

**Bringing Down the Other Berlin Wall:
Germany's Repeal of the Corporate Capital Gains Tax**

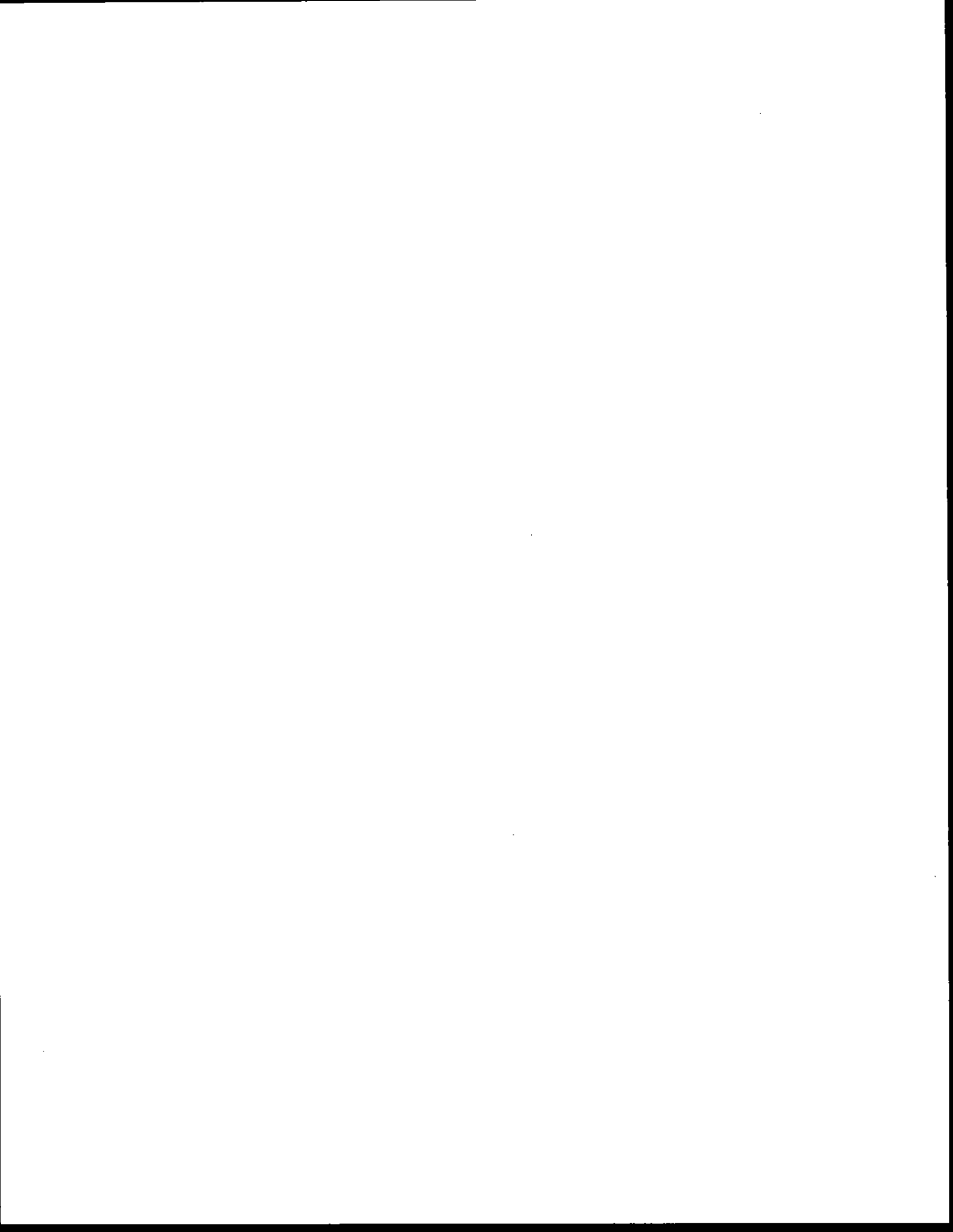
Mark H. Lang
University of North Carolina

Edward L. Maydew
University of North Carolina

Douglas A. Shackelford
University of North Carolina and NBER

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Bringing Down the Other Berlin Wall: Germany's Repeal of the Corporate Capital Gains Tax

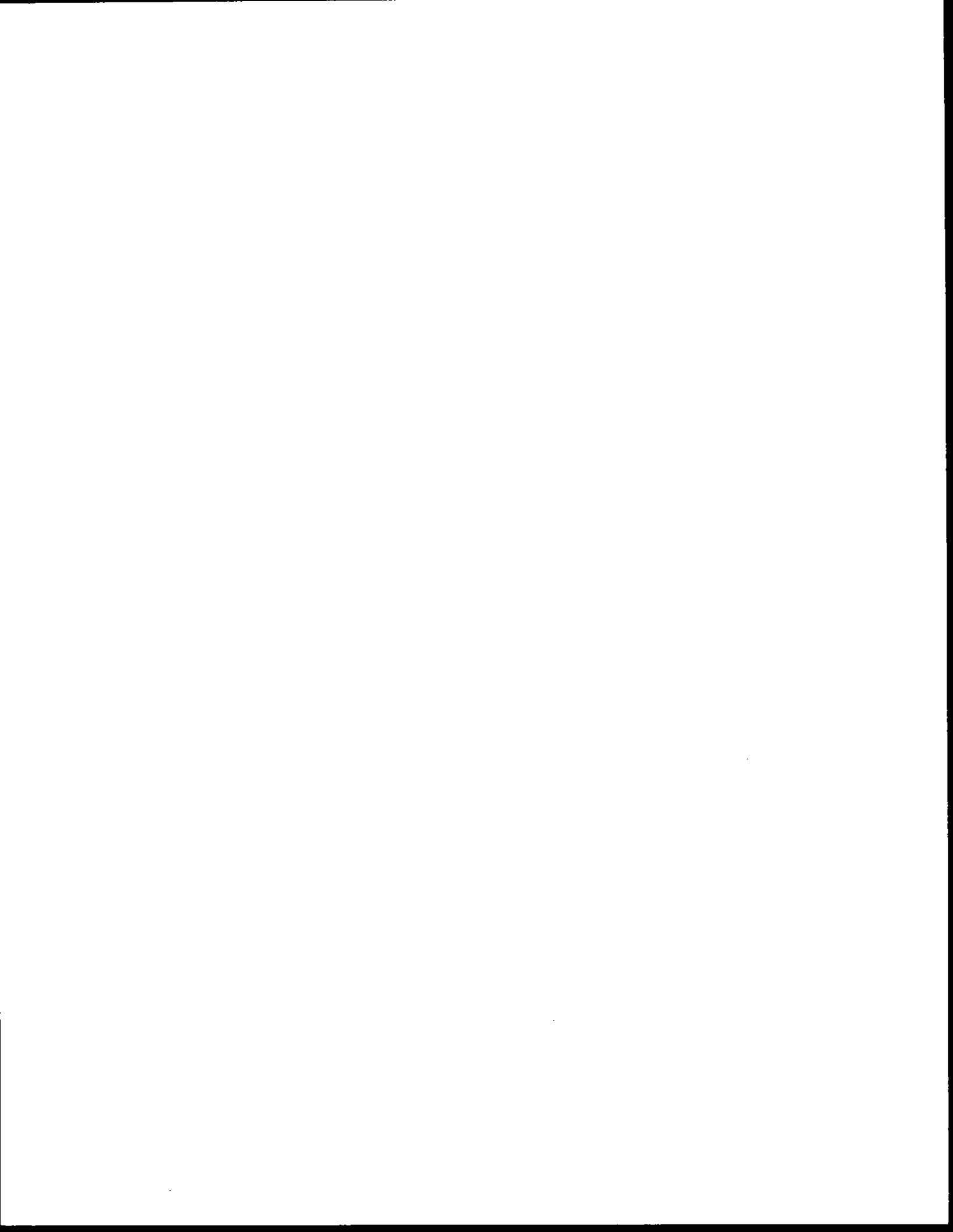
1. Introduction

The freedom to buy, sell, refocus and reallocate assets in response to changing economic forces is potentially one of the most critical features of competitive market economies. Yet, in much of the world, equity investments by corporations (crossholdings) exist that shield firms and limit their incentives and ability to respond efficiently to changes in a competitive environment. In Germany's case, substantial crossholdings persist from decisions made following World War II to enhance liquidity and encourage cooperation.¹ These stockholdings are allegedly locked in by prohibitive capital gains tax rates that encourage continued ownership long after the underlying rationale had ceased to be relevant.

Faced with pressure from increased global competition and consolidation of industries, Germany's government made a surprise announcement in December 1999 that it would repeal the longstanding capital gains tax on sales of corporate crossholdings. The repeal was hailed as a revolutionary step toward breaking up Germany's complex web of cross-ownership. When the changes become effective in 2002, Germany will move from having one of the most punitive taxes on corporate capital gains to having the smallest among major industrial countries.

This paper uses Germany as a natural experiment to provide evidence on the extent to which taxes present a barrier to the efficient acquisition and divestiture of divisions and stakes in other firms. In particular, we examine the stock market response by German firms to the announcement that capital gains taxes on intercompany holdings would be eliminated. We find a

¹ Steinborn (2001) estimates that crossholdings comprise 13 percent of the market capitalization of Germany's Xetra DAX index.



positive association between a firm's abnormal stock returns and its crossholdings, consistent with taxes acting as a barrier to efficient allocation of ownership and investment. However, the reaction is limited to the six largest banks and insurers and their extensive minority holdings in industrial firms. We also find evidence of a positive stock price response to the announcement for companies *held by* these financial firms, consistent with firm value being affected by investor-level tax burdens.

Our research makes at least three contributions to the tax literature. First, as noted above, it calibrates the extent to which taxes restrict efficient ownership structures. The motivation for the change in corporate capital gains taxes was to allow firms to undo inefficient stockholdings. The results suggest that corporate capital gains taxes were a significant deterrent to undoing some crossholdings, and that the market anticipates the tax reduction will trigger a wave of divestitures for large financial firms. This contradicts theory that perfect substitutability among financial assets should preclude capital gains taxes from affecting asset prices (e.g., Constantinides, 1983, 1984, Stiglitz, 1983). However, the fact that the reaction was limited to the largest banks and insurers suggests either that holdings in other industries are less inefficient or that there are other barriers to divestiture. In any case, the limited nature of the empirical findings may it difficult to argue that eliminating corporate capital gains taxes will fundamentally enhance value throughout the German economy.²

Second, this study extends the research linking equity prices to shareholder taxes (see review in Shackelford and Shevlin, 2001). In contrast to prior studies (Erickson and Wang, 2000, as a notable exception), the research setting in this study enables us to observe the welfare

² For example, Lascelles (2000), argues "Europe's locomotive – Germany – is finally on the move. ... [T]ax was the bottleneck blocking the way to a flood of changes in Europe's largest economy. Chancellor Gerhard Schroeder's success in hammering together a deal with Berlin's eternally bickering political parties will probably rank as his single greatest achievement."



implications of the capital gain tax law change for *both* shareholders and the companies that they own. Repeal potentially affected German firms in two ways—as a corporate investor in other German companies and as a company with German corporate shareholders. In contrast, most recent studies evaluating the capitalization of individual capital gains tax are limited to observing only investee corporations because the wealth of individual shareholders is unobservable (e.g., Guenther and Willenborg, 1999, Collins and Kemsley, 2000, Lang and Shackelford, 2000, and Poterba and Weisbenner, 2001). Studies of merger and acquisitions (e.g., Erickson, 1998) can observe multiple corporate parties, but the corporations in those studies play only one role in any given transaction, either as target or acquirer. In this paper, share prices of every corporation are potentially impacted in two ways (as investors and investees) by repeal of the corporate capital gains tax and the research design permits us to distinguish between these two effects.

Third, this research setting enables us to observe the effects of the erosion of capital taxation in an open economy. Researchers have long been puzzled how capital gains taxation could persist in the face of capital mobility (Gordon, 1992; Razin and Sadka, 1991). As Gordon and MacKie-Mason (1995) explain:

“if capital is mobile and the country is a price-taker in the world capital market, then capital cannot bear the incidence of the tax. Firms would continue to locate in the country only if other factor prices (primarily for land and labor) drop by enough to compensate firms for the higher amount they have to generate pretax so as to be able to provide capital-owners the going rate of return after tax. But if these other factors bear the tax anyway, then it would be better to tax them directly, thereby eliminating a distortion that discourages capital investment in the country.”

As international capital mobility increases, it becomes particularly challenging to devise tax systems that collect revenue without creating competitive disadvantages for its domestic companies. In the case of Germany, leaders felt that the corporate capital gains tax was hindering German corporations from divesting themselves of businesses in which they were no longer the



efficient owner. By inhibiting divestiture and restructuring activity, the German corporate capital gains taxes also purportedly inhibited German firms in the market for corporate control.

Recent events suggest that Germany's decision to eliminate corporate level capital gains taxation may trigger a domino effect in which other industrial countries follow suit. Japan and France are considering similar tax legislation to expedite the dismantling of their inefficient crossholding networks.³ In the U.S., debate continues about the appropriateness and levels of capital gains taxes and transfer taxes (i.e., estate and gift taxes) and the potential inefficiencies they create, such as the "lock-in" effect (Landsman and Shackelford, 1995, Burman, 1999). Innovative securities and transactions (known as DECS and PEPS, among others) have enabled some U.S. corporations to divest themselves of the economic ownership of crossholdings while deferring the divestiture of legal ownership and thus capital gains taxes for years (Sheppard, 1996).⁴ As other countries consider similar steps to increase competitiveness, our results provide some insight into the likely effects. Our stock price analysis provides a rough estimate of the likely magnitude and pervasiveness of efficiency gains permitted by relaxing tax rules because, as developed in the next section, the increase in market capitalization around the announcement reflects the market's assessment of an increase in asset value from being able to apply assets to their most efficient use.

Finally, this paper extends the growing literature on diversification discounts. A number of studies find that diversified firms trade at a discount relative to a portfolio of comparable stand-alone firms (e.g., Lang and Stultz, 1994; Berger and Ofek, 1995; Servaes, 1996; Lins and

³ On August 27, 2000, France's socialist finance minister, Laurent Fabius, announced tax reforms, which the Associated Press described as "widely seen as a response to a \$40 billion, five-year tax cut plan adopted by the German government last month" <http://www.infobeat.com/stories/cgi/story.cgi?id=2569360931-d8c>. For Japan's response, see, for example, "Goldman Sachs Advises Japan, Copy Germany," Corporate Governance, March 2000, <http://www.corpgov.net/news/archives/archived003.html>.

⁴ Tax attorneys tell us that such avoidance plans are ineffective under German law.



Servaes, 1999; Rajan, Servaes, and Zingales, 2000).⁵ Our research suggests that these diversification discounts may persist because taxes “lock in” ownership after its economic rationale has passed.⁶ (Note that if an asset has the same value, irrespective of its holder, taxes cannot introduce inefficiencies in the ownership structure, i.e., prevent transfers to other parties.)

Furthermore, by examining the effect of an exogenously imposed tax rate change, this study avoids the endogeneity issues that have confounded prior studies of diversification discounts.⁷ If a firm with diversified holdings trades at a discount for non-diversification reasons, its share price should be unaffected by the repeal of the corporate capital gains tax. However, if its stock price responds positively to elimination of the capital gains tax, it would appear to reflect the market’s undoing of a prior discount because the company will now be able to dispose of the asset to its most efficient use.

The findings are consistent with a penalty attaching to cross-industry diversification but limited to non-controlling interests in industrial firms held by the largest banks and insurers. The fact that the stock market responds positively to repeal of the capital gains tax for those firms suggests that investors expect tax exemption to increase the likelihood that they will sell their

⁵ The context in this paper is somewhat different from that in the typical diversification discount paper because the ownership interests here are often minority interests, while those papers typically consider multidivisional firms. However, the underlying question is the same (to what extent are assets discounted in valuation because they are not held by the most efficient owner?) and the underlying reasons for the discount may be the same (e.g., holdings outside of a firm’s core competencies).

⁶ This explanation is particularly intriguing because authors like Hubbard and Palia (1999) have documented that the diversification discount did not seem to be an issue in the conglomerate merger wave in the 1960s, apparently because of differences in economic environment at that time. An unresolved issue, however, is why diversification has persisted as the competitive environment has shifted. Our research suggests that at least a partial explanation may lie in the tax consequences of divesting those investments.

⁷ While most authors agree that more diversified firms trade at a discount relative to nondiversified firms, it is less clear whether that effect results from diversification itself or from the fact that firms that choose to diversify are inherently different from those that choose not to diversify. For example, firms with poor investment prospects in their core businesses may diversify more than other companies. By ignoring this self-selection bias, researchers can overstate the effect of the decision to diversify (i.e., those firms might have traded at a discount even if they had not diversified). See, for example, Chevalier (2000), Graham, Lemmon and Wolf (2000), Lamont and Polk (2000), and Villalonga (2000) for a discussion of this point. Similar endogeneity issues exist in the literature investigating divestiture method choice, e.g., Maydew, Schipper, and Vincent (1999).



crossholdings because the tax-exempt proceeds from the sale (i.e., the value to the purchasing party) will exceed the value in use to the current holder.⁸ Again, however, the result is limited to the extreme cases—large banks and insurers that hold non-financial stock for historical reasons.

The next section develops testable hypotheses. Then we discuss the economic and political context in which Germany repealed its corporate capital gains tax, followed by the research design, results and conclusions.

2. Hypothesis Development

To structure the discussion, consider the following. Let PV_H represent the present value of the after-tax cash flows if an investment is retained by its current corporate holder. Let PV_P represent the price the firm could sell the investment, i.e., the after-tax present value of its cash flows to the purchaser. Let B represent its basis, and t represent the corporate capital gains tax rate. Then, the firm will hold the investment as long as:

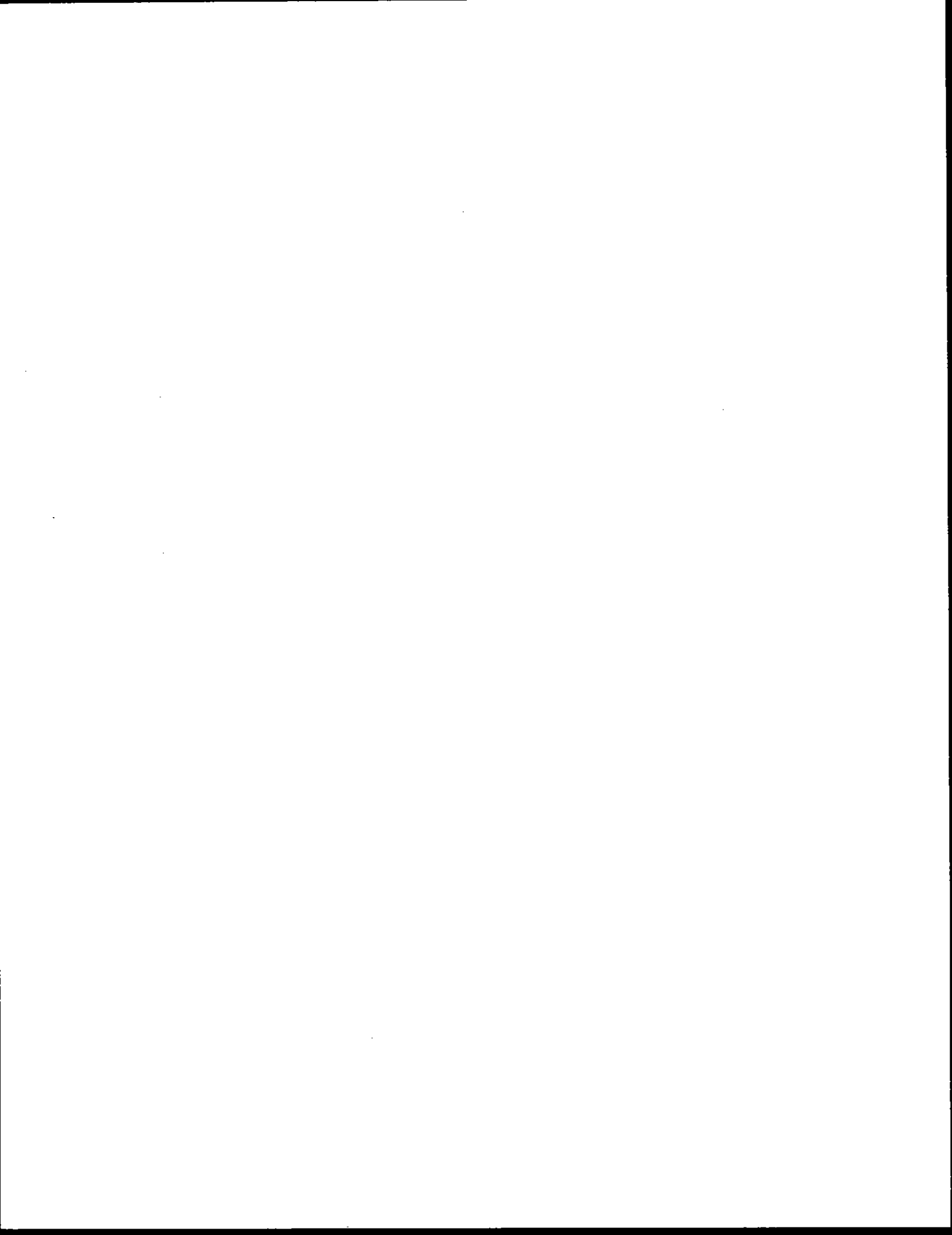
$$PV_H \geq PV_P (1 - t) + Bt \quad (1)$$

For convenience, assume that the holder's basis is essentially zero since it has held the investment for so long. Then, the firm will hold the investment as long as:

$$PV_H \geq PV_P (1-t) \quad (2)$$

Consequently, prior to the capital gains elimination, firms would have held otherwise-inefficient investments for which:

⁸ For example, suppose a firm's shares are worth 10 euros to its current corporate shareholder, but 12 euros to a prospective investor (the difference is the diversification discount). If the current shareholder has zero tax basis and faces a 50 percent corporate capital gains tax rate (as under old law), then the after-tax proceeds from selling would be 6 euros (half of 12). Thus, the corporate shareholder will continue to hold the stock. However, if the tax rate is reduced to zero (as under new law), the after-tax proceeds are 12 euros. Consequently, the shares will be sold, deploying resources more efficiently and enhancing the value of both the investor and investee corporations.



$$PV_H/PV_P \geq 1-t \quad (3)$$

Given that the capital gains tax rate was 50 percent, it is possible that a very significant wedge could have developed between PV_H and PV_P without a sale having taken place. While the capital gains tax does not create the discount ($PV_H - PV_P$), the transaction cost created by the presence of the tax “locks in” the ownership interest, permitting a discount that develops for other reasons to persist.⁹ One way to view the German government’s decision to eliminate the capital gains tax rate was to allow assets currently being underemployed by earning PV_H to be fully employed at PV_P thereby eliminating the deadweight cost to the economy of $PV_H - PV_P$.

In terms of the stock price response to our sample firms, to the extent the capital gains taxes were binding prior to the announcement and were expected to remain in place, our sample firms would have traded based on an asset value of PV_P , or at a “diversification discount” of $PV_P - PV_H$ relative to firms that were efficiently holding similar assets. If the investment is inefficient and the capital gains tax is the factor impeding a sale, then the repeal of the capital gains tax should eliminate the discount because investors anticipate sale of the investment, and the market value of sample firms for which $PV_H < PV_P$ should increase by $PV_P - PV_H$. However, if the investment is efficiently employed, there would have been no stock market response because $PV_H \geq PV_P$.

⁹ In the German case, for example, financial firms often took equity ownership interests in lieu of debt payments following World War II because firms did not have the liquidity to make debt payments. At the time of the investments, they were efficient in the sense that they served a business purpose. Once the economy had recovered and the equity stakes had increased in value, however, banks and insurance companies probably would have divested their ownership stakes to free up capital and permit ownership by entities with a strategic reason for ownership, absent the tax consequences. However, in the presence of taxes, firms retained otherwise-inefficient ownership and shares traded at a discount, compared with the price in the absence of taxes. The discount was not created by the tax, but the natural forces that would have led to divestiture of the investment were blocked by the distortionary effects of the tax.

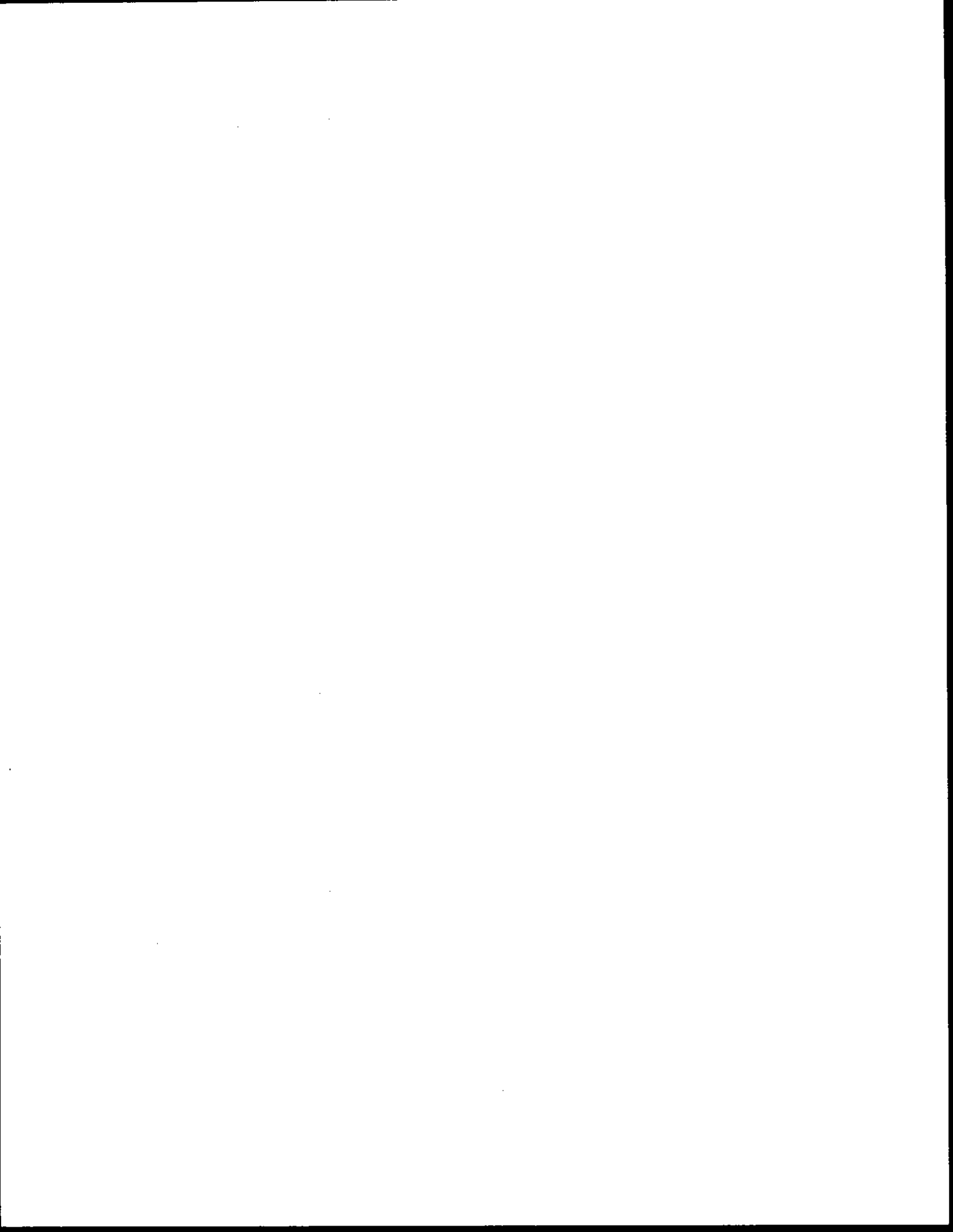


Whether $PV_H < PV_P$ is an empirical question and is not directly answerable because PV_H and PV_P are generally not observable.¹⁰ The German government apparently believed $PV_H < PV_P$ for many firms. Their stated purpose for repealing the corporate capital gains tax was to allow assets to be employed in their most efficient use, thus eliminating the deadweight cost ($PV_P - PV_H$). If the deadweight cost was pervasive, stock prices for firms with substantial crossholdings should have responded positively to the announcement of the tax repeal.

However, it is not necessarily the case that stock prices of firms with crossholdings will respond to repeal. First, many ownership interests are strategic and thus may have their greatest value in the hands of the current owner (i.e., $PV_H > PV_P$). Therefore, even though a reduction in capital gains tax rates would increase the proceeds from a sale of the holding, no sale is forthcoming because the asset's value is already maximized in the hands of the current holder. Second, many ownership interests are passive and thus likely to be valued similarly across investors. Consequently, even if elimination of the corporate capital gains tax increases sales of these assets, the gains to trading are minor and should have little effect on stock prices (i.e., $PV_H \approx PV_P$).

However, in some cases, a holding may have significantly greater value to a different holder. For example, recent research (e.g., Lins and Servaes, 1999, and Rajan, Servaes and Zingales, 2000) suggests that as ownership interests extend beyond a firm's industry to holdings without strategic importance to the company, they may destroy wealth because resources are not being put to their most efficient use. Although cross-industry ownership may have a strategic basis (e.g., vertical integration), often the original reasons for crossholdings no longer apply.

¹⁰ This is also the issue that underlies the debate over the existence, magnitude and source of the diversification discount. In general, one must infer $PV_P - PV_H$ by assuming that diversified and nondiversified firms are otherwise identical, which begs the question of why some chose to diversify and others did not.



In Germany, many crossholdings by banks and insurers date back to equity received in lieu of cash payments from liquidity-constrained, industrial firms following World War II.¹¹ These holdings would seem to be leading candidates for disposition because they likely serve little strategic purpose now and represent resources that could be more efficiently deployed in the firm's primary business line. The elimination of a tax on gains realized from selling these crossholdings likely increases the probability of sale. If so, the share prices of the corporate stockholder should increase on news of the repeal. More formally stated in alternative form:

H₁: To the extent capital gains taxes impede efficient disposition of crossholdings, repeal of the corporate capital gains tax should positively impact firms with substantial crossholdings.

H₂: The stock price response should be increasing for firms with non-strategic crossholdings, namely minority interests outside their industries, and particularly so for banks and insurers with longstanding positions in industrial firms.

Besides the positive effects to shareholders, repeal of the corporate capital gains tax should also increase the share price of investee companies whose shares are not held strategically (e.g., industrial firms whose shareholders include large banks and insurers for historical reasons). Consistent with recent findings that capital gains taxes are capitalized in share prices (e.g., Guenther and Willenborg, 1999 and Lang and Shackelford, 2000), elimination of the corporate capital gains tax should increase share prices for companies with substantial corporate ownership because the lower taxes increase the attractiveness of the shares to other investors.¹²

H₃: Firms whose shareholders include corporations with non-strategic positions (i.e., industrial companies with minority interests held by banks and insurers) should experience a positive stock price response to corporate capital gains tax repeal.

¹¹ For an American example of a historical crossholding, SunTrust Banks currently holds Coca-Cola stock, which it received for underwriting the bottler's 1919 IPO. Sale of this nearly \$3 billion investment would trigger U.S. corporate capital gains taxes (at a 35 percent rate) in excess of \$1 billion.

¹² Recent price pressure studies (e.g., Blouin, Raedy and Shackelford, 2000, Guenther, 2000, and Poterba and Weisbenner, 2001) suggest that investee share prices may temporarily decline when repeal becomes effective in 2002 if corporate shareholders unwind their holdings in large blocks of stock and the market is insufficiently liquid.



3. Repeal of Corporate Capital Gains Tax

On December 21, 1999, German Chancellor Gerhard Schroeder announced “the biggest and most far-reaching tax-reform package in the history of the federal republic...this is an issue of how Germany holds up against foreign competition.”¹³ Chancellor Schroeder proposed two major reforms in his address: (1) reductions in individual and corporate tax rates and (2) a change from the imputation system to the classical system of taxation. He made no mention of repealing the tax on capital gains from the sales of crossholdings. The appendix discusses the changes from the reform and compares the taxation of corporate profits and shareholder distributions before and after their implementation.

Both of the proposals discussed by Chancellor Schroeder had been anticipated. As early as June 1999 the Finance Ministry had intimated that tax rates would be reduced and the imputation system of taxing corporate profits abolished. For example, a June 24, 1999 press release by Germany’s Finance Minister, Hans Eichel, defines the goals of future tax reform as:

“...strengthening the Germany economy’s ability to compete on an international basis. The high German tax rates by international comparison are to be reduced and the determination of taxable income is to be adjusted to international standards. Corporations and their shareholders are to receive a common flat corporate tax rate of 25 percent.”

Furthermore, prior to Chancellor Schroeder’s announcement, a government working group had published tax reform proposals that recommended a maximum corporate tax rate of 25 percent and replacing imputation with a classical system of taxing corporations (*World Tax News*, January 2000).

¹³ Germany has a parliamentary system of government with two houses. The lower house of parliament, the Bundestag, elects the Chancellor. The Chancellor holds the executive power and can be dismissed if the parliament elects his successor with a majority vote. During the legislative period that included repeal, the ruling coalition in the lower house included the centrist Social Democratic Party (led by Chancellor Schroeder) and the leftist Green Party.



In his address Chancellor Schroeder never mentioned the third major component of tax reform, the repeal of the capital gains tax on the sale of corporate crossholdings. The proposal to eliminate the corporate capital gains tax was first disclosed on December 22, 1999, when the Finance Ministry posted a description of the reforms on its website. Page 12 of the posting states, "earnings from the realization of holdings one company holds in another are not taxable" (*Dow Jones Newswires*, December 23, 1999). The Finance Ministry website soon bogged down under heavy traffic. In the subsequent confusion, a Finance Ministry spokesman mistakenly *denied* the elimination of capital gains taxes on the sales of crossholdings.

On December 23, the newswires confirmed that reform included corporate capital gains repeal, triggering an immediate and dramatic reaction to the breaking news. For example, CNN interviewed the editor of the *Financial Times*, Richard Lambert, at 12:24 p.m. in Germany (6:24 a.m. EST):

"...it seems that buried in the tax proposals that were announced a couple days ago is a couple of lines which say that German banks will not be liable to tax if they sell corporate assets in Germany. And I should emphasize, we haven't substantiated this yet and we haven't spoken to the finance ministry about its implications, but if it means what the market thinks it means, then some of those big German banks, which have huge industrial portfolios, will be able to sell them without tax penalty...the other implication is that this would be a real kick start that the German corporate sector needs to restructure itself and gets itself into, you know, an efficient stage for the new European market."

By the end of trading on December 23, soaring prices for its financial service companies had driven Frankfurt's Xetra DAX up 4.5 percent.¹⁴ Among the index's four banks, the raw returns of Commerzbank increased 4.7 percent; Bayerische Hypo- und Vereinsbank 7.6 percent; Deutsche Bank 13.6 percent; and Dresdner Bank 10.9 percent. Its two insurers boomed similarly

¹⁴ The DAX was not the only index to experience positive returns that day, although returns on the DAX were much larger than for other major indices. For example, the Paris' CAC-40 increased 2.0 percent, New York's Dow Jones Industrial Average rose 1.8 percent, and both London's *Financial Times* 100 and Tokyo's Nikkei 225 climbed 0.7



with Allianz up 12.9 percent and Münchener Rückversicherungs (Munich Re) 18.0 percent. On the following day (December 24), the story made the major print services, but the market was closed for the Christmas holidays until December 27. No unusual price movements were noted after the holiday break.¹⁵

December 23 is an ideal date to look for evidence of the effect of tax reform for several reasons. First, it seems clear from all evidence that the decision came as a major surprise. To our knowledge, it had not been a part of tax reform discussions to that point and the likelihood that a left-of-center government would initiate such pro-business legislation seemed remote. Second, the likely magnitude of the effect could be substantial. Crossholdings were pervasive, the existing capital gains tax rate was substantial and firms' bases in their holdings were likely to be small. Third, there was no other notable news on that day, the last trading day before Christmas. The information in other aspects of the tax reform had already had time to be assimilated in share prices (assuming German capital markets are informationally efficient). Finally, it is possible to identify cross-sectional variation in firms likely to be affected based on their crossholdings.

percent. It is not clear to what extent returns to other indices like Paris' CAC-40 were in response to the German announcement and its implications for tax policy in other countries.

¹⁵ Why Chancellor Schroeder did not mention the capital gains repeal in his original announcement remains a mystery. Some have speculated that he knew the capital gains repeal would be controversial and that he did not want to begin his push for fundamental tax reform with an especially controversial proposal. The *Financial Times* reported:

"Indeed, coalition unease with tax breaks for big business was apparent in the discrete style the tax change slipped out. Rather than drawing attention to a change of such magnitude, the proposal was buried inside a government press release outlining a series of big corporate and personal tax revisions this week. The result was to cause immense confusion yesterday morning [December 23, 1999], as the finance ministry in Berlin was besieged by callers wanting to know if the changes were for real. Only after a clarifying press release confirming the news did the stock market fly." (Financial Times, December 24, 1999).

Unable to reconcile a left-of-center government so directly advancing the interests of the largest corporations, others speculate that the drafters of the proposal did not understand the full implications of repealing the capital gains tax on the sale of crossholdings. For example, perhaps they were trying to bring consistent tax treatment to sales of foreign holdings, which already were tax-exempt, and sales of domestic holdings, which were taxable. However, once the capital gains repeal genie was released from the bottle and the market reacted positively, it may have been too politically costly for the ruling coalition to renege.



The initial shock of the proposal to repeal capital gains on sales of crossholdings was followed by lengthy, uncertain political negotiations, similar to those found in American tax legislation (see Table 1 for details). For example, on December 28, 1999, the *Wall Street Journal* reported criticism from the deputy chairman of the opposition, the conservative Christian Democratic Union. Support from the Christian Democrats was critical to passage of tax reform because they controlled the upper house of Parliament. On the same day, the *Dow Jones Newswires* reported that the finance minister of a major German state, Bavaria, called the proposal to eliminate taxes on sales of crossholdings “constitutionally dubious.” He also complained that the proposal would benefit large banks and insurers, but not “the bulk of companies.” Several other press reports criticized repeal over the next few months. Nevertheless, as expected, tax reform passed the ruling coalition’s lower house of Parliament on May 18, 2000.

Passage in the opposition-controlled upper house (the Bundesrat) was predictably more difficult. On June 9, 2000, the Bundesrat rejected tax reform. On July 3, 2000, the *Wall Street Journal* reported that corporate capital gains tax repeal “seems impossible” this summer and delayed at least for one year. The next day, the *Financial Times* reported negotiations had broken down, and one week later, the Christian Democrats boycotted the talks.

Tax reform, however, had one final surprise. On July 14, 2000, with tax reform trapped in gridlock, the ruling and opposition parties reached a compromise. The ruling coalition promised post-2000 tax changes would be targeted to small business, and the opposition-controlled Bundesrat approved the Tax Reduction Act of 2000 (TRA 2000), including the repeal of the corporate capital gains tax. Although we test for a stock price reaction on July 14, 2000, the date of passage does not provide as clean an event date as December 23, 1999 (the date of



initial proposal). Prices would already have impounded some probability of passage, and the other elements of the tax bill could have confounded the returns on July 14. Nevertheless, the announcement was a surprise and the capital gains change was a major component of the legislation.¹⁶ Table 2 summarizes major elements of the legislation.

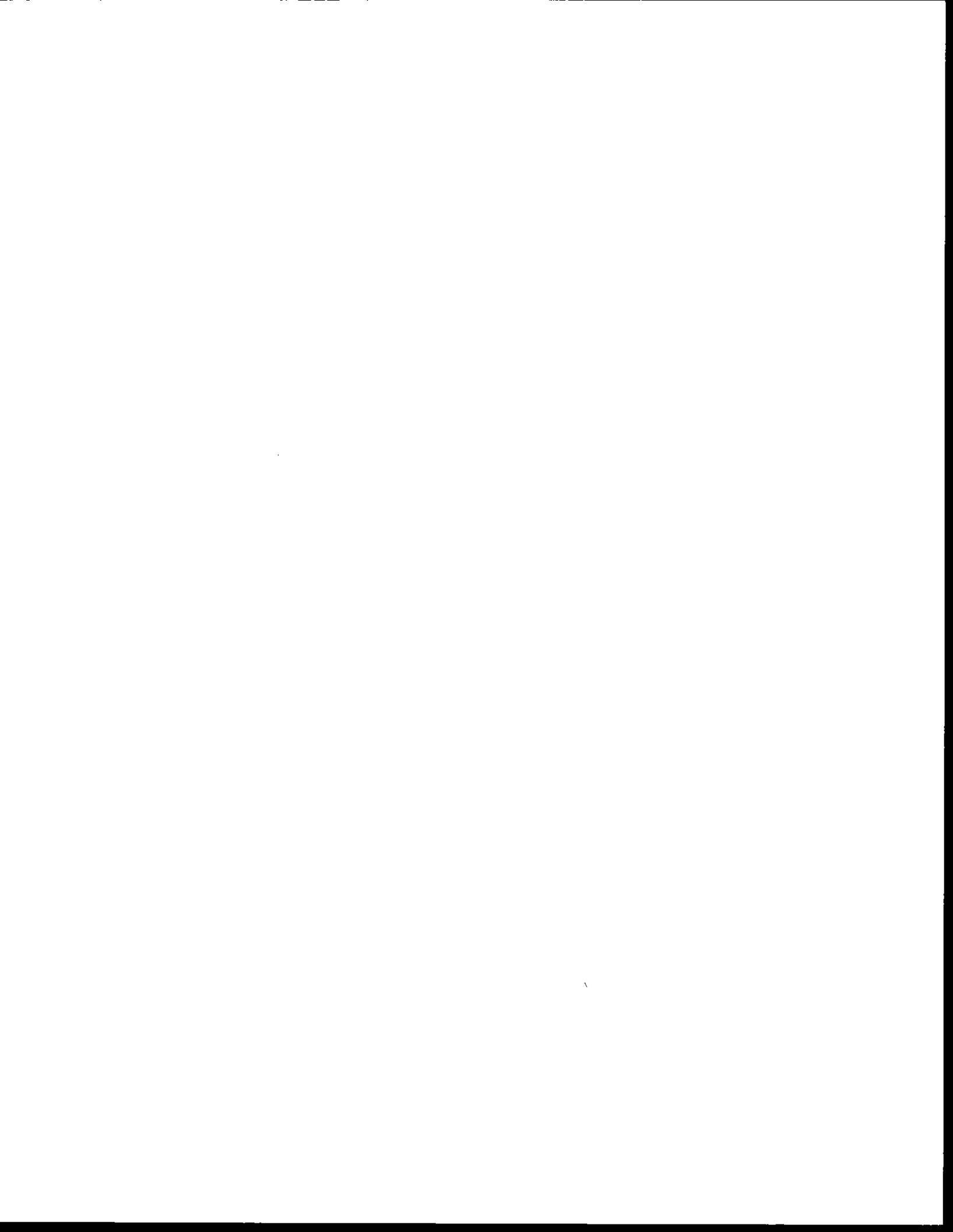
4. Research Design

4.1. Sample

To test the reaction to the proposed tax rate change, we need data on stock returns and cross-ownership. We consider 394 German-domiciled companies whose price, dividends, and number of shares outstanding are available on Datastream and whose ownership structure is available in Commerzbank's Wer Gerhört Zu Wem (who belongs to whom) database (as of the second half of 1999), which is supplied by Picoware (see <http://www.picoware.de>). For each firm, Wer Gerhört Zu Wem lists its industry, its principal shareholders and its German shareholdings. Wer Gerhört Zu Wem also details each firm's stated capital and organizational form, the latter enabling us to confirm that the firm is subject to the German corporate tax.

Wer Gerhört Zu Wem identifies 694 firms as "streubesitz" (i.e., widely held). Of these, 404 match the name of one of Datastream's 1049 German publicly-traded firms. Among these 404, 226 have the same Wertpapierkennnummer (WKN) numbers in both databases. Wer Gerhört Zu Wem did not provide WKN numbers for the remaining 178 firms. To confirm that these firms were correctly matched, we searched <http://quote.fool.de/> and <http://www.financial.de/reuters> to determine whether any other German corporation shared that name. No identical names were identified. Thus, the 178 are assumed to be correctly matched

¹⁶ The fact that the news was partially anticipated and confounded may explain why our results, while consistent, are weaker on this date.



and are included in the study's sample. Of these 404 matches, nine were dropped because price data was missing on Datastream. One was dropped because it was not a corporation.

4.2 Regression model

Recall that our hypotheses consider the relation between stock returns and crossholdings: (1) *by* a sample company, and (2) *in* a sample company. We predict that, to the extent eliminating the capital gains tax increased the probability of divestiture and the expected after-tax proceeds from divestiture, firms with larger holdings should have experienced larger stock price reactions. Similarly, to the extent corporate capital gains taxes are capitalized in share price, reducing capital gains tax rates will increase share price. To test the relation between stock price responses and crossholdings, we regress abnormal daily stock returns of the sample firms on a measure of the impact of eliminating the corporate capital gains taxes for investors (*OWN*) and for investees (*HELDBY*).¹⁷

$$AR_{it} = a_0 + a_1 OWN_i + a_2 HELDBY_i + \varepsilon_{it} \quad (4)$$

where: AR_{it} = firm i 's abnormal return on trading day t using a market model, where beta is estimated for the 180 days preceding the event period, using Datastream's German index;¹⁸

OWN_i = the percentage of the investee company owned by firm i multiplied by the stated capital of the investee company, summed across all investments, and then divided by firm i 's stated capital;

$HELDBY_i$ = the percentage of firm i 's stock held by other German corporations.

OWN is designed to measure the portion of a company's value attributable to its investments in other German companies (TRA 2000 did not affect the taxation of corporate

¹⁷ Results are virtually identical if the two independent variables are included separately.

¹⁸ Results are qualitatively unaltered if the index is created using the sample firms examined in this study or if the dependent variable is unadjusted returns.



investments in non-German companies). A positive coefficient on *OWN* is evidence that companies that invest in other German companies benefited from elimination of the German corporate capital gains tax. *HELDBY* is the percentage of an investee's shares that are held by German corporations. A positive coefficient on *HELDBY* is evidence that companies that have German corporate shareholders benefited from repeal.

OWN is potentially subject to at least two forms of measurement error. First, *OWN* cannot be measured directly because the complexity of some German crossholdings renders it practically impossible to reconstruct exact ownership structures. Although most German companies invest directly in other corporations, some invest indirectly through the holdings of other companies. For example, X owns 10 percent of Y, which owns 10 percent of Z. Thus, X indirectly owns 1 percent of Z. These multiple conduits can create complex organizational structures.

Because of the structure of the data, tracking shareholdings through multiple layers of subsidiaries is an extraordinarily time-consuming and problematic exercise, and the benefits are limited because most crossholdings are direct. Therefore, we restrict our reconstruction of German crossholdings to direct holdings. Consequently, using the previous example, we capture X's direct crossholding in Y and Y's direct crossholding in Z, but not X's indirect investment in Z. In examining several companies, it appears that this assumption enables us to capture the bulk of the crossholdings. Further, our primary concern would be with omitted correlated variable bias. While limiting reconstruction to direct ownership could reduce the power of our tests, it is more difficult to imagine any directional biases that the mismeasurement of *OWN* introduces into the study.¹⁹

¹⁹ Even if indirect holdings were observable, it is unclear how they could be incorporated into *OWN* because the effect of indirect holdings varies with the nature of the intermediate shareholders. This contrasts with the more



Second, *OWN* is based on the proportion of a firm's market value attributable to its German stockholdings. Although all sample firms are publicly-traded, many of their shareholdings are in privately-held companies, for which market values are not observable. Thus, we compute *OWN* based on stated capital, which is available for both public and private firms in the Wer Gehört Zu Wem database. For the publicly-traded sample firms, we find that the Pearson (Spearman) correlation between stated capital and current market capitalization is 0.92 (0.76), reducing concerns that stated capital is a poor proxy for market value.

Finally, because most of the substantial German crossholdings date back to World War II and the German equity markets have increased substantially since then, the tax bases of most investments are probably small relative to their current values. Thus, our inability to observe tax bases should have little effect on the analysis.

5. Empirical results

5.1. Event periods

As noted earlier, an advantage of this tax legislation for an event study is the fact that by all accounts, the proposal to eliminate capital gains taxes on sales of crossholdings came as a total surprise to the market (even to the extent that many commentators assumed the announcement was made in error and the government appeared not to fully understand the implications of its decision) and was viewed as having potentially major consequences for affected firms. Further, the passage came as a surprise, although less so, because of the apparent roadblocks to its passage. We expect that news of both events increased the market's assessment

typical issue in financial economic studies of ownership structure and cash flow rights where indirect ownership has clearer implications. On an unrelated note, ignoring indirect ownership does not adversely affect our computation of *HELDBY*. The percentage of a firm's stock held by other German corporations is completely captured through direct ownership.



that the crossholdings tax would be eliminated. Thus, for both periods, we predict a positive coefficient on the explanatory variables, *OWN* and *HELDBY*, consistent with the disclosures being good news for German investor and investee companies, respectively.

5.2. *Initial investigation*

The first panel of Table 3 provides regression coefficients from estimating equation (4) for the seven trading days centered on December 23, 1999, the date that wire services reported elimination of the corporate capital gains.²⁰ The first noteworthy finding is that, although the coefficient point estimates on *OWN* and *HELDBY* are positive, neither is reliably different from zero. This is particularly surprising because of the substantial crossholdings among German companies, the attention that the announcement attracted in the press around the world, and references to German share prices soaring in response to the news.

There are several potential explanations for the result. First, it could be that because of initial confusion about the announcement or leakage to the market prior to the announcement, December 23, 1999 was not the day on which the reaction occurred. However, Table 3 includes results for seven days around the announcement, and in no case is there a significant relation between abnormal returns and either variable of interest. Second, it could be that measurement error in the independent variables affects the results. However, the intercept in the regression is insignificant, and even using raw returns, there is little evidence of unusual stock price activity for the broader market (our sample firms gained only 0.61 percent on average that day). Further, neither using rank correlations nor redefining the *OWN* variable as the number of ownership interests changes the conclusions.

²⁰ None of the regressions in this paper rejects the null hypothesis of correct model specification under White's (1980) test at conventional levels.



The other possibility is that the tax repeal was not expected to have a major impact on the average German firm, even those with substantial crossholdings. While that may seem initially surprising, it is not entirely unexpected. Recall that the tax law change would only benefit firms that would likely dispose of their ownership interest and for whom the likely selling price was substantially in excess of the value that investors placed on the asset absent the sale. Many ownership stakes could well be strategic interests that would likely not be divested even without the tax penalty. In those cases, even though cross-ownership might be substantial, removing the tax impediment would likely have little effect.

We find similar results for stock prices during the final stages of legislative debate. The first column of data in Table 4 provides summary statistics for the daily regressions during the final legislative debates of TRA 2000, beginning with June 28, 2000 (the day preceding the *Financial Times* report that the opposition-controlled Bundesrat had rejected tax reform) and ending with the July 17, 2000 (the first trading day following ratification). Again, neither *OWN*'s coefficient nor *HELDBY*'s coefficient is significantly different from zero on any of the 14 trading days. In brief, we find no evidence of widespread favorable reaction to repeal among German corporate investors or investees.

5.3. *Non-strategic Investments*

The second hypothesis states that repeal's impact should have been concentrated among companies with non-strategic crossholdings. Unfortunately, the extent to which a crossholding is strategic cannot be directly observed. We take two approaches to get at the issue of non-strategic investments. First, we differentiate across holdings based on industry. Relying on Lins and Servaes (1999) and Rajan, Servaes and Zingales (2000), we argue that investments in other firms



are more likely to be non-strategic if they are outside of a firm's own industry. That is likely to be a fairly crude measure because many firms take strategic interests outside their industries for vertical integration or for other strategic reasons (e.g., finance subsidiaries or service providers).

Second, we condition on the size of the ownership interest because an investment is likely more strategic if it is large enough to permit some degree of control. Because control is difficult to assess, we rely on a fairly arbitrary cutoff of twenty percent, based on the financial accounting guideline that twenty percent differentiates between active and passive investments. Traditionally, sub-twenty percent ownership interests have been accounted for based on the notion that significant control likely does not exist in a sub-twenty percent investment. Hence, the investment is presumed passive, and its value to the current holder less likely to exceed its market value. Following a similar logic here, ownership interests of under twenty percent are likely candidates for disposal absent tax considerations since they are unlikely to have unique value to the current holder.

Therefore, we refine the explanatory variables in equation (4) to capture only investments of less than 20 percent of the firm and outside the shareholder's one-digit SIC. OWN_i is now the percentage of a German company owned by firm i (if less than 20 percent) times the stated capital of the investee company, summed across all investments outside firm i 's one-digit SIC and then divided by firm i 's stated capital. $HELDBY_i$ is the percentage of the firm i 's stock (if less than 20 percent) held by other German companies outside firm i 's one-digit SIC.

Limiting investments to minority interests outside the industry, we reestimate equation (4). Unlike the earlier results, Section II of Table 3 now shows a positive and significant coefficient for OWN on December 23, 1999, the day the wire services reported that tax reform included elimination of the crossholdings tax. OWN 's coefficient is 11.8 with a t -statistic of



4.9.²¹ To further establish that a coefficient of this magnitude is significant, we further estimate equation (4) for each of the 160 trading days from December 17, 1999 (two days before Chancellor Schroeder's initial announcement of tax reform) to July 31, 2000 (the last day of the month in which tax reform passed). We find that the *OWN* coefficient on December 23, 1999 is 4.3 standard deviations above the mean of the 160 *OWN* coefficients from these regressions. We interpret this finding as evidence that the market viewed repeal as favorable to companies with minority interests outside their industry. The abnormal returns are limited to the day that the DAX moved on news that tax reform included repeal, implying an immediate and efficient response by the market to news that future sales of crossholdings might be tax-exempt.

We find similar, though weaker, reactions on the day that TRA 2000 was enacted. Section II of Table 4 shows the July 14, 2000 coefficient on *OWN* is positive (5.1), significantly greater than zero (*t*-statistic of 2.4) and 1.8 standard deviations above the mean *OWN* coefficient during the entire legislative period. The *OWN* coefficient is not significantly different from zero on any of the other 13 trading days presented in Table 4. As with the stock market reaction to the initial disclosure about repeal, we infer that the market viewed repeal of the tax as favorable to companies that hold non-controlling interests outside their industry.

HELDBY's coefficients are positive, but not significantly greater than zero, on both December 23, 1999 (*t*-statistic of 1.6) and July 14, 2000 (*t*-statistic of 0.6). The *HELDBY* coefficient is significantly greater than zero only on Monday, July 10, 2000. However, we are unaware of any information on that day that increased the probability of repeal, and since we

²¹ Under the assumption that the stated capital of the firm is approximately equal to its market value, the coefficient estimate can be interpreted as follows: Because the average sample firm has a value of *OWN* of 0.10 (i.e., the stated capital of shares owned represents 10 percent of the sample firm's stated capital), its share price would have appreciated 1.18 percent. Stated another way, the value of the average firm's crossholdings, as perceived by the market, increased by 11.8 percent at the announcement.



examine 20 days of returns, the fact that one is statistically significant at the 5 percent level is not surprising.

5.4. *Banks and insurance companies*

As noted earlier, there is strong reason to believe that banks and insurance companies would be major beneficiaries of the tax law change since they had acquired non-strategic stakes in companies following World War II. To determine whether the stock price reaction was limited to these sectors, we redefine OWN_i the same as in Section II if firm i is in SIC 65, 66 or 67 (i.e., bank or insurer) and zero otherwise. For the 24 financial companies, the mean value for OWN is 0.10. $HELDBY_i$ is the percentage of non-financial firm i 's stock (if less than 20 percent) held by German financial companies. For the 40 industrial firms whose minority shareholders include banks and insurers, $HELDBY$'s mean value is 0.10.

Using this specification, we find the magnitude and significance of the OWN coefficient in Section III on December 23, 1999, and July 14, 2000, are nearly identical to those in Section II. Further analysis reveals that when Section II regression is reestimated, excluding the financial companies from the sample, OWN 's coefficients at disclosure and passage are no longer significantly different from zero. We infer that the stock price reactions documented above at both announcement and passage are limited to financial companies with minority investments in industrial firms.

In addition, using this specification, we also find that the coefficient on $HELDBY$ is positive (7.57) and significant (t -statistic of 2.21) on December 23, 1999. (Recall that it had been insignificant in all previous regressions.) It is 2.0 standard deviations above the mean $HELDBY$ coefficient during the 160 trading days from December 17, 1999 to July 31, 2000.



This implies that non-financial companies in which banks and insurers hold minority interests benefited from reports that tax reform included elimination of the corporate capital gains tax. The *HELDBY* coefficient on July 14, 2000, is positive (3.61), but not significant (t -statistic of 1.20).²²

Finally, we repeat the Section III regression analysis, restricting crossholdings for purposes of defining the explanatory variables to the four banks (Commerzbank, Bayerische Hypo- und Vereinsbank, Deutsche Bank, and Dresdner Bank) and the two insurers (Allianz, Münchener Rückversicherungs) in the DAX index. These firms are huge and constitute a major sector of the German economy with combined market capitalizations equaling 22 percent of the total market capitalization of all 388 firms in the study (as of one week before disclosure of repeal). Because the mean return for these six firms on December 23, 1999 was 11.3 percent while the total sample firms averaged only 0.61 percent, we conduct these final tests to assess whether the market response to repeal of the corporate capital gains tax is restricted to these six firms.

Under this specification, OWN_i is defined the same as in section III if firm i is one of the six banks or insurers in the DAX index, and zero otherwise. $HELDBY_i$ is the percentage of non-financial firm i 's stock (if less than 20 percent) held by these six DAX banks and insurers. Using this specification, we find the coefficient on OWN is 13.0 with a t -statistic of 5.2 (results are not

²² To further assess whether the price increases are limited to banks and insurers' crossholdings of minority interests in non-financial corporations, we regress abnormal daily returns on six regressors—the three measures of OWN as defined in sections I-III of Table 3 and the three measures of $HELDBY$ as defined in sections I-III of Table 4. If the results are limited to the financial companies, we predict that the coefficients on the definitions used in the III section will be positive. We find that the multicollinearity between the section II and III definitions of OWN is problematic. Thus, we delete the section II definition and repeat the regression. Using this specification, we find that the only significant coefficient on December 23, 1999, (disclosure date) and July 14, 2000 (passage date) is OWN , when it is restricted to financial companies. The December 23, 1999 (July 14, 2000) coefficient is 11.6 (5.0) with a t -statistic of 4.7 (2.3). We interpret these results as further evidence that repeal only increased the stock prices of financial investor companies. The coefficient on the section III definition of $HELDBY$ is positive and substantially larger than the other two $HELDBY$ coefficients on both dates, but it is not statistically significant.



tabulated). Furthermore, the price response to the legislation is limited to these six financial giants. When the regression is reestimated using the Section III specifications, but excluding the six DAX financials, *OWN*'s coefficient is not significantly different from zero.

The six DAX banks and insurers recorded a mean return on July 14, 2000 (the day the Bundesrat approved TRA 2000) of 4.4 percent. When we reestimate equation (4) limiting crossholdings to these six firms, the coefficient on *OWN* is 5.3 with a *t*-statistic of 2.4. Again, when the regression is repeated using the Section III specification, but without these four banks and two insurers, *OWN*'s coefficient is not significantly different from zero.

Limiting the treatment sample to the six DAX financial firms' minority interests in industrial firms, we lose significance on the *HELDBY* coefficient at the disclosure date. The magnitude of the coefficient on *HELDBY* is similar to the section III results (6.0), but it is no larger statistically significant (*t*-statistic of 1.2). As in all the earlier regressions, the coefficient on *HELDBY* remains insignificantly different from zero at passage.

These findings are consistent with the stock market reaction to elimination of the corporate capital gains being limited to the six largest banks and insurers and the industrial firms in which they hold minority interests. These empirical results agree with our casual review of the business press. Of the articles we have read discussing the mergers and acquisitions, initial public offerings, structured financing, convertible bond offerings, etc. that are anticipated to begin in 2002, every example and speculated deal has involved a holding by one of the six DAX financials.²³ If the ultimate response to repeal is limited to these six financial institutions and their holdings, the economic impact of the tax change is nontrivial because these firms are so

²³ For example, Steinborn (2001) lists three "possible suspects" for early 2002 sales. They are Allianz's 4 percent stake in Continental, Deutsche Bank's 9 percent holding in Heidelberger Zement, and Dresdner Bank's 10 percent investment in Dyckerhoff.



large; however, reports of widespread restructuring of the German economy would appear overly optimistic.

6. Closing remarks

Germany's surprising repeal of the corporate capital gains tax in the Tax Reduction Act of 2000 provides an unusual opportunity to calibrate the impact of taxes on efficient ownership structure. The evidence in this paper is consistent with the market believing that the benefits of eliminating the tax will accrue to the six largest banks and insurers with longstanding minority interests in financial firms, some of which date back to World War II. The failure to detect a broader market response (in raw returns or in the regression analysis) is consistent with corporate capital gains taxes not being the binding constraint preventing the unraveling of other crossholdings in the economy. This finding is consistent with both other crossholdings being efficient and nontax considerations (e.g., agency costs) being sufficiently large that the elimination of tax provisions that encourage the retention of appreciated properties is insufficient to cause widespread divestitures.

While the possibility exists that the results are driven by measurement error, we believe this is unlikely for several reasons. First, the results are strongest and consistent in cases in which we would expect it most--banks and insurance companies with minority ownership in industrial companies. The largest banks and insurers are consistently cited in the business press as the companies likely to divest ownership interests.²⁴ In addition, the results for these financial firms are highly significant, suggesting that the tests are powerful enough to capture substantially smaller effects if they exist. Also, we know of no reason to believe that measurement error on



our variable of interest should be substantially more pronounced for non-financial than for financial firms. While we cannot be sure that nonfinancial firms did not benefit, at a minimum it seems clear that the benefits that accrued to nonfinancial firms were substantially smaller than those that accrued to financial firms.

These findings should be useful to policymakers in other countries as they consider tax changes to unlock their crossholdings. The results in this paper would suggest that taxes are not the only reason (and perhaps not even a primary reason) that crossholdings persist and that subsequent divestitures may be limited to the most non-strategic investments, as in Germany. Despite the extreme case of eliminating a tax that carries a high rate, the findings in this study do not portend economic restructuring beyond the largest financial firms. We look forward to future research that documents the actual level of tax-motivated restructuring when the capital gains repeal becomes effective at the beginning of 2002.

²⁴ In fact, since the proposal, there has been discussion of these financial institutions attempting to develop complex financial structures to effectively divest their ownership interests while postponing the actual sale until after the effective date of the tax law change.



Appendix

German Corporate and Shareholder Taxes

This appendix highlights (and Table 2 summarizes) the major elements of German taxation of corporate profits and shareholder distributions before and after the Tax Reduction Act of 2000 (TRA 2000). Besides repealing the corporate capital gains tax (the focus of this study), TRA 2000 replaces the imputation system of corporate taxation with a classical system of taxing profits at both the level of the corporation and the level of the shareholder, similar to those in the U.S. and Japan. Before TRA 2000, German corporations were subject to tax on a split-rate, imputation system, whereby retained earnings were taxed at a 40 percent rate while distributed earnings were taxed at only 30 percent. Corporations that distributed previously retained earnings to their shareholders were eligible for a tax reduction equal to the 10 percent tax rate difference between the 40 percent and 30 percent tax rates. Individuals were taxable on the dividends that they received at rates of up to 51 percent, but they were refunded a tax credit equivalent to the 30 percent tax rate the corporation had paid on the distributed earnings. In short, by partially prepaying the shareholder taxes levied on dividends, the German corporate tax under imputation avoided distortions associated with double taxation in classical systems.

Despite these benefits, TRA 2000 abandons imputation and adopts a classical system because imputation was perceived to impede the international competitiveness of German industry and the attractiveness of Germany as a location for European investment. In short, the distortions of imputation in an open economy were viewed as greater than the distortions of double taxation. As an example of the distortions imposed by imputation, only German taxpayers were eligible for the imputation credit on dividends received from German companies. Foreign investors, who are not subject to German taxation, could not receive an imputation



credit. Thus, corporate earnings paid to foreign investors were subject to (i) a nonrefundable 30 percent German corporate rate, (ii) German withholding taxes at rates that depend on the tax treaty with the country where the foreign investor is domiciled, and (iii) foreign taxes levied on dividends from Germany (net of foreign tax credits) in worldwide tax systems, e.g., the U.S., U.K. and Japan.

Table 5 shows the impact of shifting from an imputation system to a classical system of corporate taxation. Panel A illustrates taxes at the corporate level while panel B illustrates taxes at the level of the individual shareholder. The first two columns of Table 5 illustrate the German imputation system before TRA 2000. The example begins with 100 euros of corporate earnings before taxes and an assumed trade tax rate of 16.66 percent.²⁵ The first column illustrates the corporate taxes paid on undistributed earnings, and the second column illustrates the taxation of distributed earnings. We focus on the second column to take account of both corporate and investor-level taxation. After trade taxes are deducted from the 100 euros of pretax profits, the corporation has 83.33 euros of taxable income. This triggers 25 euros in corporate tax (30 percent rate) and 1.38 euros of solidarity surcharge (5.5 percent rate).²⁶

If the corporation distributes all of its after-tax income, shareholders receive 56.96 euros in dividends. To compute the imputation credits, the shareholders gross-up their dividend to the pre-corporate tax amount (i.e., add back the applicable corporate tax), resulting in 81.96 euros of shareholder taxable income. Assuming the maximum individual rate of 51 percent, the shareholder faces 41.80 euros of income tax before imputation credits. After the imputation credit of 25 euros and the solidarity surcharge of 0.92 euros (again assessed at 5.5 percent), the

²⁵ Unaffected by tax reform, the trade tax is the German equivalent to U.S. state and local income taxes, with rates ranging from 12 percent to 20 percent. As with the U.S. state and local income taxes, the trade tax is deductible from taxable income when computing the federal-level corporate income tax.



investor's after-tax dividend is 39.24 euros. Thus, the combined corporate and investor-level effective tax rate is 60.76 percent.

The rightmost two columns of Table 5 illustrate how the same income is taxed under the post-TRA 2000 classical system of taxation. Individuals who receive dividends will no longer be eligible for imputation credits for taxes paid at the corporate level, i.e., Germany will have double taxation of corporate profits. However, to minimize distortion from double-taxation, half the dividends received by individuals will be tax-exempt (known as the "semi-income" approach). After corporate and individual taxes, investors receive 45.65 euros or a combined corporate and investor-level tax rate of 54.35 percent.

Table 5 illustrates taxation of ordinary income. As in many countries, Germany has different rules for taxation of capital gains. Before TRA 2000, individuals were exempt from capital gains taxes on the sale of stock if they had held the stock at least one year and owned less than 10 percent of the corporation whose stock was being sold. Under TRA 2000, the rules for taxation of individual capital gains are generally unchanged, except the threshold for taxability of gains on the sale of stock decreases to 1 percent ownership. Conversely, before TRA 2000, corporate capital gains were fully taxable at the ordinary income rate. TRA 2000 repeals the corporate capital gains tax for sales of stock in other German companies.

Table 6 illustrates the German system for taxing corporate capital gains income before and after TRA 2000, assuming the capital gains income arises solely from the sale of shares in German companies. The first two columns are the same as in Table 5 because before TRA 2000, corporate capital gains were taxed the same as ordinary income. The rightmost two columns show the effect of TRA 2000. Because the capital gains will be exempt at the corporate level,

²⁶ Unaltered by tax reform, the federal solidarity surcharge was enacted to defray the costs of unification with East Germany. It is 5.5 percent of the corporate income tax and not deductible in determining corporate taxable income.



the entire 100 euros of pretax profits can be distributed to shareholders. Shareholders will be taxable on half of their dividend income after TRA 2000, resulting in 50 euros of taxable income. After subtracting the income tax and solidarity surcharge, the investor's after-tax dividends are 74.42 euros or a combined corporate and individual tax rate of 25.58 percent on corporate capital gains. Compared with the 60.76 percent tax rate in the second column, TRA 2000 provides a substantial decrease in the tax burden on corporate capital gains, arising from the sale of German stock.



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Table 1
Timing of announcements and events regarding the German Tax Reduction Act of 2000

1999:

- December 21 German government proposes broad tax reform plan but does not mention the elimination of tax on capital gains from the sales of crossholdings.
- December 22 Full text of German tax plan posted on the Internet. Page 12 simply states that “earnings from the realization of holdings one company holds in another are not taxable.” Confusion reigns as the Finance Ministry website bogs down under heavy traffic and a Finance Ministry spokesman incorrectly denies elimination of the tax on the capital gains from sales of crossholdings.
- December 23 News wire reports appear on German corporate capital gains tax elimination.
- December 24 First mention of capital gains cut in *Financial Times*. Front page article declares “Germany has cleared the path to unprecedented corporate restructuring by deciding to abolish crippling tax barriers to companies selling equity stakes in each other from 2001.”
- December 28 The deputy chairman of the opposition Christian Democratic party, which controls the upper house of the German parliament, criticizes the capital gains elimination.

2000:

- January 5 A German government independent economic advisor said the removal of the tax on capital gains will not pass in the current form.
- March 17 *Financial Times* reports that proposal is being strongly criticized within the Social Democratic party.
- April 14 Reuters reports that Germany’s ruling coalition resolved differences on Friday about the proposal.
- May 18 Tax reform approved by the Bundestag, the lower house of parliament controlled by the ruling party
- June 9 *Wall Street Journal* reports that the opposition-controlled upper house of parliament, the Bundesrat, rejects tax reform
- June 29 *Financial Times* reports that lower house, Bundestag, had approved plan earlier in the month but that the Bundes



Table 1 (Continued)

Timing of announcements and events regarding the German Tax Reduction Act of 2000

July 3	<i>Wall Street Journal</i> reports that elimination of capital gains tax will be delayed at least a year and passage by this summer seems impossible.
July 4	<i>Financial Times</i> reports that German tax talks break down.
July 12	Yesterday's decision by opposition CDU to boycott today's talks has halted progress.
July 14	<i>Financial Times</i> reports that German Chancellor Gerhard Schroder unexpectedly won approval on Friday for tax package.



Table 2

Summary of major elements of German taxation before and after the Tax Reduction Act of 2000

	Before	After
<i>Panel A: Corporate taxation</i>		
Maximum corporate tax rate	45 percent on retained income 30 percent on distributed income	25 percent rate regardless of whether distributed
Other income-based taxes	Trade tax averaging 16.66 percent Solidarity surcharge of 5.5 percent ^a	Trade tax averaging 16.66 percent Solidarity surcharge of 5.5 percent
Taxation of capital gains	Taxable	Tax-exempt ^b
Taxation of dividend income	Taxable, but receive 30 percent tax credit for imputed corporate tax paid	Tax-exempt
<i>Panel B: Individual taxation</i>		
Maximum tax rate ^c	53.8 percent	51.2 percent
Taxation of capital gains	If ownership < 10 percent, then tax-exempt If not, half of gain is tax-exempt	If ownership < 1 percent, then tax-exempt If not, half of gain is tax-exempt
Taxation of dividend income	Taxable, but receive 30 percent tax credit for imputed corporate tax paid	Half of dividend is tax-exempt, no imputation tax credit

^a The solidarity surcharge for corporations and individuals is equal to 5.5 percent of the corporate income tax or individual income tax, respectively.

^b Capital gains from the sale of stock in another corporation are tax-exempt. Other capital gains are taxable.

^c Includes the 5.5 percent solidarity surcharge.



Table 3

Initial proposal. Summary statistics from regressing abnormal daily stock returns for 388 German companies on two measures of crossholdings.

Regression Equation: $AR_{it} = a_0 + a_1 OWN_i + a_2 HELDBY_i + \epsilon_{it}^a$

Trading Days	I All crossholdings			II Crossholdings outside shareholder's one-digit SIC and for less than 20% interests			III Crossholdings by financial companies outside shareholder's one-digit SIC and for less than 20% interests			
	pred	intercept	OWN	HELDBY	intercept	OWN	HELDBY	intercept	OWN	HELDBY
Dec. 20		0.01	-0.10	0.04	0.08	-0.35	-3.01	0.05	-0.23	-6.87
Dec. 21—Schroeder announces tax reform		-0.05	0.21	-0.48	-0.12	-0.52	-0.32	-0.12	-0.65	-0.65
Dec. 22—repeal on Internet, then denied		0.24	-0.09	-0.56	0.08	0.80	-2.72	0.03	0.68	-3.70
Dec. 23—repeal reported on wire services	(+)	-0.11	0.15	0.16	-0.17	11.79**	2.84	-0.14	11.44**	7.57*
Dec. 27—first trading day after holidays		-0.10	-0.01	0.33	0.02	2.97	-1.01	0.01	3.49	-2.11
Dec. 28—opposition criticizes repeal		0.23	-0.05	-0.04	0.20	-0.44	0.04	0.18	-0.56	1.99
Dec. 29		0.67 *	-0.25	-0.56	0.41 *	-2.61	-1.08	0.35	-2.65	2.69

* significant at the 0.05 level (using two-tailed test)

** significant at the 0.001 level (using two-tailed test)

^a For all regressions: AR_{it} = firm i's abnormal return on day t using a market model, where beta is estimated for the 180 days preceding the event period using Datastream's German index;

For regressions in Section I: OWN_i = the percentage of a German company owned by firm i times the stated capital of the investee company, summed across all investee corporations and then divided by firm i's stated capital; $HELDBY_i$ = the percentage of firm i's stock held by other German companies; For regressions i



Table 4
Final passage. Summary statistics from regressing abnormal daily stock returns for 388 German companies on two measures of crossholdings.

Regression Equation: $AR_{it} = a_0 + a_1 OWN_i + a_2 HELDBY_i + \epsilon_{it}^a$

Trading Days	pred	I All crossholdings			II Crossholdings outside shareholder's one-digit SIC and for less than 20% interests			III Crossholdings by financial companies outside shareholder's one-digit SIC and for less than 20% interests		
		intercept	OWN	HELDBY	intercept	OWN	HELDBY	intercept	OWN	HELDBY
June 28		-0.36	0.16	0.61	-0.15	1.62	2.15	-0.10	1.77	2.10
June 29— <i>Financial Times</i> reports upper house rejects repeal		-0.28	0.19	0.37	-0.14	2.36	1.72	-0.11	2.88	2.39
June 30		0.10	-0.23	-0.12	0.02	0.27	-2.13	-0.02	0.18	-2.10
July 3— <i>Wall Street Journal</i> reports repeal delayed 1 year; no passage this summer		0.40 *	-0.07	-0.27	0.28 *	-0.42	-0.19	0.24	-0.38	2.96
July 4— <i>Financial Times</i> reports talks break down		0.29	-0.17	-0.01	0.19	-3.34	1.55	0.20	-3.43	3.34
July 5		0.43	-0.22	-0.76	0.09	1.12	-1.48	0.05	1.16	-0.47
July 6		-0.02	-0.02	-0.19	-0.08	0.41	-0.89	-0.10	0.09	0.20
July 7		-0.04	-0.12	0.15	0.02	-1.42	-1.53	-0.01	-1.32	-1.73
July 10		0.35	-0.12	-0.32	0.01	-1.21	5.78 *	0.14	-0.94	4.85
July 11		-0.25	0.06	-0.17	-0.27	0.90	-0.52	-0.31 *	1.20	1.59
July 12—Opposition boycotts negotiations		-0.27	-0.02	0.06	-0.34 *	-1.17	2.88	-0.30	-1.04	4.49
July 13		-0.08	-0.08	-0.03	-0.13	0.94	-0.39	-0.11	0.84	-2.95
July 14—Repeal passes	(+)	-0.28	0.15	0.48	-0.11	5.12 *	0.97	-0.11	5.21 *	3.61
July 17		0.12	0.26	-0.51	0.02	1.30	0.79	0.02	1.34	1.64

* significant at the 0.05 level (using two-tailed test)
 ** significant at the 0.001 level (using two-tailed test)



^a **For all regressions:** AR_{it} = firm i 's abnormal return on day t using a market model, where beta is estimated for the 180 days preceding the event period using Datastream's German index;

For regressions in Section I: OWN_i = the percentage of a German company owned by firm i times the stated capital of the investee company, summed across all investee corporations and then divided by firm i 's stated capital; $HELDBY_i$ = the percentage of firm i 's stock held by other German companies;

For regressions in Section II: OWN_i = the percentage of a German company owned by firm i (if less than 20%) times the stated capital of the investee company, summed across all investee corporations outside firm i 's one-digit SIC and then divided by firm i 's stated capital; $HELDBY_i$ = the percentage of firm i 's stock (if less than 20%) held by other German companies outside firm i 's one-digit SIC.

For regressions in Section III: OWN_i = the percentage of a German company owned by firm i (if less than 20%) times the stated capital of the investee company, summed across all investee corporations outside firm i 's one-digit SIC and then divided by firm i 's stated capital if firm i 's one digit SIC is 65, 66, or 67; otherwise zero; $HELDBY_i$ = the percentage of firm i 's stock (if less than 20%) held by German companies in SIC 65, 66 or 67, if firm i 's one-digit SIC is not 6; otherwise zero.



Table 5
Illustration of German corporate and individual-level taxation ordinary income before and after TRA 2000

Panel A: Corporate-level taxation^a

	<u>Before Tax Reform</u>		<u>After Tax Reform</u>	
	<u>Retained Earnings</u>	<u>Distributed Earnings</u>	<u>Retained Earnings</u>	<u>Distributed Earnings</u>
Income before taxes	100.00	100.00	100.00	100.00
Trade tax (16.66%) ^b	-16.66	-16.66	-16.66	-16.66
Corporate tax (40%, 30%, 25%) ^c	-33.34	-25.00	-20.84	-20.84
Solidarity surcharge (5.5%)	-1.83	-1.38	-1.15	-1.15
Income after taxes	<u>48.17</u>	<u>56.96</u>	<u>61.35</u>	<u>61.35</u>

Panel B: Individual-level taxation

Dividend to shareholders	56.96	61.35
Imputation tax credit ^d	25.00	0
Semi-income amount ^e	0	-30.68
Taxable income	<u>81.96</u>	<u>30.67</u>
Dividend to shareholders	56.96	61.35
Income tax (51%, 48.5%) ^f	-41.80	-14.88
Imputation tax credit	25.00	0
Solidarity surcharge (5.5%)	-0.92	-0.82
Dividend after taxes	<u>39.24</u>	<u>45.65</u>
Combined effective tax rate	60.76%	54.35%

^a Adapted from Vogele and Edelman, *Tax Notes International*, August 21, 2000 and Neu, *Tax Notes International*, February 28, 2000.

^b The trade tax rate varies across local governments.

^c Trade tax is deductible from income when computing corporate income tax.

^d Imputation tax credit equals corporate tax paid on distributed earnings.

^e The semi-income amount is the half of the dividend that is tax-exempt.

^f The maximum individual rate in 2000 (2001) is 51% (48.5%).



Table 6
Illustration of German taxation of corporate capital gains before and after TRA 2000

Panel A: Corporate-level taxation^a

	<u>Before Tax Reform</u>		<u>After Tax Reform</u>	
	<u>Retained Earnings</u>	<u>Distributed Earnings</u>	<u>Retained Earnings</u>	<u>Distributed Earnings</u>
Capital gains income	100.00	100.00	100.00	100.00
Taxable income	100.00	100.00	0	0
Trade tax (16.66%) ^b	-16.66	-16.66	0	0
Corporate tax (40%, 30%, 25%) ^c	-33.34	-25.00	0	0
Solidarity surcharge (5.5%)	-1.83	-1.38	0	0
Income after taxes	<u>48.17</u>	<u>56.96</u>	<u>100.00</u>	<u>100.00</u>

Panel B: Individual-level taxation

Dividend to shareholders	56.96	100.00
Imputation tax credit ^d	25.00	0
Semi-income amount ^e	<u>0</u>	<u>-50.00</u>
Taxable income	<u>81.96</u>	<u>50.00</u>
Dividend to shareholders	56.96	100.00
Income tax (51%, 48.5%) ^f	-41.80	-24.25
Imputation tax credit	25.00	0
Solidarity surcharge (5.5%)	<u>-0.92</u>	<u>-1.33</u>
Dividend after taxes	<u>39.24</u>	<u>74.42</u>
Combined effective tax rate	60.76%	25.58%

^a Adapted from Vogele and Edelmann, *Tax Notes International*, August 21, 2000 and Neu, *Tax Notes International*, February 28, 2000.

^b The trade tax rate varies across jurisdictions.

^c Trade tax is deductible from income when computing corporate income tax.

^d Imputation tax credit equals corporate tax paid on distributed earnings.

^e The semi-income amount is half of the dividend that is tax-exempt.

^f The maximum individual rate in 2000 (2001) is 51% (48.5%).

