

Figure 1

FTC: Procedures and Rules of Practice (Consumer Protection)

This figure shows the FTC's filing procedures when a company commits a consumer protection-related violation. Full Investigation should be Filing point according to FTC procedures and rules of practice. FTC consumer protection cases include “privacy and security” and “false advertising”. The first part is the initial phase of investigation, and the second part is the full investigation. The full investigation is confirming there is violation of laws and regulations. We define the filing point as when the full investigation is started.

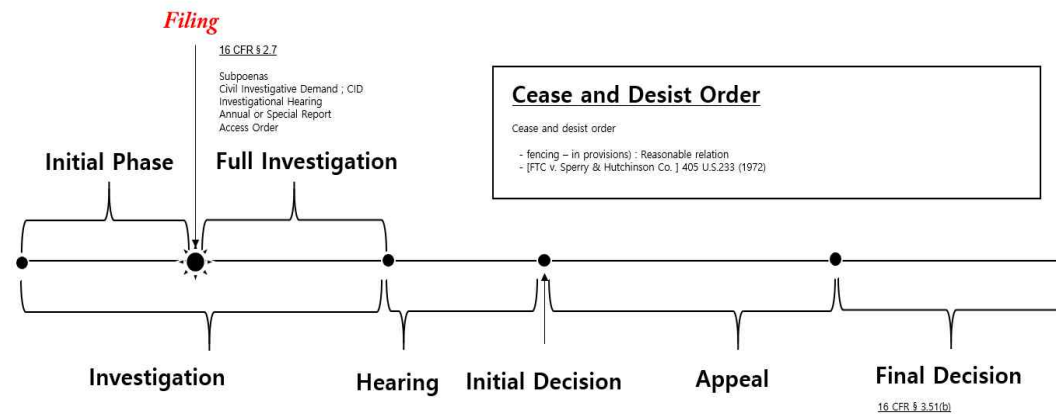


Figure 2

FTC: Procedures and Rules of Practice (Antitrust)

This figure shows the FTC's filing procedures when a company violates Antitrust regulations. The research target company selects a case that has become a Consent Agreement or Preliminary. In case of Antitrust case, filing point is when Second Request occurs.

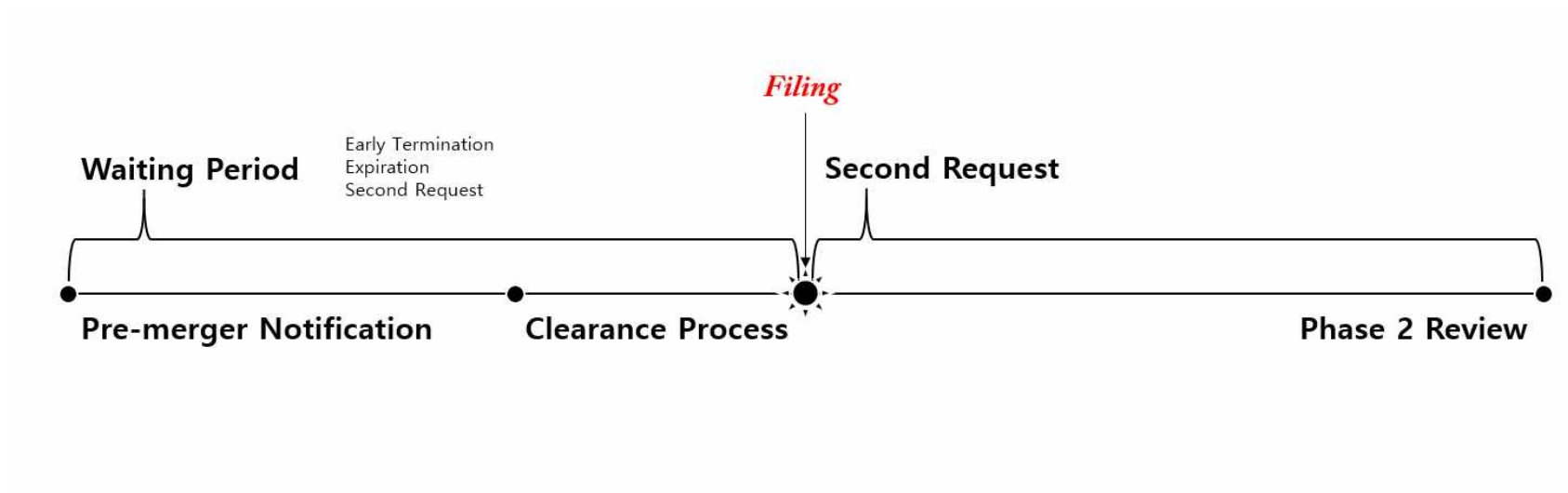


Table 1**Description of Variables**

This table defines the main variables in our paper. The subjects of this study are CEOs who served in the year of misconduct filed with the FTC. Firm's variable is based on the Filing point with the FTC, where the market can recognize illegal acts.

Variable name	Measurement and Source of Data
CEO' Variable	
CEO	Person who served as CEO of the company in the year that caused act of filing. In the event of a violation for many years, the act finally selected the year's CEO as the offending CEO.
Age_t	Age is defined as CEO age variable in ExecuComp in period t
$Age > 60_t$	Age > 60 is an indicator variable equal to one if the CEO age is greater the 60, zero otherwise
BM_{t-1}	BMt-1 is measured as firm I's Book-to-Market ratio as of the beginning of period t. Book-to-Market is measured as the book value of equity divided by market value of equity. Book Value of equity is measured by shareholders' equity plus deferred tax and investment credit minus preferred stock. The market value of equity is obtained from CRSP and is calculated by the number of common shares outstanding multiplied by share price.
$Duality_t$	Duality is an indicator variable equal to one if the CEO is the chairman of the corporate board, zero otherwise
$lnDelta_{t-1}$	lnDelta t-1 is the natural logarithm of one plus portfolio delta for the CEO at the beginning of the period t. Portfolio delta measures the dollar change in wealth experienced by the CEO for a 1 percent change in the firm's stock price (Core and Guy, 2002; Coles et al., 2006)

Vol_{t-1} Vol t-1 measures idiosyncratic return volatility and defined as the standard deviations of residuals from the regression of firm i's monthly returns on monthly equal-weighted peer firm average returns using preceding past 12 months (a minimum of 6 observations is required)

Performance

Tobin's Q	$(AT \text{ (total assets)} + (CSHO(\text{Common Shares Outstanding}) * PRCC_F(\text{Price Close Annual Fiscal}) - CEQ(\text{Common/Ordinary Equity}))/AT(\text{total assets}))$
Sales Growth	$(Sale_t - Sale_{t-1}) / Sale_{t-1}$

Investment and Financing

R&D	The ratio of research and development expense (XRD) to total assets (AT)
CAPEX_AT	The ratio of Capital expenditures (CAPEX) to total assets (AT)
LDA	The ratio of long-term debt (DLTT) to total book assets (AT)

Governance

TDC1	Total compensation as calculated under the 1992 reporting format. Total compensation is comprised of the following: Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other Total (in thousands \$).
TDC2	Total compensation as calculated under the 1992 reporting format. Total Compensation is comprised of the following: Salary, Bonus, Other Annual, Restricted Stock Grants, Long-Term Incentive Payments, All Other, and Value of Options Exercised (in thousands \$).
OUTSIED	The percentage of the board members who are non-employee

directors

Figure 3

FTC Litigation Type Frequency

This figure is a classification of the Litigation Type of companies that are filed with the FTC. We separate false and exaggerated advertisements and consumer protection. Consumer protection is a case of violating the interests of individuals. False and exaggerated advertisements infringe on the interests of an unspecified individuals.

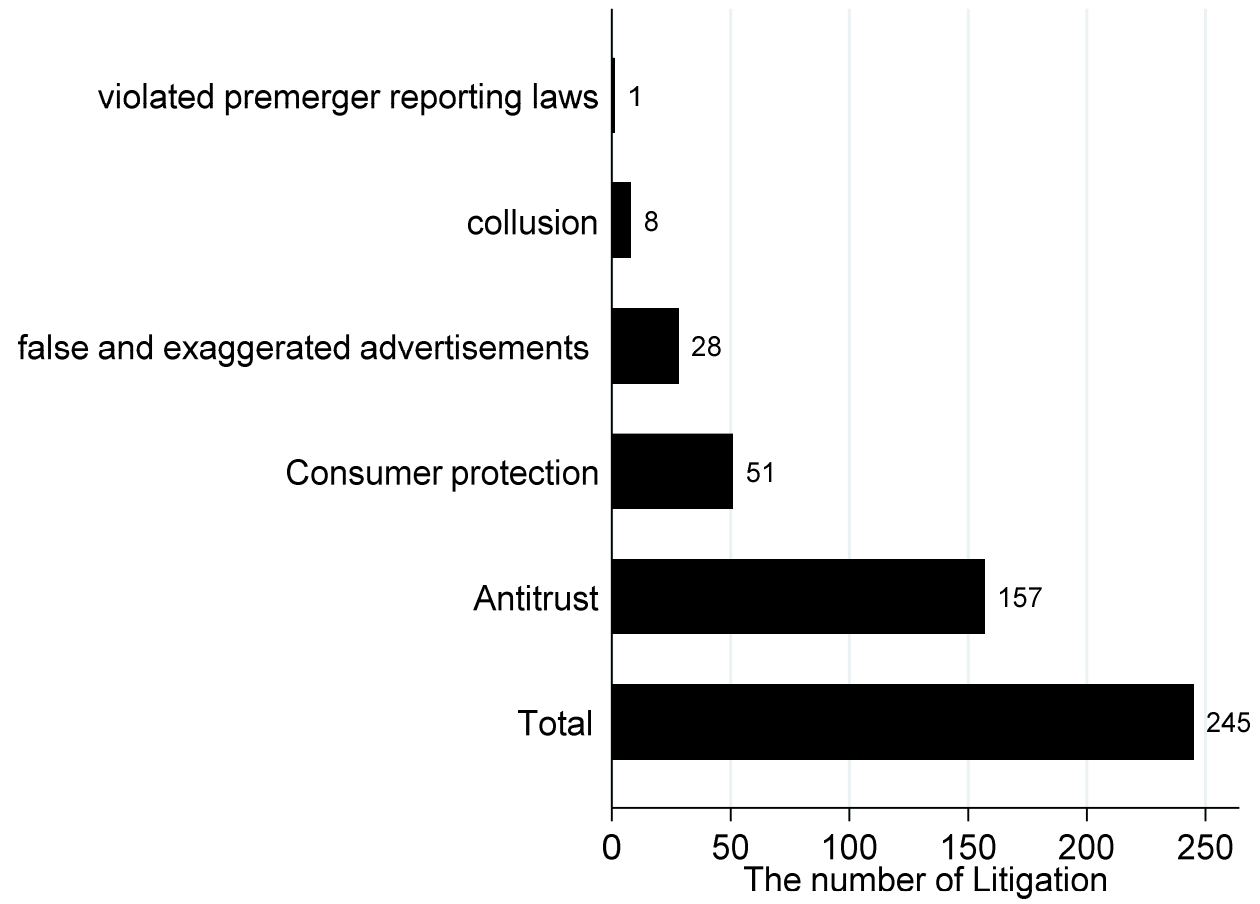


Table 2

Descriptive Statistics for Treated Firms and Donor Firms

This table shows the Descriptive Statistics of the FTC sample (Treated Firms) and Donor Firms (Control Firms). The SIC code 4-digit from Treated firms and Donor firms is selected equally. We use the 2012 GDP Price Deflator from the US Bureau of Economic Analysis (BEA). GDP price deflators apply to AT, Sales, LDA, TDC1, and TDC2. Tobin's Q, Sales Growth, R&D, CAPEX, LDA, TDC1, TDC2 are winsorized (1%).

	FTC									
	Treated Firms					Donor Firms				
	N	Mean	Min	Max	Std.	N	Mean	Min	Max	Std.
AT(Millions, \$)	243	21753.01	143.73	114837	31439.71	7,963	3796.07	0.814	131119	15233.92
Tobin's Q	230	2.0988	0.9947	5.4173	1.1936	7,963	2.2869	0.3818	5.8914	1.2646
Sales Growth	236	0.1485	-0.1721	0.8415	0.2434	7,441	0.1603	-0.9489	4.9947	0.6131

R&D/AT	168	0.0498	0	0.1769	0.051	7,963	0.1443	0	0.9003	0.1693
CAPEX/AT	238	0.0457	0.0098	0.1252	0.0303	7,861	0.0399	0	0.2979	0.0476
LDA	243	0.2402	0	0.6437	0.1747	7,963	0.1264	0	1.0905	0.1942
TDC1_curr	173	0.6738	0.0542	0.96	0.2562	1,917	0.6294	0	1	0.2832
TDC2_curr	174	0.5919	0.0077	0.96	0.3303	1,919	0.5202	0	1	0.3457
OUTSIDE	113	0.8233	0	0.9333	0.1442	2,774	0.7899	0	0.9444	0.1485

Table 3**Descriptive Statistics for Treated Firms and Donor Firms**

This table shows the Descriptive Statistics of the M&A sample (Treated Firms) and Donor Firms (Control Firms). The SIC code 4-digit from Treated firms and Donor firms is selected equally. We use the 2012 GDP Price Deflator from the US Bureau of Economic Analysis (BEA). GDP price deflators apply to AT, Sales, LDA, TDC1, and TDC2. Tobin's Q, Sales Growth, R&D, CAPEX, LDA, TDC1, TDC2 are winsorized (1%).

	M&A									
	Treated Firms					Donor Firms				
	N	Mean	Min	Max	Std.	N	Mean	Min	Max	Std.
AT(Millions, \$)	500	2127.25	14.01	15107.34	3926.22	10,911	838.26	0.514	7650.82	1914.39
Tobin's Q	429	2.1963	0.9591	5.9789	1.1742	7,796	2.2634	0.8229	5.0234	1.2250
Sales Growth	452	0.4450	-0.3846	3.2985	0.8851	8,885	0.2904	-0.7081	2.8962	0.8119
R&D/AT	360	0.1341	0	0.5081	0.1357	7,561	0.1996	0	0.6839	0.1954
CAPEX/AT	473	0.0527	0	0.2739	0.0683	10,623	0.0465	0	0.2196	0.0574

LDA	497	0.1898	0	0.6083	0.2025	10,830	0.1433	0	0.6898	0.2030
TDC1_curr	213	0.6389	0.0159	0.9298	0.2739	1,578	0.6012	0.0157	0.9367	0.2849
TDC2_curr	213	0.5364	0.0036	0.9414	0.3405	1,583	0.4998	0.0025	0.9529	0.3394
OUTSIDE	263	0.8005	0	0.9333	0.1328	2,984	0.7899	0	1	0.1385

Figure 4

CEO filed with the FTC Turnover Frequency

This table shows CEO turnover until three years after FTC filing. Before Filing is the case where the CEO turnover before FTC Filing. Filing 1 Year represents CEO turnover one year after FTC filings. Filing 2 Year represents CEO turnover two year after FTC filings. Filing 3 Year represents CEO turnover three year after FTC filings. "Not terminated" is when the CEO works for the company three years after FTC filing.

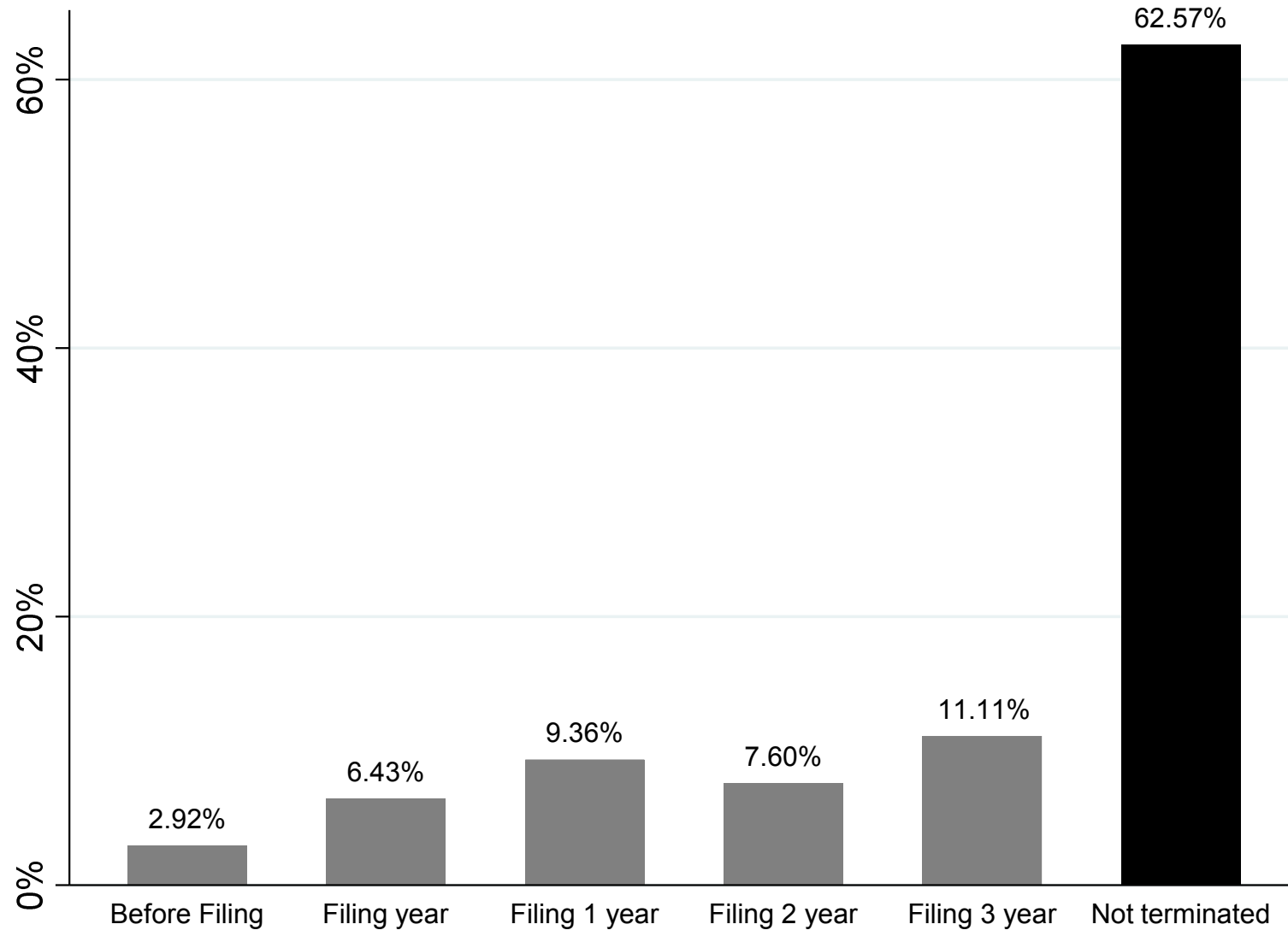


Table 4

CEO filed with the FTC

This table shows the CEO's turnover year and age after FTC filing. **Panel A** shows the turnover of the CEO by year after FTC filing. Before Filing is the case where the CEO turnover before FTC Filing. Filing 1 Year represents CEO turnover one year after FTC filings. Filing 2 Year represents CEO turnover two year after FTC filings. Filing 3 Year represents CEO turnover three year after FTC filings. "Not terminated" is when the CEO works for the company three years after FTC filing. **Panel B** is the result of TTEST analysis of the CEO's tenure after FTC filing. Traded Firms is an FTC-filed company. Donor Firms is a company selected for synthetic control methods (SCM). Donor Firms has the same 4 digit and year of Treated Firms. **Panel C** is the result of TTEST analysis of the CEO's turnover age after FTC filing. Traded Firms is an FTC-filed company. Donor Firms is a company selected for SCM. Donor Firms has the same 4 digit and year of Treated Firms.

Panel A. CEO Turnover Year Percentage

Turnover Year	FTC		
	Freq.	Percent	Cum.

Before Filing	5	3%	3%
Filing Year	11	6%	9%
Filing 1 Year	16	9%	19%
Filing 2 Year	13	8%	26%
Filing 3 Year	19	11%	37%
Not terminated	107	63%	100%
Total	171	100.00%	

Panel B. CEO Turnover Year T-Test

	Treated Firms		Donor Firms		Diff
	N	Mean	N	Mean	
FTC	145	4.74	1,019	4.45	0.28

Panel C. CEO Turnover Age T-Test

	Treated Firms		Donor Firms		Diff
	N	Mean	N	Mean	
FTC	145	60.21	991	60.55	-0.34

Table 5**The Effect of FTC filing on CEO turnover**

This table shows the regression analysis of the effect of FTC filings on CEO turnover. In column (1), we calculate a dummy variable that is 0 if the CEO is still in office and 1 if he has left one year after FTC filing. In column (2), we calculate a dummy variable that is 0 if the CEO is still in office and 1 if he has left two years after FTC filing. In column (3), we calculate a dummy variable that is 0 if the CEO is still in office and 1 if he has left three years after FTC filing. Significant at the 1%, 5% and 10% levels are indicated by ***, **, and *, respectively. See Table for a description of the variables.

CEO Turnover	(1)	(2)	(3)
	1 year	2 year	3 year
FTC filing	0.0033 (0.0330)	0.0325 (0.0528)	-0.0449 (0.0671)
Age_t	0.0044 (0.0030)	0.0050 (0.0047)	0.0068 (0.0060)
$Age > 60_t$	0.0244 (0.0447)	0.0407 (0.0716)	-0.1116 (0.0911)
$Dual_t$	-0.0088 (0.0279)	0.0415 (0.0446)	0.0206 (0.0567)
$Tobin's Q_{t-1}$	-0.0198** (0.0078)	-0.0349*** (0.0124)	-0.0443*** (0.0158)
BM_{t-1}	0.0000*** (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
Vol_{t-1}	0.4847** (0.1991)	1.0092*** (0.3188)	0.9525** (0.4056)
$Delta_{t-1}$	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)

_cons	-0.2172 (0.1655)	-0.2095 (0.2650)	-0.1000 (0.3371)
N	264	264	264
R-sq	0.107	0.088	0.058

Table 6

Market Reaction after FTC filing

This table shows the 3day window market reaction after FTC filling. Event windows range from three days denoted by [-1,+1].

Window period	N	Abnormal Stock Return
[-1 , +1]	181	0.0022

Figure 6

Difference in Difference in Differences

Figure 6 shows that M&A effect of antitrust samples is controlled using Difference in Difference in Differences (DIDID). We analyze the impact of FTC filing on companies with Synthetic Control Method (SCM). In this analysis, a Control Firm (Colon Firm) needs to be created. Donor Firm Group is required to make Control Firm (Colon Firm). We select Donor Firm Group as a company with the same Standard Industrial Classification (SIC 4 Digit) and no FTC Filing. And we exclude companies that Donor Firm Group make M&A deals in the same year.

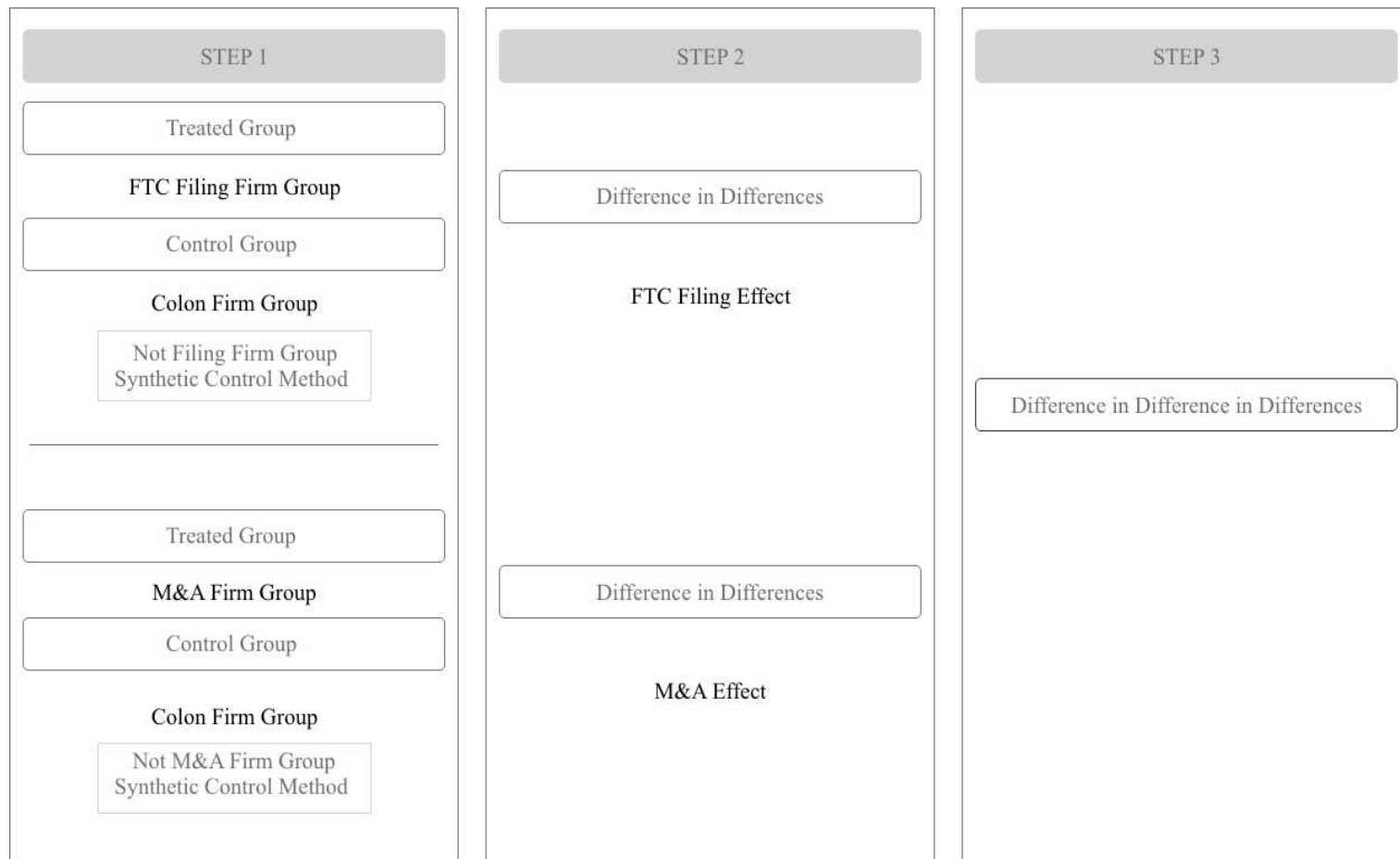


Figure 7

Difference in Difference in Differences (DIDID) Sample

Figure 7 shows Tobin's Q results by controlling the M&A effect in Antitrust Sample (FTC Filing Effect). We analyze using the Synthetic Control Method (SCM) based on the Donor Firm Group. And we analyze the impact of FTC filing on companies using difference in differences. Same for M&A, Donor Firm Group is selected as a company with the same SIC (4 Digit) and a company without FTC filing. And we exclude companies that Donor Firm Group make M&A deals in the same year. We analyze using the SCM based on the Donor Firm Group. And we analyze the impact of M&A on companies using difference in differences. We analyze the differences between FTC filing's Effect and M&A's Effect for companies using Difference in Difference in Differences (DIDID). We control the M&A effect in the FTC filling effect.

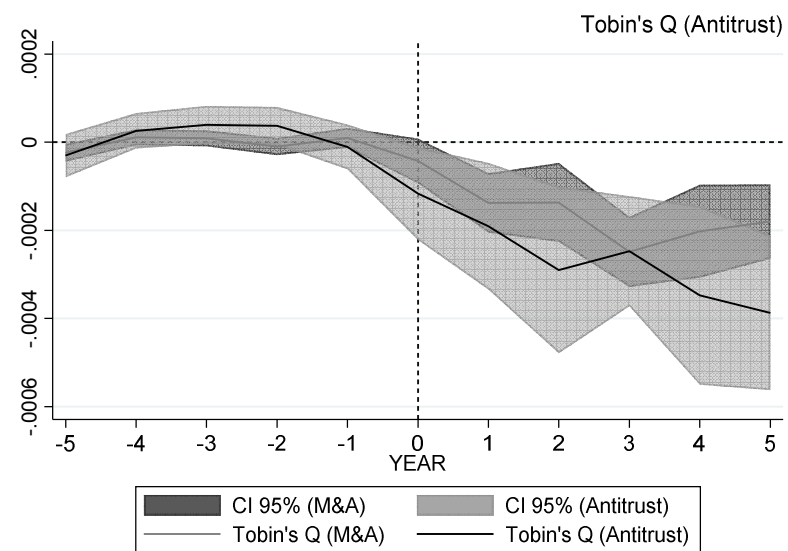
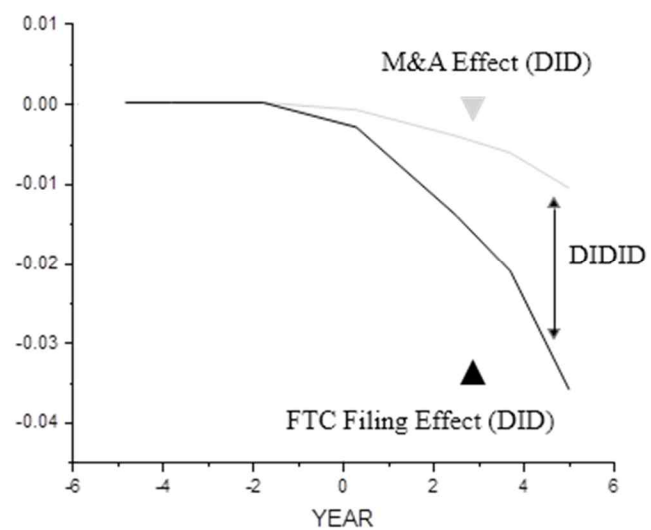


Table 7

The effect of FTC filing on the firm's performance: short, middle, and long-term

Table 7 shows the firm's performance after FTC filing. **Panel A** is the result of analyzing the performance of the Antitrust sample with Difference in Differences (DID) after FTC filling. **Panel B** analyzes the Difference in Difference in Difference (DIDID) to control the M&A effect (performance) in the FTC reporting effect (performance). **Panel C** shows the changes in Tobin's Q and Sales Growth of FTC filing companies for reasons other than Antitrust (Non-Antitrust) in short, middle, and long terms. Difference in Differences (DID) and Difference in Difference in Difference (DIDID) with Synthetic Control Method (SCM) Significant differences at the 1%, 5% and 10% levels are indicated by ***, **, and *, respectively. See Table for a description of the variables.

Panel A. Antitrust sample Diff-in-Diff estimation

Performance				
Treated	Control	Short	Middle	Long

	N (Donor)	N (Donor)	DID	DID	DID
FTC : Antitrust					
Tobin's Q	90	3371	-0.0002*** (0.0098)	-0.0002*** (0.0005)	-0.0003*** (0.0000)
Sales Growth	99	3554	0.0001 (0.5586)	0.0000 (0.2120)	-0.0001** (0.0171)

Panel B. Antitrust sample Diff-in-Diff-in-Diff estimation Performance

	Performance				
	FTC filing Effect	M&A Effect	Short	Middle	Long
	Treated (Control)	Treated (Control)	DIDID	DIDID	DIDID
	N (Donor)	N (Donor)			
FTC : Antitrust					
Tobin's Q	90 (3371)	161 (10093)	-0.0001 (0.4541)	-0.0001 (0.3210)	-0.0001 (0.1035)
Sales Growth	99 (3554)	164 (10963)	0.0000 (0.9284)	0.0000 (0.9638)	0.0000 (0.9183)

Panel C. Non-antitrust sample Diff-in-Diff estimation

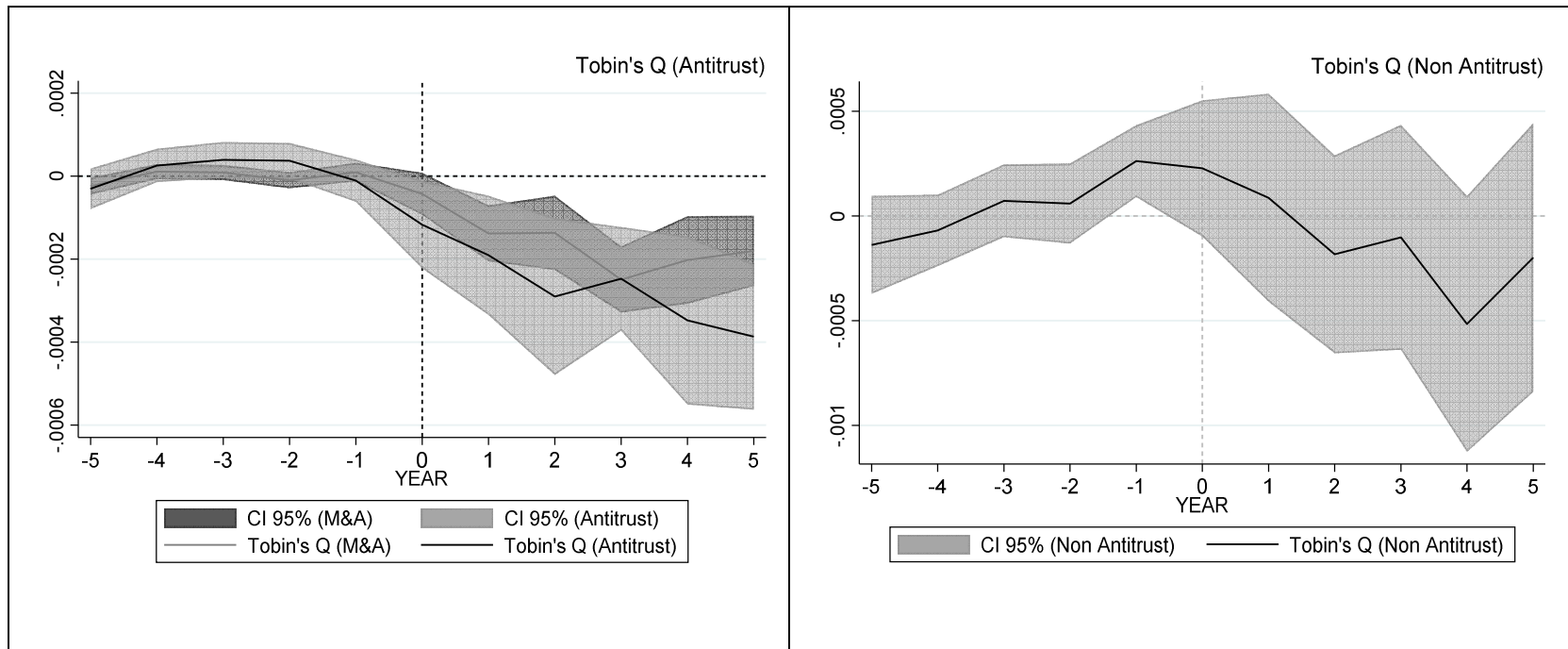
Performance				
Treated	Control	Short	Middle	Long

	N (Donor)	N (Donor)	DID	DID	DID
FTC : Non-Antitrust					
Tobin's Q	37	1169	0.0001 (0.7252)	-0.0001 (0.7682)	-0.0002 (0.4465)
Sales Growth	41	1158	0.0000 (0.4159)	-0.0003 (0.2114)	-0.0002 (0.2230)

Figure 8

The effect of the Firm's performance Comparison

Figure 8 report Tobin's Q line and Sales Growth line before and after the FTC filing. Black line represents Tobin's Q and Sale Growth before and after FTC filling. Light gray area represents Tobin's Q confidence interval and Sales Growth confidence interval of the FTC sample. Gray line represents Tobin's Q and Sale Growth before and after M&A filling. Dark gray area represents Tobin's Q confidence interval and Sales Growth confidence interval of the M&A sample. The Antitrust sample graph shows the M&A sample line and M&A sample confidence interval together.



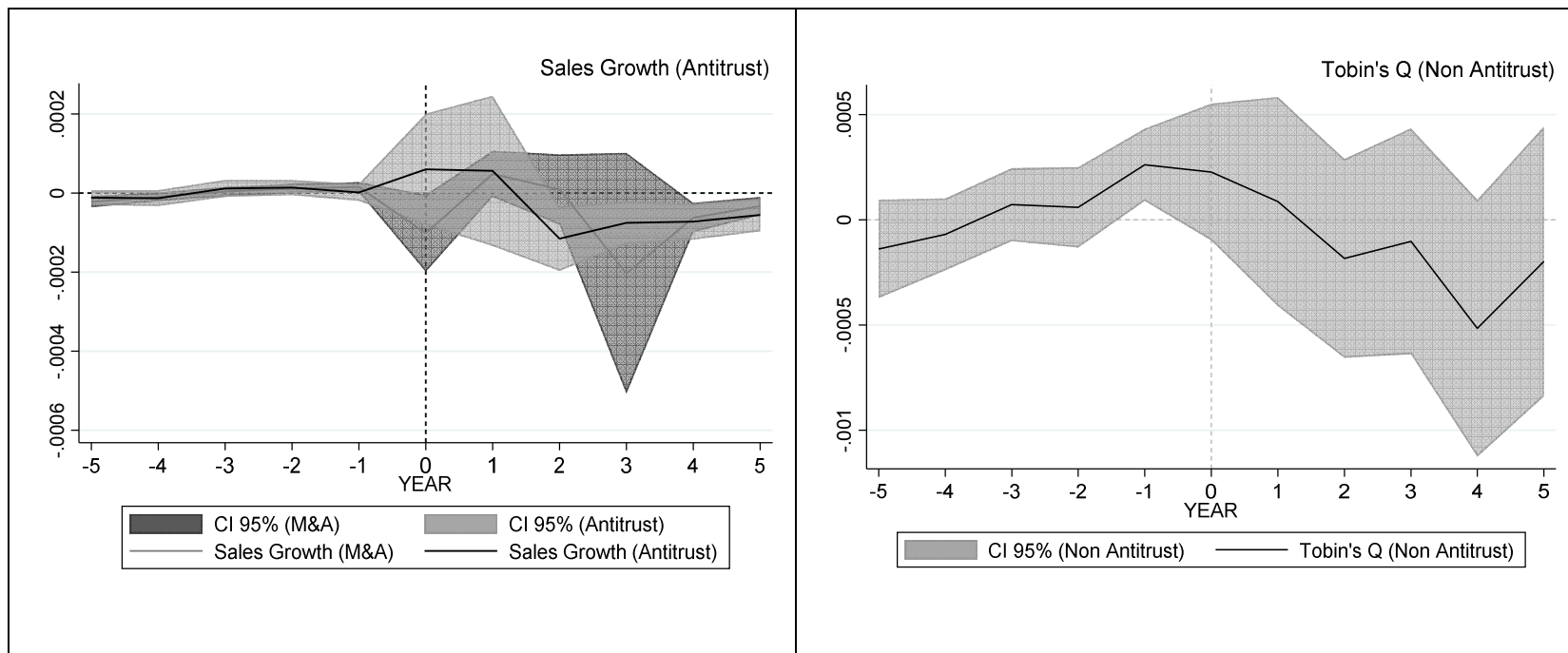


Table 8

The effect of FTC filing on investment and financing: Short, middle, and long-term

Table 8 shows the firm's investment and financing after FTC filing. **Panel A** is the result of analyzing the investment and financing (R&D, CAPEX/AT and LDA) of the Antitrust sample with Difference in Differences (DID) after FTC filling. **Panel B** analyzes the Difference in Difference in Difference (DIDID) to control the M&A effect (investment and financing) in the FTC reporting effect (investment and financing). **Panel C** shows the changes in R&D, CAPEX/AT and LDA of FTC filing companies for reasons other than Antitrust (Non-Antitrust) in short, middle, and long terms. Difference in Differences (DID) and Difference in Difference in Difference (DIDID) with Synthetic Control Method (SCM) Significant differences at the 1%, 5% and 10% levels are indicated by ***, **, and *, respectively. See Table for a description of the variables.

Panel A. Antitrust sample Diff-in-Diff estimation

	Investment and Financing				
	Treated	Control	Short	Middle	Long
	N (Donor)	N (Donor)	DID	DID	DID
FTC : Antitrust					
R&D	59	3009	0.0000 (0.3210)	0.0000 (0.3103)	0.0000 (0.3087)
CAPEX/AT	103	4151	0.0000	0.0000	0.0000

			(0.9988)	(0.5794)	(0.5303)
LDA	108	4618	-0.0001	0.0000	0.0000
			(0.5417)	(0.8473)	(0.5571)

Panel B. Antitrust sample Diff-in-Diff-in-Diff estimation

	Investment and Financing				
	FTC filing Effect	M&A Effect	Short	Middle	Long
	Treated (Control)	Treated (Control)	DIDID	DIDID	DIDID
	N (Donor)	N (Donor)			
FTC : Antitrust					
R&D	59(3009)	125(9431)	0.0000	0.0000	0.0000
			(0.1462)	(0.1392)	(0.1358)
CAPEX/AT	103(4151)	183(14587)	0.0000	0.0000	0.0000
			(0.9175)	(0.4796)	(0.4156)
LDA	108(4618)	218(20116)	-0.0001	0.0000	0.0000
			(0.3780)	(0.7929)	(0.1639)

Panel C. Non-antitrust sample Diff-in-Diff estimation

	Investment and Financing				
	Treated	Control	Short	Middle	Long
	N (Donor)	N (Donor)	DID	DID	DID

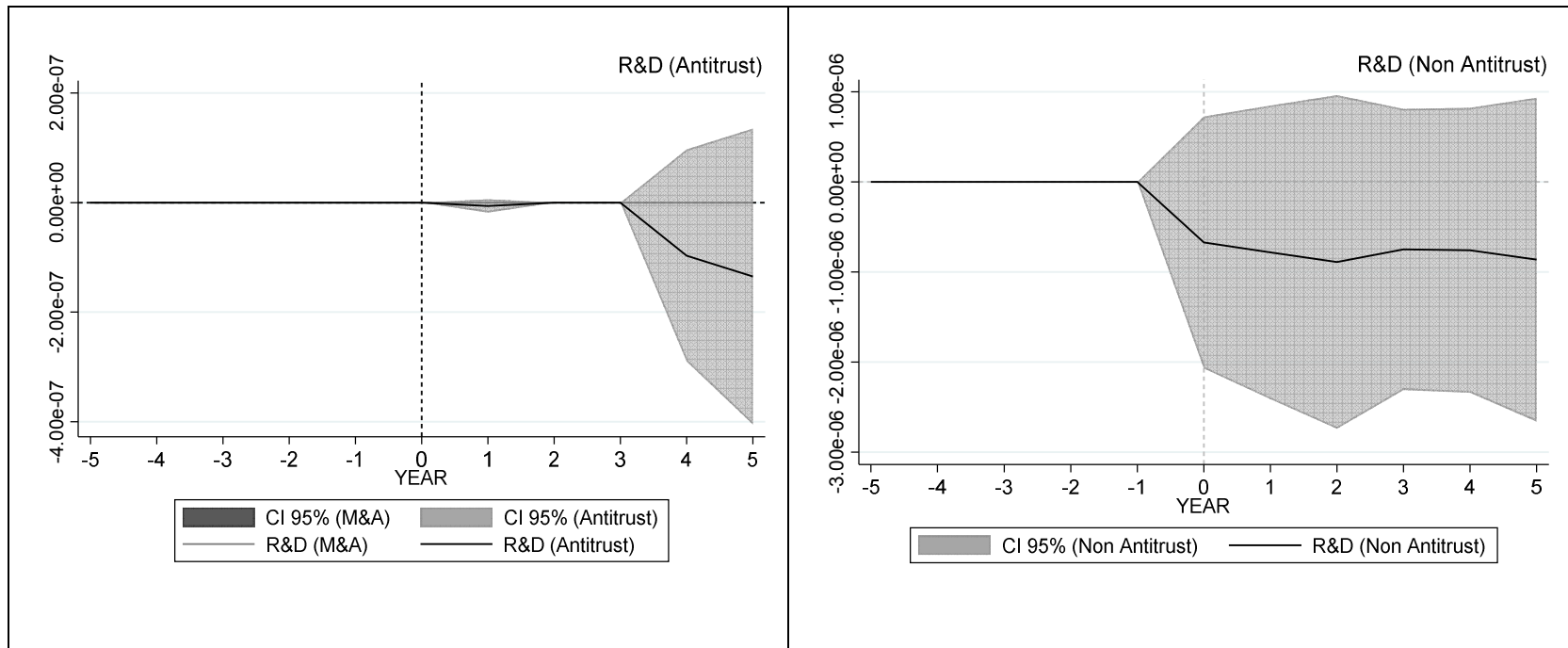
FTC : Non-Antitrust

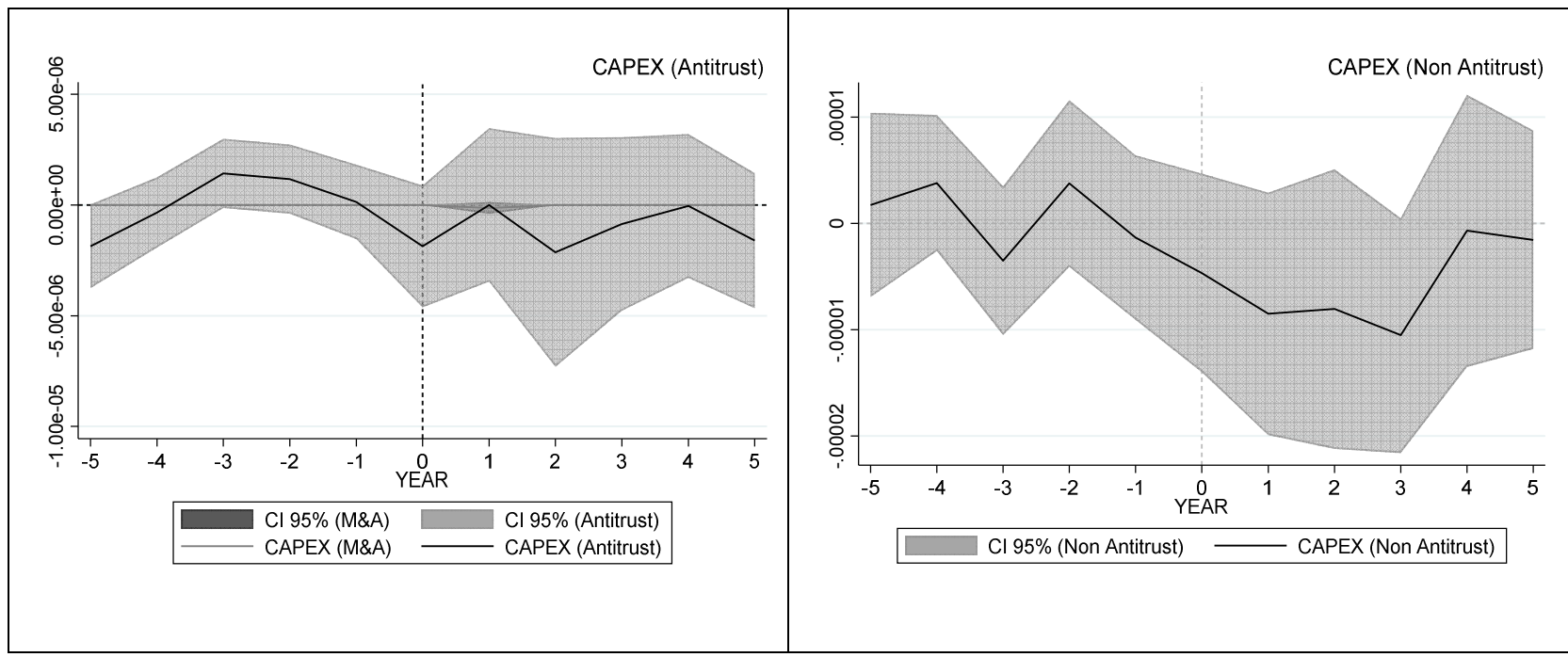
R&D	21	895	0.0000 (0.3292)	0.0000 (0.3292)	0.0000 (0.3292)
CAPEX/AT	41	1256	0.0000 (0.1394)	0.0000* (0.0839)	0.0000 (0.1620)
LDA	45	1256	0.0000 (0.3218)	0.0000 (0.3224)	0.0000 (0.3227)

Figure 9

The effect of the Firm's Investment and Financing Comparison

Figure 9 report R&D line, CAPEX/AT line and LDA line before and after the FTC filing. Black line represents R&D, CAPEX/AT and LDA before and after FTC filling. Light gray area represents R&D confidence interval, CAPEX/AT confidence interval and LDA confidence interval of the FTC sample. Gray line represents Tobin's Q and Sale Growth before and after M&A. Dark gray area represents R&D confidence interval, CAPEX/AT confidence interval and LDA confidence interval of the M&A sample. The Antitrust sample graph shows the M&A sample line and M&A sample confidence interval together.





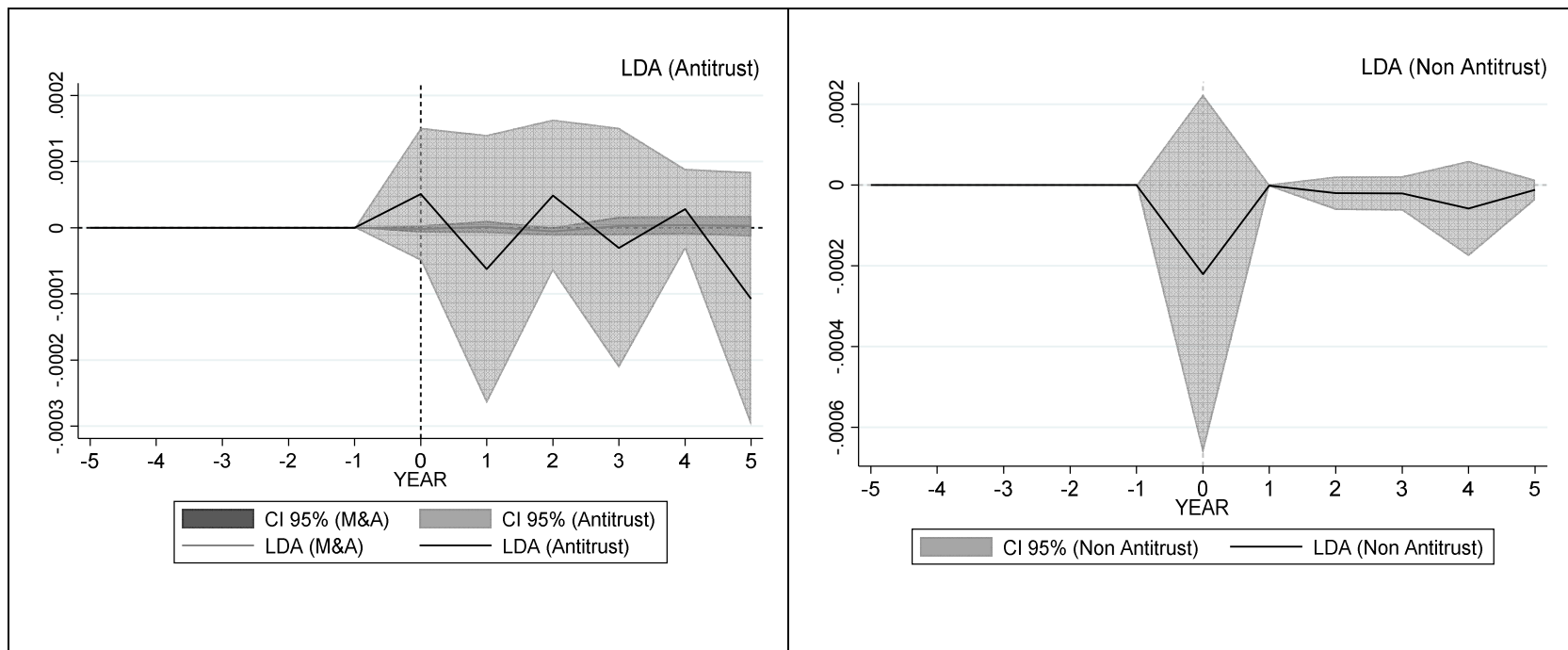


Table 9

The effect of FTC filing on governance: Short, middle, and long-term

Table 9 shows the firm's governance after FTC filing. **Panel A** is the result of analyzing the governance (TDC1, TDC2 and OUTSIDE) of the Antitrust sample with Difference in Differences (DID) after FTC filling. **Panel B** analyzes the Difference in Difference in Difference (DIDID) to control the M&A effect (governance) in the FTC reporting effect (governance). **Panel C** shows the changes in TDC1, TDC2 and OUTSIDE of FTC filing companies for reasons other than Antitrust (Non-Antitrust) in short, middle, and long terms. Difference in Differences (DID) and Difference in Difference in Difference (DIDID) with Synthetic Control Method (SCM) Significant differences at the 1%, 5% and 10% levels are indicated by ***, **, and *, respectively. See Table for a description of the variables.

Panel A. Antitrust sample Diff-in-Diff estimation

Governance				
Treated	Control	Short	Middle	Long

	N (Donor)	N (Donor)	DID	DID	DID
FTC : Antitrust					
TDC1	33	515	0.0002* (0.0708)	0.0002 (0.1641)	0.0002* (0.0885)
TDC2	33	532	0.0000 (0.9674)	-0.0001 (0.6154)	0.0001 (0.5618)
OUTSIDE	19	351	0.0001** (0.0286)	0.0000 (0.4239)	0.0000 (0.7901)

Panel B. Antitrust sample Diff-in-Diff-in-Diff estimation

	Governance				
	FTC filing Effect	M&A Effect	Short	Middle	Long
	Treated (Control)	Treated (Control)	DIDID	DIDID	DIDID
	N (Donor)	N (Donor)			
FTC : Antitrust					
TDC1	33(515)	74(1314)	0.0002** (0.0270)	0.0002** (0.0255)	0.0002*** (0.0060)
TDC2	33(532)	73(1310)	0.0001 (0.7478)	-0.0001 (0.7025)	0.0001 (0.3458)
OUTSIDE	19(351)	70(3433)	0.0001** (0.0151)	0.0000 (0.8292)	0.0000 (0.7216)

Panel C. Non-antitrust sample Diff-in-Diff estimation

	Governance				
	Treated	Control	Short	Middle	Long
	N (Donor)	N (Donor)	DID	DID	DID
FTC : Non-Antitrust					
TDC1	14	157	0.0001 (0.7360)	0.0001 (0.7976)	0.0000 (0.9118)
TDC2	14	164	-0.0026 (0.3550)	-0.0035 (0.3245)	-0.0037 (0.3242)
OUTSIDE	8	101	0.0001 (0.7541)	0.0001 (0.4344)	0.0001 (0.4238)

Figure 9

The effect of the Firm's Governance Comparison

Figure 10 report TDC1 line, TDC2 line and OUTSIDE line before and after the FTC filing. Black line represents TDC1, TDC2 and OUTSIDE before and after FTC filling. Light gray area represents TDC1 confidence interval, TDC2 confidence interval and OUTSIDE confidence interval of the FTC sample. Gray line represents TDC1, TDC2 and OUTSIDE before and after M&A. Dark gray area represents TDC1 confidence interval, TDC2 confidence interval and OUTSIDE confidence interval of the M&A sample. The Antitrust sample graph shows the M&A sample line and M&A sample confidence interval together.

