44**
	Public administration and defence	0.00	0.08
	Education	0.00	0.02
	Health and social services	0.17	0.20
	Community, social and personal service activities	2.62	3.87
	Other services	0.01	0.01
Unknown		**0.00**	**0.00**

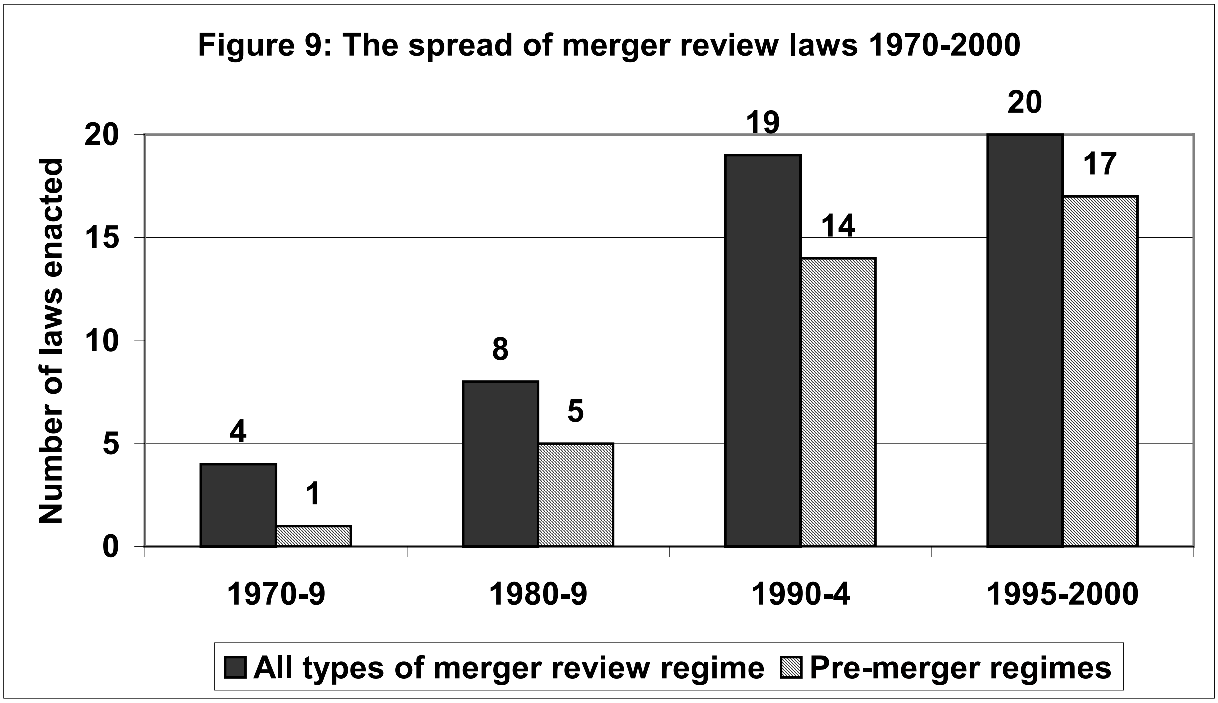
Figure 9: The spread of merger review laws 1970-2000
Number of laws enacted
0
5
10
15
20
4
1
8
5
19
14
20
17
1970-9
1980-9
1990-4
1995-2000
All types of merger review regime
Pre-merger regimes

Table 5:

Mergers and acquisitions in the banking sector in thirteen OECD nations during the 1990s

Deals classified by country and sector of selling firm

Type of transaction	Characteristics	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Within border/ within industry	Number	139	244	318	390	433	435	395	425	417	367	3563
	Total value	16.77	27.74	23.65	26.68	31.02	122.35	38.92	172.04	257.25	241.11	957.53
	Mean value	0.18	0.22	0.14	0.10	0.10	0.43	0.15	0.53	0.78	0.98	0.39
Within border/ cross industry	Number	37	39	40	45	59	58	53	71	62	79	543
	Total value	10.66	3.00	0.92	1.44	1.54	4.79	1.65	4.21	99.53	8.27	136.03
	Mean value	0.48	1.36	0.05	0.06	0.06	0.17	0.06	0.11	2.21	0.16	0.44
Cross-border/ within industry	Number	14	18	14	19	24	30	21	30	36	29	235
	Total value	2.34	0.56	0.23	1.16	1.85	8.51	3.17	5.70	13.48	13.79	50.80
	Mean value	0.39	0.07	0.08	0.17	0.15	0.47	0.29	0.34	0.75	0.77	0.43
Cross-border/ cross industry	Number	9	10	9	7	9	9	11	8	18	13	103
	Total value	1.27	0.23	1.85	0.42	0.15	0.59	2.63	5.12	2.77	7.10	22.14
	Mean value	0.32	0.05	0.26	0.11	0.03	0.10	0.44	0.64	0.21	0.65	0.32

Deals classified by country and sector of acquiring firm

Type of transaction	Characteristics	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Within border/ within industry	Number	139	244	318	390	433	435	395	425	417	367	3563
	Total value	16.77	27.74	23.65	26.68	31.02	122.35	38.92	172.04	257.25	241.11	957.53
	Mean value	0.18	0.22	0.14	0.10	0.10	0.43	0.15	0.53	0.78	0.98	0.39
Within border/ cross industry	Number	13	25	22	35	36	52	60	49	45	72	409
	Total value	0.25	1.13	0.52	4.49	0.77	2.09	5.06	20.34	5.67	9.71	50.02
	Mean value	0.04	0.16	0.09	0.20	0.04	0.09	0.16	0.60	0.20	0.19	2.20
Cross-border/ within industry	Number	22	20	19	22	25	44	34	42	51	50	329
	Total value	2.83	0.37	0.99	1.28	1.65	10.25	5.12	10.70	15.50	20.26	68.95
	Mean value	0.28	0.06	0.20	0.14	0.15	0.38	0.30	0.51	0.60	0.61	0.42
Cross-border/ cross industry	Number	6	8	7	7	9	21	15	17	15	17	122
	Total value	0.18	0.19	0.27	0.13	0.75	0.65	1.06	1.22	0.85	3.59	8.89
	Mean value	0.06	0.05	0.14	0.04	0.75	0.13	0.21	0.17	0.09	0.33	0.18

Note: Total value and mean value are in billions of US dollars. These magnitudes are in current dollars.

Table 6:

Joint ventures and strategic alliances in the banking sector in thirteen OECD nations during the 1990s

Economy	Characteristics	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
United States	Within border	22	25	36	48	85	134	67	160	318	241	1136
	Cross border	25	32	12	11	24	33	28	42	75	57	339
	Total	47	57	48	59	109	167	95	202	393	298	1475
Canada	Within border	5	5	0	1	3	7	3	11	21	28	84
	Cross border	3	5	1	4	3	5	6	9	29	16	81
	Total	8	10	1	5	6	12	9	20	50	44	165
Japan	Within border	4	2	5	4	5	4	1	4	20	47	96
	Cross border	7	9	2	5	4	6	4	17	64	65	183
	Total	11	11	7	9	9	10	5	21	84	112	279
Australia	Within border	0	3	3	5	12	21	5	11	33	52	145
	Cross border	2	1	2	4	7	18	9	12	21	42	118
	Total	2	4	5	9	19	39	14	23	54	94	263
Belgium	Within border	0	0	0	0	1	I	1	1	1	1	6
	Cross border	1	1	2	1	3	1	1	0	2	3	15
	Total	1	1	2	1	4	2	2	1	3	4	21
France	Within border	2	2	4	1	4	3	2	4	1	4	27
	Cross border	9	3	7	4	3	5	3	6	12	11	63
	Total	11	5	11	5	7	8	5	10	13	15	90
Germany	Within border	2	4	4	8	2	3	0	5	8	4	40
	Cross border	3	7	1	6	5	6	2	4	16	6	56
	Total	5	11	5	14	7	9	2	9	24	10	96
Italy	Within border	1	2	13	2	2	2	0	1	1	3	27
	Cross border	4	2	9	4	2	4	1	10	8	8	52
	Total	5	4	22	6	4	6	1	11	9	11	79
Netherlands	Within border	0	2	2	2	1	3	1	1	1	2	15
	Cross border	1	4	2	1	1	2	1	1	7	6	26
	Total	1	6	4	3	2	5	2	2	8	8	41
Spain	Within border	0	0	2	2	2	0	0	0	1	2	9
	Cross border	4	8	5	2	5	2	2	2	5	5	40
	Total	4	8	7	4	7	2	2	2	6	7	49
Sweden	Within border	2	0	0	0	0	0	1	0	0	0	3
	Cross border	1	2	0	0	1	0	1	0	4	4	13
	Total	3	2	0	0	1	0	2	0	4	4	16
Switzerland	Within border	I	1	1	1	5	3	0	0	0	4	16
	Cross border	2	1	0	0	3	0	0	2	3	3	14
	Total	3	2	1	1	8	3	0	2	3	7	30
United Kingdom	Within border	7	13	3	8	11	39	11	25	29	47	193
	Cross border	11	15	7	5	17	24	15	16	38	60	208
	Total	18	28	10	13	28	63	26	41	67	107	401

Table 7: Summary statistics for the unbalanced panel dataset

Economy	Years in unbalanced panel	Mean value of annual observations of...						
		Five firm concentration ratio	Number of banks	Strategic alliances		Mergers and acquisitions		Interest rate spread (%)
				Within border	Cross border	Within border	Cross border	
Canada	1990-99	70.9	61.0	8.4	8.1	9.8	0.4	1.34
Japan	1990-98	30.6	161.1	5.4	13.1	6.1	0.4	2.59
Sweden	1990-98	80.2	196.3	0.3	1.0	5.0	0.6	5.85
Netherlands	1990-99	77.8	172.4	1.5	2.6	3.2	1.2	5.03
Italy	1992-99	32.3	280.9	3.0	5.8	23.6	1.5	5.62
Spain	1990-97	45.8	317.4	0.8	3.8	6.4	1.9	3.16
Belgium	1990-98	58.9	321.0	0.8	2.2	2.4	2.1	5.14
Australia	1991-98	71.8	40.1	11.6	9.3	7.8	2.4	4.19
Germany	1990-98	17.4	3969.7	4.0	5.6	16.6	2.8	6.15
Switzerland	1990-97	53.5	418.4	2.1	2.1	9.1	3.1	2.21
France	1990-97	66.2	1520.5	2.8	5.0	16.1	3.9	4.33
United Kingdom	1990, 1995-8	44.3	466.8	26.0	23.3	22.5	6.0	2.79
United States	1990-99	18.3	12392.1	113.6	33.9	283.6	7.5	2.73

Table 8: Estimating the determinants of bank spreads in all 13 OECD nations from 1990 to 1999

	Independent variable	Specifications												
		1	2		3		4		5		6		7	
			Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio
	Macroeconomic controls	Included	Included		Included		Included		Included		Included		Included	
	Five firm concentration ratio		0.0070	2.8769	0.0088	3.2230								
	Five firm concentration ratio after being purged of the variation associated with the following independent variables:						0.0088	3.2230	0.0085	3.0664	0.0098	4.1962	0.0072	2.4183
	Total number of strategic alliances				0.0028	1.9024	0.0026	1.8099	0.0030	2.0314				
	Total number of mergers and acquisitions				-0.0011	-1.0396	-0.0006	-0.5964	-0.0010	-0.9484				
Strategic Alliances	Domestic										0.0045	2.0285	0.0041	1.8390
	Cross border										0.0020	0.7445	0.0002	0.0902
Mergers and acquisitions	Domestic										0.0030	1.7634	0.0039	2.0781
	Cross border										-0.0028	-1.8473	-0.0012	-0.7583
	Total number of banks								-0.0067	-1.5067	-0.0049	-1.1542	-0.0054	-1.1480
	Controls for regulatory changes	Not included	Not included		Not included		Not included		Not included		Not included		Included	
	Within R squared	0.0643	0.0609		0.0780		0.0780		0.0881		0.1144		0.2597	
	Number of observations	97	97		97		97		97		97		97	

Table 9: Estimating the determinants of bank spreads in 8 EU nations nations from 1990 to 1999

	Independent variable	Specifications												
		1	2		3		4		5		6		7	
			Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio
	Macroeconomic controls	Included	Included		Included		Included		Included		Included		Included	
	Five firm concentration ratio		0.0050	1.4113	0.0106	2.6792								
	Five firm concentration ratio after being purged of the variation associated with the following independent variables:						0.0106	2.6792	0.0108	2.8411	0.0087	2.3710	0.0057	1.3474
	Total number of strategic alliances				0.0049	1.4210	0.0044	1.3188	0.0046	1.3871				
	Total number of mergers and acquisitions				0.0002	0.0760	0.0010	0.4133	0.0005	0.1727				
Strategic Alliances	Domestic										0.0065	1.6049	0.0012	0.2677
	Cross border										0.0018	0.3823	0.0132	2.3059
Mergers and acquisitions	Domestic										0.0039	1.2051	-0.0008	-0.2424
	Cross border										-0.0077	-2.0304	-0.0056	-1.7620
	Total number of banks								-0.0115	-1.1340	-0.0125	-1.2596	-0.0159	-1.8156
	Controls for regulatory changes	Not included	Not included		Not included		Not included		Not included		Not included		Included	
	Within R squared	0.1943	0.1903		0.2361		0.2361		0.2973		0.4403		0.4796	
	Number of observations	65	65		65		65		65		65		65	

Table 10: Estimating the determinants of bank spreads in 5 non-EU nations from 1990 to 1999

	Independent variable	Specifications												
		1	2		3		4		5		6		7	
			Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio	Parameter estimate	t ratio
	Macroeconomic controls	Included	Included		Included		Included		Included		Included		Included	
	Five firm concentration ratio		0.0002	0.0313	0.0036	0.4322								
	Five firm concentration ratio after being purged of the variation associated with the following independent variables:						0.0036	0.4322	0.0040	0.4394	0.0042	0.4248	0.0066	0.9658
	Total number of strategic alliances				-0.0024	-1.0534	-0.0023	-1.0408	-0.0025	-1.0602				
	Total number of mergers and acquisitions				-0.0003	-0.1793	-0.0003	-0.1632	-0.0004	-0.2014				
Strategic Alliances	Domestic										0.0005	0.1141	0.0018	0.4205
	Cross border										-0.0069	-1.2936	-0.0092	-2.0054
Mergers and acquisitions	Domestic										0.0010	0.1666	0.0027	0.4390
	Cross border										-0.0004	-0.1628	-0.0011	-0.4429
	Total number of banks								0.0006	0.0464	0.0085	0.5437	0.0082	0.5488
	Controls for regulatory changes	Not included	Not included		Not included		Not included		Not included		Not included		Included	
	Within R squared	0.1633	0.1611		0.2896		0.2896		0.3357		0.3214		0.5322	
	Number of observations	45	45		45		45		45		45		45	

Table 11: Contribution of within border and cross border transactions to changing spreads throughout the 1990s

Members of the European Union.

Economy	Within border transactions 1990-1999					Cross border transactions 1990-1999					Combined effect of within and cross border transactions on interest rate spreads (percent)
	Number		Point estimate of effect on interest rate spreads (percent)			Number		Point estimate of effect on interest rate spreads (percent)			
	Strategic alliances	M&A	Strategic alliances	M&A	Combined effect	Strategic alliances	M&A	Strategic alliances	M&A	Combined effect	
Belgium	5	21	0.215	-0.247	-0.032	15	21	3.728	-1.716	1.948	1.915
Sweden	3	47	0.166	-0.309	-0.143	13	7	3.545	-1.158	2.346	2.200
Netherlands	15	32	0.333	-0.279	0.053	26	12	4.447	-1.426	2.957	3.012
Spain	9	68	0.277	-0.338	-0.062	40	21	5.024	-1.716	3.222	3.157
France	27	150	0.401	-0.401	-0.002	63	50	5.643	-2.178	3.343	3.341
Germany	40	186	0.447	-0.418	0.027	56	32	5.482	-1.939	3.437	3.465
Italy	27	212	0.401	-0.428	-0.029	52	16	5.381	-1.574	3.722	3.692
United Kingdom	193	200	0.634	-0.423	0.208	208	44	7.306	-2.109	5.043	5.262

Economies that are not members of the European Union.

Economy	Within border transactions 1990-1999					Cross border transactions 1990-1999					Combined effect of within and cross border transactions on interest rate spreads (percent)
	Number		Point estimate of effect on interest rate spreads (percent)			Number		Point estimate of effect on interest rate spreads (percent)			
	Strategic alliances	M&A	Strategic alliances	M&A	Combined effect	Strategic alliances	M&A	Strategic alliances	M&A	Combined effect	
Japan	96	102	0.827	1.259	2.096	183	6	-4.684	-0.214	-4.888	-2.894
Australia	145	75	0.901	1.176	2.088	118	22	-4.302	-0.344	-4.631	-2.640
United States	1136	2836	1.275	2.170	3.472	339	75	-5.221	-0.475	-5.672	-2.397
Canada	84	98	0.803	1.248	2.061	81	4	-3.973	-0.177	-4.143	-2.167
Switzerland	15	79	0.500	1.190	1.696	14	28	-2.461	-0.370	-2.821	-1.173

Appendix Table 1: Mega Mergers and Acquisitions in 2000

Rank	Value of cross border transaction ($ billion)	Acquiring company		Acquired company		Location of headquarters of...	
		Name	Industry	Name	Industry	acquiring firm	acquired firm
1	202.8	Vodafone AirTouch PLC	Radiotelephone communications	Mannesmann AG	Radiotelephone communications	United Kingdom	Germany
2	46.0	France Telecom SA	Telephone communications, except radiotelephone	Orange PLC (Mannesmann AG)	Telephone communications, except radiotelephone	France	United Kingdom
3	40.4	Vivendi SA	Water supply	Seagram Cc Ltd	Motion picture and video tape production	France	Canada
4	27.2	BP Amoco PLC	Petroleum refining	ARCO	Petroleum refining	United Kingdom	United States
5	25.1	Unilever PLC	Creamery butter	Bestfoods	Dried fruits, vegetables and soup mixes	United Kingdom	United States
6	19.4	Zurich Allied AG	Life insurance	Allied Zurich PLC	Life insurance	Switzerland	United Kingdom
7	16.5	UBS AG	Banks, non-US chartered	PaineWebber Group Inc	Security brokers, dealers and flotation companies	Switzerland	United States
8	14.4	Vodafone AirTouch PLC	Radiotelephone communications	Airtel SA	Radiotelephone communications	United Kingdom	Spain
9	13.5	Credit Suisse First Boston	Security brokers, dealers and flotation companies	Donaldson Lufkin & Jenrette	Commodity contracts brokers and dealers	United States	United States
10	11.8	Cap Gemini SA	Business consulting services, nec	Ernst & Young-Consulting Bus.	Business consulting services, nec	France	United States
11	11.1	HSBC Holdings PLC	Banks, non-US chartered	Credit Commercial de France	Banks, non-US chartered	United Kingdom	France
12	11.0	NTL Inc	Cable and other pay television services	CWC ConsumerCo	Telephone communications, except radiotelephone	United States	United Kingdom
13	10.2	Telefonica SA	Telephone communications, except radiotelephone	Telecom municacoes de Sao Paulo	Telephone communications, except radiotelephone	Spain	Brazil

14	9.4	BellSouth GmbH (KPN, BellSouth)	Telephone communications, except radiotelephone	E-Plus Mobilfunk GmbH (Otelo)	Radiotelephone communications	Netherlands	Germany
15	8.3	America Online Inc	Prepackaged Software	AOL Europe, AOL Australia	Information retrieval services	United States	Germany
16	7.7	Chase Manhattan Corp, NY	National commercial banks	Robert Fleming Holdings Ltd.	Security brokers, dealers and flotation companies	United States	United Kingdom
17	7.6	ING Groep NV	Life insurance	Aetna-Fin' I Svcs & Int' I Bus.	Security and commodity services, nec	Netherlands	United States
18	7.1	British American Tobacco PLC	Cigarettes	Imasco Ltd	Eating places	United Kingdom	Canada
19	7.1	Alcatel SA	Telephone and telegraph apparatus	Newbridge Networks Corp	Telephone and telegraph apparatus	France	Canada
20	7.1	Nortel Networks Corp	Telephone and telegraph apparatus	Afeon Websystems Inc	Electronic components, nec	Canada	United States
21	6.7	DaimlerChryslerAerospace AG	Aircraft parts,equipment	Aerospatiale Matra	Aircraft	Germany	France
22	6.3	RWE AG	Electric and other services combined	Thames Water PLC	Water supply	Germany	United Kingdom
23	6.2	Terra Networks (Telefonica SA)	Information retrieval services	Lycos Inc	Information retrieval services	Spain	United States
24	6.0	ING Groep NV	Life insurance	ReliaStar Financial Corp	Life insurance	Netherlands	United States
25	5.7	NTT Communications Corp	Telephone communications, except radiotelephone	Verio Inc	Data processing services	Japan	United States
26	5.4	PowerGen PLC	Electric services	LG&E Energy Corp	Electric services	United Kingdom	United States
27	5.3	CLT-UFA (Cie Luxembourgeoise)	Radio broadcasting stations	Pearson Television (Pearson)	Television broadcasting stations	Luxembourg	United Kingdom
28	5.2	Leconport Estates	Investors, nec	MEPC PLC	Land subdividers and developers, except cemeteries	Multi-National	United Kingdom
29	5.0	British Telecommurications	Telephone communications, except radiotelephone	AT&T-Worldwide Assets, Ops	Telephone communications, except radiotelephone	United Kingdom	United States

30	5.0	WPP Group PLC	Advertising agencies	Young & Rubicam Inc	Advertising agencies	United Kingdom	United States
31	4.9	Stora Enso Oyj	Paper mills	Consolidated Papers Inc	Paperboard mills	Finland	United States
32	4.9	Tiscali SpA	Telephone communications, except radiotelephone	World Online International NV	Information retrieval services	Italy	Netherlands
33	4.8	Nordbanken Holding AB	Offices of holding companies, nec	Media Oy	Banks, non-US chartered	Sweden	Finland
34	4.8	Alcan Aluminum Ltd	Aluminum foundries	Alusuisse Lonza Group Ltd	Packaging paper & plastics flm, coated & laminated	Canada	Switzerland
35	4.6	Telefonica SA	Telephone communications, except radiotelephone	Endemol Entertainment NV	Motion picture and video tape production	Spain	Netherlands
36	4.4	MeritaNordbanken	Banks, non-US chartered	Unidanmark A/S	Banks, non-US chartered	Finland	Denmark
37	4.4	Tyco International Ltd	General industrial machinery and equipment	Mallinckrodt Inc	In vitro and in vivo diagnostic substances	Bermuda	United States
38	4.3	France Telecom SA	Telephone communications, except radiotelephone	Global One Cc	Telephone communications, except radiotelephone	France	United States
39	4.3	Same Group PLC	Computer related services,nec	LHS Group Inc	Computer programming services	United Kingdom	United States
40	4.3	Investor Group	Investors, nec	TPSA	Radiotelephone communications	France	Poland
41	4.2	National Grid Group PLC	Electric services	New England Electric System	Electric services	United Kingdom	United States
42	4.0	Alliance Capital Management	Investment advice	Sanford C Bernstein & Co Inc	Investment advice	United States	United States
43	3.9	BASF AG	Industrial organic chemicals, nec	American Cyanamid Agri Product	Pesticides & agricultural chemicals, nec	Germany	United States
44	3.7	NTL Inc	Cable and other pay television services	Cablecom Holding AG	Cable and other pay television services	United States	Switzerland
45	3.6	France Telecom SA	Telephone communications, except radiotelephone	MobilCom AG	Telephone communications, except radiotelephone	France	Germany

46	3.6	Koninkfjke Ahold NV	Grocery stores	US Foodservice Inc	Groceries, general line	Netherlands	United States
47	3.6	NTT Mobile Communications Network Inc	Telephone communications, except radiotelephone	KPN Mobile (KPN Telecom NV)	Telephone communications, except radiotelephone	Japan	Netherlands
48	3.6	Corning Inc	Telephone and telegraph apparatus	Pirelli SpA-Optical Components	Drawing & insulating of nonferrous wire	United States	Italy
49	3.5	AXA	Life insurance	Sun Life and Provincial	Life insurance	France	United Kingdom
50	3.5	Interbrew SA	Malt beverages	Bass PLC-Brewing Operations	Malt beverages	Belgium	United Kingdom
51	3.4	WPD Holdings UK	Electric services	Hyder PLC	Engineering services	United Kingdom	United Kingdom
52	3.4	Rodamco North America NV	Real estate investment trusts	Urban Shopping Centers Inc	Real estate investment trusts	Netherlands	United States
53	3.3	Nortel Networks Corp	Telephone and telegraph apparatus	Xros Inc	Telephone and telegraph apparatus	Canada	United States
54	3.3	Nortel Networks Corp	Telephone and telegraph apparatus	Qtera Corp	Telephone and telegraph apparatus	Canada	United States
55	2.9	Hellenic Bottling Cc SA	Bottled & canned soft drinks and carbonated waters	Coca-Cola Beverages PLC	Bottled & canned soft drinks and carbonated waters	Greece	United Kingdom
56	2.8	Cemex	Cement, hydraulic	Southdown Inc	Cement, hydraulic	Mexico	United States
57	2.8	Global Crossing Ltd	Telephone communications, except radiotelephone	IPC Communications (Citicorp)	Information retrieval services	Bermuda	United States
58	2.8	Investor Group	Investors, nec	Deutsche Telekom AG-North	Telephone communications, except radiotelephone	United States	Germany
59	2.8	MeritaNordbanken	Banks, non-US chartered	Christiania Bank	Banks, non-US chartered	Finland	Norway
60	2.8	Havas Advertising SA	Advertising agencies	Snyder Communications Inc	Business services, nec	France	United States
61	2.7	Preussag AG	Travel agencies	Thomson Travel Group PLC	Tour operators	Germany	United Kingdom

62	2.7	Norske Skogindustrier AS	Pulp mills	Fletcher Challenge Paper	Pulp mills	Norway	New Zealand
63	2.7	Ford Motor Co	Motor vehicles and passenger car bodies	Land Rover (BMW)	Motor vehicles & passenger car bodies	United States	United Kingdom
64	2.6	Flextronics International Ltd	Printed circuit boards	DII Group	Electronic components, nec	Singapore	United States
65	2.6	General Sekiyu (Esso Eastern)	Petroleum refining	Tonen Corp (Exxon Mobil)	Petroleum refining	Japan	United States
66	2.5	Hanson PLC	Men' s footwear, except athletic	Pioneer International Ltd	Ready-mixed concrete	United Kingdom	Australia
67	2.5	Dexia Belgium	Security brokers, dealers and flotation companies	Finl Security Assurance Hldgs	Surety insurance	Belgium	United States
68	2.5	Pearson PLC	Books: publishing, or publishing & printing	National Computer Systems Inc	Computer peripheral equipment, nec	United Kingdom	United States
69	2.5	Tyco International Ltd	General industrial machinery and equipment	Lucent Tech Inc-Power Sys Unit	Electronic components, nec	Bermuda	United States
70	2.5	Carrefour SA	Grocery stores	Gruppo GS SpA (Schemaventuno)	Variety stores	France	Italy
71	2.5	Bayer AG	Medicinal chemicals and botanical products radiotelephone	Lyondell Chemical-Polyfs Bus	Petroleum refining production	Germany	United States
72	2.4	Telefonica SA	Telephone communications, except radiotelephone	Telesudeste Celular	Telephone communications, except radiotelephone	Spain	Brazil
73	2.4	General Motors Corp	Motor vehicles and passenger car bodies	Fiat Auto SpA (Fiat SpA)	Motor vehicles & passenger car bodies	United States	Italy
74	2.3	Atos SA	Computer programming services	Origin (Philips Electronics NV)	Prepackaged Software	France	Netherlands
75	2.3	T-Online International AG	Information retrieval services	Club Internet (Lagardere Group)	Information retrieval services	Germany	France
76	2.3	General Electric Capital Corp	Personal credit institutions	Toho Mutual Life	Life insurance	United States	Japan
77	2.3	Unilever NV	Creamery butter	Slim-Fast Foods Cc	Food preparations, nec	Netherlands	United States
78	2.2	Investor Group	Investors, nec	EPON NV (EDON,NUON)	Electric services	Belgium	Netherlands

79	2.2	Investor Group	Investors, nec	ETSA Utilities,ETSA Power	Electric services	Hong Kong, China	Australia
80	2.2	Telefonica Internacional SA	Telephone communications, except radiotelephone	CEI Citicorp Equity Holdings	Offices of holding companies, nec	Spain	Argentina
81	2.2	Salomon Smith Barney Holdings	Security brokers, dealers and flotation companies	Schroders-Worldwide Investment	Security brokers, dealers and flotation companies	United States	United Kingdom
82	2.2	CDC Asset Management Europe	Management investment offices, open-end	NVEST LP	Investment offices, nec	France	United States
83	2.2	Investor Group	Investors, nec	Mark IV Industries Inc	Rubber and plastics hose and belting	United Kingdom	United States
84	2.2	Thomson-CSF	Guided missile and space vehicle parts, nec	Racal Electronics PLC	Electronic computers	France	United Kingdom
85	2.2	BT Hawthorn Ltd	Telephone communications, except radiotelephone	Esat Telecom Group PLC	Communications services, nec	United Kingdom	Ireland
86	2.1	Cisco Systems Inc	Computer peripheral equipment, nec	Pirelli-Fibre Optic Operations	Optical instruments and lenses	United States	Italy
87	2.1	Metsa-Seria Oy	Paper mills	MoDo Paper AB	Paper mills	Finland	Sweden
88	2.1	Rio Tinto Ltd	Iron ores	North Ltd	Gold ores	United Kingdom	Australia
89	2.1	Siemens Corp (Siemens AG)	Communications equipment, nec	Shared Medical Systems Corp	Computer facilities management services	United States	United States
90	2.0	Cie de Saint-Gobain SA	Abrasive products	Meyer International PLC	Lumber, plywood, millwork and wood panels	France	United Kingdom
91	2.0	Finalrealm	Food preparations, nec	United Biscuits (Holdings) PLC	Frozen specialties, nec	France	United Kingdom
92	2.0	Rexam PLC	Sanitary paper products	American National Can Group	Metal cans	United Kingdom	United States
93	2.0	Worms et Cie	Life insurance	Ado Wiggins Appleton PLC	Paper mills	France	United Kingdom
94	2.0	AXA	Life insurance	Nippon Dantai Life Insurance	Life insurance	France	Japan
95	1.9	Allianz AG	Life insurance	PIMCO Advisors Holdings LP	Investment advice	Germany	United States

96	1.9	DaimlerChrysler AG	Motor vehicles and passenger car bodies	Mitsubishi Motors Corp	Motor vehicles & passenger car bodies	Germany	Japan
97	1.9	Nodal Networks Corp	Telephone and telegraph apparatus	CoreTek Inc	Telephone and telegraph apparatus	Canada	United States
98	1.9	Telenor AS	Telephone communications, except radiotelephone	Sonofon	Telephone communications, except radiotelephone	Norway	Denmark
99	1.9	Nortel Networks Corp	Telephone and telegraph apparatus	Clarify Inc	Prepackaged Software	Canada	United States
100	1.8	Suez Lyonnaise des Eaux SA	Water supply	United Water Resources Inc	Water supply	France	United States
101	1.8	British Telecommunications PLC	Communications services, nec	Telfort	Radiotelephone communications	United Kingdom	Netherlands
102	1.8	NTT DoCoMo Inc	Telephone communications, except radiotelephone	Hutchison 3G UK Holdings Ltd	Telephone communications, except radiotelephone	Japan	United Kingdom
103	1.8	Netcom AB	Communications services, nec	Societe Europeenne de Commun	Telephone communications, except radiotelephone	Sweden	Luxembourg
104	1.8	Alcatel SA	Telephone and telegraph apparatus	Genesys Telecommun Labs	Prepackaged Software	France	United States
105	1.8	Koninklijke Numico NV	Dry, condensed & evaporated dairy products radiotelephone	Rexall Sundown Inc	Pharmaceutical preparations production	Netherlands	United States
106	1.8	Amvescap PLC	Investment advice	Trimark Financial Corp	Security brokers, dealers and flotation companies	United Kingdom	Canada
107	1.7	Clariant AG	Alkalies and chlorine	BTP PLC	Industrial inorganic chemicals, nec	Switzerland	United Kingdom
108	1.7	Investor Group	Investors, nec	Shoppers Drug Mart(Imasco Ltd)	Drug stores and proprietary stores	United States	Canada
109	1.7	Publicis SA	Advertising agencies	Saatchi & Saatchi PLC	Advertising agencies	France	United Kingdom
110	1.7	Elan Corp PLC	Pharmaceutical preparations	Dura Pharmaceuticals Inc	Pharmaceutical preparations	Ireland	United States
111	1.7	Skandinaviska Enskilda Banken	Banks, non-US chartered	Bank fur Gemeinwirtschaft AG	Banks, non-US chartered	Sweden	Germany

112	1.7	BAE SYSTEMS North America	Aircraft engines and engine parts	Lockheed Martin-Aerospace	Search, detection, and navigation equipment	United States	United States
113	1.7	AES Corp	Electric services	CA La Electricidad de Caracas	Electric services	United States	Venezuela
114	1.6	Nationwide Mutual Insurance Co	Fire, marine, and casualty insurance	Gartmore Investment Managemen	Investment offices, nec	United States	United Kingdom
115	1.6	EM.TV & Merchandising AG	Motion picture and video tape distribution	SLEC Holdings Ltd	Offices of holding companies, nec	Germany	United Kingdom
116	1.6	Fortis (NQ NV	Life insurance	Banque Generale du Luxembourg	Banks, non-US chartered	Netherlands	Luxembourg
117	1.6	Volkswagen AG	Motor vehicles and passenger car bodies	Scania AB (Investor AB)	Truck and bus bodies	Germany	Sweden
118	1.6	BP Amoco PLC	Petroleum refining	Vastar Resources Inc	Crude petroleum and natural gas	United Kingdom	United States
119	1.6	US Foodservice Inc	Groceries, general line	PYA/Monarch Inc	Groceries, general line	United States	United States
120	1.6	Spirent PLC	Electronic components, nec	Hekimian Labs Inc	Electrical apparatus and equip	United Kingdom	United States
121	1.6	Banco Santander Central Hispan	National commercial banks	Cia de Seguros Mundial	Life insurance	Spain	Portugal
122	1.5	Banco Santander Central Hispan	National commercial banks	Grupo Financiero Serfin SA de	Banks, non-US chartered	Spain	Mexico
123	1.5	Volvo AB	Motor vehicles and passenger car bodies	Renault VI/Mack (Renault SA)	Industrial trucks, tractors, trailers and stackers	Sweden	France
124	1.5	British Sky Broadcasting Group	Cable and other pay television services	KirchPayTV GmbH (Kirch Gruppe)	Cable and other pay television services	United Kingdom	Germany
125	1.5	Saudi Telecommunications Cc	Telephone communications, except radiotelephone	FLAG Telecom Holdings Ltd	Telegraph and other message communications	Saudi Arabia	Bermuda
126	1.5	Adecco SA	Employment agencies	Olsten Corp	Help supply services	Switzerland	United States
127	1.5	Old Mutual PLC	Life insurance	United Asset Management Corp	Investment advice	South Africa	United States

128	1.5	Cadbury Schweppes PLC	Candy and other confectionery products	Snapple Beverage Group Inc	Bottled & canned soft drinks and carbonated waters	United Kingdom	United States
129	1.4	Foster' s Brewing Group Ltd	Malt beverages	Beringer Wine Estates Holdings	Wines, brandy, and brandy spirits	Australia	United States
130	1.4	Citizens Financial Group,Rl	Savings institutions, not federally chartered	UST Corp,Boston,MA	State banks,member fed reserve	United States	United States
131	1.4	Corning Inc	Telephone and telegraph apparatus	Siemens AG-Optical Fiber,Cable	Drawing and insulating of nonferrous wire	United States	Germany
132	1.4	Littauer Technologies Cc Ltd	Computer related services,nec	AsiaNet(Linkage On-Line)	Information retrieval services	Republic of Korea	Hong Kong, China
133	1.4	Investor Group	Investors, nec	Powercor Australia (PacifCorp)	Electric services	Hong Kong, China	Australia
134	1.4	Smurfit-Stone Container Corp	Paperboard mills	St Laurent Paperboard Inc	Paperboard mills	United States	Canada
135	1.4	BNP Paribas SA	Banks, non-US chartered	Cie Benelux Paribas SA	Misc business credit	France	Belgium
136	1.4	Koninklijke PTT Nederland NV	Telephone communications, except radiotelephone	Hutchison 3G UK Holdings Ltd	Telephone communications, except radiotelephone	Netherlands	United Kingdom
137	1.3	Dimension Data Holdings PLC	Prepackaged Software	Comparex-Eur Networking Ops	Computer programming services	South Africa	Germany
138	1.3	Standard Chartered PLC	Investment advice	ANZ Grindlays Bank Ltd	Banks, non-US chartered	United Kingdom	Australia
139	1.3	Standard Chartered PLC	Investment advice	Chase Manhattan-HK Banking	Banks, non-US chartered	United Kingdom	Hong Kong, China
140	1.3	Telia AB	Telephone communications, except radiotelephone	NetCom ASA	Investors, nec	Sweden	Norway
141	1.3	AES Corp	Electric services	Gener SA	Electric services	United States	Chile
142	1.3	BT Bumi Modern	Crude petroleum and natural gas radiotelephone	Gallo Oil Ltd	Crude petroleum and natural gas production	Indonesia	United States
143	1.3	Vivendi SA	Water supply	Elektrim Telekomunikacja Sp	Telephone communications, except radiotelephone	France	Poland
144	1.3	Singapore Power Pte Ltd	Electric services	GPU PowerNet Pty Ltd	Combination utilities, nec	Singapore	Australia

145	1.3	Eni SpA	Crude petroleum and natural gas	British Borneo Oil & Gas PLC	Crude petroleum and natural gas	Italy	United Kingdom
146	1.3	Intel Corp	Semiconductors and related devices	Giga A/S (NKT Holding)	Electronic components, nec	United States	Denmark
147	1.2	Telia AB	Telephone communications, except radiotelephone	NetCom ASA	Investors, nec	Sweden	Norway
148	1.2	Infosources SA	Information retrieval services	Belgacom Skynet SA	Information retrieval services	France	Belgium
149	1.2	Assa Abloy AB	Hardware, nec	Williams PLC-Yale Locks	Hardware, nec	Sweden	United Kingdom
150	1.2	Reliant Energy	Electric services	Energieproduktiebedrijf UNA NV	Electric services	United States	Netherlands
151	1.2	Unicredito Italiano	Banks, non-US chartered	Pioneer Group Inc	Investment advice	Italy	United States
152	1.2	Heidelberger Zement AG	Cement, hydraulic	Cimenteries CBR (Heidelberger)	Cement, hydraulic	Germany	Belgium
153	1.2	Investor Group	Investors, nec	Fairchild Aerospace Corp	Aircraft	Germany	United States
154	1.2	GN Store Nord A/S	Radio & TV broadcasting and communications equi	Photonetics SA	Measuring&controlling devices	Denmark	France
155	1.2	Morgan Stanley Real Estate	Real estate investment trusts	Fonspa-Non-Performing Loans	Personal credit institutions	United States	Italy
156	1.2	K-L Holdings Inc (KKR)	Investors, nec	Laporte-Non Speciality Organic	Inorganic pigments	United States	United Kingdom
157	1.1	Investor Group	Investors, nec	Long Term Credit Bank of Japan	Banks, non-US chartered	United States	Japan
158	1.1	Danzas Holding AG	Arrangement of transportation of freight and cargo	Air Express International Corp	Arrangement of transportation of freight and cargo	Switzerland	United States
159	1.1	Allianz AG	Life insurance	PIMCO Advisors LP	Investment advice	Germany	United States
160	1.1	Deutsche Telekom AG	Radiotelephone communications	Polska Telefonia Cyfrowa Sp	Communications services, nec	Germany	Poland
161	1.1	Billiton PLC	Miscellaneous metal ores, nec	Rio Algom Ltd	Uranium-radium-vanadium ores	United Kingdom	Canada

162	1.1	Danone Group	Fluid milk	McKesson Water Products Cc	Bottled & canned soft drinks and carbonated waters	France	United States
163	1.1	Thomson Corp	Newspapers: publishing or publishing and printing	Primark Corp	Computer related services,nec	Canada	United States
164	1.1	Thames Water PLC	Water supply	E' town Corp	Water supply	United Kingdom	United States
165	1.1	Falck Holding A/S	Detective, guard and armored car services	Group 4 Securitas (Intl) BV	Detective, guard and armored car services	Denmark	Netherlands
166	1.1	Diamond Technology Partners	Management consulting services	Cluster Consulting	Business consulting services, nec	United States	Spain
167	1.1	United Pan-Europe Comm NV	Communications services, nec	Eneco C&T	Cable and other pay television services	Netherlands	Netherlands
168	1.1	General Motors Corp	Motor vehicles and passenger car bodies	Fuji Heavy Industries Ltd	Motor vehicles and passenger car bodies	United States	Japan
169	1.1	Bipop-Carire	Banks, non-US chartered	Entrium Direct Bankers AG	Information retrieval services	Italy	Germany
170	1.0	Koninklijke Philips Electronic	Household audio and video equipment	MedQuist Inc	Data processing services	Netherlands	United States
171	1.0	Amdocs Ltd	Computer programming services	Solect Technology Group	Prepackaged Software	United Kingdom	Canada
172	1.0	Wengen Acquisition PLC	Investors, nec	Wassail PLC	Motor vehicle parts and accessories	United States	United Kingdom
173	1.0	Investor Group	Investors, nec	Cia Energetica de Pernambuco	Electric services	Spain	Brazil
174	1.0	Kyocera Corp	Semiconductors and related devices	QUALCOMM-Land-Based Wirele	Radiotelephone communications	Japan	United States
175	1.0	Banco Santander Central Hispan	National commercial banks	Banco Bozano Simonsen SA	Banks, non-US chartered	Spain	Brazil

Appendix Table 2: Major regulatory changes affecting the banking sectors of the 13 OECD nations considered in this paper.

OECD nation	Year	Short description of regulatory change
United States	1994	Implementation of the Reigle Neal Interstate Act
United States	1999	Implementation of the Gramm-Leach-Billey Act
Canada	1992	Phasing out of banking reserve requirements
Canada	1999	Relaxation of rules allowing establishment of foreign banks
Australia	1992	Relaxation of rules allowing establishment of foreign banks
Australia	1997	End of the so-called Six Pillars policy
France	1993	Privatization of some banks
France	1995	Implementation of a deposit insurance directive
Germany	1992	Implementation of second European Banking Directive
Italy	1993	Implementation of second European Banking Directive
Italy	1994	Privatization of some banks
United Kingdom	1998	Financial Services Authority takes on some bank regulatory powers

Source: Annex II.3, BIS (2001).

Note : This table is not supposed to summarize all of the regulatory changes in the 13 OECD nations during the years 1990 to 1999. Rather, using BIS (2001), it identifies that major regulatory changes that affected a nation's banking sector during the years that it was in the unbalanced panel. Therefore, if a nation was in the unbalanced panel from 1990 to 1993, changes in the regulatory regime for banks after 1993 would not be reported.