Consolidation in the European Insurance Industry: Do Mergers and Acquisitions Create Value for Shareholders?

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Abstract

During the 1990s, financial markets in Europe were deregulated as part of the European Union's (EU's) objective of creating a single market for financial services. Insurance markets were particularly affected by the Third Generation Insurance Directives, implemented in 1994, which deregulated insurance markets with respect to virtually all price and product competition, retaining regulation primarily for solvency. The Directives implemented the concept of the "single passport," whereby an insurer can do business in all EU countries provided that it is licensed in one EU country. Deregulation led to an unprecedented wave of mergers and acquisitions (M&As). From 1990-2002 there were 2,595 M&As involving European insurers of which 1,669 resulted in a change in control. Transactions occurred both cross-border (across national boundaries) and within-border as well as cross-industry (e.g., involving insurers and banks) and within-industry.

The objective of this paper is to determine whether M&As in the European insurance market create value for shareholders by studying the stock price impact of M&A transactions on target and acquiring firms. The stock price effects are measured using a standard market model event study analysis. The stock price effect of M&As is measured by looking at *abnormal returns* on the transaction event day and surrounding days, i.e., by measuring the stock price impact on target and aquiring firms beyond what is predicted using a market model of stock returns. We also examine *cumulative average abnormal returns (CAARs)* which accumulate the abnormal returns over event windows surrounding the M&A transaction dates.

The analysis show that European M&As created small negative cumulative average abnormal returns (CAARs) for acquirers (generally less than 1%) on average across various windows surrounding the transaction date. Targets, however, realized substantial positive CAARs in the range of 12% to 15%. Breaking down the transactions into cross-border and domestic (within-country) transactions, we find that cross-border transactions were value-neutral for acquirers, whereas within-border transactions led to significant value loss (approximately 2%) for acquirers. For targets, both cross-border and within-border transactions led to substantial value-creation. Given that cross-border transactions are value-neutral for acquirers and value-creating for targets, these transactions seem to lead to clear economic gains. However, the gains for targets in within-border transactions are somewhat offset by losses sustained by acquirers.

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1. Introduction

Perhaps the most important development in the financial services market of the past two decades is the integration of the financial services sector. Deregulation, advances in communications and information technology, and economic forces have led to the breakdown of the "firewalls" that traditionally separated financial intermediaries such as commercial banks, thrift institutions, investment banks, mutual fund companies, and insurance companies. The European Union gradually deregulated the financial services sector through a series of banking and insurance directives, culminating in the virtual deregulation of financial services (except for solvency) in the Second Banking Coordination Directive, implemented in the early 1990s, and the Third Generation Insurance Directives, implemented in 1994 (Group of 10, 2001). The objective of the banking insurance directives was to create a single European market in financial services. The introduction of the Euro in 1999 also profoundly changed the economic landscape for financial services firms in the European market. European deregulation in insurance was particularly important, because insurers traditionally had been limited to operating within specific European countries, with little or no price competition and cross-border transactions mainly limited to reinsurance and some types of commercial coverages. The Third Insurance Directives introduced true price and product competition in European retail insurance markets for the first time in both life and non-life insurance.

The result of deregulation and other economic drivers of financial sector integration has been an unprecedented wave of mergers and acquisitions (M&As) of European financial institutions. The

Group of 10 (2001) reported 2,549 consolidation transactions involving European financial firms valued at $504 billion from 1990 through 1999. This total included 507 insurance transactions, valued at $127 billion. Significant consolidation occurred both cross-border and within-border as financial services firms sought to consolidation their positions within national markets and take advantage of deregulation and monetary union to open up or expand their markets in neighboring countries. The consolidation has dramatically changed the structure of insurance markets in most European countries and has led to lower prices in most European national insurance markets (Swiss Re 2000).

In spite of the dramatic changes in European financial markets, there has been little research to date on the economic impact of these developments. This is particularly true for the insurance market, where some of the more dynamic changes in market structure have been taking place. The purpose of this paper is to remedy this limitation in the existing literature by analyzing the market value effects of mergers and acquisitions (M&As) in the European insurance industry. We analyze M&A transactions over the period 1990-2002, as reported in the Thomson Financial SDC Platinum Database. The sample is defined as including all transactions where either the acquiring firm or the target firm is an insurance company. Included in the analysis are all transactions reported in SDC that involve significant acquisition of value as well as the subset of these transactions that involve a change in control, defined as an acquisition that increases the stake of the acquiring institution from less than 50% to 50% or more of the ownership shares of the target institution.

We conduct an event study analysis to determine the market value effects of the transactions included in our sample. Specifically, we obtain stock price data from the Datastream database and study the market reaction to the M&A transactions on both target and acquirer firms in a series of event windows surrounding the transaction dates. As argued by Schwert (1981), the use of market value data is more powerful than other approaches in studying the effects of events such mergers and acquisitions

because market prices immediately reflect the market's assessment of new information on the target and acquiring firms. In effect, conducting an event study enables us to capture the market's expectation of the net effect of an M&A transaction on the present value of the expected future cash flows of the firms involved in the transaction and thus to determine whether M&As tend to create value for shareholders. Although there are clearly other effects of M&As, such as the impact on prices, service quality, and product offerings to customers, studying the stock price effect of the transactions provides one important metric of the degree of value-creation or destruction resulting from European merger trends.

Studying the market-value effects of European insurance mergers is important for a number of reasons. Analyzing whether M&As create value has implications for future regulatory policy in Europe. The objective of the regulatory changes in Europe was to move away from a restrictive regulatory system that primarily focused on solvency towards a system that enhances economic efficiency and provides better value for consumers by harnessing market forces. Because M&A activity is costly, serious questions would be raised about the efficiency effects of regulatory policy if the resulting M&As fail to create value or actually destroy value for the firms involved in the transactions. Studying M&A transactions also has implications for anti-trust policy. Value-creation can have both positive and negative effects from an anti-trust perspective. If merged firms gain value because of market power that allows them to charge super-competitive prices, then positive market value gains from mergers might be adverse from an anti-trust perspective. On the other hand, if firms gain value because they become more efficient and competitive and take market share away from less efficient rivals, then M&As would not be a serious concern for anti-trust regulators. Although determining whether any market value gains from M&As are due to market power or more economically desirable effects is beyond the scope of the present study, our research contributes by providing evidence on whether market value gains are occurring and on what types of transactions are most likely to lead to market value gains. Finally, studying European insurance mergers has important implications for managers of financial services firms. If mergers tend to be value-creating, then it may be worthwhile for managers to devote scarce time and resources to further consolidation activities. If, on the other hand, mergers have little or no impact on value or possibly destroy

value, then managerial efforts might be more profitably directed towards other activities such as improving efficiency and productivity. Also, information on whether some types of transactions are more likely to create value than others should help managers in formulating M&A strategies.

This study contributes to the literature as the first paper to analyze the market value effects of European insurance mergers.[1] There have been few market value studies of European financial sector M&As of any kind. The leading study of European bank mergers, Cybo-Ottone and Murgia (2000) analyzed merger transactions in 13 European countries over the period 1988-1997. In their sample, either the target or the acquiring firm had to be a bank. Based on 54 deals that involved a change in control, they found significant market value gains for within-country, bank-to-bank acquisitions, and for transactions where banks acquired insurance companies. However, they did not find market value gains for cross-border transactions or transactions involving banks and securities firms. Lepetit, et al. (2002) study the market value effects of European bank mergers over the period 1991-2001 and find market value gains for geographically focusing and activity diversifying mergers. The most recent U.S. bank merger study, Delong (2002), finds that bank mergers that are activity and geographically focusing create value but that diversifying mergers do not create value.

A recent market value study of U.S. insurance mergers finds value-creation for both acquirers and targets, although the value-creating for targets in significantly larger than for acquirers (Akhigbe and Madura 2001). There have been a few book value studies of insurance M&As, primarily focusing on the U.S. and Europe. Cummins, Tennyson, and Weiss (1999) analyze consolidation in the U.S. life insurance industry using book value data to measure technical, cost, and profit efficiency. They find that the efficiency of M&A target firms improved significantly following an acquisition. Cummins and Rubio-Mises (2003) find that consolidation in the Spanish insurance industry over the period 1989-1998 led to significant improvements in

[1]Campbell, Goldberg, and Rai (2003) conduct an event study to gauge the market value impact of the passage of the European Union's Second and Third Generation Insurance Directives on the stock prices of European insurers. They find that the non-life insurance directives led to some wealth reduction in the European insurance industry, whereas the life insurance directives led to wealth creation. The Third Directives had a greater impact than the Second Directives.

efficiency and to price reductions in both life and non-life insurance.

The remainder of the paper is structured as follows: In section 2, we discuss the likely economic effects of mergers and acquisitions, identify ways in which M&As can create and destroy value, and specify our hypotheses. Section 3 explains our sample selection procedure and event study methodology. Section 4 presents the results, and conclusions are discussed in section 5.

2. Mergers and Acquisitions: Hypotheses

Mergers can be somewhat difficult to rationalize in terms of the financial theory. According to financial theory the value of any asset is equal to the present value of its cash flows. Thus, a publicly held firm can be considered as a bundle of cash flows expected to be received in the future. Investors are assumed to hold broadly diversified portfolios including value-weighted shares of all firms in the economy (the "market portfolio"). In this construct, M&As do not necessarily add value because they merely combine the rights to cash flows that are already held by diversified investors. Hence, investors should be indifferent between receiving future cash flow streams from two separate firms rather than from one merged firm formed by combining the two separate firms. To the extent that M&As are costly, investors may actually be worse off following an M&A transaction.

Of course, perfect markets finance theory rests on a number of assumptions which hold only as approximations in practice. Among these are the absence of transactions costs, agency costs, other types of friction costs, informational asymmetries between investors and managers, taxation, and regulation. The existence of these and other market imperfections can lead to situations where M&As have the potential to create value. In addition, economic production theory offers other explanations for firm combination such as economies of scale and scope that can provide economic justifications for M&As that are not inconsistent with financial theory. However, it is important to keep in mind the fundamental insight of finance – that cash flows determine value – when considering the

arguments regarding the economic rationale for M&As discussed below. I.e., in order for a M&A transaction to create value, it must have a favorable impact on the amount, timing, or risk of the cash flow streams of the combined institution in comparison with those of the acquiring and target firms involved in the transaction.

In terms of economic production theory, firms operate with cost, revenue, and profit functions, all of which could be affected by mergers and acquisitions. One rationale often given for M&As is economies of scale, usually associated with the cost function. The usual argument is that firms operating at sub-optimal scale may be able to achieve scale gains more quickly through M&As than through organic growth, and, in fact, scale economies are almost always given as a rationale for M&As in the insurance industry and most other industries. Although scale economies are potentially important, most prior research has failed to demonstrate that scale economies provide a compelling rationale for financial sector mergers. For example, Cummins and Xie (2003) find that U.S. property-liability insurance M&As during the late 1990s failed to generate significant scale economy gains, and Cummins and Santomero (1999) show that scale economies disappear at relatively small scale in the U.S. life insurance industry. In addition, the pure production theory argument fails to recognize that friction costs arising from post-merger integration problems can more than offset any scale economy gains that may be realized. In many cases, organic growth may be superior to M&As as a method for achieving optimal scale; and other types of inefficiency such as technical and allocative inefficiency often are much more significant than scale inefficiency (Cummins and Santomero 1999).

Economies of scope provide another production theory rationale for mergers and acquisitions. Scope economies can be present for costs, revenues, and (on net) for profits (Berger, et al. 2000). If cost (revenue) economies of scope are present, a firm that produces two outputs jointly will have lower costs (higher revenues) than if the outputs were produced by two separate firms. Cost

economies of scope generally arise from the joint use of inputs such as managerial expertise, customer lists, computer technologies, and brand names; and revenue economies of scope are often said to arise due to reductions in consumer search costs and improvements in service quality from the joint provision of related products such as life insurance and automobile insurance. This is the "one-stop shopping" argument often utilized to justify financial sector mergers. There is some empirical evidence for the existence of economies of scope in insurance (Berger, et al. 2000), although such economies seem to exist only for specific types of producers and specific sub-products within the insurance industry. In addition, production theory arguments for scope economies generally do not recognize that achieving such economies through M&As can often be defeated by the frictions arising from integrating the corporate cultures of two previously separate firms offering different products, perhaps using different distribution systems and information technologies.

The potential for gains in X-efficiency provides another production based rationale for M&As. X-inefficiency arises when firms fail to operate on the cost, revenue, or profit frontier but rather incur costs or lose revenues because of various types of suboptimal performance. The principal types of inefficiency include technical inefficiency, failing to operate on the cost minimizing isoquant, allocative inefficiency, failing to choose cost minimizing combinations of inputs, and scale inefficiency, the failure to operate with constant returns to scale. Similar efficiency concepts can be defined with respect to the revenue frontier. A potentially important justification for a merger or acquisition transaction is to improve the efficiency of the merger target, e.g., by replacing inefficient managers or introducing superior technology possessed by the acquiring firm. And, in fact, there is some evidence that insurance M&A transactions have led to efficiency gains in the U.S. life insurance industry and the Spanish insurance industry (Cummins, Tennyson, and Weiss 1999, Cummins and Rubio-Mises 2003). The efficiency rationale for M&As may be somewhat stronger for focusing

rather than diversifying M&As, however. If the objective is to improve technical or allocative efficiency of the target, it seems reasonable to expect that such improvements are more likely to be realized if the managers of the acquiring firm already have considerable expertise in the types of operations conducted by the target.

One important source of potential efficiency gains from mergers is the possibility of eliminating duplicate or overlapping production or delivery systems. For example, the merger of banks operating in the same geographical area may permit a reduction in the number of branches and branch office employees without correspondingly degrading customer service. The same rationale may apply in insurance to the extent that the duplication of agencies, claims adjustment offices, and data processing facilities can be reduced. This rationale would seem to apply most strongly to intra-country and intra-industry mergers; although diversifying mergers that permit the sale of insurance through bank branches have the potential to realize economies of scope.

Another industrial organization hypothesis about M&As is that consolidation allows firms to acquire varying degrees of monopoly power, permitting them to increase cash flows by raising prices. This rationale would seem to apply most strongly to mergers that increase concentration within specified geographical or product markets. Empirical evidence based on U.S. banking that provides some support for the market power hypothesis, especially for large banks, but the quantitative effect on bank profits tends to be small (Berger 1995). Empirical evidence also has been presented that consolidation in the Spanish insurance market during the 1990s led to price reductions (Cummins and Rubio-Mises 2003).

If one relaxes the assumptions of perfect markets finance theory, some additional rationalizations for M&As are provided. One important assumption is the absence of costs of financial distress. In real world markets, especially in those such as financial services where stringent

solvency regulation is the norm, firms face significant financial distress costs. Insurers that are over-leveraged or in weakened financial condition for other reasons incur increased regulatory costs and potential operating restrictions. Moreover, because buyers of insurance are especially sensitive to insolvency risk, insurers in deteriorating financial health are likely to lose their best customers to rivals. Deteriorating financial condition is also likely to trigger financial ratings downgrades with accompanying higher costs of capital. Finally, firms with relatively high insolvency risk also face the loss of relationships with key employees and suppliers. Because larger insurers are known to have lower insolvency probabilities (Cummins, Grace, and Phillips 1999), mergers can be beneficial to the extent that increases in scale are accompanied by reductions in income volatility due to enhanced diversification. This reasoning applies to within-industry mergers but also applies to cross-industry mergers between institutions such as insurers and banks, providing a rationale for both focusing and diversifying M&A activity. The potentially favorable effect of M&As on expected bankruptcy costs is generally called the *earnings diversification hypothesis*. Simulation analyses have shown that there is significant potential for earnings volatility reduction through bank-insurance combinations (e.g., Estrella 2001).

The existence of corporate income taxation also provides a rationale for M&As as a possible mechanism for increasing net cash flows. Firms can reduce expected taxes by reducing earnings volatility to the extent that corporate tax schedules are convex, or to the extent that they can exploit from inter-country tax arbitrage or utilize of tax loss carryovers. The extent to which opportunities to reduce taxes through consolidation exist in Europe is not clear.

Another rationale sometimes given for M&As based on relaxation of the assumptions of perfect markets financial theory is the creation of *internal capital markets*. To the extent that this is a valid rationale, it would seem to apply most strongly to mergers that are either activity or

geographically diversifying. The argument is that informational asymmetries between managers and capital markets tend to make capital markets somewhat inefficient in allocating capital among alternative uses and also may lead to higher costs of capital. Managers are said to be able to utilize their superior knowledge of the firm's investment opportunities to allocate capital efficiently among projects, thereby maximizing firm value. The extensive literature on the diversification discount, i.e., the tendency of diversified firms to have lower values than their subsidiaries taken independently (Comment and Jarrell 1995, Berger and Ofek 1995), as well as theoretical research (Scharfstein and Stein 2000) casts considerable doubt on the internal capital markets hypothesis. It may have a somewhat stronger justification in Europe than in the U.S. because European firms have traditionally relied relatively more on bank financing and less on capital market financing than firms in the U.S. suggesting that capital markets may be somewhat less efficient in Europe. However, based on existing empirical and theoretical evidence, we do not find the internal capital markets hypothesis to be very convincing.

There are also non-value-maximizing motives for consolidation. Contrary to perfect markets finance theory, considerable evidence exists that real world managers do not always act in the best interests of shareholders but rather tend to pursue their own interests to varying degrees. Instead of taking actions to maximize firm value, managers may act to maximize their own net worth and income, engage in excessive perquisite consumption, and preserve their job security. These agency conflicts may lead managers to forgo profitable but risky projects that may threaten their job security. Moreover, and of special relevance for M&As, managers may engage in projects of questionable value that increase the scale of the firm to increase their compensation and prestige. Managers may also engage in defensive acquisitions designed to head off hostile takeovers of the firm that would threaten their jobs. To the extent that managers engage in non-value-maximizing acquisitions, M&As

can be expected to have adverse market value effects.

M&As also may reduce value to the extent that firms are not very successful in conducting post-merger integration. Post-merger integration is likely to be especially difficult for cross-country and cross-industry mergers due to larger national and corporate cultural differences than must be overcome. Evidence that difficulties in integrating data processing systems is an impediment to efficiency gains in some financial sector mergers is provided in Rhodes (1998).

The net result of this analysis is that the theoretical prediction with regard to the impact of M&As on market values is ambiguous. A large number of factors come into play which could affect the success of any given M&A transaction, making generalized predictions very difficult to make. One general result that does seem to emerge from the discussion as well as from past empirical work, however, is that focusing mergers are somewhat more likely to create efficiency gains than diversifying mergers. Focusing can be defined either in terms of activities such as banking, life and non-life insurance, or securities operations as well as geographically. Thus, we predict that within-industry and within-country mergers are more likely to create value than activity or geographically diversifying mergers.

3. Sample Selection and Methodology

Data and Sample Selection

This study focuses on European mergers and acquisitions over the period 1990 through 2002. The beginning of the sample period was selected to provide a few years of observations prior to the introduction of the European Union's Third Generation Insurance Directives in 1994, because many European countries introduced deregulatory measures prior to the Third Directives to provide time for their domestic insurers to prepare for the overall European deregulation.

The data on M&A transactions were obtained from the Thomson Financial SDC Database.

To focus on insurance M&As, we identified all transactions in SDC in which a European insurance company was either the acquirer or the target. Insurance companies were defined as all firms with two-digit Standard Industrial Classification (SIC) code 63. Thus, transactions are included in the sample where insurers are acquired by non-insurance firms such as banks, other financial firms, and industrials, and where insurance firms acquire non-insurers, as well as within-industry insurance transactions. The study focuses primarily on transactions in member countries of the European Union in Western Europe, resulting in the exclusion of a small number of Eastern European transactions.

Following the procedure adopted by the Group of 10 (2001), we captured data on all transactions in SDC involving the acquisition of a value-stake where the target or the acquirer was an insurance company. This includes a substantial number of transactions involving minority stakes. We decided that it was useful to include these transactions in order to parallel our results with those of the G10 and because we thought it would be interesting to look at the entire portfolio of transactions. However, we also conduct the analysis using a subsample of transactions that represent a change in control, which we define as a transaction where the acquirer stake changes from less than 50% to 50% or more of the target firm's shares post-merger.

The stock price data for the event study are obtained from the Datastream Database. Using the SDC sample as the transactions database, we then identified all transactions where either the acquirer or the target firm also was present in Datastream and obtained Datastream stock price data for the periods needed to conduct the event study. The event dates utilized in the analysis were screened to eliminate cases where more than one transaction took place within a window extending from thirty days prior to the event to thirty days after the event.

Event Study Methodology

We adopt a standard market model event-study methodology, where the returns of the

underlying securities are assumed to be jointly multi-variate normal and independently and identically-distributed through time (MacKinlay 1997). The analysis involves computing the returns for each of the transactions in our sample using data from the Datastream Database. Using this approach, the expected return for any given insurer security can be defined as follows:

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt} \quad \textbf{(1)}$$

where R_{jt} is the actual dividend-adjusted return on security j on day t [$\log((Price_t + Dividend_t)/Price_{t-1}]$, R_{mt} is the rate of return on the Datastream General Market Index for the country of the target or acquiring firm, α_j is the idiosyncratic return on security j, β_j is the beta coefficient of security j, and ε_{jt} is the error term of the regression. Under the assumption of joint normality and independently and identically distributed returns, the error of the regression is well–behaved, i.e.,

$$E(\varepsilon_{jt}) = 0\,, \qquad Var(\varepsilon_{jt}) = \sigma^2_{\varepsilon_j} \quad \textbf{(2)}$$

Using this model, we estimated the market parameters for each of our companies based on the securities' returns over the 250 days ending 30 days prior to the event date. Using the parameters estimated from this market model and the movement of the market index during the event period, we then compute the daily unexpected or abnormal return (AR) for each security during the event period. We utilize several event windows for the study, extending a maximum of 15 days before and after the event date. The notation for an event window extending m days prior to the event date and p days following the event date is (-m,+p), with the event date as day 0.

Thus, the abnormal return on day t in the event window for security j can be expressed as the estimated disturbance term of the market model calculated out-of-sample:

$$AR_{jt} = R_{jt} - \hat{\alpha}_j - \hat{\beta}_j\, R_{mt} \quad \textbf{(3)}$$

The distribution of the abnormal return, conditional on the market return, is jointly normal with a zero conditional mean and a conditional variance equal to the following:

$$\sigma^2(AR_{jt}) = \hat{\sigma}^2_{\varepsilon_j} + \frac{1}{L_1}[1 + \frac{(R_{mt} - \bar{R}_m)^2}{\hat{\sigma}^2_m}] \quad \textbf{(4)}$$

where $\hat{\sigma}^2_{\varepsilon_j}$ represents the sum of the squared residuals (i.e., abnormal returns) from the market model estimation divided by (L_1-2), and L_1 represents the number of non-missing daily periods over which the market model was estimated for firm j. Note that in equation (4) the variance of daily abnormal returns has two components – a disturbance term estimated from the market model residuals and a sampling error term. Thus, provided that the number of days in the estimation period is sufficiently large (e.g., greater than 30), the variance in abnormal returns converges to $\sigma^2_{\varepsilon_j}$ and $AR_{jt} \sim N(0, \sigma^2_{\varepsilon_j})$ (MacKinlay 1997).

Because the conditional abnormal returns for all N securities are assumed to be independent and normally distributed, we can aggregate the abnormal returns across securities within any given time period. The average abnormal return and the variance in average abnormal returns across all N securities in a given time period are computed as follows:

$$\overline{AR_t} = \frac{1}{N}\sum_{j=1}^{N} AR_{jt} \quad \textbf{(5)}$$

$$\hat{\sigma}^2(\overline{AR_t}) = \frac{1}{N^2}\sum_{j=1}^{N} \hat{\sigma}^2_{\varepsilon_j} \quad \textbf{(6)}$$

As expected, the average abnormal return within a given period is also normally distributed with a zero conditional mean and a conditional variance given by equation (6). Thus, under the null

hypothesis of no market impact, we can draw inferences about the impact on the average abnormal returns across the –securities in the portfolio by using a standard Z-score statistic, computed as the ratio of the average abnormal return divided by the standard deviation of average abnormal returns.

We compute the cumulative average abnormal returns (CAR) for the N securities across two time periods (τ_1 and τ_2), as well as the variance in the CAR, as follows.

$$\overline{CAR}(\tau_1, \tau_2) = \frac{1}{N} \sum_{j=1}^{N} \overline{AR}(\tau_1, \tau_2) \quad \textbf{(7)}$$

$$Var[\overline{CAR}(\tau_1, \tau_2)] = \frac{1}{N^2} \sum_{j=1}^{N} \hat{\sigma}_j^2(\tau_1, \tau_2) \quad \textbf{(8)}$$

We make several additional adjustments in measuring abnormal returns. First, following Patell (1976), we standardized the abnormal return for each security by dividing by the security's own estimate of variance. This standardization process helps ensure that no single firm in the sample dominates the results of the analysis and helps improve the power of the test statistics. For any given security, we can compute the standardized abnormal return (SAR) within a given period by dividing the abnormal return by our estimate of the security's sample return standard deviation from the market model regression.

$$SAR_{jt} = \frac{AR_{jt}}{\hat{\sigma}_{\varepsilon_j}} \sim t(L_1 - 2) \quad \textbf{(9)}$$

where $t(L_1\text{-}2)$ represents the t-distribution with $(L_1\text{-}2)$ degrees of freedom. To construct a test statistic of abnormal returns across the N firms in period t, we aggregate the standardized abnormal returns (SAR_{jt}) across all N securities to obtain the total standardized abnormal return ($TSAR_t$).

Many prior studies have documented substantial event-induced variance increase around event days, including Beaver's (1968) and Christie's (1982) examination of earnings announcements,

Ohlson and Penman's (1985) and Dravid's (1987) work on stock splits, an event study analysis of takeover rumors by Pound and Zeckhauser (1990), and Cummins and Lewis' (2003) event study on the impact of the terrorist attacks of September 11, 2001. Failure to adjust the event-induced variance will lead to too frequent rejection of the null hypothesis. Many studies show that substantial bias is introduced if event-induce variance is not corrected (e.g. Boehmer, Musumeci, and Poulsen 1991, Brown and Warner 1985). Accordingly, we adjust the estimated variance in returns by the contemporaneous cross-sectional variance of the sample, by applying the *standardized cross-sectional (SCS)* procedure developed by Boehmer, Musumeci, and Poulsen (1991). We incorporate the Boehmer, et al. (1991) variance adjustment by developing a new Z-statistic as follows:

$$Z_t = \frac{TSAR_t}{\sigma_{sar,t}\sqrt{N}} \tag{10}$$

where the adjusted standard deviation is given as follows:

$$\hat{\sigma}^2_{sar,t} = \frac{1}{N-1}\sum_{j=1}^{N}[SAR_{jt} - \frac{1}{n}SAR_{jt}]^2 \tag{11}$$

To construct a measure of the standardized cumulative abnormal returns across the portfolio, we start by defining the *standardized cumulative abnormal return* (SCAR) for any one security over the period ($\tau 1$, $\tau 2$) as its cumulative abnormal return (CAR) divided by its corresponding asymptotic variance (for large L_1) as follows:

$$SCAR(\tau_1,\tau_2) = \frac{CAR_j}{\sigma_j^2(\tau_1,\tau_2)} = \frac{\sum_{t=\tau_1}^{\tau_2} AR_{jt}}{(\tau_2-\tau_1+1)\sigma_{\varepsilon_j}^2} \tag{12}$$

Finally, we average these standardized cumulative abnormal returns across all N securities and divide by an estimate of the standard deviation of standardized cumulative abnormal returns to obtain a test

statistic for the standardized cumulative average abnormal returns for the portfolio. This modified Z-statistic is presented in equation (13).

$$Z_t = \frac{\sum_{j=1}^{N} SCAR_j(\tau_1, \tau_2)}{\sigma_{scar}\sqrt{N}} \tag{13}$$

where $\hat{\sigma}^2_{scar}(\tau_1, \tau_2) = \frac{1}{N-1}\sum_{j=1}^{N}[SCAR(\tau_1, \tau_2) - \frac{1}{N}SCAR(\tau_1, \tau_2)]^2$. Using equation (13), we can construct tests of the significance of the M&A events on the stock returns of the acquiring target firms in our sample.

A nonparametric test is normally used in conjunction with the parametric test in event study to verify that the results of parametric tests are not driven by outliers. In this study, Cowan's (1992) generalized sign test is employed. It compares the proportion of positive abnormal returns around an event day to the proportion from the estimation period. This test is also well-specified when the variance of stock returns increases around event day.

4. Empirical Results

Insurance M&As: Descriptive Statistics

The number of M&A events in our sample, where either the target or acquirer is a European insurer, is shown in Figure 1. There were 2,595 total events involving the acquisition of a value stake, 1,669 of which resulted in a change in control. The total number of both types of events peaked in 2000, perhaps due to the introduction of the Euro. Figure 2 shows the value of the total number of deals and change in control deals by year. In interpreting this figure, it is important to keep in mind that SDC does not report the deal value for the majority of deals. Hence, the number shown in Figure 2 are actually interpreted as the total deal values reported by SDC rather than the total value of all

deals shown in Figure 1. The total deal value reported by SDC for our sample period is $441 billion and the total involving a change in control is $378 billion. Deal value was substantially larger from 1996-2001 than in other years. However, this may be partly attributable to more complete reporting of deal values in the more recent years of the sample period. Deal value data limitations notwithstanding, it is clear that there has been a large volume of M&A transactions over the sample period involving substantial amounts of market capitalization. This suggests that the previous regulatory regime in Europe constituted a binding constraint on the structure of the insurance industry.

Figures 3 and 4 show the number of deals and the value of deals for cases where the target of the transaction was an insurance company. There were 1,440 total transactions with insurance company targets, of which 954 resulting in a change in control. As with the overall sample, the number of deals for the insurance target sample peaked in 2000, although there were nearly as many change in control deals in 1997. The total reported value of transactions involving insurance targets is $295 billion, and the total for change in control transactions is $252 billion. Comparing Figures 1 and 2 with Figures 3 and 4, it is clear that there have been a substantial amount of cross-industry as well as within-industry transactions involving insurers.

The number of M&A deals by country of the target firm is shown in Figure 5. By far the largest number of transactions involved targets in the United Kingdom (U.K.), where nearly 600 transactions resulting in a change in control occurred. The next largest number of transactions were for targets in France (145 change in control deals), Germany (126 deals), Spain (114 deals) and Italy (111 deals). The SDC reported deal values, shown in Figure 6, also show that the U.K. is the leader in insurance M&A transactions, with a change in control deal value of $141 billion. The U.K. is followed by Germany ($44 billion), France ($41 billion), and the Netherlands ($40 billion). The transactions value was relatively less than the number of transactions in Spain and Italy because those

countries had an unusually large number of very small insurers prior to deregulation.

Further information on the number of transactions by country is presented in Table 1, which shows the number of deals by the country of the target (across the rows of the table) and acquirer (the columns of the table). The table shows only those deals resulting in a change in control. About 65% of the transactions were intra-country deals (1,078 out of 1,669). The lowest proportions of intra-country deals were in Belgium (51%), Spain (55%), and Portugal (55%); and the highest proportions were in Finland (89%), Denmark (85%), Norway (79%), Germany (79%), and the U.K. (78%). Table 2 shows that about 60% of reported deal value was for intra-country transactions. The lowest intra-country deal volume as a proportion of the total deal volume was in Spain (25%) and the Netherlands (49%), and the highest was in Denmark (97%) and Norway (93%).

Table 3 shows the number of deals and the value of deals involving a change in control tabulated by the industry of the target and acquiring firms. In interpreting this table, one should keep in mind that either the target or the acquirer had to be an insurance company in order for the transaction to be included in the sample. Thus, cells involving deals between non-insurance firms and other non-insurance firms are blank rather than equaling zero. By far the largest number of deals and the highest deal volume were for life insurance companies acquiring other life insurance companies. Life insurer-to-life insurer deals accounted for 33% of all transactions and 46% of deal volume. Overall, transactions involving life insurance targets accounted for 57% of all deals and 67% of reported deal volume.

The dominance of life insurance transactions in the sample deserves some comment. The primary reason for the importance of life insurance transactions is that the life insurance market has evolved very differently in comparison with the non-life insurance market. The non-life market, which is dominated by lines of insurance such as private passenger automobile, homeowners, and commercial property-

liability insurance remains primarily a traditional insurance market where relatively little innovation has occurred in terms of underwriting, claims settlement, administration, and product offerings. Although life insurance once was a sheltered market insulated from competition from other types of financial firms, life insurance has become very much a part of the financial services market. Life insurers increasingly compete with banks, mutual fund companies, and investment advisory firms for the consumer asset-accumulation products and the money management business in the corporate market. Life insurance product offerings have also changed dramatically in recent decades to include "universal" and variable life insurance and annuity contracts where buyers are able to allocate funds among types of investments much as they do when investing in a family of mutual funds. The increased competition from non-traditional competitors and the introduction of new products has also placed pressure on insurers to cut costs while at the same time investing in sophisticated technologies to provide competitive services to customers. Because development of new technologies has high fixed costs, the evolution of the market has placed a premium on firm size, such that the relatively small firms that once populated the market are unlikely to remain competitive. Such developments are very likely the explanation for the dominance of life insurance transactions in our sample.

Some firms from other industries have also been active in acquiring insurers during our sample period. There were 75 transactions with commercial banks as acquirers and 95 where other financial firms such as investment advisors acquired insurance companies. There were also 133 transactions where life insurers purchased other financial services firms, including 65 commercial banks. Life insurers were also active in purchasing 253 firms in other industries, including financial firms not classified elsewhere (e.g., REITs) and non-financial firms. However, the overall picture that emerges from Table 3 is that the majority of transactions were conducted within the insurance industry. Within-insurance industry transactions accounted for 59% of deals and 57% of deal volume.

The Datastream (Event Study) Sample

The next step in the study was to identify transactions included in the SDC Database for which adequate stock price data were available to conduct the event study. This was a difficult process, which involved looking up transactions reported by SDC in the Datastream Database by name and identification numbers such as CUSIPs. It turned out that only a small fraction of the total transactions reported by SDC could be included in the event study. The primary reason is that many of the firms involved in the transactions, especially as target firms, were apparently not publicly traded prior to the transaction. Such firms could be mutuals or closely held stocks. However, a substantial proportion of the non-traded targets are subsidiaries of insurance groups. Large insurance groups such as AXA, Allianz, and ING tend to have numerous subsidiaries and less prominent insurance groups and other financial holding companies also tend to have significant numbers of subsidiaries. Since such subsidiaries are not listed on exchanges, the stock price data needed to do the event analysis for these firms were not available. Because the acquirers tend to be parent corporations rather than subsidiaries, a larger number of acquirer observations survived the SDC-Datastream transaction search than for the targets.

The number of M&A acquirer transactions for which stock price data were available is shown in Figure 7. There were 535 acquirer transactions for which Datastream data could be located and, of this group, 256 were transactions which involved a change in control. The number of targets for which Datastream data could be located is shown in Figure 8. The total number of target transaction is 165, but the number resulting in a change in control equal only 52. This is smaller than would be desirable, but it is worth noting that it is comparable with other M&A event studies such as Cybo-Ottone and Murgia (2000), who analyzed a total of 54 matched target-acquirer deals, and Akhigbe and Madura (2001), who analyzed 61 acquirers and 22 targets.

The deal values for the M&A transactions included in the Datastream sample are shown in

Figures 9 and 10. These are deal values as reported by SDC rather than the market capitalization prior to the transaction date. The latter data will be added to later drafts of this paper. Figure 9 shows the deal value for the targets of the transactions for which acquiring firms are included in Datastream. The total deal value is $110 billion and the deal value for transactions resulting in a change in control is $78 billion. Figure 10 shows the comparable data for the targets in the Datastream sample. Here the total deal value is $135 billion, and the deal value for change in control transaction is $112 billion. Hence, even though the number of transactions is fairly small, the value of the deals included in the event study sample is considerable. The deal value in the target sample is larger than the value in the acquirer sample because publicly traded targets tend to be larger than non-traded targets.

Event Study Results

The event study results for all transactions in the Datastream sample are shown in Table 4. [2] The table includes results for transactions that did not result in a change in control as well as change in control transactions. The acquirer transactions analyzed in this study tend to have a negative effect on market value for the acquiring firms. The negative effect is small on average (less than 1%) but is statistically significant at the 5% or 10% level for the (-2,+2), (0,+1), and (0,+2) windows, based on both the Patel and SCS Z statistics. The finding of a negative reaction for acquirer stocks is not unusual in the event study M&A literature.

In contrast to the acquirers, the target transactions summarized in Table 4 are characterized by significant value-creation. The CAARs are statistically significant at the 1% level or better for all windows studied. Based on the (-1,+1) window, stocks of acquisition targets gained 3.88% on average; and based on the (-15,+15) window, the average market value gain is 8.85%. Again, the

[2]The number of transactions included in the table is less than the total number of cases located in Datastream because an insufficient number of observations was available in some instances to permit estimation of the market model.

findings are generally consistent with the prior M&A event study literature, i.e., acquirers tend to lose value and targets tend to gain value in an acquisition.

The target transactions in Table 4 are subdivided into cross-border and domestic (within-country) transactions in Table 5. The value gains from domestic transactions generally are larger than for cross-border transactions, consistent with the view that focusing mergers are more likely to be beneficial than diversifying mergers. For example, the average abnormal return in the (-1,+1) window for cross-border transactions is 2.97%, while the average abnormal return for the domestic transactions in this window is 4.35%. However, t-tests revealed that the differences between the cross-border and domestic average abnormal returns are not statistically significant for any of the windows included in the table, except at the 10% level in the (0,+10) window. Hence, any conclusions about the superiority of within-country transactions based on these results must be considered very tentative.

The acquirer transactions in Table 4 are broken out into cross-border and domestic transactions in Table 6. The domestic transactions generally show negative average abnormal returns, which are statistically significant in several of the event windows. The cross-border transactions, on the other hand, have average abnormal returns that are generally closer to zero than the domestic transactions and the returns are statistically significant and positive in one window (-1,0). For three of the windows, (-1,+1), (0,+1), and (0,+2), t-tests reveal that the average abnormal returns for the domestic transactions are statistically smaller than for the cross-border transactions. Hence, there is some evidence based on the acquirer transactions that geographically diversifying transactions are value neutral, whereas geographically focusing transactions are value-destroying.

Table 7 presents the event study results for all target and acquirer transactions that resulted in a change in control. The average abnormal returns for the acquirers tend to be small negative

numbers, which are statistically significant in several of the windows. For example, the return in the (-2,+2) window is -0.80%, statistically significant at the 1% level. Targets show substantial value gains ranging from 7.5 to 16.6% depending upon the window, and the results for all windows are statistically significant at the 0.1% level based on both the Patel and SCS Z tests. Thus, for transactions involving a change in control, there is a small negative effect on acquirers and a substantial positive impact on the value of targets.

The target transactions in Table 7 are subdivided into cross-border and domestic transactions in Table 8. The value gains for domestic transactions tend to be larger than those for cross-border transactions, and these differences are statistically significant for the (-1,+1), (-2,0), (0,+5), (0,+10), and (0,+15) windows. For example for the (-1,+1) window the average abnormal returns for cross-border transaction is 5.35%, compared to 11.88% for domestic transactions. Thus, at least with respect to targets, geographically focusing mergers tend to create more value than geographically diversifying mergers. This could be due to the creation of market power or it could reflect the market's assessment of the friction costs of cross-border operations, due to differences in language, culture, and legal systems.

The average abnormal returns for acquirers are broken down into cross-border and domestic transactions in Table 9. The results based on transactions involving a change in control are consistent with those based on all transactions; and, in fact, the conclusions to be drawn from Table 9 are stronger than the tentative conclusion based on Table 6. The average abnormal returns for the domestic transactions are significant and negative in nearly all windows, whereas the average CAARs for the cross-border transactions are mostly positive but statistically insignificant. T-tests reveal that the differences between the cross-border and domestic CAARs are highly significant for most of the windows shown in the table. Hence, for the acquirers, geographically focusing mergers tend to

destroy value, and diversifying mergers tend to be value-neutral.

On the whole, the results suggest that there is a wealth transfer from owners of acquirers to the owners of targets which is large for domestic than for cross-border deals. Because cross-border M&As appear value-neutral for acquirers and value-creating for targets, such deals appear to be economically viable on average. Whether the value-gains for domestic targets are sufficient to offset the losses to acquirers in domestic transactions will be the subject of a matched transaction analysis that will be presented in future drafts of this paper.

5. Conclusions

During the 1990s, financial markets in Europe were deregulated to pursue the European Union's objective of creating a single market for financial services. The deregulation led to an unprecedented wave of mergers and acquisitions in the financial services industry. This paper analyzes M&As in the European insurance industry over the period 1990-2002. The objective is to determine whether M&As in the European insurance market create value for shareholders. We conduct a standard market model event study analysis using a sample of insurance M&As selected from the intersection of the Thomson Financial SDC Database of M&As and the Datastream Database on stock prices. The sample consists of all transactions where either the target or the acquirer is a European insurance company. We analyze all transactions involving acquisition of a value-stake as well as the subset of these transactions resulting in a change in control, defined as a transaction where the acquirers stake in the target increased from less than 50% to 50% or more of the target's shares as the result of the transaction. We analyze 535 acquirer transactions of which 256 involved a change in control. The total number of target transaction is 165, but the number resulting in a change in control equal only 52. The reason for the difference in size between the acquirer and target samples is that many targets are subsidiaries of larger firms, closely held firms, or mutuals.

The results of the event study analysis show that European M&As created small negative cumulative average abnormal returns (CAARs) for acquirers (generally less than 1%) across various windows surrounding the transaction date. Targets, however, realized substantial positive CAARs. Breaking down the transactions into cross-border and domestic (within-country) transactions, we find that cross-border transactions were value-neutral for acquirers, whereas within-border transactions led to significant value loss for acquirers. For targets, both cross-border and within-border transactions led to significant value-creation. The value-creation for within-border transactions tended to be higher than for cross-border transactions.

Overall, the results are somewhat conflicting with respect to the value of geographically diversifying versus geographically focusing mergers. Diversifying mergers seem to have superior value-related effects for acquirers, but focusing mergers tend to create more value for targets. Given that cross-border transactions are value-neutral for acquirers and value-creating for targets, these transactions seem to lead to clear economic gains. Whether the gains for targets in within-border transactions are sufficient to offset the losses sustained by acquirers will be the subject of a matched sample analysis to be included in subsequent drafts of this paper.

Figure 1: Number of M&A Events By Year -- Insurance Acquirer or Target

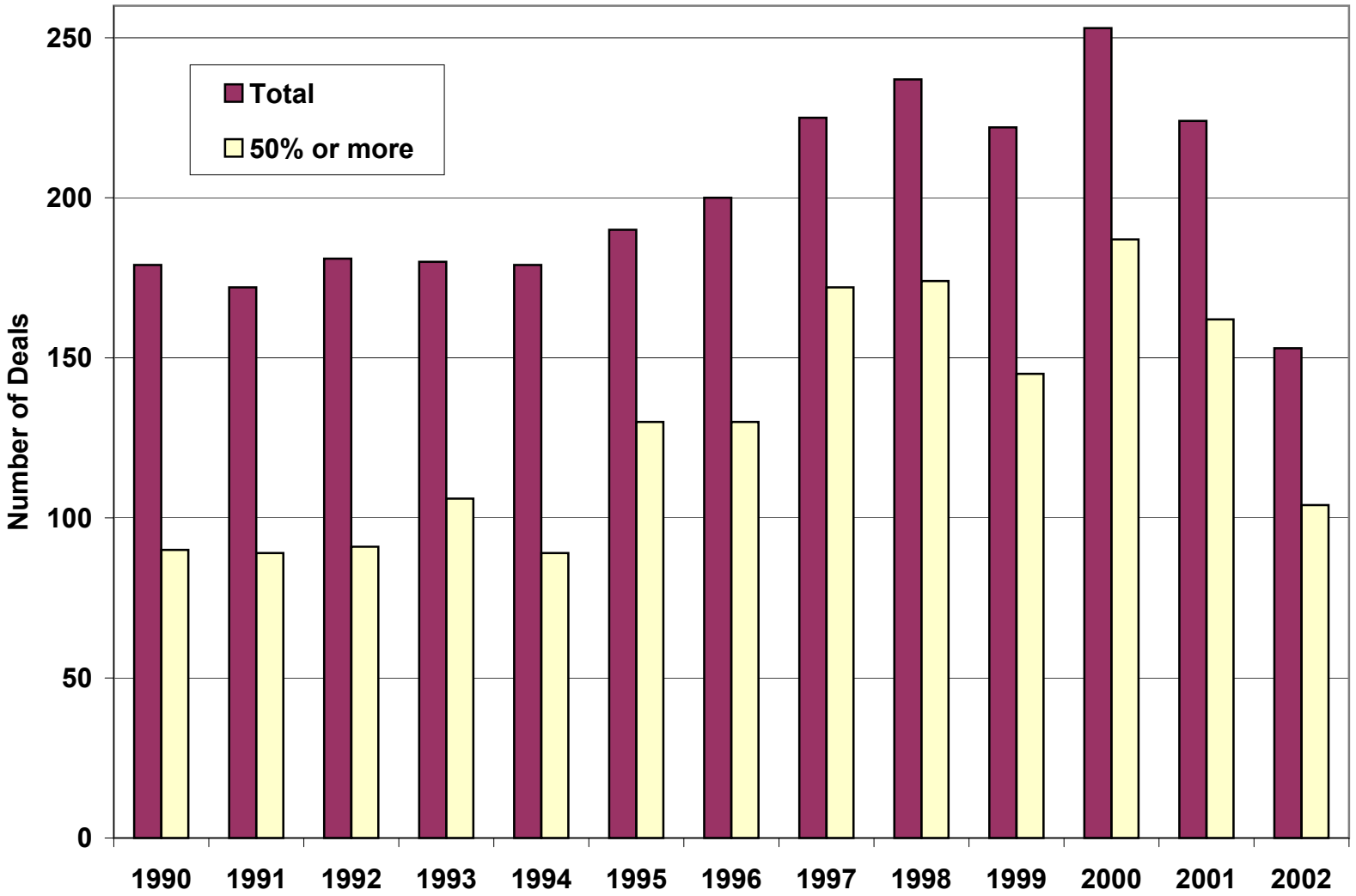

Figure 2: Value of M&A Deals By Year -- Insurance Acquirer or Target

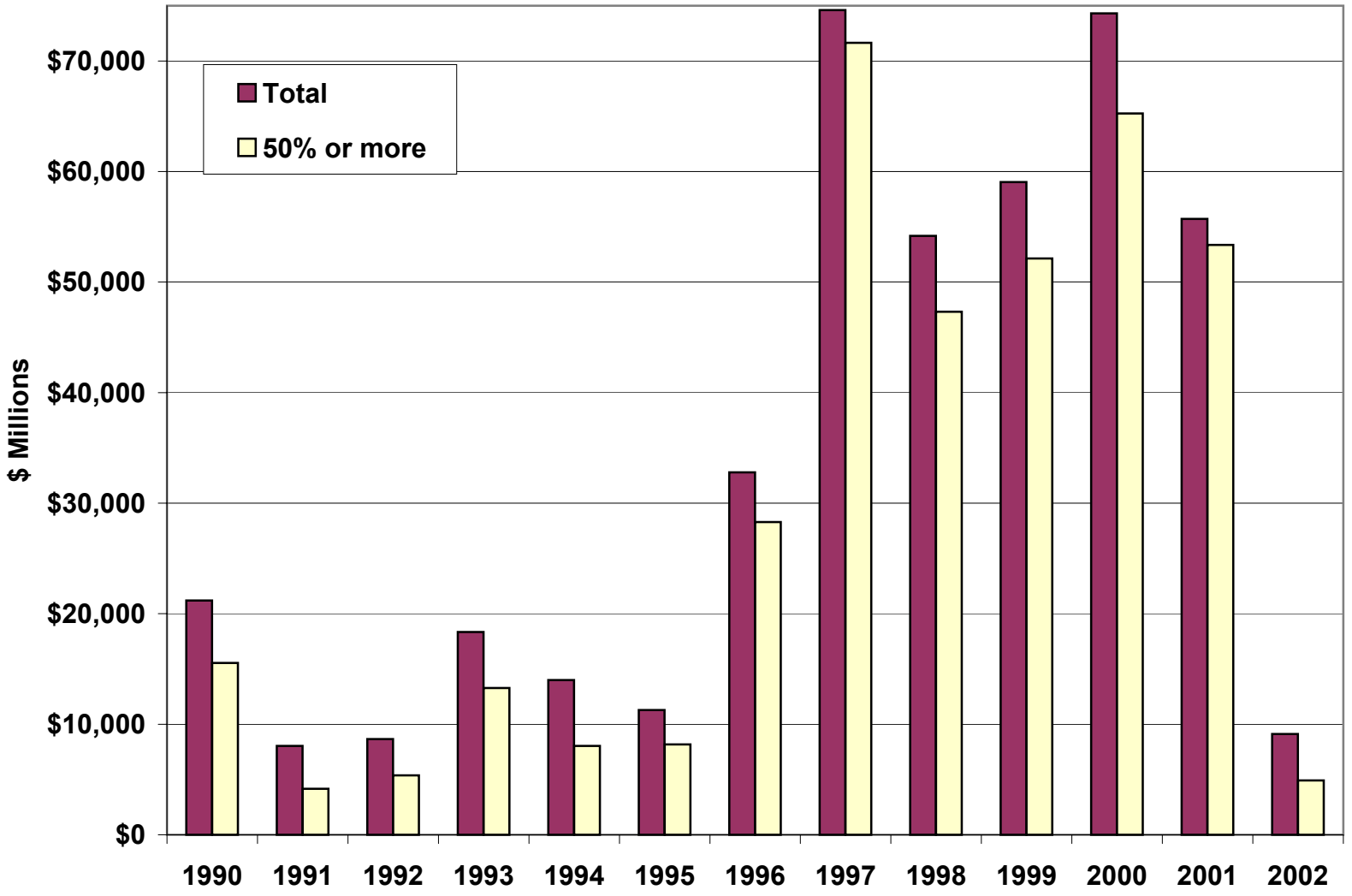

Figure 3: Number of M&A Events By Year -- Insurance Targets

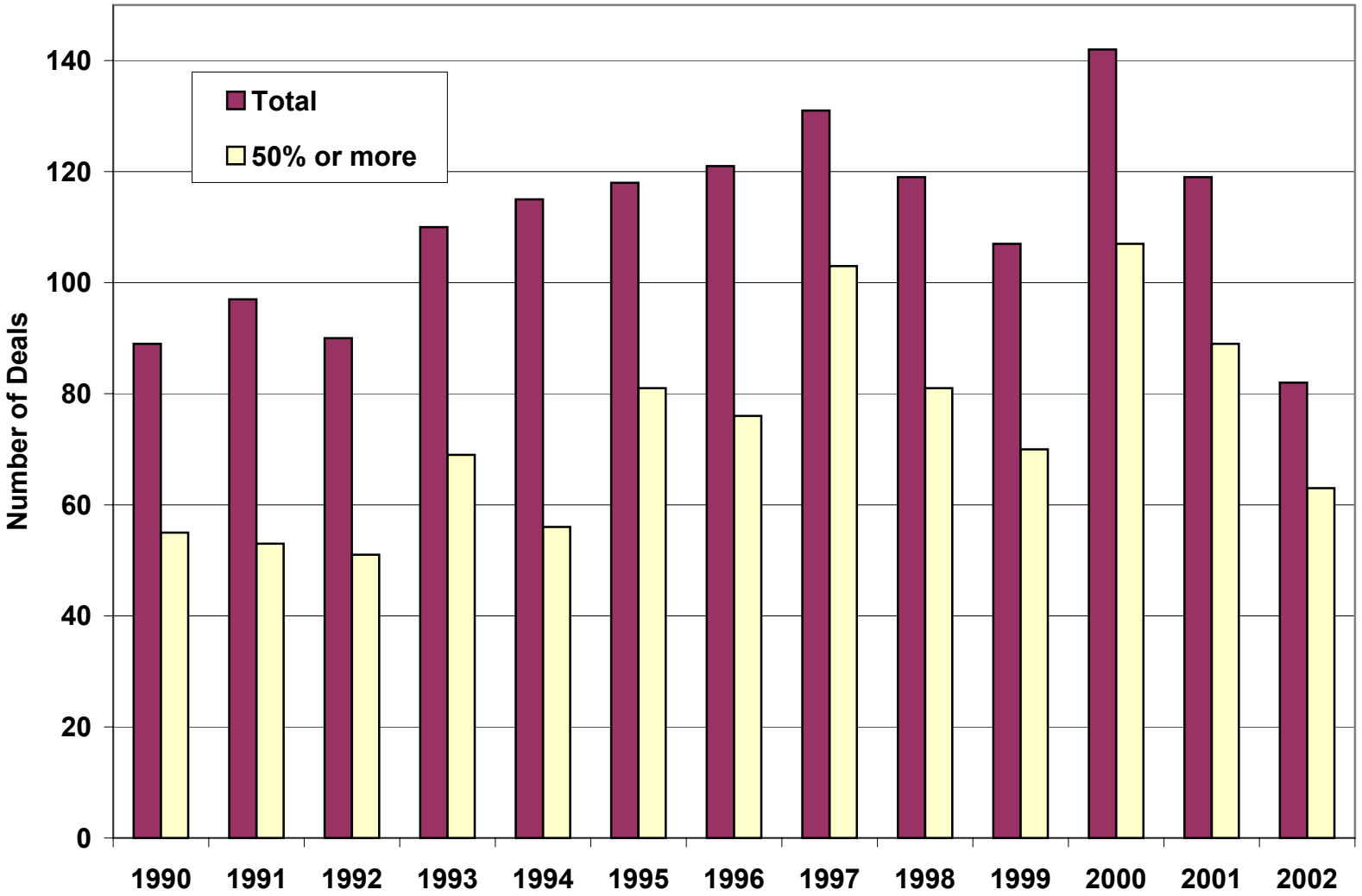

Figure 4: Value of M&A Deals By Year -- Insurance Targets

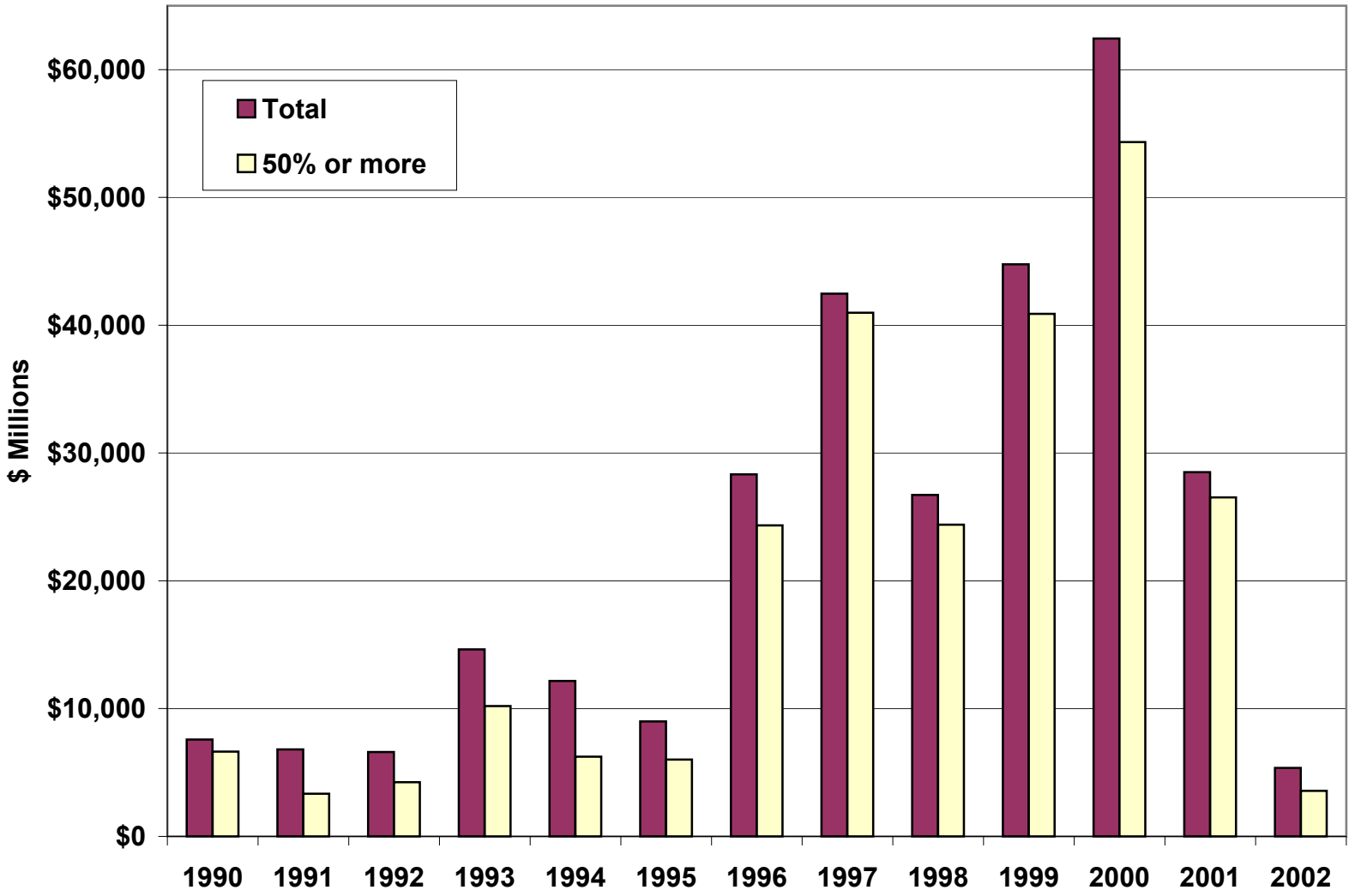

Figure 5: Number of M&A Deals, Insurance Target or Acquirer
By Country of the Target Firm

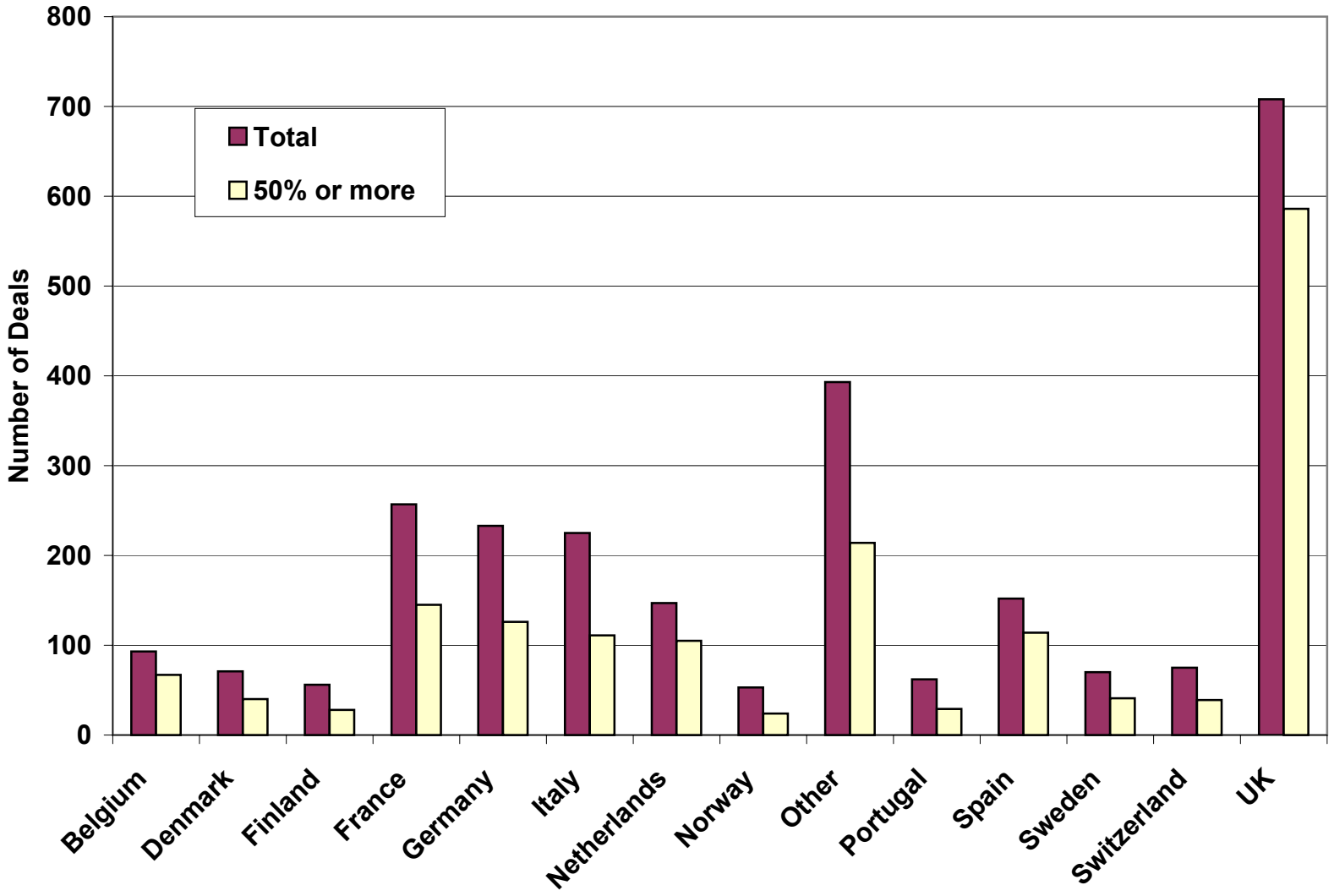

Figure 6: Value of M&A Deals, Insurance Target or Acquirer
By Country of the Target Firm

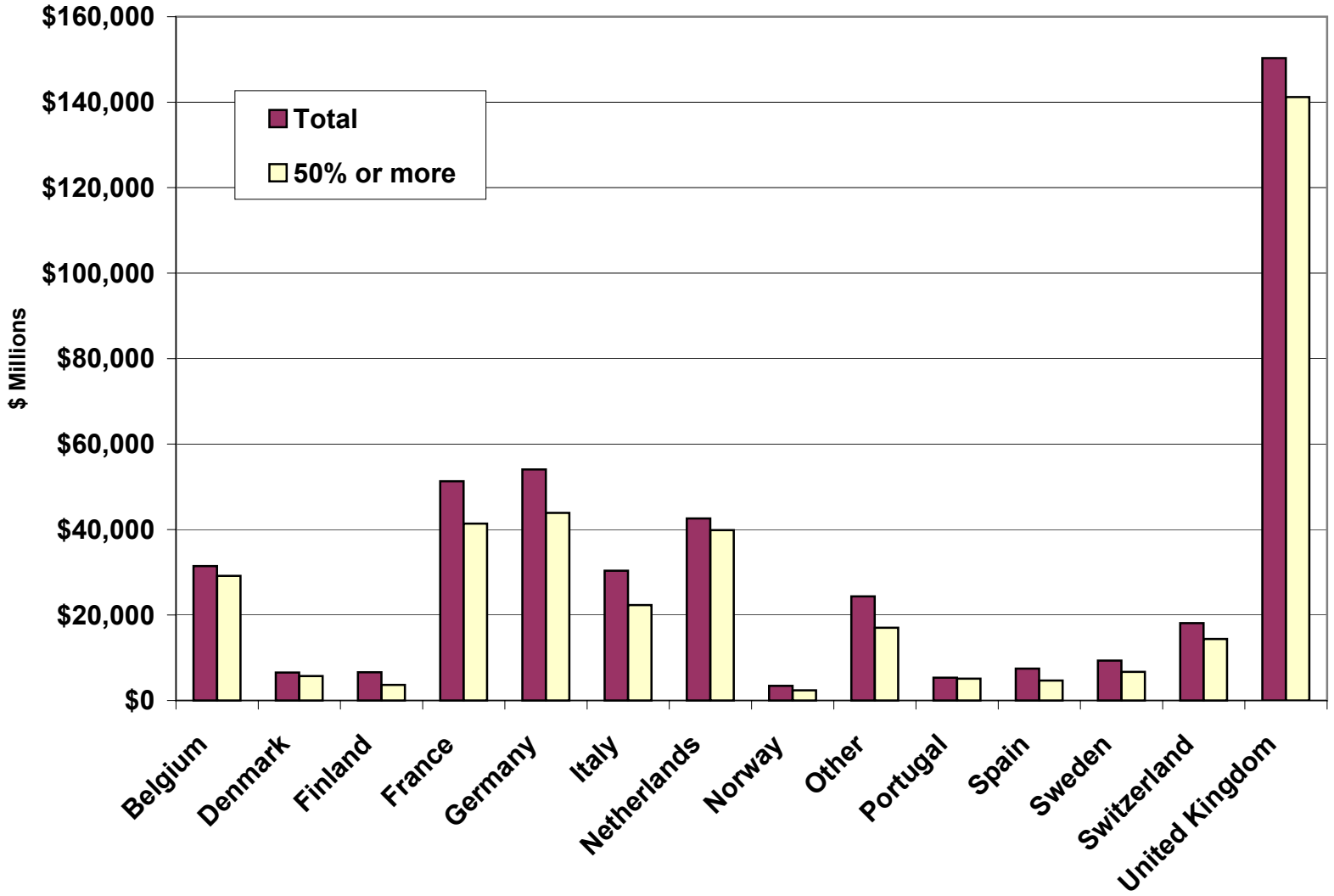

Figure 7: Number of M&A Acquirers Included In the Event Study

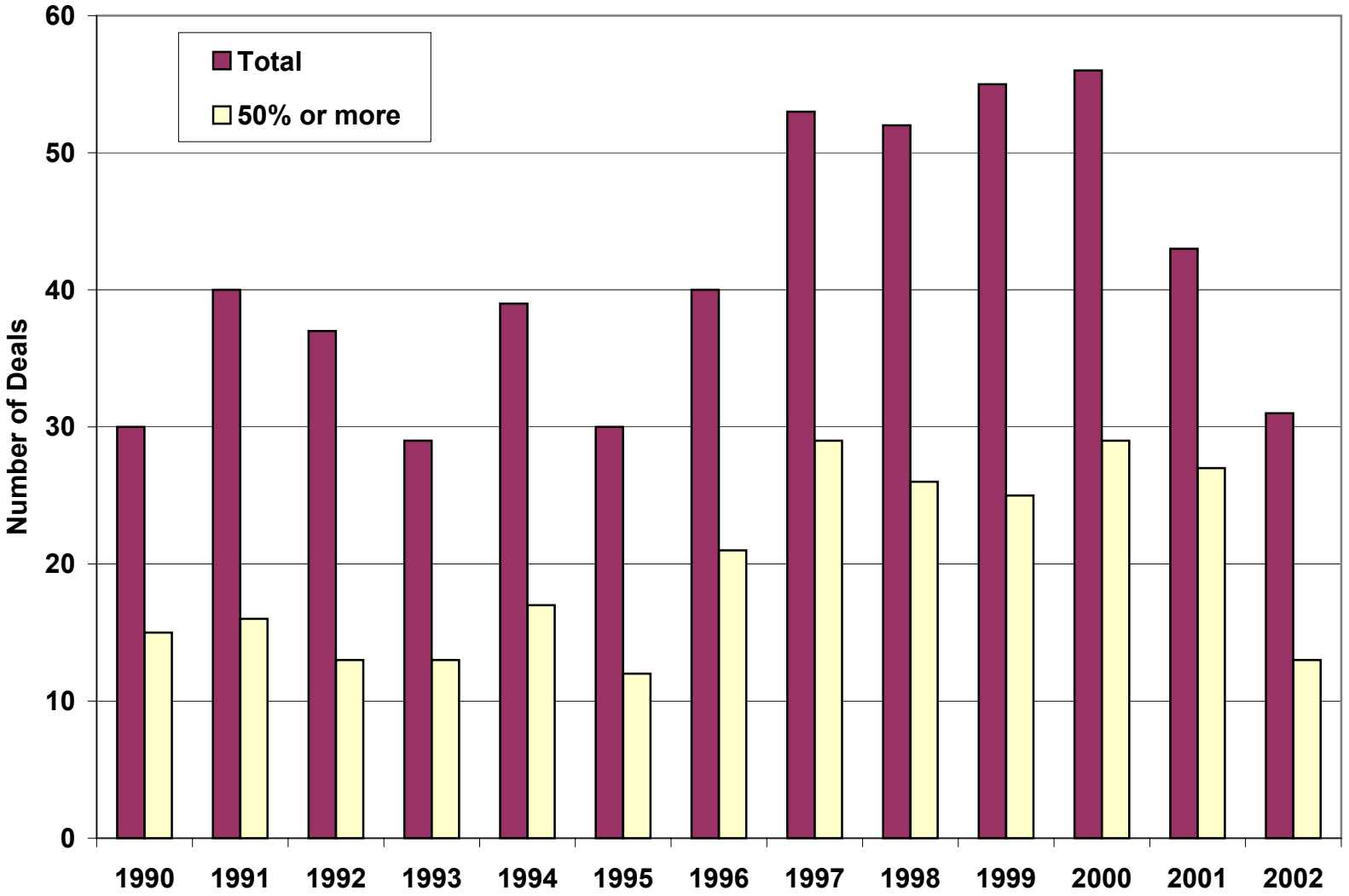

Figure 8: Number of M&A Targets Included In the Event Study

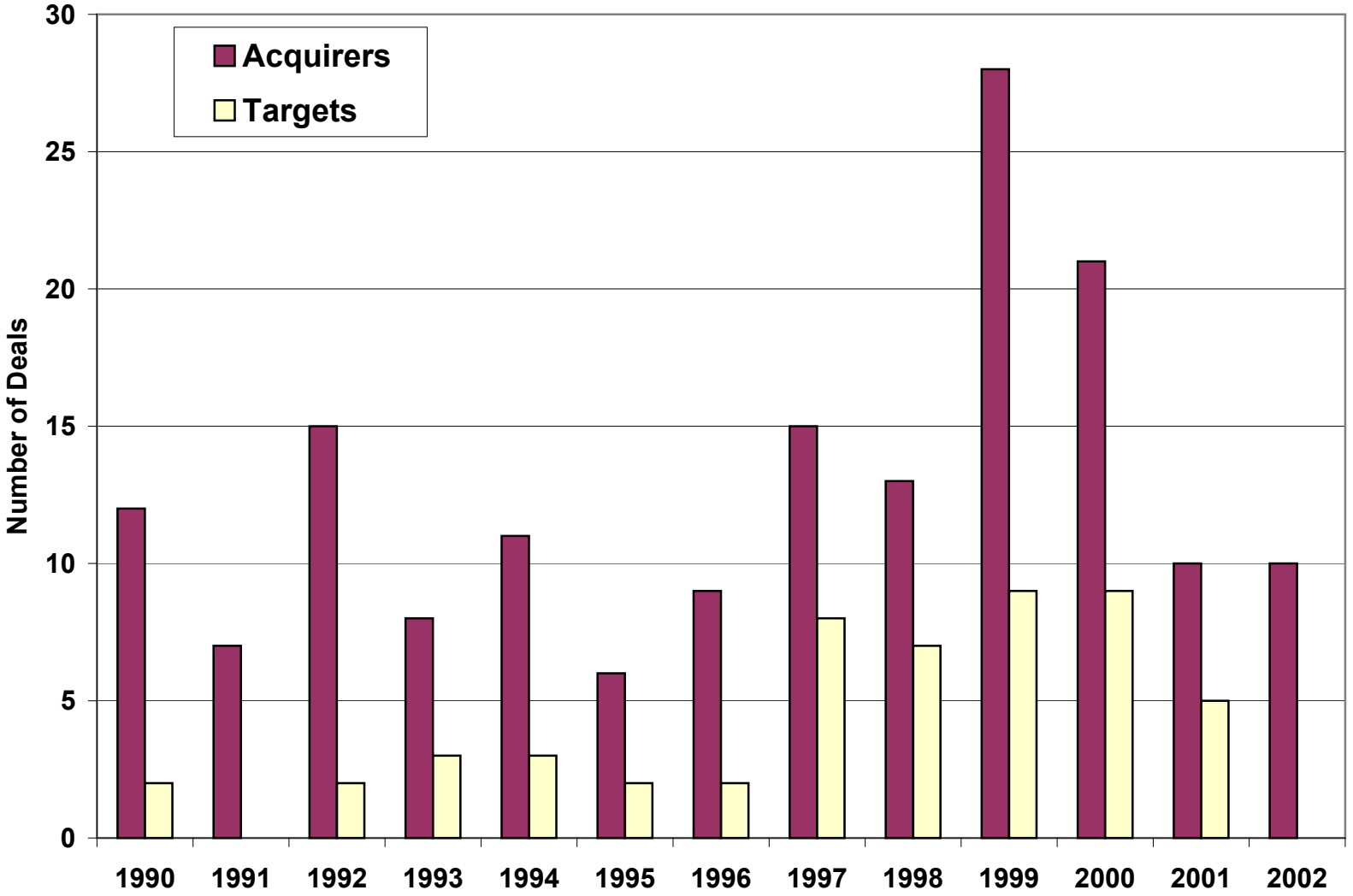

Figure 9: Value of M&A Deals By Year -- Acquirer Transactions in Datastream Sample

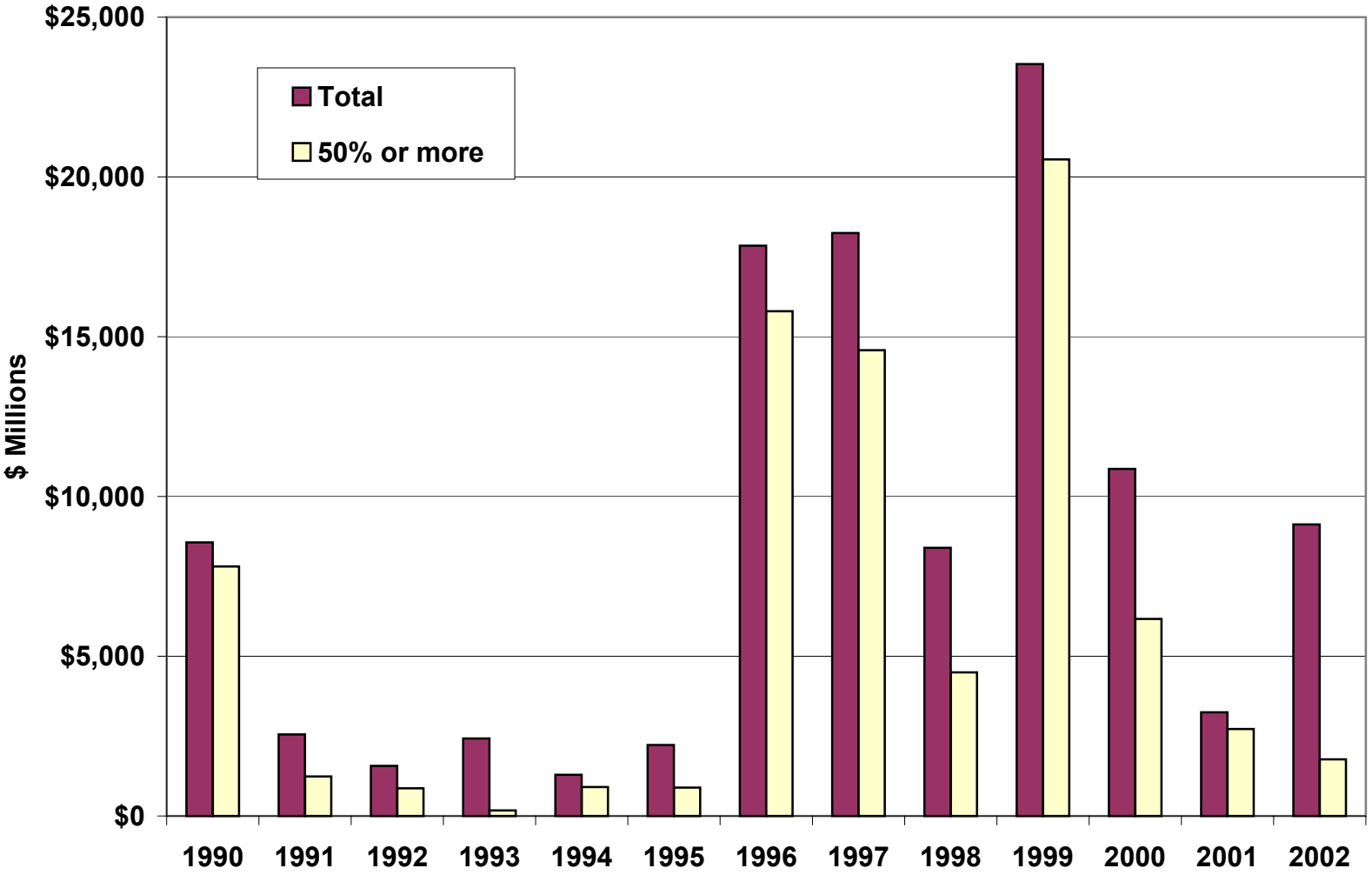

Figure 10: Value of M&A Deals By Year -- Targets In Datastream Sample

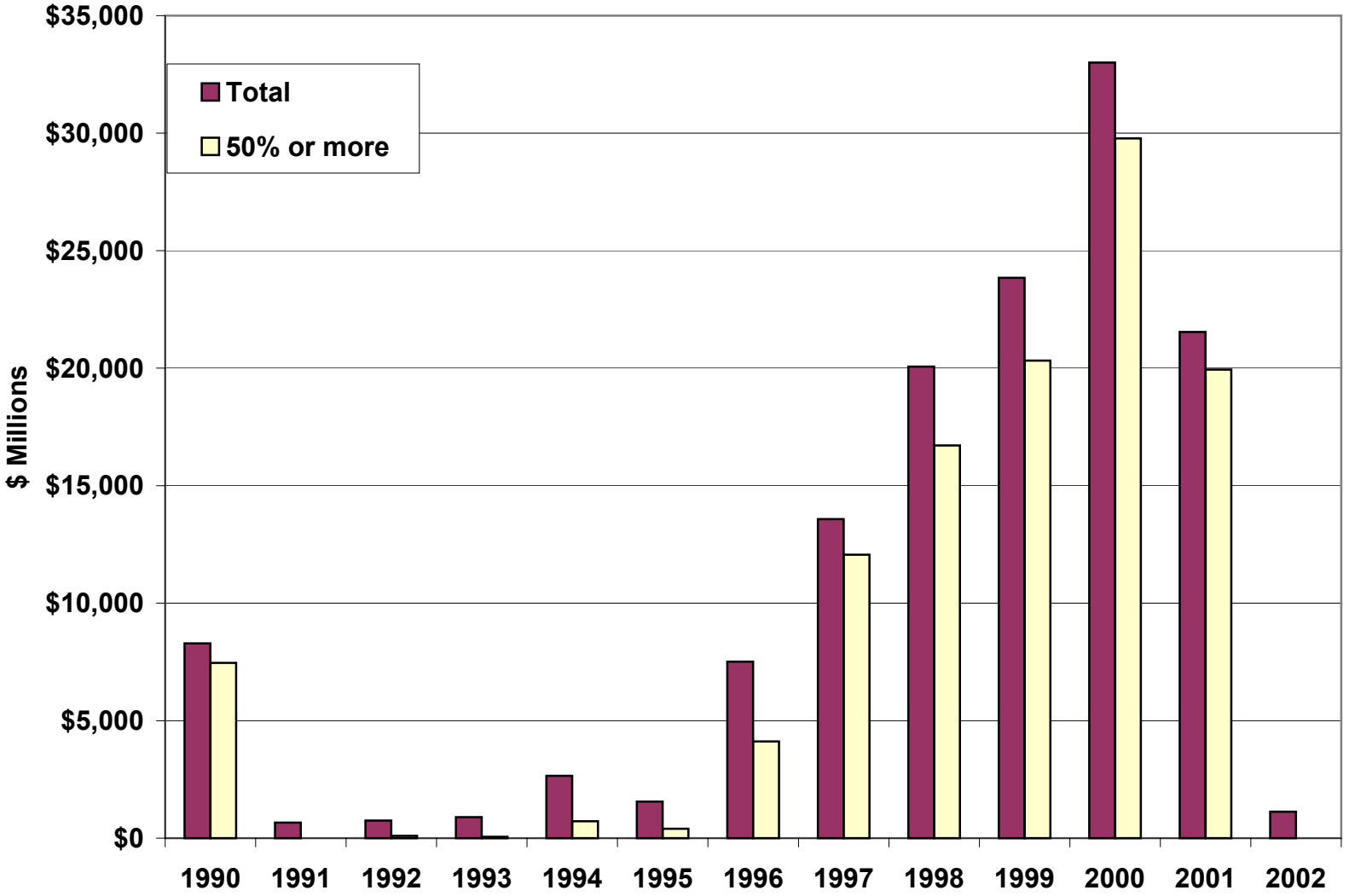

Table 1: Number of Deals By Country -- Insurance Acquirer or Target
Deals Involving A Change In Control

	Acquirer Country														
Target Country	Bel	Den	Fin	France	Ger	Italy	NL	Nor	Other	Port	Spain	Swe	Switz	UK	Total
Belgium	34			8	1		11		4		1	3	4	1	67
Denmark		33			3		2					1		1	40
Finland			25						1			1		1	28
France	3			104	8	5	2		11				3	9	145
Germany	1			3	99	2	4		6				7	4	126
Italy					5	78	3		8	1		1	7	8	111
Netherlands	10	3		5	3		76		3	1			3	1	105
Norway		1						19	2				1	1	24
Other	6	6	6	19	36	6	23	1	21		15	2	17	56	214
Portugal				4					5	16	1	1	1	1	29
Spain	1			10	3	4	5		7	1	63	2	7	11	114
Sweden		3	1		2		1		2			29	2	1	41
Switzerland				1	4	6			4				23	1	39
UK		1		5	3		9	1	97			3	9	458	586
Total	55	47	32	159	167	101	136	21	171	19	80	43	84	554	1669

Table 2: Value of Deals By Country -- Insurance Acquirer or Target
Deals Involving A Change In Control

	Acquirer Country														
Target Country	Bel	Den	Fin	France	Ger	Italy	NL	Nor	Other	Port	Spain	Swe	Switz	UK	Total
Belgium	15,438			3,691			9,748		74			40	175	8	29,175
Denmark		5,560			35		117								5,712
Finland			2,847									793			3,640
France	125			26,968	5,536	1,123			4,212				1,284	2,140	41,389
Germany					33,792	5,483	2,338		718				1,158	407	43,895
Italy					1,201	17,364	30		3,157	26		44	397	112	22,331
Netherlands	14,810	20		4,613			19,636		486				284		39,849
Norway								2,208	88				85		2,381
Other	68	80	212	5,800	893	69	5,572				488	0	415	3,443	17,040
Portugal				1					431	3,132	1,556	3			5,123
Spain	34			695	133	1	787		276		1,158	81	462	1,042	4,671
Sweden		1,242			137		262					5,064	3		6,708
Switzerland				236		2,517			560				11,072		14,385
UK				3,277	108		1,189	4	11,943			869	40,355	83,463	141,208
Total	30,476	6,902	3,059	45,281	41,836	26,557	39,681	2,212	21,945	3,158	3,202	6,895	55,690	90,615	377,508

Table 3: Deals By Industry -- Insurance Acquirer or Target
Deals Involving A Change In Control

Section A: Number of Deals

Acquirer Industry

Target Industry	Comm Bank	Oth Fin	Life Ins	P&L Ins	Oth Ins	Ins Agen	Oth Ind	Unkn	Total
Commercial Bank			65	1					66
Other Financial			68	10					78
Life Insurance	73	87	550	33	29	92	83	7	954
P&L Insurance	2	8	28	12	3	17	10		80
Other Insurance			83	6		1			90
Ins Agency			116	18					134
Other Industries			253	13					266
Unknown			1						1
Total	75	95	1164	93	32	110	93	7	1669

Section B: Value of Deals ($ Millions)

Target Industry	Comm Bank	Oth Fin	Life Ins	P&L Ins	Oth Ins	Ins Agen	Oth Ind	Unkn	Total
Commercial Bank			59,594						59,594
Other Financial			4,418	251					4,669
Life Insurance	39,375	23,403	174,450	4,059	2,632	1,936	5,822	1	251,678
P&L Insurance	867	489	2,169	481	187	141	156		4,490
Other Insurance			4,850	1,035					5,885
Ins Agency			22,617	1,050					23,667
Other Industries			25,459	2,065					27,524
Unknown									0
Total	40,242	23,892	293,557	8,941	2,819	2,077	5,978	1	377,507

Note: Industries are categorized according to North American Industrial Classification System (NAICS) codes. Commercial bank = 522110, Other financial = investment banking and securities dealers (523110) + portfolio management (523920) + investment advice (523930) + miscellaneous financial investment (523999) + open end investment funds (525910), life insurance = life direct (524113), P&L insurance = P&C direct (524126), other insurance = other direct insurance (524128), other insurance = other direct (524128) + other insurance funds (525190), other industries = any categories not included elsewhere.

Table 4: Cumulative Average Abnormal Returns Across Event Windows
All Transactions
Market Model, Equally Weighted Index

Acquirers: All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z
(-1,+1)	499	-0.14%	-0.05%	226:263	-0.662	-0.545	-0.568
(-2,+2)	499	-0.35%	-0.20%	222:267	-1.775*	-1.465$	-0.927
(-5,+5)	499	-0.35%	-0.13%	228:261	-0.973	-0.897	-0.388
(-10,+10)	499	-0.29%	-0.06%	231:258	-0.632	-0.587	-0.119
(-15,+15)	499	-0.38%	-0.19%	229:260	-1.279	-1.074	-0.299
(-1,0)	499	0.02%	0.12%	242:247	1.268	0.989	0.868
(-2,0)	499	-0.05%	0.06%	236:253	0.374	0.296	0.33
(-5,0)	499	-0.06%	0.05%	242:247	0.016	0.015	0.868
(-10,0)	499	-0.05%	0.08%	245:244	0	0	1.137
(-15,0)	499	-0.18%	-0.09%	233:256	-1.459$	-1.08	0.061
(0,+1)	499	-0.17%	-0.13%	219:270	-1.653*	-1.395$	-1.196
(0,+2)	499	-0.31%	-0.22%	220:269	-2.314*	-2.050*	-1.106
(0,+5)	499	-0.30%	-0.13%	234:255	-1.086	-1.022	0.15
(0,+10)	499	-0.25%	-0.09%	241:248	-0.66	-0.614	0.779
(0,+15)	499	-0.20%	-0.05%	232:257	-0.379	-0.318	-0.029

Targets: All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z
(-1,+1)	164	3.88%	3.75%	94:70	18.348***	4.149***	2.658**
(-2,+2)	164	4.09%	3.88%	92:72	14.573***	4.070***	2.345**
(-5,+5)	164	4.58%	4.05%	90:74	10.148***	3.700***	2.032*
(-10,+10)	164	6.87%	5.95%	97:67	10.343***	4.465***	3.128***
(-15,+15)	164	8.85%	7.37%	96:68	10.128***	4.771***	2.971**
(-1,0)	164	3.60%	3.53%	92:72	21.213***	4.053***	2.345**
(-2,0)	164	3.97%	3.82%	93:71	18.580***	4.307***	2.502**
(-5,0)	164	4.78%	4.28%	90:74	14.541***	4.362***	2.032*
(-10,0)	164	6.31%	5.40%	90:74	13.149***	4.994***	2.032*
(-15,0)	164	7.58%	6.43%	91:73	12.725***	5.380***	2.189*
(0,+1)	164	2.96%	3.24%	92:71	18.032***	3.775***	2.345**
(0,+2)	164	2.80%	3.08%	88:75	13.928***	3.439***	1.719*
(0,+5)	164	2.48%	2.79%	79:84	8.903***	2.905**	0.311
(0,+10)	164	3.24%	3.57%	86:77	8.417***	3.119***	1.406$
(0,+15)	164	3.94%	3.96%	86:77	7.518***	3.085**	1.406$

***Significant at 0.1% level, **Significant at 1% level, *Significant at 5% level, $Significant at 10% level.
Key: CAAR = cumulative average abnormal return, SCS Z = standardized cross-sectional Z score, Generalized sign Z = non-parametric test statistic.
Note: This table reports results for all transactions reported in the SDC Database for which corresponding Datastream stock returns data exist, regardless of the percentage of the target firm acquired in any given transaction. Results are for the entire sample period, 1990-2002.

Table 5: Cumulative Average Abnormal Returns Across Event Windows
All Target Domestic and Crossborder Transactions
Market Model, Equally Weighted Index

Target: Crossborder Transactions for All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z
(-1,+1)	56	2.97%	2.16%	30:26	5.398***	2.000*	0.916
(-2,+2)	56	2.86%	2.13%	28:28	4.120***	1.946*	0.381
(-5,+5)	56	3.95%	2.46%	29:27	3.167***	1.844*	0.649
(-10,+10)	56	4.56%	3.50%	33:23	3.184***	2.151*	1.719*
(-15,+15)	56	7.33%	5.26%	34:22	3.861***	2.455**	1.987*
(-1,0)	56	2.08%	1.68%	33:23	5.142***	1.639$	1.719*
(-2,0)	56	2.47%	2.00%	35:21	4.991***	1.927*	2.254*
(-5,0)	56	3.79%	2.84%	33:23	4.980***	2.486**	1.719*
(-10,0)	56	5.07%	4.34%	34:22	5.575***	3.089***	1.987*
(-15,0)	56	5.80%	4.79%	34:22	5.041***	3.283***	1.987*
(0,+1)	56	2.34%	1.77%	28:28	5.444***	1.761*	0.381
(0,+2)	56	1.84%	1.42%	27:29	3.561***	1.402$	0.114
(0,+5)	56	1.62%	0.91%	23:33	1.615$	0.797	-0.957
(0,+10)	56	0.94%	0.44%	23:33	0.564	0.342	-0.957
(0,+15)	56	2.99%	1.76%	22:34	1.855*	0.951	-1.225

Target: Domestic Transactions for All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z
(-1,+1)	108	4.35%	4.50%	64:44	18.722***	3.697***	2.616**
(-2,+2)	108	4.72%	4.71%	64:44	14.991***	3.641***	2.616**
(-5,+5)	108	4.91%	4.80%	61:47	10.225***	3.260***	2.037*
(-10,+10)	108	8.07%	7.12%	64:44	10.453***	3.970***	2.616**
(-15,+15)	108	9.63%	8.38%	62:46	9.701***	4.124***	2.230*
(-1,0)	108	4.38%	4.40%	59:49	22.438***	3.744***	1.651*
(-2,0)	108	4.74%	4.68%	58:50	19.302***	3.907***	1.459$
(-5,0)	108	5.30%	4.96%	57:51	14.333***	3.740***	1.266
(-10,0)	108	6.96%	5.90%	56:52	12.189***	4.103***	1.073
(-15,0)	108	8.51%	7.21%	57:51	12.051***	4.482***	1.266
(0,+1)	108	3.29%	3.94%	64:43	18.300***	3.370***	2.616**
(0,+2)	108	3.30%	3.87%	61:46	14.599***	3.157***	2.037*
(0,+5)	108	2.93%	3.68%	56:51	9.808***	2.830**	1.073
(0,+10)	108	4.43%	5.06%	63:44	9.966***	3.247***	2.423**
(0,+15)	108	4.44%	5.01%	64:43	7.928***	2.997**	2.616**

***Significant at 0.1% level, **Significant at 1% level, *Significant at 5% level, $Signif at 10% level.
Key: CAAR = cumulative average abnormal return, SCS Z = standardized cross-sectional Z score, Generalized sign Z = non-parametric test statistic.
Note: This table reports results for all transactions reported in the SDC Database for which corresponding Datastream stock returns data exist, regardless of the percentage of the target firm acquired in any given transaction. Results are for the entire sample period, 1990-2002.

Table 6: Cumulative Average Abnormal Returns Across Event Windows
All Acquirer Domestic and Crossborder Transactions
Market Model, Equally Weighted Index

Acquirers: Crossborder Transactions for All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generaliz Sign Z	t-test*
(-1,+1)	291	0.07%	0.10%	140:143	0.681	0.589	0.432	$
(-2,+2)	291	-0.13%	-0.07%	135:148	-0.526	-0.466	-0.156	
(-5,+5)	291	-0.19%	0.01%	139:144	-0.133	-0.128	0.314	
(-10,+10)	291	-0.16%	-0.03%	139:144	-0.238	-0.238	0.314	
(-15,+15)	291	-0.27%	-0.21%	137:146	-0.623	-0.59	0.079	
(-1,0)	291	0.18%	0.22%	150:133	1.996*	1.618$	1.606$	
(-2,0)	291	0.06%	0.09%	140:143	0.561	0.477	0.432	
(-5,0)	291	0.15%	0.18%	143:140	0.74	0.726	0.784	
(-10,0)	291	0.04%	0.03%	148:135	-0.134	-0.127	1.371$	
(-15,0)	291	-0.09%	-0.16%	139:144	-0.732	-0.71	0.314	
(0,+1)	291	-0.01%	0.01%	135:148	0.004	0.004	-0.156	$
(0,+2)	291	-0.08%	-0.03%	131:152	-0.288	-0.283	-0.626	$
(0,+5)	291	-0.24%	-0.04%	141:142	-0.25	-0.24	0.549	
(0,+10)	291	-0.10%	0.07%	149:134	0.304	0.297	1.489$	
(0,+15)	291	-0.07%	0.07%	142:141	0.248	0.22	0.667	

Acquirers: Domestic Transactions for All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z
(-1,+1)	208	-0.44%	-0.27%	86:120	-1.830*	-1.421$	-1.391$
(-2,+2)	208	-0.66%	-0.40%	87:119	-2.128*	-1.613$	-1.252
(-5,+5)	208	-0.57%	-0.32%	89:117	-1.349$	-1.179	-0.974
(-10,+10)	208	-0.46%	-0.10%	92:114	-0.698	-0.592	-0.557
(-15,+15)	208	-0.52%	-0.16%	92:114	-1.244	-0.915	-0.557
(-1,0)	208	-0.21%	-0.03%	92:114	-0.397	-0.295	-0.557
(-2,0)	208	-0.20%	0.01%	96:110	-0.085	-0.062	-0.001
(-5,0)	208	-0.35%	-0.13%	99:107	-0.851	-0.709	0.417
(-10,0)	208	-0.17%	0.15%	97:109	0.158	0.126	0.139
(-15,0)	208	-0.30%	0.00%	94:112	-1.393$	-0.819	-0.279
(0,+1)	208	-0.40%	-0.32%	84:122	-2.564**	-1.926*	-1.670*
(0,+2)	208	-0.63%	-0.49%	89:117	-3.243***	-2.571**	-0.974
(0,+5)	208	-0.38%	-0.27%	93:113	-1.387$	-1.273	-0.418
(0,+10)	208	-0.46%	-0.33%	92:114	-1.381$	-1.206	-0.557
(0,+15)	208	-0.39%	-0.24%	90:116	-0.88	-0.69	-0.835

***Significant at 0.1% level, **Significant at 1% level, *Significant at 5% level, $Significant at 10% level.
Key: CAAR = cumulative average abnormal return, SCS Z = standardized cross-sectional Z score, Generalized sign Z = non-parametric test statistic.
Note: This table reports results for all transactions reported in the SDC Database for which corresponding Datastream stock returns data exist, regardless of the percentage of the target firm acquired in any given transaction. Results are for the entire sample period, 1990-2002.
*t-test is for the difference between domestic and cross-border mean CAARs.

Table 7: Cumulative Average Abnormal Returns Across Event Windows
Transactions Resulting In a Change In Control
Market Model, Equally Weighted Index

Acquirers: All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z	t-test*
(-1,+1)	236	-0.32%	-0.21%	103:128	-1.523$	-1.221	-0.711	***
(-2,+2)	236	-0.80%	-0.58%	92:139	-3.040**	-2.501**	-2.147*	***
(-5,+5)	236	-0.78%	-0.49%	101:130	-1.968*	-1.792*	-0.972	***
(-10,+10)	236	-0.79%	-0.21%	111:120	-0.917	-0.836	0.334	***
(-15,+15)	236	-1.02%	-0.39%	106:125	-1.550$	-1.209	-0.319	***
(-1,0)	236	-0.15%	-0.03%	105:126	-0.436	-0.351	-0.449	***
(-2,0)	236	-0.30%	-0.18%	105:126	-1.349$	-1.114	-0.449	***
(-5,0)	236	-0.08%	-0.06%	106:125	-0.658	-0.621	-0.319	***
(-10,0)	236	-0.15%	0.06%	113:118	-0.187	-0.172	0.596	***
(-15,0)	236	-0.62%	-0.35%	103:128	-2.261*	-1.449$	-0.711	***
(0,+1)	236	-0.29%	-0.24%	96:135	-2.009*	-1.650*	-1.625$	***
(0,+2)	236	-0.61%	-0.46%	95:136	-3.059**	-2.654**	-1.756*	***
(0,+5)	236	-0.81%	-0.49%	97:134	-2.368**	-2.135*	-1.494$	***
(0,+10)	236	-0.76%	-0.33%	111:120	-1.324$	-1.128	0.334	***
(0,+15)	236	-0.52%	-0.10%	108:123	-0.403	-0.324	-0.057	***

Targets: All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z
(-1,+1)	52	9.43%	10.20%	36:15	26.602***	4.074***	3.430***
(-2,+2)	52	10.22%	10.74%	32:19	21.616***	4.202***	2.307*
(-5,+5)	52	12.91%	12.69%	36:15	17.020***	4.616***	3.430***
(-10,+10)	52	14.78%	14.66%	39:12	13.950***	4.865***	4.272***
(-15,+15)	52	16.58%	15.79%	40:11	12.138***	4.743***	4.553***
(-1,0)	52	8.77%	9.66%	33:18	30.893***	3.905***	2.588**
(-2,0)	52	9.54%	10.15%	38:13	26.456***	4.075***	3.992***
(-5,0)	52	11.94%	11.89%	38:13	21.795***	4.477***	3.992***
(-10,0)	52	13.75%	13.69%	39:12	18.351***	4.926***	4.272***
(-15,0)	52	15.44%	14.99%	38:13	16.493***	4.995***	3.992***
(0,+1)	52	7.49%	8.65%	31:20	27.664***	3.701***	2.027*
(0,+2)	52	7.50%	8.70%	32:19	22.656***	3.660***	2.307*
(0,+5)	52	7.79%	8.91%	31:20	16.327***	3.644***	2.027*
(0,+10)	52	7.85%	9.08%	34:17	12.170***	3.497***	2.869**
(0,+15)	52	7.96%	8.90%	34:17	9.799***	3.314***	2.869**

***Significant at 0.1% level, **Significant at 1% level, *Significant at 5% level, $Significant at 10% level.
Key: CAAR = cumulative average abnormal return, SCS Z = standardized cross-sectional Z score, Generalized sign Z = non-parametric test statistic.
Note: This table reports results for all transactions reported in the SDC Database for which corresponding Datastream stock returns data exist, where the acquisition resulted in a change in control. Change in control is defined as a transaction which raised the acquirer's stake in the target from less than 50% to 50% or greater. Results are for the entire sample period 1990-2002.
*t-test is for difference between acquirer and target mean CAAR

Table 8: Cumulative Average Abnormal Returns Across Event Windows
Transactions Resulting In a Change In Control
Market Model, Equally Weighted Index

Targets: Crossborder Transactions All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z	t-test*
(-1,+1)	20	5.35%	3.71%	11:09	5.533***	1.383$	0.587	$
(-2,+2)	20	5.46%	3.73%	10:10	4.305***	1.371$	0.14	
(-5,+5)	20	8.39%	5.34%	12:08	4.092***	1.798*	1.035	
(-10,+10)	20	10.84%	7.58%	15:05	4.126***	2.225*	2.377**	
(-15,+15)	20	12.33%	8.54%	16:04	3.739***	2.343**	2.824**	
(-1,0)	20	4.67%	3.73%	11:09	6.793***	1.421$	0.587	
(-2,0)	20	4.90%	3.85%	14:06	5.704***	1.450$	1.929*	$
(-5,0)	20	8.04%	5.67%	13:07	5.913***	1.953*	1.482$	
(-10,0)	20	11.72%	8.96%	16:04	6.855***	2.719**	2.824**	
(-15,0)	20	12.82%	9.95%	16:04	6.235***	2.937**	2.824**	
(0,+1)	20	4.10%	2.93%	9:11	5.378***	1.14	-0.308	
(0,+2)	20	3.97%	2.83%	10:10	4.229***	1.098	0.14	
(0,+5)	20	3.76%	2.62%	8:12	2.747**	0.968	-0.755	$
(0,+10)	20	2.53%	1.58%	9:11	1.201	0.555	-0.308	**
(0,+15)	20	2.92%	1.53%	8:12	0.964	0.53	-0.755	$

Targets: Domestic Transactions All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z
(-1,+1)	32	11.88%	13.70%	26:6	29.404***	4.041***	4.101***
(-2,+2)	32	13.15%	14.56%	23:9	24.101***	4.233***	3.035**
(-5,+5)	32	15.72%	16.72%	25:7	18.457***	4.528***	3.745***
(-10,+10)	32	17.09%	18.48%	25:7	14.466***	4.542***	3.745***
(-15,+15)	32	18.96%	19.65%	25:7	12.442***	4.315***	3.745***
(-1,0)	32	11.04%	12.77%	22:10	33.607***	3.762***	2.680**
(-2,0)	32	12.22%	13.50%	25:7	28.967***	3.980***	3.745***
(-5,0)	32	14.25%	15.25%	26:6	23.015***	4.220***	4.101***
(-10,0)	32	14.88%	16.22%	24:8	17.901***	4.276***	3.390***
(-15,0)	32	16.86%	17.66%	23:9	16.007***	4.264***	3.035**
(0,+1)	32	9.58%	11.76%	23:9	30.931***	3.713***	3.035**
(0,+2)	32	9.67%	11.89%	23:9	25.456***	3.682***	3.035**
(0,+5)	32	10.21%	12.30%	24:8	18.544***	3.730***	3.390***
(0,+10)	32	10.95%	13.08%	26:6	14.426***	3.764***	4.101***
(0,+15)	32	10.84%	12.81%	26:6	11.599***	3.531***	4.101***

***Significant at 0.1% level, **Significant at 1% level, *Significant at 5% level, $Significant at 10% level.
Key: CAAR = cumulative average abnormal return, SCS Z = standardized cross-sectional Z score, Generalized sign Z = non-parametric test statistic.
Note: This table reports results for all transactions reported in the SDC Database for which corresponding Datastream stock returns data exist, where the acquisition resulted in a change in control. Change in control is defined as a transaction which raised the acquirer's stake in the target from less than 50% to 50% or greater. Results are for the entire sample period 1990-2002.
*t-test is for difference between cross-border and domestic mean CAAR.

Table 9: Cumulative Average Abnormal Returns Across Event Windows
Transactions Resulting In a Change In Control
Market Model, Equally Weighted Index

Acquirors: Crossborder Transactions All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z	t-test*
(-1,+1)	123	0.25%	0.16%	59:60	0.61	0.487	0.349	**
(-2,+2)	123	0.03%	-0.04%	55:64	-0.217	-0.174	-0.375	***
(-5,+5)	123	0.04%	0.14%	59:60	0.137	0.124	0.349	**
(-10,+10)	123	0.41%	0.59%	64:55	0.721	0.696	1.253	**
(-15,+15)	123	0.04%	0.33%	60:59	0.251	0.225	0.53	
(-1,0)	123	0.45%	0.33%	59:60	1.754*	1.355$	0.349	***
(-2,0)	123	0.41%	0.22%	58:61	0.902	0.761	0.168	***
(-5,0)	123	0.83%	0.55%	59:60	1.560$	1.586$	0.349	***
(-10,0)	123	0.93%	0.60%	67:52	1.128	1.104	1.795*	**
(-15,0)	123	0.45%	0.24%	58:61	0.252	0.234	0.168	**
(0,+1)	123	0.08%	0.02%	52:67	0.044	0.041	-0.917	**
(0,+2)	123	-0.09%	-0.07%	51:68	-0.332	-0.311	-1.098	***
(0,+5)	123	-0.51%	-0.21%	53:66	-0.774	-0.684	-0.736	
(0,+10)	123	-0.24%	0.19%	61:58	0.331	0.291	0.71	
(0,+15)	123	-0.13%	0.29%	58:61	0.479	0.409	0.168	

Acquirors: Domestic Transactions All Years 1990-2002

Days	N	Mean CAAR	Precision Weighted CAAR	Positive: Negative	Patel Z	SCS Z	Generalized Sign Z
(-1,+1)	113	-0.94%	-0.59%	44:68	-2.837**	-2.315*	-1.393$
(-2,+2)	113	-1.70%	-1.14%	37:75	-4.167***	-3.619***	-2.715**
(-5,+5)	113	-1.68%	-1.16%	42:70	-2.986**	-2.781**	-1.771*
(-10,+10)	113	-2.10%	-1.05%	47:65	-2.078*	-1.808*	-0.826
(-15,+15)	113	-2.16%	-1.15%	46:66	-2.502**	-1.745*	-1.015
(-1,0)	113	-0.79%	-0.41%	46:66	-2.460**	-2.128*	-1.015
(-2,0)	113	-1.07%	-0.60%	47:65	-2.891**	-2.376**	-0.826
(-5,0)	113	-1.08%	-0.72%	47:65	-2.578**	-2.333**	-0.826
(-10,0)	113	-1.33%	-0.50%	46:66	-1.447$	-1.265	-1.015
(-15,0)	113	-1.77%	-0.98%	45:67	-3.530***	-1.816*	-1.204
(0,+1)	113	-0.70%	-0.51%	44:68	-2.950**	-2.219*	-1.393$
(0,+2)	113	-1.18%	-0.87%	44:68	-4.074***	-3.352***	-1.393$
(0,+5)	113	-1.14%	-0.78%	44:68	-2.615**	-2.419**	-1.393$
(0,+10)	113	-1.33%	-0.89%	50:62	-2.258*	-1.874*	-0.259
(0,+15)	113	-0.94%	-0.51%	50:62	-1.082	-0.822	-0.259

***Significant at 0.1% level, **Significant at 1% level, *Significant at 5% level, $Significant at 10% level.
Key: CAAR = cumulative average abnormal return, SCS Z = standardized cross-sectional Z score, Generalized sign Z = non-parametric test statistic.
Note: This table reports results for all transactions reported in the SDC Database for which corresponding Datastream stock returns data exist, where the acquisition resulted in a change in control. Change in control is defined as a transaction which raised the acquirer's stake in the target from less than 50% to 50% or greater. Results are for the entire sample period 1990-2002.
*t-test is for difference between domestic and cross-border transactions mean CAARs.

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