The Impact of Shareholder Taxation on Merger and Acquisition Behavior

Eric Ohrn, Grinnell College

Nathan Seegert, University of Utah

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Introduction

Mergers and acquisitions are an important part of the economy.

Successful M&A can

- efficiently reallocate capital
- captures positive synergies
- generates economies of scale

Inefficient Mergers can

- can dampen innovation,
- decrease efficiency,
- destroy shareholder value.

Any distortion – tax or otherwise – to a firm's M&A behavior may impact both

1. the economy at large
2. the organization of economic activity within and across firms

Furthermore, even small distortions may be costly

U.S. M&A activity totaled $12.78 trillion from 2000–2012.

Shareholder taxation has been shown to significantly distort firm behavior

↪ surprisingly few studies have examined their impact on M&A activity

This study seeks to fill this void.

Introduction

We show that when dividend and capital gains tax rates diverge, shareholder taxes may induce profit maximizing but inefficient mergers and acquisitions.

Intuition

- Manager choosing between a dividend and making an acquisition
- Paying a dividend will trigger dividend tax liabilities for the firm's shareholders
- The acquisition will trigger capital gains taxes for the target firm's shareholders
- If dividend tax $>$ capital gains tax $\rightarrow$ tax discount on the acquisition price
- Discount means that some M&A may be profit maximizing from the perspective of both the acquiring and target firms, but inefficent for the economy as a whole.

Empirical Investigation

- Exploit variation in shareholder taxes created by JGTRA 2003
- Difference-in-differences empirical design
- Find that dividend-paying firm merger performance increased by 3% after JGTRA
  $\hookrightarrow$ evidence for the existence of the tax discount prior to 2003

Preliminaries

Corporations face two levels of **Corporate Taxation**:

1. corporate income taxation when income is earned
2. shareholder-level taxation when earnings are paid back to shareholders

There are three ways shareholders can **Receive Money From Stocks** they own:

1. the firm can pay a dividend (taxed at the dividend tax rate)
2. the firm can repurchase shares (gains are taxed at capital gains tax rate)
3. sell stock in the market (gains are taxed at capital gains tax rate)

Firms can **Financing New Investments** in several ways:

1. use funds that would have been used to pay dividends or repurchase shares
2. issue new equity
3. borrow money (debt)

Corporations expend significant amounts of resources planning investment, financing, and payout policy in an effort to minimize tax bills.

A Simple Example of the Tax Discount

Consider an **acquiring** firm deciding whether to purchase a **target** firm

- assume 35% dividend tax rate (τ_d), 20% capital gains tax rate (τ_{cg})
- target assets worth \$100 in PV prior to any shareholder taxation
- to target shareholders, assets are worth \$65; eventually assets paid as dividends
- but, if paid cash, acquisition revenue taxed at preferable capital gains rate
- willing to sell the firm at any price, M, such that $(1 - \tau_{cg})M \geq \$65$
- sell at any price higher than $\$81.25 = (1 - \tau_d)/(1 - \tau_{cg})$

A Simple Example of the Tax Discount

In deciding whether to purchase target, acquire takes into account

1. potential synergies represented by σ
2. source of finance (cost of funds)

Merger Synergies

Under acquirer's management, target's assets worth $\$100 * \sigma$

- $\sigma \geq 1 \rightarrow$ efficient acquisition
- $\sigma < 1 \rightarrow$ inefficient acquisition
- acquisition produces $(1 - \tau_d) * 100 * \sigma = \$65 * \sigma$ for acquiring shareholders

A Simple Example of the Tax Discount

Equity Finance

Now consider a firm **financing the acquisition with equity**

- acquiring shareholders must give up $\$81.25$ in after tax funds
- acquisition profitable only if

$$\$65\sigma > \$81.25$$

when

$$\sigma > 1.25 \quad \text{or when} \quad \sigma > \frac{1}{(1-\tau_{cg})}$$

- only a subset of efficient acquisitions are accepted

A Simple Example of the Tax Discount

Dividend Finance

Now consider a firm **financing the acquisition with dividend funds**

- acquiring shareholders must give up $(1 - \tau_d) * \$81.25 = \$52.8125$
- acquisition profitable only if

$$\$65\sigma > \$52.8125$$

when

$$\sigma > 0.8125 \qquad \text{or when} \qquad \sigma > \frac{(1 - \tau_d)}{(1 - \tau_{cg})}$$

- willing to accept a subset of profitable but socially inefficient acquisitions

A Simple Example of the Tax Discount

Share Repurchase Finance

Now consider a firm **financing the acquisition with share repurchase funds**

- acquiring shareholders must give up $(1 - \tau_{cg}) * \$81.25 = \$65$
- acquisition profitable only if

$$\$65\sigma > \$65$$

when

$$\sigma > 1 \quad \text{or when} \quad \sigma > \frac{(1 - \tau_d)}{(1 - \tau_d)}$$

- willing to accept the complete set of efficient acquisitions

Empirical Setting & Hypotheses

1. JGTRA 2003 eliminates tax discount for dividend financed M&A
   - τ_d drops from 38.6% to 15%
   - τ_{cg} drops from 20% to 15%
   - σ threshold increases from 0.76 to 1

H1: All else equal, the average acquisition dividend-paying firms undertake will be of higher quality after 2003.

H2: All else equal, dividend-paying firms will perform fewer acquisitions after 2003.

2. Tax-Exempt Shareholders
   - Institutional investors are generally considered tax-exempt
   - elimination of the tax discount should not affect M&A performed by firm held primarily by institutional investors

H3: All else equal, after 2003, the post-acquisition performance of dividend-paying firms will increase more for firms with a higher percentage of taxable shareholders.

Empirical Design

DD Analysis

Natural setting for a Difference-in-Difference (DD) empirical design

- treatment group: mergers by dividend-paying firms
- control group: mergers by share-repurchasing firms
- outcome variable: 24 month Cumulative Abnormal Returns (CARs)

$$CAR_{i,24} = \beta_0 + \beta_1[\text{Div Firm}] + \beta_2[\text{Low Tax x Div Firm}] + \sum_{s=3}^{n} \beta_s \text{Control}_s + \gamma_t + \epsilon_{it}.$$

- β_2 estimates change in dividend-paying CARs relative to share-repurchasing CARs
- β_2 predicted to be positive because
  - dividend paying firms accept higher quality acquisitions after 2003
  - quality of acquisitions performed by share repurchasing firms is unchanged
  - should be smaller among firms held primarily by institutional investors

Data

BVD Amadeus Zephyr acquirer, acquisition date, type of acquisition

CRSP & Fama French quarterly stock prices, FF Factors - used to construct CARs

S & P COMPUSTAT firm level controls

Thopmson Reuters institutional holding percent from 13f filings

- data collected on 7,000 100% acquisitions performed between 1998 and 2008
- 2,634 used in main analysis

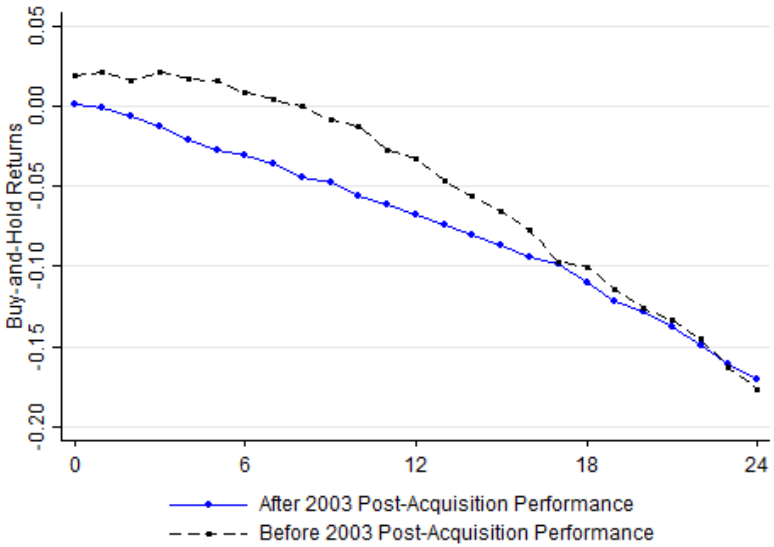
Table: Merger Performance Descriptive Statistics

Weighting	(1)	(2)	(3)	(4)	(5)	(6)
	None				Entropy	
	Div Only	Sbb Only	Neither	Div and Sbb	Treat	Cont.
Total Assets	3604.1	4699.2	1266.5	19641.3	2184	2192
	(8264.3)	(36023.9)	(3433.1)	(108733.0)	(5486)	(6123)
Cash Flow	0.162	0.230	0.148	0.244	0.197	0.197
	(0.345)	(0.500)	(0.728)	(0.374)	(0.391)	(0.541)
Ret. Earn.	479.7	336.4	-695.2	2631.0	261	261.2
	(1548.4)	(3115.0)	(6542.8)	(7522.2)	(751.9)	(2180.4)
Marg Q	2.233	2.174	3.187	1.988	2.143	2.143
	(1.426)	(1.422)	(2.355)	(1.150)	(1.401)	(1.437)
Fin Distress	-5.076	-4.946	-4.287	-6.013	-4.83	-4.83
	(1.176)	(1.207)	(1.196)	(1.180)	(1.011)	(1.239)
% Tax Exempt	0.397	0.336	0.432	0.314	0.557	0.557
	(0.252)	(0.282)	(0.286)	(0.228)	(0.270)	(0.304)

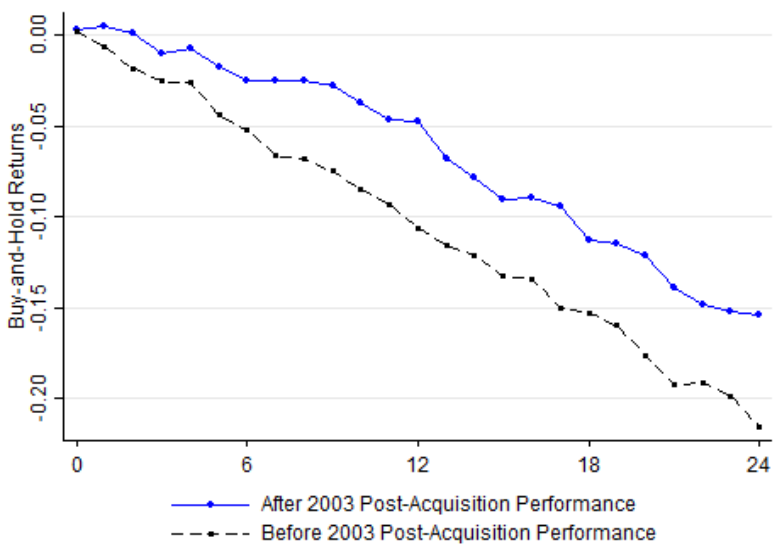
Notes: Columns (1)–(4) of Table 1 provides descriptive statistics for the Merger Performance sample. The observational unitis a merger. The mergers are split according to the payout characteristics of the acquiring firm. DIV Only are those firms that paid dividends, but did not repurchase shares prior to the acquisition. SBB Only are those firms that repurchased shares but did not pay dividends prior to the acquisition. Neither Firms are firms that neither repurchased shares nor paid a dividend prior to the acquisition. DIV and SBB Firms are those firms that both paid dividend and repurchased shares prior to the acquisition.

Graphical DD

(A) Repurchasing Firms



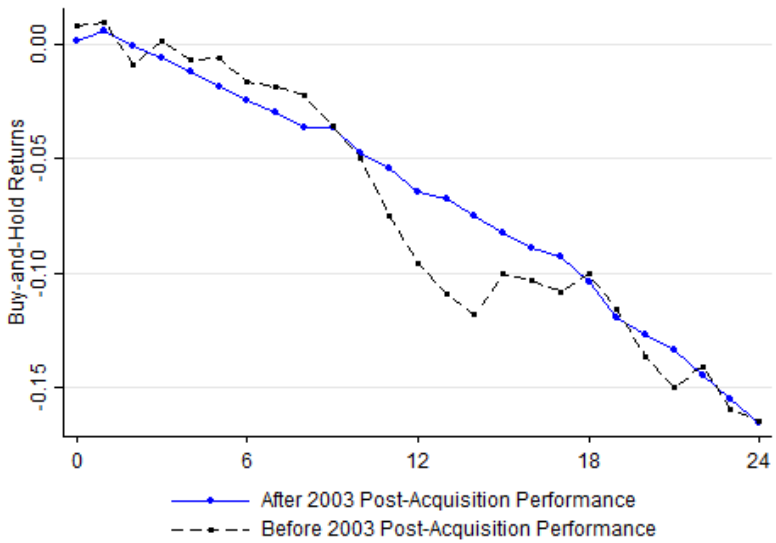
(B) Dividend Paying Firms



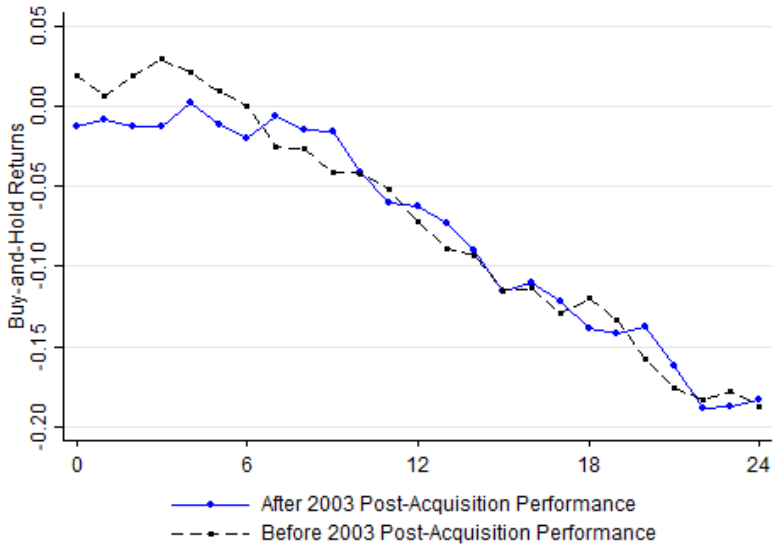
Notes: Panels A and B graph the evolution of cumulative abnormal returns for the twenty-four months after an acquisition is completed. Group averages are derived through the following procedure: cross-sectional regression of twenty-four month CAR on controls for firm size, retained earnings, and marginal Q are run in each year. Residual group means for the treatment and control group are then calculated and added to the mean investment percent for each year. All means are count weighted.

Graphical DD: Tax Exempt Firms

(A) Repurchasing Firms and High Instit.



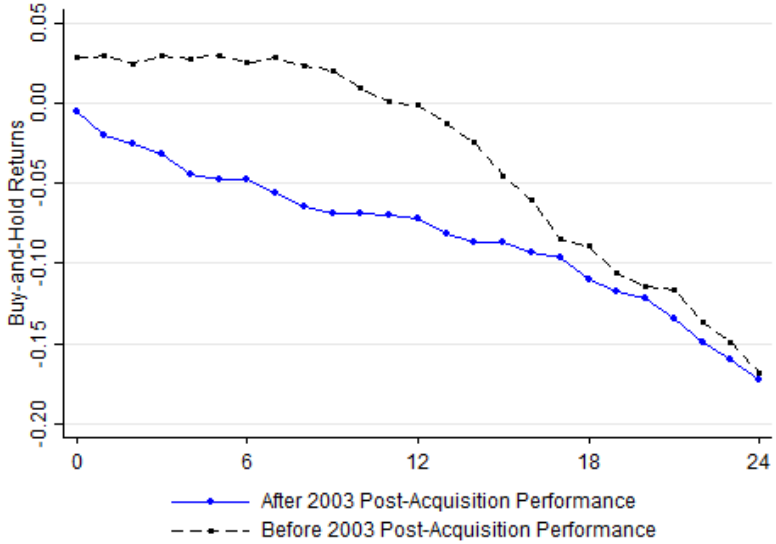
(B) Dividend Firms and High Instit.



Notes: Figure graphs the evolution of cumulative abnormal returns for the twenty-four months after an acquisition is completed. Each panel presents CARs averaged over mergers performed prior to and after the 2003 tax rate decreases for groups of firms. Other determinants of abnormal returns are controlled for in the following manner: for each month post merger, the CAR is regressed on controls for marginal Q, cash flow, assets, retained earnings, and financial constraint. The residuals are then averaged across groups and by time period. Mean residuals are added to population averages in each post merger month. All means are count weighted.

Graphical DD: Taxable Firms

(C) Repurchasing Firms and Low Instit.



(D) Dividend Firms and Low Instit.

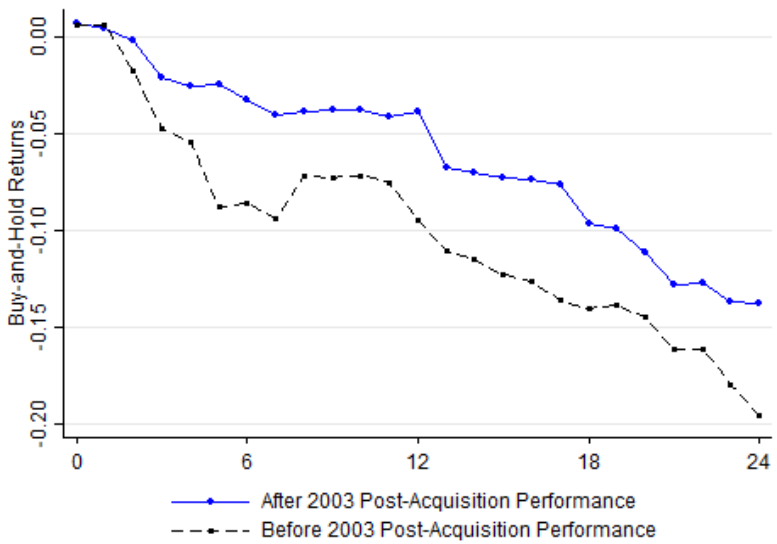


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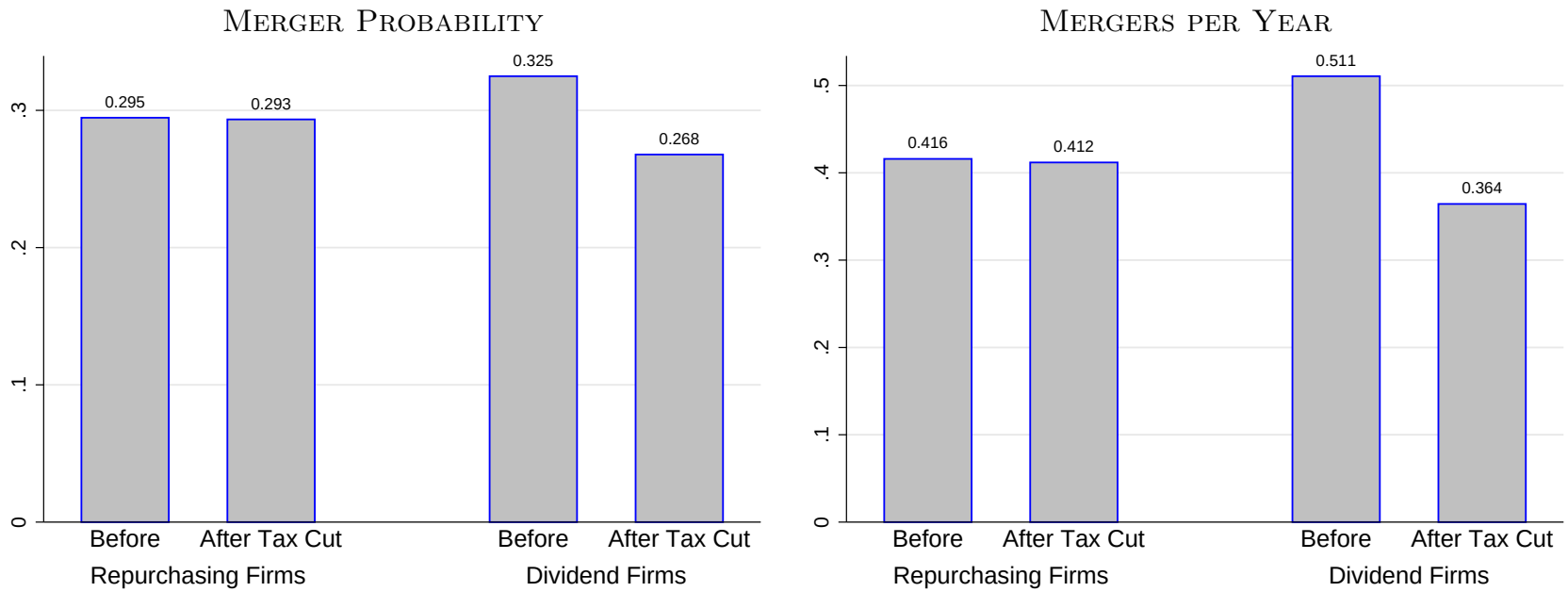
Table: Merger Performance Analysis

Dependent Variable:	24 Month BHARs			
	DD			DDD
Specification	(1)	(2)	(3)	(4)
DIV Firm	-1.465	-2.480	-1.479	0.773
	(1.624)	(1.743)	(3.985)	(3.759)
Low Tax X DIV Firm	3.401*	6.852**	11.072**	11.208**
	(1.949)	(2.944)	(5.117)	(5.592)
Low Tax × DIV Firm × Exempt%				-18.181**
				(7.400)
Full Sample	✓			✓
Most Taxable 50%		✓		
Most Taxable 25%			✓	
PreTrend F-Test	0.241	0.128	0.749	0.268
Adj. R-Square	0.168	0.176	0.208	0.137
Observations	2,634	1,139	547	2,103

Notes: The dependent variable in all specifications is the 24-month Buy-and-Hold abnormal return. Specification (2) limits the analysis to mergers performed by firms in the bottom half of the tax exempt distribution. Specification (3) limits the analysis to mergers performed by firms in the bottom quartile of the tax exempt distribution. All specifications include year fixed effects as well as firm level controls for marginal Q, financial distress, total assets, retained earnings, cash flow. Standard errors in all specifications are two-way clustered by firm and year. Statistical significance at the 1 percent level is denoted by ***, the 5 percent by **, and the 10 percent by *.

Figure: DD Merger Activity Analysis



Notes: Panel A averages the annual Merger Probability indicator for four groups: Share Repurchasing firms pre and post tax reform and Dividend Paying firms pre and post tax returns. Panel B averages the Mergers per Year for the same four groups of firms. Dividend Paying (Share Repurchasing) firms are those firms that paid a dividend (repurchased shares) but never repurchased shares (paid a dividend) prior to an observed merger. The sample is limited to firms that performed at least one merger during the years 1998–2008.

Table: DD Merger Activity Analysis

Dependent Var:	Merger Probability			Mergers per Year		
Specification	(1)	(2)	(3)	(4)	(5)	(6)
Div Firm	-0.020***	0.022	0.019**	-0.012	0.075**	0.047
	(0.007)	(0.014)	(0.009)	(0.011)	(0.038)	(0.031)
Low Tax x	-0.024**	-0.044***	-0.049*	-0.055***	-0.115***	-0.090**
Div Firm	(0.011)	(0.017)	(0.028)	(0.018)	(0.042)	(0.038)
$\geq$ 1 Merger		✓	✓		✓	✓
Most Taxable			✓			✓
R-Squared	0.006	0.016	0.018	0.007	0.023	0.018
Observations	37,498	16,251	1,605	37,498	16,251	1,605

Notes: Table 3 presents results from the Merger Activity analysis. In Specifications (1)–(3), the dependent variable is a firm-year indicator that is equal to 1 for years in which the firms performed a merger and 0 in years when no merger was performed. In Specifications (4)–(6), the dependent variable is the number of mergers performed by each firm in each year. All specifications in include controls for assets, cash, sales, retained earnings, and book-to market as well as firm and year fixed effects. Standard errors are reported in parentheses and are two-way clustered at the acquiring firm and year level and are robust to heteroskedasticity. Statistical significance at the 1 percent level is denoted by ***, the 5 percent by **, and the 10 percent by *.

Conclusion

Shareholder Taxes distort M&A activity

- Tax discount created by difference in dividend and capital gains tax rates

Empirical Results show Tax Discount prior to 2003

- discount tested using variation created by JGTRA 2003
- Merger performance by dividend paying firms increased after 2003
- Performance gains concentrated in taxable firms
- Merger activity decreased by dividend paying firms after 2003

Thank you for your comments and feedback!