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Stock Returns, Real Activity, and the Trust Question

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ABSTRACT

Periodic antitrust attacks on corporations may have influenced stock prices. For the period 1904 to 1944, each antitrust case filed is associated with a 0.5 to 1.9 percent drop of the Dow, and each unexpected case with even larger drops. Other aspects of antitrust besides actual filings may help account for other movements, in particular the 1929 Crash. Historical evidence bears on the question of whether antitrust is exogenous and also links antitrust and the "corporation problem." These results illustrate the sorts of real factors aside from changes in concurrent output that may account for stock price volatility.

THE STATISTICAL RELATIONSHIP BETWEEN stock prices and real variables such as GNP and industrial production is well established.¹ Still, some researchers conclude that a large fraction of significant market moves are difficult to explain. For example, Cutler, Poterba, and Summers (1989, p. 9), argue that "news important enough to account for large swings in the demand for corporate equities would almost surely leave traces in either official economic statistics or media reports about market movements." However, they fail to uncover a strong link. Fama (1990) finds that a combination of real and financial variables explains 58 percent of the variation in annual returns but concedes that a substantial residual variation remains, leaving open the question whether observed fluctuations are rational. What else moves stock prices?

Public policy toward business, in particular antitrust, may very well affect the value of publicly traded firms. Although never examined in the economics or finance literature, the charge that antitrust hurts business confidence has surfaced at various points, for example during the panic of 1907 and the recessions of 1911, 1930, and 1938. Might there be something to these

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¹ See Fama (1981), Geske and Roll (1983), Kaul (1987), and Barro (1990). Other work seeks to explain observed stock market swings as the result of changes in expected returns. See Keim and Stambaugh (1986), French, Schwert, and Stambaugh (1987), Campbell and Shiller (1988), Fama and French (1988). Recent papers by Fama (1990) and Schwert (1990) combine these two approaches.

charges? At first glance, antitrust hardly seems important enough to affect the stock market, certainly not nearly as important as monetary and fiscal policy. Part of the case has to be made statistically, and the work below supports the idea that antitrust case filings and other enforcement events are linked with lower stock prices. But the case for antitrust also hinges on other kinds of evidence—on economic and institutional facts—in short, on the story that goes with the numbers.

Section I contains a brief history of antitrust and the “corporation problem.” Antitrust was, as I hope to show, important for the fate of the public corporation and fairly volatile, ranging from Teddy Roosevelt’s celebrated and politicized trustbusting, to Calvin Coolidge’s restrained enforcement of the 1920s, and returning again to strident attacks on business during the late 1930s.

The data are described in Section II. The empirical work in Sections III and IV focuses on the effect of antitrust case filings on quarterly returns of the Dow industrial average. Case filings do not capture even all of the effects of antitrust, let alone all public policy toward business. Case filings do have the virtue of providing a concrete measure of the shifts in enforcement. Antitrust has been largely carried out with explicit lawsuits, rather than with informal administrative actions and jawboning, which would be harder to incorporate in a formal analysis.

The regressions in Section III are an attempt to provide a robust test of the effect of antitrust by asking whether antitrust case filings affected quarterly industrial stock prices even when railroad stock prices are used to control for general business and financial-market influences. Estimated effects on the Dow industrial average tend to fall in the range of -0.2 to -1.7 percent per case filed, with stronger effects evident in the early years of this century.

The empirical work in Section IV represents an extension of the approach adopted by Fama (1990) and Schwert (1990). I regress quarterly returns on concurrent changes in industrial production and wholesale prices and on current and leading case filings. Each case filed resulted in a decline of the Dow industrial average of 0.5 percent for the period 1904–1945 as a whole. Estimated effects in the early antitrust periods (1904–1914 and 1915–1928) range as high as two percent. Since an average of 15 cases were filed per twelve-month period, a period of intensive case filings was accompanied by substantial drops in the Dow. If a measure of unanticipated case filings is used in place of filings, the estimated effects per case are even larger, ranging from -0.57 to -1.52 percent. Case filings explain between 8 and 45 percent of the residual variation in annual nominal returns not accounted for by changes in production and changes in the price level.

Section V looks at a particular episode that seems to be at odds with the overall results—the Crash of October 1929. It turns out that the Hoover administration undertook a major shift in antitrust policy that is not accurately reflected in the filings data. For example, it terminated the Coolidge policy of providing advance clearance of mergers and trade association agreements and promised again to enforce antitrust with lawsuits rather than

with informal consultation. This change was announced on October 25, in the middle of the second largest one-week slide of stock prices in U.S. history. The event study of case filings and major antitrust announcements in Section VI finds that each antitrust announcement was associated with average four-day declines of the Dow of 3.9 percent in 1929 and 1.9 percent in 1930–1931.

I. Antitrust Enforcement and the Corporation, 1890–1945

The Sherman Act seems far removed from stock prices today, but antitrust and the fate of the public corporation were closely related at least until the 1940s.² The 1890 Sherman Act itself was a response to new corporate forms, especially the “trust,” which was the predecessor to the holding company. In the original business trust, legal title to property is vested in the trustees, who managed the property in the interests of “beneficiaries.” Real estate trusts are examples. The device was adopted for a completely different purpose in 1879 by Standard Oil to allow permanent, coordinated operation of a related set of enterprises. Standard’s economic organization had raced ahead of the available legal forms. For example, Standard’s Ohio corporate charter did not allow it to hold stock in other corporations or to conduct business outside of Ohio. By the terms of Standard’s trust agreement, stockholders received trust certificates in return for their shares, which were held by a board that had managerial powers over the world’s largest manufacturing firm.³ The trust form soon appeared in other lines of business.⁴ It was also attacked in state courts as a restraint of trade.⁵

New Jersey’s Holding Company Act of 1888 put the basic idea of the business trust on a statutory footing by explicitly permitting New Jersey corporations to buy and sell the securities of any corporation, whether incorporated in New Jersey or not. However, given the close functional relationship between business trusts and holding companies, and the passage

² The corporation problem is intimately wrapped up with the ‘trust problem’ . . . The power to amass great capital with limited liability, and to administer it with inadequate responsibility . . . may facilitate the formation of monopolies and the perpetration of monopoly abuses,” wrote Haney (1914, p. 368). “The trust question was the corporation question. The great antitrust debates of the late 1890s and the early years of the twentieth century . . . were, in essence, debates about the role and power of the large corporations.” (Sklar (1988, p. 179)). “Corporate law was largely irrelevant to cartel cases But the ‘tight’ combination, or merger, raised an entirely different problem: what is the proper relationship between the right of natural persons—recognized in every state—to form a business firm, and the competing public policy against monopolies? . . . By the end of the [nineteenth] century corporate law seemed . . . to have unleashed a power it could no longer control: namely, the multistate business corporation,” (Hovenkamp (1990, pp. 76 and 87)).

³ Bringham (1979, p. 11) and Hovenkamp (1990, pp. 79–81).

⁴ Haney (1914, pp. 193–204).

⁵ The term “trust” was soon applied to the full range of controversial business forms, from loose, informal understandings through consolidated firms. See Haney (1914, pp. 117–127, 193–204).

of the Sherman Antitrust Act in 1890, the degree of protection the Holding Company Act offered was in doubt at first. This cloud was lifted for a while as a result of the 1895 Supreme Court decision in *U.S. v. E. C. Knight*, which declared the "Sugar Trust" holding company per se legal under the Sherman Act. The way was paved for widespread use of merger and the holding company.⁶

The per se rule against cartel agreements developed by the Supreme Court in 1897–1899 created an additional incentive for merger and the growth of large firms. This bizarre posture of antitrust—merger always OK, looser forms of organization never OK—explains why a large fraction of U.S. industry merged in the years 1898–1902.⁷ Some industries, notably railroading, also resorted to "community of interests" (interlocking directorates) as a way of coordinating the activities of related enterprises.

Perhaps because antitrust attacks on cartels seemed only to lead to more mergers, the McKinley administration (1897–1901) filed only three antitrust cases. In fact, it filed no cases after May 1899, although a merger wave of still unsurpassed intensity was taking place at the time. The Sherman Act was rescued from this ignominy by an assassin's bullet in September of 1901. President Theodore Roosevelt (1901–1909) had recognized the political resonance of the trust issue while still governor of New York. As President, he quickly filed a merger case against a large, unpopular railroad consolidation in March of 1902 (*U.S. v. Northern Securities*), and the resulting Supreme Court decision, made in March of 1904, reversed *E. C. Knight* in a 5 to 4 ruling. Merger and acquisition, even under New Jersey's Holding Company Act, were also subject to the Sherman Act. Simultaneously, Roosevelt passed the Expediting Act (which allowed antitrust cases designated by the Attorney General to be appealed to a special four-judge panel), established the Bureau of Corporations (the Federal Trade Commission's predecessor), and established and obtained funding for the Antitrust Division of the Justice Department. It was under Teddy Roosevelt that the modern outlines and potential of antitrust were established.

Figure 1 provides a summary of antitrust enforcement over the next forty years. The dotted line is the natural log of the Dow industrial average. The solid line represents the moving twelve-month sum of the number of antitrust cases filed by the Department of Justice over the months $t - 6$ to $t + 5$. Clearly evident is Roosevelt's "trust-busting" effort in 1906–1907, the second major wave during the Taft and early Wilson years (1910–1913), and the 1917 and the 1920–1921 enforcement spikes. The next major flurry of activity took place from 1938 to 1942 and is the result of Thurman Arnold's regime as chief of the Antitrust Division.

The history and politics of antitrust enforcement is interesting in its own right, but it also serves an important scientific purpose. Statistical correla-

⁶ Haney (1914, p. 220).

⁷ This merger wave is chronicled by Nelson (1959). See Bittlingmayer (1985) for arguments and evidence on the connection between antitrust and the merger wave.

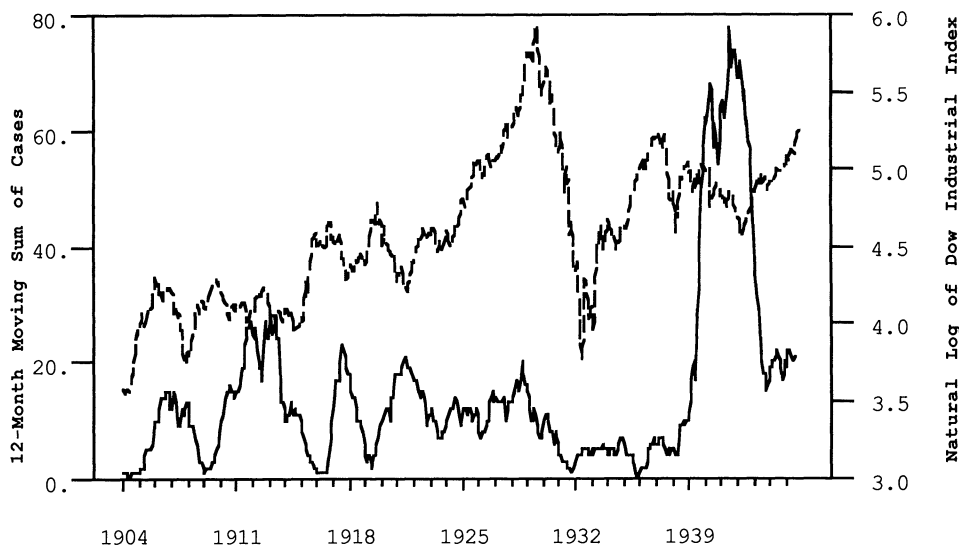


Figure 1. The twelve-month moving sum of the number of antitrust case filings (*solid line*) and the natural log of the Dow Jones industrial average (*dotted line*), monthly data, January 1904–December 1945.

tions cannot establish whether x causes y . To evaluate the hypothesis that antitrust enforcement affected stock prices, we have to know something about antitrust enforcement. My own reading of the evidence is that the major enforcement episodes were largely exogenous. If economic conditions “cause” enforcement, the association is positive, with hard times leading to antitrust restraint. A brief review of the relevant history not only speaks to the question of whether the swings in antitrust policy can be taken as exogenous, but also shows that the hypothesis examined here, although never investigated, has a long history.

For instance, Teddy Roosevelt’s rise to the presidency and his dramatic exploitation of the trust issue was in large part a matter of chance. His predecessor McKinley operated under similar economic conditions but had a radically different antitrust policy.⁸ After Roosevelt’s attacks in 1906–1907 against Armour, Standard Oil, DuPont, American Tobacco (ranked 16, 2, 25, and 3 among industrials in 1906) led to widespread charges that his policies were causing the Panic of 1907, case filings dropped precipitously in 1908 and 1909, and Roosevelt publicly supported revision of the Sherman Act to allow “reasonable” restraints of trade.

William Howard Taft’s policies were restrained at first, but accelerated quickly. His political handling of the trust issue also turned out to be inept

⁸ The Dow dropped 4 percent when McKinley was shot in September of 1901 and another 4 percent when he died eight days later. The assassinations or natural deaths of other presidents in this century did not have similar stock market effects.

and was largely responsible for the split in the Republican Party that led to Woodrow Wilson's victory in the 1912 election.⁹ In the wake of case filings against Cudahy Packing, Swift, American Sugar Refining (the defendant in *E. C. Knight*), General Electric, U.S. Steel, United Shoe, International Harvester, the Aluminum Company of America (ranked 94, 8, 10, 13, 1, 64, 4, and 66 in 1911), and other large firms in 1910–1912, charges were again made that trustbusting caused stock prices to plummet. In fact, Taft was prepared to agree with his critics, but claimed business aggravated the effects of his policies by resisting. He vowed to pursue his policies despite the consequences. The charges in the popular press were endorsed by Wesley Clair Mitchell (1913, p. 85), the founder of modern business cycle research, who wrote that “enterprise on the part of large capitalists was materially checked [in 1911] by uncertainty regarding the legal position of business combinations.”

President Woodrow Wilson (1913–1921) picked up where Taft left off, but then suspended prosecutions sporadically. The bursts of antitrust during and after the First World War were politically charged and related to controversies about inflation and “war profiteering.”¹⁰ The absence of major enforcement initiatives during the Coolidge years (1923–1929) is attributable in turn to the difference between Harding's and Coolidge's approach to the regulation of business. Coolidge's rise to the presidency was “exogenous”—Harding died in office in 1923—and the Coolidge administration provided pre-clearance of mergers and trade association activities, although it had no statutory basis for doing so.¹¹

Finally, the revival of antitrust in the late 1930s, specifically the initiative undertaken in the fall of 1937 to amend the antitrust laws and the burst of antitrust case filings in 1939–1941, was an explicit political decision. The National Recovery Administration (1933–1935) had provided for restrictions under governmental auspices in various industries, allegedly to deal with one major cause of the depression: depressed prices. Critics claimed the NRA amounted to governmentally orchestrated cartelization. It was declared unconstitutional in 1935, and the Franklin D. Roosevelt administration originally toyed with two alternative antidepression policies: “industrial atomization to restore a self-adjusting economy [and] centralized planning and detailed regulation.”¹² The connection between antitrust and the general “corporation problem” was still strong.¹³ Ultimately, the FDR administration turned to antitrust. The so-called Madison oil cases against major oil firms were filed in December of 1936 and tried in 1937. Beginning in the fall of

⁹ These events are covered in greater detail in Bittlingmayer (1993).

¹⁰ Himmelberg (1976, chapter 1)

¹¹ Hawley (1989) and Himmelberg (1976).

¹² Hawley (1966, p. 187).

¹³ “Another group of measures that had long troubled antitrusters was the lax incorporation laws adopted by a number of state legislatures. Almost any veteran antitrusteer, in fact, could recite how this ‘competition in laxity’ had produced giant ‘tramp’ corporations, great sprawling empires with more power than the states that created them.” (Hawley (1966), p. 371).

1937, Roosevelt, his attorney general, and the Federal Trade Commission urged revised antitrust legislation and tightened enforcement. Interestingly, “[s]ome of Roosevelt’s advisers . . . were still worried about the effect of an antimonopoly message on business confidence.”¹⁴ This worry is not proof of a connection between antitrust and business activity, but it does show that the idea of a connection, which has never been studied, persisted for over forty years.

FDR’s antitrust efforts peaked after Thurman Arnold became head of the antitrust division in March of 1938. Arnold instituted a very aggressive phase of enforcement, as is clearly evident in Figure 1. This phase ended in 1942 after the Army and Navy Departments claimed Arnold’s prosecution of business hurt the war effort. Major antitrust initiatives in steel, shipbuilding, petroleum, electrical equipment, and chemical industries were called off or postponed, and Arnold was “kicked upstairs” to a judgeship.¹⁵

In summary, antitrust during its first fifty years was related to the corporation problem and public policy toward big business, including the large, publicly traded firm. Antitrust was also volatile, with alternating periods of aggressive prosecution and relative laxity. Finally, at least some of these shifts seem to have been generated by exogenous events: McKinley’s assassination in 1901 allowed the popular and erratic Teddy Roosevelt to exploit the trust issue; Taft stuck to his radical policy even though it split the Republican Party and cost him the election of 1912; First World War inflation was followed by the attempt to blame big business and various trade practices; Harding’s death in 1923 allowed the pro-business Coolidge to restrain enforcement for six years; and the demise of the National Recovery Administration by the Supreme Court in 1935 led FDR in search of a new policy toward business.

II. The Data

The statistical work below links stock returns with antitrust case filings and other factors. The following variables are used:

1. Industrial stock returns, $IR(t - 3, t)$, from month $t - 3$ to month t are calculated as differences in the natural log of end-of-month values for the Dow industrial average from January 1904 through December 1945. The New York Stock Exchange was closed in October and November of 1914, and I omit returns involving those months. Until 1914, twelve major firms made up the Dow; after October 1914, 20 firms. The data are from Pierce (1982).

¹⁴ Hawley (1966, p. 411). Former FDR advisor and labor lawyer Donald Richberg, for example, claimed that the “humiliation and injury” of the antitrust laws was destroying business confidence and retarding recovery (Hawley (1966), p. 444).

¹⁵ Hawley (1966, pp. 442–443).

2. Dow railroad stock returns, $RR(t - 3, t)$, from month $t - 3$ to month t are calculated the same way and from the same source as industrial returns. The railroad index was composed of 20 major railroads.
3. Department of Justice case filings over three months, $CAS(t - 3 + 3k, t + 3k)$, $k = 0, \dots, 4$, represent the number of cases filed from the end of month $t - 3 + 3k$ through month $t + 3k$. Future cases are relevant because antitrust actions leaked out months in advance.¹⁶ I compiled the data on filings from Commerce Clearing House (1952).¹⁷
4. The percentage change in Babson's seasonally adjusted index of industrial production, $CHPRD(t - 2, t + 1)$, from month $t - 2$ to month $t + 1$ is calculated as the difference in the natural log. I let production lead returns by one month for several reasons. Changes in returns are based on end-of-month values, but production is an average for the whole month. Consequently, even if stock prices and production respond simultaneously, changes in measured production would lag stock prices. Production is also likely to lag as a result of normal frictions. Cross-correlations decisively support the notion that measured production lags stock prices by one month. The data were taken from Moore (1961, Table 15.1, p. 130). Schwert (1990), who also covers this period, finds that the Babson series are more highly correlated with real stock returns than the alternative Miron-Romer data.¹⁸
5. The rate of inflation, $INFLN(t - 2, t + 1)$, from month $t + 1$ to month $t - 2$ is calculated as the difference in the natural log of the Bureau of Labor Statistics (BLS) wholesale price index. Measured inflation probably lags stock returns for precisely the same reasons that changes in measured production do. The BLS data appear in *The Census Bureau's Historical Statistics of the United States, 1789-1945* (U.S. Department of Commerce (1949), Appendix 23, p. 344).

Table I presents summary statistics for selected variables. One major, unsurprising result is that the mean three-month nominal change in the industrial Dow, $IR(t - 3, t)$, decreased and its volatility increased markedly

¹⁶ To illustrate, the government announced its preliminary investigation of Standard Oil in June of 1906. The case itself was filed in November (Bringham (1979), p. 132). The Cement Manufacturers case, filed in June of 1921, was initiated in 1919 (Himmelberg 1976), p. 9).

¹⁷ This paper uses all antitrust cases filed by the Department of Justice not involving labor unions. In principle it would be possible to distinguish between criminal and civil, large- and small-firm, cartel and merger cases, and so on. Since an average of only 1.26 cases was filed each month, such distinctions would degrade the degree to which any given series measures the intensity of enforcement. Nor is it clear that such distinctions were recognized by the stock market. In unpublished work I find that prosecutions of small, local conspiracies in the years 1904-1914 and negative stock-price effects as great as prosecutions of defendants whose markets were regional or national in scope. An extra case, large or small, may simply have reflected a willingness to use antitrust across the board.

¹⁸ The Babson Index is based on the physical volume of production and includes manufactures (food, fibers, vehicles, pig iron, steel, etc.), minerals (coal, petroleum), agricultural marketing, building and construction, railroad ton-miles, electric power production, and foreign trade.

Table I
Summary Statistics

$IR(t - 3, t)$ is the return of the Dow Industrial Index from month $t - 3$ to month t . $CHPRD(t - 2, t + 1)$ is the percentage change in the Babson Industrial Index from Month $t - 2$ to month $t + 1$. $INFLN(t - 2, t + 1)$ is the percentage change in the BLS wholesale price index over the same interval. Cases per month are the number of antitrust cases filed by the U.S. Department of Justice.

	1904–1945		1904–1914		1915–1928		1929–1945	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
$IR(t - 3, t)^a$	1.055	12.6	1.232	9.0	2.927	9.5	-0.573	16.1
$CHPRD(t - 3, t)^a$	0.680	6.8	0.920	5.2	1.253	6.1	0.153	8.2
$INFLN(t - 3, t)^a$	0.358	4.1	0.337	2.5	0.625	5.9	0.152	3.1
Cases per Month	1.258	1.8	0.992	1.4	0.952	1.1	1.686	2.4

^a Statistics for the first three variables are presented in percentage terms. Statistics for industrial returns, $IR(t - 3, t)$, exclude August–November 1914, when the New York Stock Exchange was closed.

from 1904–1928 to 1929–1945. Production growth, $CHPRD(t - 3, t)$ was also much lower.

III. Some Preliminary Results

Casual inspection of Figure 1 shows some evidence of a negative relationship between case filings and the Dow. Especially over the years 1908–1909, 1915–1916, 1918–1919, and 1923–1928, low or moderate enforcement is matched by high or rising stock prices. The intervening episodes of stepped-up enforcement in 1906–1907, 1910–1914, 1917, and 1920, when the rate of case filings rise above ten per year, are matched by declining stock prices. In addition, the aggressive enforcement under Thurman Arnold in the late 1930s and early 1940s is marked by a depressed stock market. On the other hand, the slide from 1929 to 1932 shows the opposite pattern: a decline in enforcement is marked by a decline in stock prices. I will return to this episode later.

While there may be a statistical relationship, enforcement as measured by case filings is clearly not the only factor influencing stock prices. Various explanations are possible: a simple count of case filings may be a crude measure of expected future enforcement, which is what investors actually care about; policy pronouncements and court decisions may have an influence; other sorts of economic policy such as the major initiatives in economic regulation of the 1930s may play a role; and finally, factors such as monetary policy and exogenous shocks may influence stock prices.

One robust way to control for these other factors involves railroad stock prices. The strong correlation of industrial and railroad prices reflects common influences of the business cycle, as well as financial factors such as

Table II
Regressions of Quarterly Dow Industrial Returns on Dow
Railroad Returns and the Number of Antitrust Case Filings
Over Current and Leading Quarters, 1904–1944

$IR(t-3, t)$ is the quarterly return of the Dow Industrial Index from month $t-3$ to month t . $RR(t-3, t)$ is defined similarly for the Dow Railroad Index. Both returns are calculated with end-of-month values and exclude Aug.–Nov. 1914, when the NYSE was closed. $CAS(t-3+3k, t+3k)$ is the number of Department of Justice antitrust cases filed from the end of month $t-3+3k$ through month $t+3k$. Coefficients for the constant and for $CAS(t-3+k, t+k)$ are expressed in percentage terms. Observations are quarterly. The t -statistics, $t(b_i)$, are corrected for heteroskedasticity using White's (1980) and Hansen's (1982) methods. The chi-square significance levels test the restriction that the b_k are jointly zero.

$$IR(t-3, t) = a + \sum_{k=0}^T b_k CAS(t-3+3k, t+3k) + e(t-3, t)$$
$$IR(t-3, t) = a + \sum_{k=0}^T b_k CAS(t-3+3k, t+3k) + cRR(t-3, t) + e(t-3, t)$$
$$T = 0, 2, 4$$

	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$
1904–1944												
Constant	1.77	1.36	0.19	2.83	1.82	1.21	2.26	3.09	2.07	1.32	2.42	1.42
$CAS(t-3, t)$	-0.19	1.15	-0.20	2.01	-0.09	0.42	-0.03	0.22	-0.06	0.27	-0.02	0.11
$CAS(t, t+3)$					-0.31	1.23	-0.08	0.39	-0.25	0.94	-0.04	0.18
$CAS(t+3, t+6)$					0.16	0.61	-0.18	1.03	0.30	0.99	-0.09	0.47
$CAS(t+6, t+9)$									-0.24	1.01	-0.14	0.82
$CAS(t+9, t+12)$									-0.05	0.19	-0.04	0.26
$RR(t, t-3)$			0.68	13.9			0.69	13.6			0.69	13.6
Σb_k	-0.19		-0.20		-0.23		-0.29		-0.30		-0.32	
Chi-sq. sig.					0.58		0.03		0.56		0.10	
R^2	0.00		0.72		0.01		0.73		0.01		0.73	
$S(e)$	0.13		0.07		0.13		0.07		0.13		0.07	
1904–1928												
Constant	4.38	3.19	2.11	2.15	6.75	4.07	3.38	2.63	7.32	3.90	3.81	2.66
$CAS(t-3, t)$	-0.74	2.19	-0.17	0.65	-0.40	1.17	-0.02	0.07	-0.46	1.27	-0.06	0.22
$CAS(t, t+3)$					-0.68	1.60	-0.02	0.68	-0.58	1.34	0.06	0.18
$CAS(t+3, t+6)$					-0.44	1.12	-0.56	1.43	-0.35	0.84	-0.50	1.21
$CAS(t+6, t+9)$									-0.57	1.43	-0.37	1.33
$CAS(t+9, t+12)$									0.23	0.59	0.14	0.46
$RR(t, t-3)$			1.07	8.21			1.06	8.91			1.06	9.05
Σb_k	-0.74		-0.17		-1.52		-0.59		-1.72		-0.73	
Chi-sq. sig.					0.00		0.03		0.02		0.39	
R^2	0.04		0.52		0.09		0.54		0.11		0.55	
$S(e)$	0.09		0.06		0.09		0.06		0.09		0.06	

discount rates and expected inflation. A simple regression of quarterly Dow industrial returns on quarterly Dow railroad returns for 1904–1945 yields an R^2 of 0.71 and a slope of coefficient of 0.68. However, railroads came under a separate regulatory regime and relatively few cases were filed against them after 1914. During the years 1904 to 1914, 14 out of 131 antitrust cases

Table II—Continued

	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$
1929–1944												
Constant	-0.71	0.25	0.77	0.71	-1.29	0.41	0.81	0.68	-0.81	0.24	1.14	0.89
CAS($t - 3, t$)	0.01	0.51	-0.11	1.06	-0.04	0.14	-0.02	0.16	0.03	0.11	0.01	0.06
CAS($t, t + 3$)					-0.27	0.92	-0.09	0.44	-0.21	0.71	-0.05	0.27
CAS($t + 3, t + 6$)					0.36	1.05	-0.03	0.19	0.59	1.58	0.09	0.47
CAS($t + 6, t + 9$)									-0.14	0.52	-0.00	0.02
CAS($t + 9, t + 12$)									0.31	1.09	-0.25	1.71
RR($t, t - 3$)			0.65	13.4			0.65	13.2			0.65	13.1
Σb_k	0.01		-0.11		0.05		-0.15		-0.04		-0.20	
chi - sq. sig.					0.77		0.75		0.68		0.46	
R^2	0.00		0.83		0.01		0.84		0.02		0.84	
$S(e)$	0.17		0.07		0.18		0.07		0.18		0.07	
1934–1944												
Constant	2.66	1.24	2.13	2.05	2.37	1.01	2.18	1.89	3.61	1.52	3.50	2.86
CAS($t - 3, t$)	-0.20	1.04	-0.19	1.69	-0.07	0.27	-0.04	0.30	0.01	0.03	0.02	0.15
CAS($t, t + 3$)					-0.47	1.93	-0.23	1.25	-0.36	1.45	-0.19	1.30
CAS($t + 3, t + 6$)					0.34	1.07	0.04	0.22	0.73	2.26	0.27	1.70
CAS($t + 6, t + 9$)									-0.30	1.19	-0.05	0.42
CAS($t + 9, t + 12$)									-0.46	1.85	-0.40	3.94
RR($t, t - 3$)			0.52	9.51			0.52	9.71			0.52	10.7
Σb_k	-0.20		-0.19		-0.20		-0.23		-0.38		-0.37	
Chi-sq. sig.					0.26		0.21		0.02		0.00	
R^2	0.02		0.71		0.06		0.73		0.16		0.79	
$S(e)$	0.10		0.06		0.10		0.06		0.10		0.05	

involved railroads. Over the years 1915–1945, only 2 out of 503 cases filed involved railroads.

My proposed test regresses Dow industrial returns on Dow railroad returns and on current and leading case filings. The sum of the case filing variables provides an estimate of the cumulative effect, and a chi-squared statistic tests for joint significance.¹⁹ Contemporaneous railroad returns control for a host of general factors (general business and financial conditions). Current and leading case filings would capture the effect of changes in enforcement. Granted, antitrust may still affect railroad stock prices, in part through general business effects, but this would merely weaken the power of the test.

Table II presents the results. Consider first the estimates for the entire period from January 1904 through December 1944. When I exclude railroad returns, each case has a statistically insignificant negative cumulative effect

¹⁹ Since the residuals are not normal, and F -test is inappropriate. Instead, I use $\chi^2(Q) = (r - R\hat{\beta})'[R\Sigma_X R']^{-1}(r - R\hat{\beta})$, where Σ_X is the "consistent" covariance matrix of the coefficients from the White-Hansen procedure and $r - R\hat{\beta}$ represents the Q linear restrictions being tested. As with the F -test, this statistic may reject the null hypothesis even when the t -statistics on all individual coefficients are low.

of 0.19 to 0.30 percent on returns. Adding railroad returns to control for other influences results in a largely unchanged cumulative effect, but these effects are now significant. Longer horizons result in larger effects, suggesting that cases were anticipated by a year or more.

The bottom three panels of Table II break out results for the sub-periods 1904–1928, 1929–1944 and 1934–1944. First, note that the *R*-squared in regressions involving only case variables is substantially higher for the early period and for 1934–1944 than for 1929–1944. The years 1904–1928 include the peak trust-busting years of 1904–1914, the two enforcement spikes during and after the First World War, and the relatively inactive mid-1920s.²⁰ The period 1934–1944 includes the late 1930s flurry and enforcement.

Estimated per-case effects for the early period (1904–1928) based on three or more quarters of enforcement fall in the range of -0.59 to -1.72 percent. Case filings alone explain as much as 11 percent of the variation in stock returns. Interestingly, the addition of railroad case filings moves the estimated coefficients toward zero and lowers the *t*-statistics. This is consistent with the view that antitrust still had implications for the railroads during at least part of this period.

The estimated constants indicate that when enforcement was zero, quarterly returns were typically 4 and as high as 7 percent. However, during periods of aggressive antitrust, when the Department of Justice filed 5 cases per quarter, returns fell by 2.9 to 8.6 percentage points (-0.59×5 to -1.72×5). Note that these calculations are probably accurate estimates of the short-term effects of on-again, off-again antitrust policy, that is, they are estimates of unexpected deviations. Returns are high when a low rate of filings follows a period of intense antitrust activity, and returns are low when stepped-up enforcement follows a period of lax enforcement. In the long run, a given and stable antitrust regime should not affect returns.

For the period 1929–1944 as a whole, case filings alone have no discernible effect on stock prices. Adding railroad returns yields individual coefficients on the case variables with low statistical significance in some cases, but never exceeding one-tailed probability values much above 10 percent. The cumulative effects, while negative, are not statistically significant. These largely negative results are due to the period 1929–1933. The last panel of Table II excludes those years, and the results are consistent with the estimates for the years up to 1929. Future case filings seem to result in lower stock prices for 1934–1944, especially when cases from the three-month period ending a year ahead are used. The inclusion of railroad returns seems to make little difference for the estimated cumulative effects and their significance. Given an increase in the rate of filings to roughly 15 cases per quarter during the late 1930s and estimated per case effects of as much as 0.38 percent, the estimated coefficients suggest that Thurman Arnold's antitrust initiative

²⁰ Adjusted for real GNP, more cases were filed in the period 1910–1914 than in any period since.

lowered stock prices on average as much as 5.7 percent (-0.38×15) each quarter it was in operation. Again, these are the short-run effects on returns. In the long run, a stable regime of aggressive enforcement should see positive stock returns consistent with the degree of undiversifiable risk, although the level of stock prices may be lower.

IV. Stock Prices, Real Activity, and Antitrust Enforcement

The framework used by Fama (1990) and Schwert (1990) offers a different way of evaluating the effect of antitrust enforcement, and one that focuses more attention on real factors. Their regressions of current stock returns on current and future changes in output can be interpreted as efforts to assess the effect that real shocks have on expected cash flows, and hence on stock values. My working hypothesis is that other real factors besides changes in measured production influenced these expected cash flows.

Antitrust policy in particular introduces a new dimension. The mildest assumption would hold that case filings affect asset values but not output. Antitrust reduces either quasi-rents to existing assets, or monopoly rents, depending on one's judgment about the seriousness of the monopoly problem.

A stronger assumption posits long-run effects on output and hence on stock prices. For example, antitrust may punish success in the market place and hence efficiency. These effects are not easily or completely captured in short-run changes in output. Finally, the strongest view would hold that antitrust affects both current output and stock prices.

Because there are clearly other factors that influence stock prices besides measured antitrust enforcement, I incorporate changes in production à la Fama and Schwert. These other factors may be monetary or fiscal policy, but I do not rule out aspects of business policy, including antitrust, not captured in case filings. The results reported in Table III are based on regressions of nominal Dow industrial returns on current changes in production, the inflation rate, and current and leading case filings:

$$\begin{aligned} IR(t-3, t) = & a + b_1 \text{CHPRD}(t-2, t+1) + b_2 \text{INFLN}(t-2, t+1) \\ & + \sum_{k=0}^T c_k \text{CAS}(t-3+3k, t+3k) + e(t-3, t) \quad T=1, \dots, 4 \end{aligned}$$

I use the simple percentage change in production over the quarter that starts one month later instead of a sequence of current and future production, as Fama and Schwert do, in the interests of parsimony and because a comparison of effects is easier. Using changes in production from two and three quarters ahead does not alter the results. I also use the contemporaneous rate of inflation as a separate explanatory variable instead of using real returns as the dependent variable. This introduces the effects of inflation in a flexible way. Until the middle of this century, one could plausibly argue that short-term changes in the price level were expected largely to reverse them-

Table III
Regressions of Quarterly Dow Industrial Returns on Current
Percentage Changes in Babson's Production Index,
Percentage Changes in the Wholesale Price Index, and the
Number of Actual Antitrust Case Filings, Current and
Leading Quarters, 1904-1944

$R(t-3, t)$ is the return of the Dow Industrial Index from month $t-3$ to month t . $CHPRD(t-2, t+1)$ is the percentage change in the Babson Industrial Index from month $t-2$ to month $t+1$. $INFLN(t-2, t+1)$ is the percentage change in the BLS wholesale price index over the same interval. $CAS(t-3+3k, t+3)$, $k=0, \dots, 4$, is the number of antitrust filings from the end of period $t-3+3k$ through period $t+3$. Coefficients for the constant and for case filing variables are expressed in percentage terms. Observations are quarterly. The t -statistics are corrected for heteroskedasticity using White's (1980) and Hansen's (1982) methods. The chi-square significance levels test the restriction that the c_k are jointly zero.

$$IR(t-3, t) = a + b_1CHPRD(t-2, t+1) + b_2INFLN(t-2, t+1) + \sum_{k=0}^T c_kCAS(t-3+3k, t+3k) + e(t-3, t) \quad T=1, \dots, 4$$

	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$
1904-1944										
Constant	-0.05	0.05	1.28	1.09	1.37	1.16	1.76	1.46	1.72	1.40
CHPRD($t-2, t+1$)	0.98	5.53	0.98	5.60	0.99	5.61	1.01	5.70	1.02	5.71
INFLN($t-2, t+1$)	0.36	1.63	0.39	1.66	0.39	1.70	0.37	1.61	0.37	1.62
CAS($t-3, t$)			-0.11	0.56	-0.08	0.40	-0.04	0.19	-0.05	0.22
CAS($t, t+3$)			-0.24	1.21	-0.19	0.78	-0.07	0.26	-0.07	0.26
CAS($t+3, t+6$)					-0.11	0.48	0.13	0.59	0.12	0.52
CAS($t+6, t+9$)							-0.51	2.44	-0.53	2.43
CAS($t+9, t+12$)									0.05	0.25
Σc_k			-0.36		-0.38		-0.48		-0.47	
Chi-sq.			0.08		0.10		0.04		0.06	
R^2	0.34		0.35		0.35		0.37		0.37	
$S(e)$	0.11		0.11		0.11		0.11		0.11	
1904-1914										
Constant	0.43	0.36	4.06	2.36	4.88	2.79	4.06	2.06	3.16	1.52
CHPRD($t-2, t+1$)	0.55	2.30	0.44	1.84	0.45	1.91	0.38	1.67	0.40	1.91
INFLN($t-2, t+1$)	0.66	1.39	0.75	1.60	0.72	1.50	0.82	1.82	0.63	1.40
CAS($t-3, t$)			-0.46	1.28	-0.42	1.14	-0.49	1.34	-0.59	-1.71
CAS($t, t+3$)			-0.72	1.77	-0.45	0.90	-0.48	0.99	-0.48	-1.07
CAS($t+3, t+6$)					-0.56	1.14	-0.84	0.47	-0.84	-1.36
CAS($t+6, t+9$)							0.63	1.85	0.28	0.66
CAS($t+9, t+12$)									0.75	1.66
Σc_k			-1.18		-1.43		-1.17		-0.88	
Chi-sq.			0.01		0.03		0.01		0.00	
R^2	0.21		0.30		0.32		0.35		0.38	
$S(e)$	0.08		0.08		0.08		0.08		0.08	
1915-1928										
Constant	2.18	2.01	3.79	1.67	4.23	1.61	7.72	3.04	7.61	2.77
CHPRD($t-2, t+1$)	0.60	3.50	0.58	3.50	0.58	3.41	0.65	3.57	0.65	3.44
INFLN($t-2, t+1$)	0.13	0.72	0.08	0.41	0.08	0.46	0.04	0.22	0.04	0.21

Table III—Continued

	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$
1915–1928										
CAS($t - 3, t$)			-0.18	0.47	-0.14	0.34	-0.30	0.76	-0.30	0.73
CAS($t, t + 3$)			-0.36	0.66	-0.35	0.64	-0.06	0.13	-0.06	0.11
CAS($t + 3, t + 6$)					-0.20	0.42	-0.05	0.11	-0.05	0.12
CAS($t + 6, t + 9$)							-1.50	3.39	-1.51	3.47
CAS($t + 9, t + 12$)									0.04	0.09
Σc_k			-0.54		-0.69		-1.91		-1.88	
Chi-sq.			0.73		0.84		0.01		0.01	
R^2	0.20		0.21		0.21		0.34		0.34	
$S(e)$	0.09		0.09		0.09		0.08		0.08	
1929–1944										
Constant	-1.73	1.08	0.98	0.46	1.17	0.54	1.42	0.65	1.65	0.74
CHPRD($t - 2, t + 1$)	1.09	4.00	1.07	4.28	1.07	4.30	1.09	4.27	1.11	4.24
INFLN($t - 2, t + 1$)	1.48	2.76	1.86	4.03	1.90	4.14	1.83	3.87	1.79	3.64
CAS($t - 3, t$)			-0.18	0.60	-0.14	0.48	-0.11	0.36	-0.07	0.26
CAS($t, t + 3$)			-0.36	1.40	-0.26	0.82	-0.19	0.60	-0.18	0.62
CAS($t + 3, t + 6$)					-0.18	0.71	0.01	0.02	0.08	0.28
CAS($t + 6, t + 9$)							-0.34	1.27	-0.17	0.56
CAS($t + 9, t + 12$)									-0.32	1.35
Σc_k			-0.55		-0.58		-0.63		-0.67	
Chi-sq.			0.03		0.04		0.05		0.03	
R^2	0.49		0.52		0.52		0.53		0.54	
$S(e)$	0.13		0.13		0.13		0.13		0.13	
1934–1944										
Constant	-0.34	0.23	1.74	0.87	1.60	0.82	2.26	1.20	2.90	1.53
CHPRD($t - 2, t + 1$)	0.96	5.20	0.92	4.61	0.90	4.45	0.96	4.24	0.99	4.79
INFLN($t - 2, t + 1$)	-1.16	0.92	-0.02	0.02	0.02	0.02	-0.48	-0.36	-0.86	0.62
CAS($t - 3, t$)			0.05	0.21	0.02	0.07	0.09	0.33	0.15	0.64
CAS($t, t + 3$)			-0.39	1.68	-0.45	1.57	-0.32	-1.11	-0.30	1.17
CAS($t + 3, t + 6$)					0.11	0.41	0.43	1.49	0.52	2.23
CAS($t + 6, t + 9$)							-0.60	2.45	-0.35	1.49
CAS($t + 9, t + 12$)									-0.50	2.76
Σc_k			-0.34		-0.32		-0.40		-0.47	
Chi-sq.			0.15		0.26		0.12		0.00	
R^2	0.29		0.35		0.35		0.42		0.47	
$S(e)$	0.09		0.09		0.09		0.09		0.09	

selves in several years. Consequently, a 10 percent increase in prices may not have led to a full 10 percent increase in stock prices, holding other things constant. This specification also allows for the possibility that price level changes cause or accompany real effects, and that these effects may vary by subperiod.

For the period 1904–1944 as a whole, the regression based on only CHPRD and INFLN explains 34 percent of the variation in Dow returns. A one

percent increase in production is associated with a 0.98 percent increase in the Dow. Increases in the price level, in contrast, are matched by a much smaller increase in stock prices for the period as a whole. During the period 1929–1944, given percentage changes in the price level are matched by greater percentage changes in stock prices, but these results are driven by the years 1929–1933, when prices fell by one third. Overall, the explanatory power of these regressions compares favorably with Schwert's results (Table III), where the *R*-squares for regressions of real quarterly returns on a sequence of current and leading three-month changes in the Babson index for the years 1889–1925 and 1926–1952 fall in the 20 to 28 percent range.

The addition of case filings for current and future quarters yields cumulated estimated effects of -0.36 to -0.48 per case for 1904–1944. The effects are stronger, roughly -1 percent per case, for the two early subperiods (1904–1914, 1915–1928) than for the post-1928 era. The addition of case filings raises explained variance by 70 to 80 percent in these two early periods. As I emphasized in Section II, these are estimates of the effects of unexpected deviations in policy on returns; they are not estimates of what happens to returns in the long run under a given policy.

The period after 1928 and especially after 1933 yields largely similar results. Taking 1929–1944 as a whole, per case effects fall in the range of -0.55 to -0.67 percent, but case filings make a comparatively small contribution to explaining the overall volatility of prices. The period 1934–1944 shows smaller per case effects (-0.32 to -0.47 percent) but antitrust now explains 18 percent of the total variance of stock prices.

Two points deserve extra attention.²¹ First, 28 out of the 634 cases filed from January 1904 through December 1945 involved firms that were included in the Dow industrial index at the time of the suit. Eighteen of these, or 64 percent, were filed during the enforcement spike of 1938–1942. Are the results influenced by those cases? It turns out that excluding that small fraction of cases—less than 1 out of 20—results in essentially unchanged results. The Dow cases by themselves do have a large effect on the Dow average, in the range of 4 to 5 percent per case, but the results are statistically unreliable, perhaps because of the small number of cases and the fact that only one out of 12 (1904–1914), 20 (1915–1928), or 30 (after 1928) firms was the target. Some of the largest and most controversial cases involved non-Dow firms. Standard Oil, for example, which was traded on the curb and not on the NYSE in 1907, was not part of the Dow. But it still seems reasonable that an attack on it would affect the values of U.S. Steel and other large “trusts” that were Dow firms.

The second point concerns the treatment of case filings. Clearly, only unanticipated case filings should lower stock prices. However, actual case filings represent a mixture of expected and unexpected components. One

²¹ Thanks go to David Mayers for urging me to address these issues.

approach is to use regression techniques to decompose the filings variable. Consider the following regression of quarterly data at monthly intervals, where D_{jt} is the monthly dummy for month j in period t .

$$\begin{aligned} \text{CAS}(t-3, t) = & a + \sum_{k=1}^3 c_k \text{CAS}(t-3-3k, t-3k) \\ & + \sum_{j=1}^{11} d_j D_{jt} + e(t-3, t), \end{aligned}$$

and define $\text{RSCAS}(t, t-3)$ as the estimated residual. This residual is a measure of case filings not expected on the basis of past case filings and seasonal factors. I use quarterly data at monthly intervals because the resulting coefficient estimates are based on all possible quarters.²² The resulting coefficient estimates are $\hat{c}_1 = 0.52$, $\hat{c}_2 = 0.26$ and $\hat{c}_3 = 0.05$. Past cases plus the monthly dummies explain 59 percent of the total variation in quarterly case filings.

Table IV presents results based on specifications exactly parallel to those in Table III but with $\text{RSCAS}(t-3, t)$ substituted for $\text{CAS}(t-3, t)$. The chief difference is that the sum of the coefficients on $\text{RSCAS}(t, t-3)$, which measures the cumulative effect, has a larger negative value on average. Consider the results for 1904–1944. For the concurrent and leading quarters only, the cumulative effect of $\text{RSCAS}(t-3, t)$ plus $\text{RSCAS}(t, t+3)$ is -0.57 , compared to -0.36 for $\text{CAS}(t-3, t)$. Adding successive leading quarter yields even larger negative values: -0.81 (compared to -0.38), -1.52 (-0.48) and -1.36 (-0.47).

The breakdown by subperiods reveals the source of this greater estimated effect. For the two pre-1929 subperiods, 1904–1914 and 1915–1928, the estimated residual case filings, $\text{RSCAS}(t, t-3)$, do not show systematically larger negative effects. As Figure 1 shows, this is the period during which average annual case filings fluctuated within a band from zero to thirty. An underlying or base rate of antitrust activity was probably hard for economic actors to estimate, and there may have been little substantive difference between an extra case filed and an extra case filed above some weighted average for the last three quarters. For the period after 1928, when case filings were at first low for several years and then high, $\text{RSCAS}(t-3, t)$ yields estimates of the cumulative per case effect that are two to three times larger than $\text{CAS}(t-3, t)$. Here, the underlying rate of expected filings was probably easier to estimate and clearly did shift. An increase in the rate of case filings above a weighted average for the last three quarters was probably a clearer signal of change than the actual level of filings. The estimates show that an extra unanticipated case per quarter for 1929–1944 lowered the Dow

²² Quarterly data at quarterly intervals yield nearly identical results. Since this regression is not used for hypothesis testing, the effect of overlapping observations on estimated standard errors is immaterial.

Table IV
Regressions of Quarterly Dow Industrial Returns on Current
Percentage Changes in Babson's Production Index,
Percentage Changes in the Wholesale Price Index, and the
Number of *Unexpected* Antitrust Case Filings, Current and
Leading Quarters, 1904-1944

$IR(t-3, t)$ is the return of the Dow Industrial Index from month $t-3$ to month t . $CHPRD(t-2, t+1)$ is the percentage change in the Babson Industrial Index from month $t-2$ to month $t+1$. $INFLN(t-2, t+1)$ is the percentage change in the BLS wholesale price index over the same interval. $RSCAS(t-3+3k, t+3)$, $k=0, \dots, 4$, is the residual from a regression based on overlapping monthly observations of quarterly antitrust filings from the end of month $t-3+3k$ through month $t+3$ regressed on past quarterly filings and monthly dummies. Coefficients for the constant and for case filing variables are expressed in percentage terms. Observations are quarterly. The t -statistics are corrected for heteroskedasticity using White's (1980) and Hansen's (1982) methods. The chi-square significance levels test the restriction that the c_k are jointly zero.

$$IR(t-3, t) = a + b_1CHPRD(t-2, t+1) + b_2INFLN(t-2, t+1) + \sum_{k=0}^T c_k RSCAS(t-3+3k, t+3k) + e(t-3, t) \quad T = 1, \dots, 4$$

	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$
1904-1944								
Constant	-0.05	0.06	-0.05	0.06	-0.07	0.08	-0.77	0.92
CHPRD($t-2, t+1$)	0.98	5.54	0.99	5.59	1.02	5.72	1.03	5.76
INFLN($t-2, t+1$)	0.37	1.62	0.39	1.68	0.36	1.58	0.36	1.58
RSCAS($t-3, t$)	-0.26	1.29	-0.27	1.34	-0.33	1.69	-0.34	1.70
RSCAS($t, t+3$)	-0.30	1.65	-0.33	1.71	-0.36	1.75	-0.35	1.62
RSCAS($t+3, t+6$)			-0.22	0.84	-0.25	1.02	-0.25	0.97
RSCAS($t+6, t+9$)					-0.57	2.49	-0.56	2.32
RSCAS($t+9, t+12$)							0.13	0.59
Σc_k	-0.57		-0.81		-1.52		-1.36	
Chi-sq.	0.09		0.17		0.02		0.02	
R^2	0.35		0.35		0.37		0.37	
$S(e)$	0.11		0.11		0.11		0.11	
1904-1914								
Constant	0.33	0.29	0.29	0.25	0.45	0.41	0.64	0.61
CHPRD($t-2, t+1$)	0.51	2.29	0.53	2.41	0.45	2.09	0.46	2.25
INFLN($t-2, t+1$)	0.74	1.76	0.70	1.66	0.83	2.06	0.61	1.42
RSCAS($t-3, t$)	-0.59	1.09	-0.73	1.27	-0.58	1.01	-0.48	0.91
RSCAS($t, t+3$)	-0.59	1.29	-0.59	1.22	-0.34	0.69	-0.18	0.38
RSCAS($t+3, t+6$)			-0.44	0.97	-0.37	0.79	-0.11	0.21
RSCAS($t+6, t+9$)					0.80	1.76	0.85	1.96
RSCAS($t+9, t+12$)							0.76	1.66
Σc_k	-1.18		-1.76		-0.49		0.83	
Chi-sq.	0.34		0.35		0.02		0.01	
R^2	0.26		0.27		0.31		0.34	
$S(e)$	0.08		0.08		0.08		0.08	
1915-1928								
Constant	2.00	1.82	1.96	1.84	1.56	1.53	1.59	1.56
CHPRD($t-2, t+1$)	0.57	3.17	0.56	3.13	0.64	3.23	0.73	3.76
INFLN($t-2, t+1$)	0.14	0.80	0.15	0.96	0.16	0.97	0.12	0.82

Table IV—Continued

	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$	b_i	$t(b_i)$
1915–1928								
RSCAS($t - 3, t$)	0.17	0.33	0.16	0.44	-0.17	0.39	-0.17	0.40
RSCAS($t, t + 3$)	-0.01	0.22	-0.17	0.40	-0.34	0.80	-0.15	0.32
RSCAS($t + 3, t + 6$)			-0.23	0.41	-0.68	1.20	-0.57	0.097
RSCAS($t + 6, t + 9$)					-1.30	2.48	-1.11	2.01
RSCAS($t + 9, t + 12$)							0.61	1.27
Σc_k	0.08		-0.23		-2.48		-1.40	
Chi-sq.	0.82		0.87		0.13		0.01	
R^2	0.18		0.19		0.29		0.31	
$S(e)$	0.09		0.09		0.08		0.08	
1929–1944								
Constant	-1.56	0.99	-1.49	0.95	-1.37	0.88	-1.30	0.83
CHPRD($t - 2, t + 1$)	1.09	4.17	1.10	4.23	1.13	4.24	1.14	4.20
INFLN($t - 2, t + 1$)	1.67	3.40	1.71	3.58	1.63	3.31	1.62	3.20
RSCAS($t - 3, t$)	-0.53	1.79	-0.54	1.93	-0.57	2.11	-0.56	2.13
RSCAS($t, t + 3$)	-0.47	1.73	-0.46	1.82	-0.47	1.69	-0.49	1.91
RSCAS($t + 3, t + 6$)			-0.29	0.86	-0.28	0.84	-0.28	0.93
RSCAS($t + 6, t + 9$)					-0.48	1.47	-0.47	1.57
RSCAS($t + 9, t + 12$)							-0.29	1.17
Σc_k	-1.00		-1.30		-1.79		-2.09	
Chi-sq.	0.01		0.02		0.01		0.01	
R^2	0.51		0.52		0.53		0.53	
$S(e)$	0.13		0.13		0.13		0.13	
1934–1944								
Constant	0.58	0.38	-0.58	0.38	-0.08	0.06	0.37	0.26
CHPRD($t - 2, t + 1$)	0.83	5.40	0.83	5.37	0.90	4.95	0.93	5.06
INFLN($t - 2, t + 1$)	0.64	1.12	0.64	1.11	0.33	0.54	0.12	0.19
RSCAS($t - 3, t$)	-0.26	1.28	-0.26	1.23	-0.29	1.29	-0.27	1.36
RSCAS($t, t + 3$)	-0.42	1.95	-0.42	1.95	-0.43	1.73	-0.47	2.06
RSCAS($t + 3, t + 6$)			0.00	0.01	0.03	0.09	0.02	0.10
RSCAS($t + 6, t + 9$)					-0.63	2.09	-0.64	2.51
RSCAS($t + 9, t + 12$)							-0.45	2.13
Σc_k	-0.69		-0.68		-1.32		-1.81	
Chi-sq.	0.05		0.10		0.04		0.01	
R^2	0.34		0.34		0.41		0.44	
$S(e)$	0.09		0.09		0.09		0.09	

by 1.00 percent over two quarters and 2.09 percent over five quarters. In contrast, actual case filings in Table III lowered the Dow only 0.55 to 0.67 percent. This is consistent with the view that actual case filings measure unexpected case filings with error, and hence result in coefficients biased toward zero. Of course, even RSCAS($t - 3, t$), although probably an improvement, is an imperfect proxy for unexpected antitrust enforcement.²³

The results so far have been based on quarterly returns, but a summary for annual returns is also of interest, partly to allow a comparison with Fama (1990) and Schwert (1990), who find that changes in production explain larger fractions of observed returns as the horizon over which returns are measured is increased. Longer sampling intervals yield no extra statistical power, but the resulting *R*-squares are convenient summary statistics of explanatory power. Fama argues (p. 1090): "A given monthly return... has information about many future production growth rates, but adjacent returns have additional information about the same production growth rates. The R^2 from regressions of monthly returns on future production will then understate the information about production in the sequence of returns."²⁴ Similarly, since current returns represent news about filings that will take place as much as one year from now, more of that news will be captured when I use returns measured over longer periods.

Table V shows the *R*-squares and adjusted *R*-squares for regressions of annual stock returns on roughly coincidental changes in production and changes in the price level, plus current and leading case filings. For the regressions excluding case filings, explained variance falls in the range of 29 to 59 percent (adjusted *R*-squares). Case variables typically explain between 8 and 45 percent of the remaining variation. For the period 1934–1944, antitrust activity alone seems to be as important as all the other factors represented by concurrent production changes.

V. Antitrust and the Crash of October 1929

The low and unchanged level of case filings against the background of an expanding economy in the 1920s may explain the steady rise in the stock market, but there is no upsurge in filings that would explain the October 1929 crash and ensuing three-year slide in share values. What are we missing?

President Coolidge (1923–1929), in contrast to his predecessors, adopted a decidedly "pro-business" attitude that is only partially reflected in the filings data. For example, merger activity was largely unchecked. Although no statutory basis existed for doing so, antitrust authorities gave advance

²³ One anomaly deserves comment: the significant positive effect of $RSCAS(t-3, t)$ over five quarters for 1904–1914, due to the positive effect at the three- and four-quarter leads. This is driven by the years 1904–1907, when Teddy Roosevelt's policy underwent several swings. Based on the historical accounts, I am inclined to interpret the results based on two and three quarters as representative of the actual effects of Roosevelt's policies, which underwent fairly rapid shifts. The positive effect three and four quarters ahead seem to be an artifact of Teddy Roosevelt's unstable trust policy. FDR also shifted his policies over the years 1933–1944, but his three or four distinct antitrust regimes were spread out over twelve years.

²⁴ Fama (1990) provides a formal treatment of this argument.

Table V
Explained Variance of Annual Dow Industrial Returns as a
Function of Changes in Production, Inflation, and Current
and Leading Cases, Overlapping Quarterly Observations,
1904-1944

$IR(t - 12, t)$ is the annual return of the Dow Industrial Index from month $t - 12$ to month t , $CHPRD(t - 11, t)$ is the percentage change in the Babson industrial production index, and $CAS(t - 6 + 6k, t + 6k)$ is the number of Department of Justice antitrust cases filed from the end of month $t - 6 + 6k$ through month $t + 6k$. Reported are the coefficient of determination (R^2) and the coefficient of determination corrected for degrees of freedom ($\bar{R}^2$).

$$IR(t - 12, t) = a + b_1CHPRD(t - 11, t + 1) + b_2INFL(t - 11, t + 1) + e(t, t - 12)$$

$$IR(t - 12, t) = a + b_1CHPRD(t - 11, t + 1) + b_2INFL(t - 11, t + 1)$$

$$+ \sum_{k=-1}^T c_k CAS(t - 6 + 6k, t + 6k) + e(t, t - 12) \quad T = 0, 1, 2$$

		Case Variables Included for:			
		No Case Variables	Current Year ($T = 0$)	Current & Next 6 Mos. ($T = 1$)	Current & Next 12 Mos. ($T = 2$)
1904-1944	R^2	0.49	0.55	0.57	0.57
	$\bar{R}^2$	0.49	0.53	0.55	0.55
1904-1914	R^2	0.39	0.52	0.52	0.53
	$\bar{R}^2$	0.39	0.47	0.45	0.44
1915-1928	R^2	0.40	0.46	0.50	0.52
	$\bar{R}^2$	0.38	0.41	0.45	0.45
1929-1944	R^2	0.61	0.71	0.75	0.75
	$\bar{R}^2$	0.59	0.69	0.73	0.72
1934-1944	R^2	0.32	0.55	0.67	0.67
	$\bar{R}^2$	0.29	0.50	0.62	0.61

clearance to both mergers and trade association activities.²⁵ Only four merger cases, all relatively minor, were filed during Coolidge's five-and-one-half years in office. Cartel policy was also restrained, and in fact some of the trade association practices that the Coolidge administration encouraged were later attacked under the antitrust law.²⁶ The same years also witnessed a remarkable economic expansion.

The Hoover administration (March 1929-March 1933) took a more aggressive stance. The turning point came on Friday, October 25, 1929, when Hoover's attorney general William Mitchell announced in an address at the

²⁵ Advance approval of mergers was finally written into law in the Hart-Scott-Rodino Antitrust Improvements Act of 1976.

²⁶ Himmelberg (1976). Gilbert Montague, respected antitrust attorney, argued in 1928 that the antitrust laws no longer thwarted mergers (*New York Times*, Feb. 12, 1928, Part II, p. 19).

American Bar Association's annual banquet that henceforth, the Department of Justice would deal "vigorously with every violation of the anti-trust laws" and that it would no longer provide advance clearance for mergers and association activities. Mitchell reported that, in contrast to the policy under Coolidge, the Department of Justice had not approved a single transaction since Hoover's inauguration. Antitrust would again be executed by means of lawsuits.²⁷ The market dropped sharply the preceding Wednesday, October 23, with the Dow ending 6.3 percent below its Tuesday closing. Although the net change on the following day, Black Thursday, was only -2.09 percent, the day's low had been 11.0 percent below Wednesday's closing. The Dow dropped sharply again the following Monday and Tuesday. The net decline over the week bracketing Mitchell's announcement was 30 percent.²⁸

The Hoover administration quickly backed up its rhetoric with lawsuits. A predation case against Great Western Sugar was filed on October 30, and two merger cases were instituted against the publicity-laden Fox-Loew's and Warner Bros.-First National Pictures mergers on November 27. Other antitrust cases soon followed in early 1930 against major oil companies and the "radio trust" (involving a patent cross-licensing agreement and stock interests of RCA, Westinghouse, and General Electric). In addition, association agreements that had been cleared by the previous administration became targets of suits. Although the number of cases filed actually declined over the years 1929-1932, the Hoover administration reiterated over and over again its determination to apply stricter antitrust standards and did so in a number of highly publicized cases.²⁹

This policy reversal stimulated a years-long, unsuccessful effort on the part of industry to "restore certainty" to the antitrust laws, a discussion reminiscent of the debate under Roosevelt, Taft, and Wilson.³⁰ The Hoover administration's repudiation of pre-merger clearance not only made future mergers riskier—merge now, get sued later—it also exposed the large stock of consummated mergers from the 1920s boom to the risk of a federal antitrust suit.³¹ Not surprisingly, part of the antitrust reform effort focused on getting binding pre-merger clearance written into the law.

²⁷ *New York Times*, October 26, 1929, p. 3; *Wall Street Journal*, October 26, 1929, p. 7 (quoting Mitchell): "Until the political philosophy underlying the present Anti-trust laws has been abandoned by Congress, it will be the duty of the Attorney General to enforce those laws The Department of Justice is not the place in which to amend the Anti-trust Laws or any others acts of Congress."

²⁸ The 1929 events have an uncanny resemblance to the October 1987 crash, which coincided with the passage in the House of Representatives of a tax bill with antitakeover provisions. See Mitchell and Netter (1989).

²⁹ Himmelberg (1976, chapters 6-8).

³⁰ Sources for this account: Himmelberg (1976) and Hawley (1989).

³¹ According to historian Himmelberg (1976, p. 90), Hoover displayed "sensitivity and defensiveness toward possible criticisms that he was too lenient with businessmen's agreements In the early months of his term, this sensitivity took the form of repeatedly jogging his Attorney General . . . to look into possible antitrust violations which Hoover had noted in the newspapers In September [of 1929] he asked Mitchell, on at least two occasions, to look into the legality of well-publicized mergers."

Irving Fisher's views are also relevant. Writing in 1930: "Mergers have had much to do with the increase in the stock price level during the long bull market. . . . During the Roosevelt and Wilson regimes there was an organized effort at 'trust busting'; it was the popular sport of politicians, but in these days under Coolidge and Hoover, governmental authorities have gone the limit to stretch the Sherman Act and the Clayton Act in order to aid the movement for business efficiency."³² He had said much the same thing to the Bankers Association on the night of the October 23 downturn.³³

Fisher may have been right about the causes of the boom, but I believe that he was in serious error about the continuity of antitrust policy. The trade press reported in early 1930: "Price-fixing complaints flood Department of Justice, which, after giving public warning, has now gone into action. . . . Business has been extremely nervous since October 25 when Attorney General William D. Mitchell addressed the Bar Association in Memphis and sounded a note of warning."³⁴ Historian Hawley writes: "In the business press, these antitrust actions [of 1930] became the subject of widespread criticism, most of which charged that President Hoover was 'reversing' established Republican policy, making the depression worse."³⁵

VI. Short-Term Announcement Effects

The Hoover policy reversal suggests an empirical test of the effects of antitrust based on daily data.³⁶ Such a test would be especially useful in determining whether (a) antitrust causes stock prices to drop or (b) stock price declines cause cases to be filed. If a short-term correlation exists, the causation is more likely to run from antitrust policy to the stock market.

The natural inclination might be to look for negative stock price reactions to case filings, but the results in Sections III and IV indicate that case filings were largely anticipated by at least several months. It was hard to keep a major investigation secret. Indeed, some filings represented consent decrees, the details of which were hammered out with the firms involved in the preceding weeks and months.

Announcements and leaks by antitrust officials and the president, on the other hand, are more likely to contain new information, although it will in general be hard to say whether a given announcement is good or bad news for the market. Much depends on the context and expectations. The first three

³² Fisher (1930, pp. 101, 106).

³³ "We are living in the age of mergers under the Coolidge and Hoover administrations and the old 'trust-busting' sentiment has lapsed almost completely. . . . These mergers have effected great economies and have therefore increased the profits of corporations to a great extent. . . . A considerable part of the rise in stock prices in the last two years has been due to the increased rate of formation of these mergers and the anticipation of future economies arising from them." (*New York Times*, October 24, 1929, p. 2).

³⁴ *Business Week*, February 19, 1930, p. 22.

³⁵ Hawley (1989, p. 1089).

³⁶ I thank the referee for suggesting this exercise.

years of the Hoover administration are unusual, however, because of the sharp and fairly clear policy reversal. Consequently, I can avoid the suspicious exercise of coding antitrust events as “good” or “bad” news.³⁷

Table VI presents my list of events for January 1929 to December 1931: 22 case filings and the 19 antitrust news stories in the *New York Times* in which the President, the Attorney General, or an antitrust official were featured, or in which the emphasis was a policy shift. The detailed histories by Himmelberg (1976) and Hawley (1989) provide many other dates at which shifts in policy were communicated to business at private meetings and trade conferences, for example. So, while my list of dates may be objective, it is also incomplete. I do not look at the period after 1931 because the impending presidential election made the Hoover administration’s policy statements largely irrelevant.

My strategy is to regress the daily Dow return on leading and current values of 0–1 variables defined with respect to the filing and news story dates in Table VI. This approach runs parallel to my earlier estimates based on quarterly data. It also avoids technical complications arising in event studies when some events are close to one another. I provide two types of estimates: regressions of the daily Dow return on leading and current case filings and news stories, and probit estimates of the sign of the Dow with respect to the same variables. The probit estimates are not affected by extreme values of returns and serve as a check on the robustness of the results. Both sets of estimates are carried out for events occurring on days $t + 3$ through t . This is a fairly short window. Filings and news stories that occur zero, one, two, or three days after a drop in stock prices are unlikely to have been caused by that decline.

The upper panel of Table VII presents the regression results. For 1929–1931 as a whole, each of 22 cases filed lowered stock prices cumulatively on average 0.70 percent ($t = 0.60$), while each of 19 news stories lowered stock prices cumulatively 2.49 percent ($t = 2.27$) over the current and three preceding days. These results largely hold up when broken down into the two periods, 1929 and 1930–1931. Filings have a larger, but still insignificant, negative effect in 1929. News stories, also larger in 1929, have effects significant at the 5 percent level in both subperiods ($t = 1.66$ and $t = 1.84$). Individual coefficients also support the idea that news stories lowered stock prices.

The probit estimates based on the sign of the Dow provide largely similar results. News stories are associated with negative movements of the Dow on the day of publication and on the three preceding days for 1929–1931, as well

³⁷ Antitrust under the New Deal, in contrast, was relatively complex and involved the National Recovery Administration (1933–1935), which permitted many of the association activities that industry had sought to legalize in the 1920s. After the NRA was declared unconstitutional, a lull in enforcement was followed in 1938 by the aggressive enforcement under antitrust chief Thurman Arnold. As Hawley (1966) shows, factions within the New Deal wrestled for control of the antitrust agenda and made contradictory public statements. Interestingly, stock price volatility reached very high levels during this period of policy uncertainty.

Table VI
Antitrust Case Filings and Enforcement Announcements,
January 2, 1929–December 31, 1931

Included are all cases filed January 1, 1929 through December 31, 1931 by the Department of Justice under the Sherman Antitrust Act, except two labor cases. Also included are all statements by the President, Attorney General, or heads of the Antitrust Division or Federal Trade Commission that appeared in the *New York Times Index*, and all *NYT* articles featuring news of changes in policy.

Filing Date	Department of Justice Case Filings
Jan 4, 1929	Bates Valve—Tying case
Jan 17, 1929	N.Y. Live Poultry—Trade association
Feb 6, 1929	Great Western Sugar—Vertical foreclosure
Feb 7, 1929	Atlantic Cleaners—Cartel
Feb 21, 1929	Evansville Confectioners—Trade association
Mar 12, 1929	Ludowici-Celadon—Criminal merger case
Apr 19, 1929	West Coast Theatres—Vertical restraints
Oct 30, 1929	Great Western Sugar—Predatory pricing, foreclosure
Nov 27, 1929	Fox Theaters, Warner Bros.—Merger cases
Dec 23, 1929	Pittsburgh-Erie Saw—"Illegal practices"
Feb 7, 1930	N.Y. Live Poultry—Trade association
Feb 15, 1930	Standard Oil—Trade association
Apr 22, 1930	Foster & Kleiser—Merger
May 13, 1930	RCA—Vertical restraints, patent licensing
Jun 12, 1930	ABC Canning—Trade association
June 27, 1930	Wool Institute—Trade association
Aug 21, 1930	West Coat Theatres—Vertical restraints
Dec 30, 1930	Asphalt Shingles—Trade association
Mar 17, 1931	Bolt, Nut & Rivet—Trade association
Mar 30, 1931	Sugar Institute—Trade association
May 5, 1931	Harry Mercer (Motor Freight Assoc.)
May 12, 1931	Harry Mercer (second filing)
<i>N.Y. Times</i> Date	Antitrust News Stories
Feb 11, 1929	DOJ finds no evidence of "radio trust"
May 27, 1929	FTC Commissioner on "unfair" trade
Sep 25, 1929	Antitrust chief on chain store mergers
Oct 3, 1929	Standard Oil merger under review
Oct 26, 1929	AG promises vigorous enforcement
Nov 18, 1929	Pre-merger clearance bill to be introduced
Dec 12, 1929	Antitrust chief defends Sherman Act
Apr 7, 1930	FTC revising code on unfair practices
Apr 18, 1930	Revision of FTC policy
Jul 7, 1930	Wool decree seen as move to enforce laws
Oct 7, 1930	Hoover speech on antitrust laws
Dec 16, 1930	Attorney general on enforcement of laws
Apr 2, 1931	DOJ to continue antitrust activities
Apr 6, 1931	Expansion of activities at FTC
Apr 16, 1931	Attorney general on enforcement
May 18, 1931	AG radio speech on antitrust
Nov 5, 1931	AG would not oppose changes in law
Nov 30, 1931	Hoover OK's inquiry into changes in law
Dec 9, 1931	Hoover's address to Congress on antitrust

Table VII
The Effect of Filings and News Announcements on the Dow, 1929–1931

Regressions of the day t Dow return on 0 – 1 filing and news story variables, days $t + 3$ through day t , defined for the antitrust cases and news stories in Table VI. Coefficients in the upper panel are expressed as percents. The lower panel has probit estimates of the sign of the Dow return. The t -statistics next to “sum filings” and “sum news” test whether the respective sums of the coefficients are different from zero. The t -statistics for the least-squares estimates are corrected for heteroskedasticity using White’s (1980) and Hansen’s (1982) methods.

Least-Squares Estimates Based on Return of Dow							
		1929–1931		1929		1930–1931	
		Coeff.	t -value	Coeff.	t -value	Coeff.	t -value
Constant		–0.07	0.92	0.12	1.11	–0.16	1.71
Filings	$(t + 3)$	–0.23	0.60	0.25	0.57	–0.50	0.80
	$(t + 2)$	–0.28	0.39	–1.59	1.10	0.80	1.82
	$(t + 1)$	–0.64	0.98	–1.35	1.00	0.02	0.05
	(t)	0.45	0.76	1.20	0.98	–0.17	0.54
News stories	$(t + 3)$	–0.79	1.31	–2.10	1.88	0.05	0.08
	$(t + 2)$	–0.32	0.53	0.09	0.60	–0.65	1.62
	$(t + 1)$	–0.27	0.53	0.06	0.07	–0.63	1.04
	(t)	–1.11	2.03	–1.94	1.79	–0.72	1.22
Sum filings		–0.70	0.62	–1.49	0.73	0.16	0.16
Sum news		–2.49	2.27	–3.89	1.66	–1.94	1.84
R^2		0.012		0.071		0.010	

Probit Estimates Based on Sign of Dow Return							
		1929–1931		1929		1930–1931	
		Coeff.	t -value	Coeff.	t -value	Coeff.	t -value
Constant		0.04	0.94	0.19	2.43	–0.31	0.55
Filings	$(t + 3)$	–0.12	0.43	0.20	0.47	–0.35	0.91
	$(t + 2)$	0.33	1.21	–0.21	0.51	0.74	1.87
	$(t + 1)$	–0.13	0.46	–0.09	0.21	–0.16	0.42
	(t)	–0.21	0.76	0.27	0.62	–0.65	1.64
News stories	$(t + 3)$	–0.34	1.12	–1.28	2.16	0.12	0.31
	$(t + 2)$	–0.81	2.46	–0.80	1.56	–0.89	2.04
	$(t + 1)$	–0.38	1.28	–0.37	0.77	–0.47	1.24
	(t)	–0.64	2.02	–1.29	2.17	–0.34	0.87
Sum filings		–0.12	0.22	0.18	0.22	–0.41	0.52
Sum news		–2.17	3.44	–3.74	3.33	–1.59	2.02
% Correctly predicted		53.1		59.0		54.0	
Observations		908		310		598	
Filings		22		10		12	
News stories		19		7		12	

as for the two subperiods. In fact, each of the subperiods has at least one coefficient with a t -value in excess of two. On the other hand, filings have little or no discernible effect on the direction of the market. I view the probit estimates as stronger evidence than the least-squares estimates because they are less likely to be influenced by extreme observations.

Taken in isolation, the timing of the attorney general's announcement on October 25 of a reversal in antitrust policy would probably be best regarded as a coincidence. However, the basic pattern holds up even when combined with six other news stories in 1929, and it also holds up for the twelve stories appearing in 1930–1931. These findings support the notion that antitrust was important enough to move the market. The largely insignificant short-term results for case filings coupled with the consistent results based on quarterly data also raise the possibility that major daily stock price changes may have concrete causes even when those causes don't reveal themselves in current, publicly available information.

VII. Concluding Comments

Antitrust was a major policy issue during the first half of this century. It was marked by on-again, off-again enforcement and directed in large part at new forms of business organization, including the modern corporation. While antitrust appears to be a relatively small part of government policy toward business today, it was a major and controversial economic issue during the presidencies of Teddy Roosevelt, William Howard Taft, Herbert Hoover and Franklin Roosevelt. Merger and the holding company, both turn-of-the-century developments, were among its chief targets, as reflected in the attempts to break up Standard Oil, U.S. Steel, DuPont, and other large corporations. Other suits were directed at vertical agreements, patent licensing, and trade associations. Taken as a whole, antitrust was a far-reaching business policy, and it should not be surprising to find that it influenced the general level of share prices. Indeed, charges along those lines were made during the Panic of 1907, in 1911, and in the 1930s. While those charges are hardly proof, they make an interesting starting point.

Four channels of influence seem plausible. First, a case filing lowered the defendant's share values. This effect is small, however. Excluding cases against Dow firms results in virtually unchanged estimates. Second, increased case filings lowered the stock prices of firms that stood a greater probability of being sued when antitrust enforcement picked up. Third, increased enforcement constrained business behavior and hence lowered share prices of potential targets by forcing firms away from their preferred business strategies. Finally, even firms that were unlikely to be investigated or sued would suffer if a major antitrust initiative hurt business confidence.

Using quarterly returns for 1904–1944, I find that each case filed is associated with a decline of the Dow of one-half percentage point, after adjusting for changes in the level of production and inflation. These results also hold up for three major subperiods, although the per case effects are

higher in 1904–1914 and in 1915–1928. When I replace actual case filings with a proxy for unexpected case filings—calculated as the residual from an autoregression of quarterly case filings—the estimated negative per case effects are larger, between -0.57 to -1.52 percent. This is due largely to the years 1929–1944, which includes a relatively long period of restrained enforcement (1931–1937) followed by four years of extraordinarily severe antitrust enforcement (1939–1942). These larger cumulative effects are consistent with the view that the long-run level of expected filings shifted in the late 1930s, and that unanticipated filings rather than actual filings influenced the level of stock prices.

Fama (1990) and Schwert (1990) cast their discussion of the determinants of stock returns in terms of explained variation, in particular for annual returns. My results can be interpreted in those terms as well. After controlling for concurrent changes in production and the price level, I find that between 5 and 30 percent of the total variation in the Dow's annual return is directly attributable to antitrust filings. These results support the view that in addition to changes in current production and the price level, changes in antitrust enforcement have also been an important determinant of stock returns. Moreover, since production may itself have been affected by antitrust enforcement, these results are conservative estimates of the total effect of case filings on stock prices.

The filings data do neglect some aspects of the trust issue. For example, the antitrust authorities often initiate investigations that do not result in actual case filings. Such "shots across the bow" should lower stock prices until it becomes clear that no charges will be filed. They may also have a deterrent effect on business behavior if firms want to avoid investigations. Filings data also ignore policy pronouncements by the president and attorney general, and they ignore attempted and actual changes in antitrust legislation.

The shift in policy that took place during the Hoover administration provides the clearest illustration. Although the intensity of case filings was unchanged in the late 1920s, less tangible aspects of policy did change. The policy reversal announced on October 25, 1929 is arguably a leading candidate among explanations for the coincidental stock market slide. By itself, the announcement might be a mere coincidence, but against the background of a robust, long-term statistical association between antitrust case filings and stock price changes, it deserves to be taken seriously. Other supporting evidence comes from the behavior of daily returns around major announcement dates for 1929–1931. Case filings do not have a statistically significant short-term effect, which is reasonable since news of case filings leaks out weeks or months in advance. However, each antitrust announcement by the president or major antitrust official lowered stock prices an average of 2.5 percent over four days. This result obtains for 1930–1931, as well as for 1929, suggesting that the October 25 announcement was not a coincidence.

It would be foolhardy to claim that only antitrust matters for stock prices. But antitrust was probably important for the fate of the public corporation, it may very well be exogenous for the purposes at hand, and the long history of

explicit, public enforcement actions makes it suitable for study with formal methods. My more general contribution, I hope, will be to stimulate research on the influence of politics and business regulation on the general level of stock prices.

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