



University of San Diego
SCHOOL OF LAW

Legal Studies Research Paper Series

Research Paper No. 07-42

April 2006

**COURTS, CONGRESS AND PUBLIC POLICY,
PART I: THE FDA, THE COURTS AND THE
REGULATION OF TOBACCO**

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Courts, Congress and Public Policy, Part I: The FDA, the Courts and the Regulation of Tobacco

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April 7, 2006

Abstract*

We test the public policy impact of court decisions relative to Congress and the executive by examining the FDA's proposals to regulate tobacco products. To measure impact we utilize an event study methodology that measures how a court decision affects the returns of selected publicly traded firms. This approach allows us to sort out the decisiveness of court decisions that occur in the shadow of the executive and congressional power, as well as to sort out the power of judges within the judicial hierarchy. We find that courts, including District Courts, have the ability to affect significantly the expected profits of firms.

* We thank Nathan Monroe, Cheryl Boudreau, and Nick Weller for research assistance. We thank Stephen Ansolabehere, Lawrence Baum, Craig Emmert, Daniel Farber, Barry Friedman, Clark Gibson, Dan Klerman, Stephen Meinhold, Michael Munger, and Georg Vanberg for their comments. We acknowledge support from the Committee on Research and the Chancellor's Associates Chair VIII at UCSD.

1 Introduction

How powerful are courts in the making of public policy? Sorting out the relative power of courts in a system of shared power is not easy. Judging the power within the judicial hierarchy is similarly difficult. It is not easy to tell when a court's decisions (or the actions of any political actor) are decisive, that is, when they are necessary and sufficient for changing or blocking policy, and when they are not. One way that scholars have sought to untangle the threads of causality is through in-depth case studies as to how policy has changed over decades, trying to find the smoking gun behind any change in policy.

In this paper, we present an alternative way to sort out the issue of decisiveness. We do not analyze policy effects directly. Rather, we use the *event study* approach, testing policy impact by showing significant changes in the prices of politically sensitive stocks immediately following agency and court decisions. This is a well-known and well-developed methodology in the finance literature, but one perhaps underused within political science¹ (despite being a natural application of standard research designs²). We

¹ This methodology is well-known and well-developed in the finance literature, but is relatively rare within political science or legal studies. In the finance/economics literature, it has been applied to everything from merger regulations (Schipper and Thompson 1983) to hurricanes (Angbazo and Narayanan 1996). Within the political science literature, we are aware of only a few applications, despite some notable successes: on the death of Senator Jackson (Roberts 1990a), on the 1980 election (Roberts 1990b), on legislative rules and energy tax legislation (Gilligan and Krehbiel 1988), on the 1887 Interstate Commerce Act (Gilligan, Marshall, and Weingast 1990), on the 1934 Reciprocal Trade Agreements Act (Schnietz 2003), and on the 1992 presidential

extend this approach to study the relative impact of court decisions within public policy-making.

Our case study is the attempt by the Food and Drug Administration (FDA) to regulate tobacco products and tobacco advertising in the 1990s after eight decades of public denials of such jurisdiction (by the FDA itself, the Surgeon General, and others) and despite a lack of clear intent by Congress to delegate such jurisdiction to the FDA.³ The courts struck this down, but with Congress lurking in the background, it is difficult to tell whether these court decisions were truly decisive, or whether this policy initiative was going to die on the Hill anyway. If Congress or the President would have blocked

election (Herron et al. 1999). Event studies not yet published include a dissertation on party control of Congress (Monroe 2003), one on the 1996 congressional elections (Roberts 2000), and one on the value of judicial independence in 1688 (Klerman and Mahoney 2003). Some event studies have looked at court decisions (though again not in the political science literature), specifically at the 1951 *Schwegmann* decision (finding little evidence of significant effects) (Hersch 1994) and at antitrust litigation and the computer industry (finding significant effects) (Huth and McDonald 1989). See also Lax and McCubbins (this volume) where this approach is used to investigate the court battles over the attempts of the FDA to regulate tobacco.

² Specifically, we are employing multiple single-group regression point displacement tests (Trochim 2001). The pre-test is the stock return preceding the event, the event is the treatment, and the post-test is the stock return following the event.

³ For a review of the arguments that Congress did not delegate tobacco regulation to the FDA see John E. Jevicky, Esq., "FDA's Regulation of Tobacco Products: A Flagrant Disregard of Congressional Intent," *24 N Ky. L. Rev.* 535, 537-40 (1997) and for a review of arguments that Congress did delegate this authority to the FDA see T. O'Reilly, "Tobacco and the Regulatory Earthquake: Why the FDA Will Prevail After the Smoke Clears," *24 N Ky. L. Rev.* 509, 514 (1997).

regulation in the end, then the court decisions cannot be said to have been truly decisive. It can also be difficult to allocate causal impact between the judges and courts that handled the case. The basic question is how much control individual judges themselves had over the *ultimate probability* that tobacco would be regulated in this way.

Our hypothesis is simply that judges were indeed very powerful players in this policy struggle, that their decisions significantly affected the chances of regulation. Obviously, their decisions ultimately blocked regulation, but their decisions were only powerful if regulation would have succeeded in the end, in the context of the latent power of Congress to act. If Congress were to be set to block regulation, then the court decisions were actually irrelevant, despite appearances.

This is not a run-of-the-mill case in which to analyze court power. The stakes were quite high, economically,⁴ politically,⁵ and socially.⁶ Moreover, while the stakes

⁴ The tobacco industry is hundreds of years old, predating the founding of the U.S. itself. The publicly traded tobacco companies have a market capitalization of approximately \$150 billion, with a 13% return on investment (market capitalization measures the size of a security or set of securities as the price multiplied by the number of shares outstanding). (Meanwhile, the computer hardware sector with a market capitalization of \$288 billion and a return on investment of 2.5%.) The tobacco industry spent \$6 billion on marketing alone in 1993. Cigarette sales total nearly \$40 billion in the U.S. annually and U.S. companies are responsible for approximately 10% of the world's tobacco exports.

⁵ In 2000, tobacco lobbyist expenditures totaled more than \$20 million (Phillip Morris alone spent over \$11 million) and campaign contributions totaled \$8,610,638 (\$5,318,039 in soft money). The largest contributors were Phillip Morris (\$3,490,438), U. S. Tobacco (\$1,621,652), R. J. Reynolds (\$1,026,427), and Brown and Williamson at (\$1,000,782). Elections—perhaps even control of Congress—can be swung by the politics of tobacco

involved in this particular case are far greater than in the average district court case, the power of the courts to interpret statutes is a recurring and important one in our constitutional system.

In this paper, we show that court decisions significantly and independently affected the probability that tobacco regulation would pass or be blocked. We rule out presidential or executive dominance of this policy area—if the president of the FDA were the one decisive actor in tobacco regulation, we should not observe the results that we do. In what follows, we briefly place our research question in context. In section 3, we lay out the timeline of the FDA’s attempt to regulate tobacco. In section 4, we explain the methodology of event studies and their application to studying judicial impact. In section 5, we discuss the key events, our predictions, the data, and our results. Section 6 discusses our findings and section 7 concludes.

2 Judicial Impact

How powerful are courts relative to the other branches of government? Two centuries ago, Alexander Hamilton labeled the judiciary the “least dangerous branch,” arguing it possessed “neither the purse nor the sword.” More recent analysis runs the gamut from those that see judges as “virtually untrammelled policy-mak[ers],” unconstrained by the other branches or by legal concepts or norms (Segal and Spaeth

(since 1994, 75% of tobacco company campaign contributions went to Republican candidates).

⁶ Tobacco regulation affects the lifestyle and health (not to mention the wallets) of more than 50 million Americans on a day-to-day basis. Smoking is thought to cause the premature death of hundreds of thousands of Americans each year, but one out of every four Americans still smokes.

2002; Spaeth and Segal 1999), to those that recognize constraints in the form of “the law” and legal norms (Gillman 2003; Knight 1994; Knight and Epstein 1996), to those who argue that judges and Courts have profoundly changed American law (Garbus 2002, Tushnet 2005, Noonan 2003), and to those that recognize severe constraints on the abilities of courts to make policy (Bickel 1962; Rosenberg 1991).

According to a recent summary of the judicial impact literature (Canon and Johnson 1999), scholars of judicial impact “generally assume that judicial decisions have an important impact on the political, the economic, and to some extent the social structures of the nation,” though little has been done to measure impact, findings have been “contradictory,” and “claims of extensive influence are quite controversial.” Obviously there are exceptions.⁷ Still, there are relatively few empirical studies actually testing the impact of courts on policy, and these have usually been limited to Warren Court civil liberties cases (Canon 1991). One reason is that data following court decisions are rare, and pre-decision data even rarer, making it difficult or impossible to sort out causal impact directly.

There has then emerged two competing pictures of court power, one in which the courts are “almost impotent” with “little important policy-making capacity” and one in which courts have “significant policy-making independence and capacity” (Canon 1998). At the same time, scholars have debated the relative power of courts and Congress (e.g., Bergara, Richman, and Spiller 2003; Segal 1997; e.g., Segal and Spaeth 2002). Another group of scholars have studied the strategic interaction between courts, congress and the

⁷ For example, Feeley and Rubin (1998) look at prison reform, McCann (1994) looks at pay equity reform, and Reed (2001) looks at school finance reform.

president to explain how the different branches interact (Ferejohn and Shipan 1990, Spiller and Gely 1992, McNollgast 1995, and Ferejohn and Eskridge 1992).

The largest problem faced by both arguments is the attribution of causality. Event studies have an advantage in this regard, in that they help to isolate causal impact very narrowly.⁸ So long as the policy can be tied (even indirectly) to the profits of publicly traded firms, the event study approach can be used to isolate the probabilistic policy impact of an event. We can thus separate judicial impact from other events and even differentiate between different stages of the judicial process.

3 Tobacco Timeline

The battle over tobacco regulation provides an excellent case study to reconsider these conflicting pictures of court power over policy.⁹ We now present a brief account of the this battle (see Kessler 2001 for a more detailed account), from which we derive our list of events to test. Interestingly, it even appeared to contemporaneous observers that the tobacco market moved in response to some of these events.

On February 25th, 1995, David Kessler, the head of the FDA, released a letter announcing that the FDA was considering regulating tobacco, with cigarettes designated as drug (nicotine) delivery devices. This letter had been kept a secret, known to only to a select few until its release, and was issued without clearance by the White House. Such

⁸ The disadvantage is that they do not delve into other aspects of policy impact such as smoking rates, health impact, etc. We thus present this methodology to stand in conjunction with other forms of evidence as to policy impact.

⁹ Tobacco policy and the FDA might not fit under Rosenberg's narrow definition of significant policy change, as this case only deals with the "functioning of a single bureaucracy" (though this case would meet many of the other parts of the definition).

regulation violated the 80-year-old doctrine (previously reaffirmed by Kessler himself) that the FDA did not have jurisdiction over cigarettes.

After much investigation, the FDA gave official notice of proposed rule-making, now with the explicit approval of President Clinton.¹⁰ The new regulations included the categorization of nicotine as a drug, which would give the FDA authority over the sale, distribution, and use of tobacco products. Other proposals outlawed cigarette vending machines and restricted advertising aimed at younger audiences. The big tobacco companies and an advertising agency immediately filed suit to block tobacco regulation, on the grounds that the Federal Food, Drug, and Cosmetic Act (FFDCA) did not extend to tobacco products.

Meanwhile, many analysts speculated that the regulations would be tied up in the courts for years and eventually blocked by Congress, while congressional Democrats boldly announced that Republicans lacked the support to block this new initiative.¹¹ The success of the proposed regulation was thus far from clear, but the courts were seen as a major obstacle to the FDA's plans. President Clinton approved the new regulations (61 FR 44396) on August 21st, 1996, and they were issued on August 28th, to begin taking effect exactly one year later.

Arguments in the lawsuit, *Coyne Beahm, Inc. v. United States FDA* (966 F. Supp. 1374), were held on February 10th, 1997 under Judge Osteen, who was predicted by most

¹⁰ This followed upon weeks of reports that Clinton would let the FDA proceed. To the extent that the proposal was anticipated, we cannot measure impact using an event study, but until the actual announcement, doubts remained and the details were unknown.

¹¹ Another speculation was that Clinton would simply negotiate to drop the regulations in exchange for voluntary curbs on advertising and vending-machine sales.

observers to be hostile to the FDA's assertion of jurisdiction.¹² Instead, on April 25th, he shocked the tobacco industry—and market traders—by ruling that the FDA could in fact regulate tobacco, although they could not regulate tobacco advertising as proposed. He held that there was no evidence that Congress had intended to withhold authority over tobacco products and that these products fit within the appropriate definitions of “drug” and “device.” Tobacco company stock prices fell, losing nearly 5% of their market capitalization, a one-day loss of over six billion dollars to stock traders, trumping the 2% loss after the FDA's notice of regulation (almost 2 billion dollars). Advertising stocks, meanwhile, gained in value.

Both sides appealed their respective losses in *Brown & Williamson Tobacco Corp. v. FDA* (153 F.3d 155). On August 11th, 1997, oral arguments were held in the Fourth Circuit Court of Appeals under Judges Michael, Russell, and Hall. Judges Michael and Russell continuously undercut the FDA's argument with frequent, hostile interruptions, leaving little hope that either would vote to sustain the lower court's ruling (Kessler 2001). But, on February 22nd, 1998, before he could sign the decision reversing the lower court, Judge Russell died and the expected win for tobacco became less certain, as the two remaining votes were split (Kessler 2001, 366). This was bad news for the tobacco industry (not to mention for Judge Russell), and the market capitalization suffered a one-

¹² Judge Osteen's family owned a tobacco farm, he had represented a tobacco heir as a lawyer, and he had made previous decisions in favor of tobacco growers
Kessler, David. 2001. *A Question of Intent: A Great American Battle with a Deadly Industry*. New York: Public Affairs..

day loss of \$1.8 billion.¹³ (It was also bad news for advertising interests in that it raised the possibility of a reversal of their previous victory.)

Initially, it was unclear as to whether Judge Russell's cases would be reheard or decided by the remaining two judges, but new oral arguments were scheduled for June 9th, with Judge Widener as his replacement. The Department of Justice predicted that Widener would be unsympathetic to the FDA cause, and this prediction turned out to be correct. On August 14th, the appellate panel reversed the district court ruling on tobacco and affirming the decision as to advertising, holding that the FDA's interpretation of its statutory jurisdiction could not stand, as Congress had intended to reserve such jurisdiction.¹⁴ This decision had the added effect of strengthening tobacco's hand in their ongoing settlement negotiations. The FDA appealed for en banc review (a request for the all of the Fourth Circuit judges to sit to rehear the case), but this was denied on November 10th (161 F.3d 764). This was the last point at which major doubts remained about the ultimate fate of tobacco regulation.

The FDA then appealed to the Supreme Court (*FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120). Despite expectations that the court would not take the case,¹⁵ the justices granted cert on April 26th, 1999, and held oral arguments on December 1st.

¹³ One might compare the impact of Judge Russell's death to the impact of Senator Jackson's death in Roberts (1990a).

¹⁴ In *Chevron v. NRDC*, 367 U.S. 837 (1984), the Supreme Court established that agency interpretations of statutes in the absence of clear congressional intent would be accepted so long as they were reasonable.

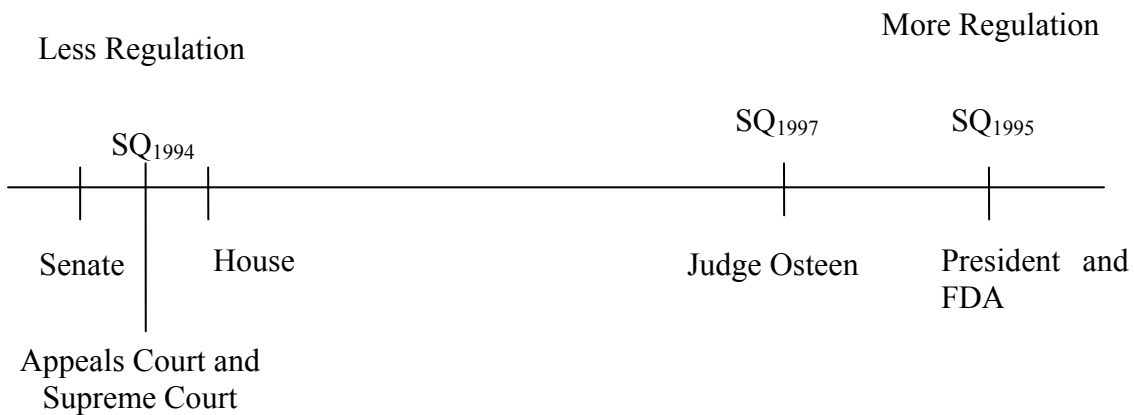
¹⁵ The Wall Street Journal (Sears 1999) ran a story that options traders were betting that the Supreme Court would deny cert and thus provide a boon to tobacco stocks. The decision to grant cert was thus a clear surprise and a potential blow to both sets of stocks.

Kessler himself was sure that the FDA would lose (Kessler 2001), and he was right: on March 21st, 2000, the Court affirmed the Fourth Circuit’s decision and ruled against the FDA.

4 Idealized Model and Predictions

To test how the various actors in the above timeline influenced public policy we present a simple spatial model in Figure 1 that is designed to capture the key strategic considerations between actors. From the idealized model we derive predictions that correspond to each of the following possibilities: congressional dominance, executive dominance, Supreme Court dominance and federal court dominance. Before we offer our predictions, however, we describe the model and how it relates to the timeline laid out above.

Figure 1: Game between Congress, Executive and Courts



In the above idealized game, the Senate, the House, the executive branch (President and FDA), and the various court actors are modeled as having policy preferences over the amount of regulation of tobacco production and advertising.¹⁶ The House and Senate preferred the policy in place at time SQ_{1994} , but when the FDA issued its intent to regulate tobacco and advertising it moved policy to SQ_{1995} , which involved regulation of tobacco advertising and production/sales. In this case, congress could not, by itself, move policy back to SQ_{1994} because the President would veto such a move. However, Judge Osteen ruled that the FDA cannot regulate advertising but can regulate tobacco, which effectively moved the status quo to SQ_{t+1} . The status quo created by Judge Osteen is marginally closer to the ideal points of the House and Senate than SQ_{1995} , but the executive branch still preferred SQ_{1997} to SQ_{1994} , because such a policy is closer to its ideal policy than Congress' policy would be. Absent any further court action the status quo would have remained at this point.

However, when the Appeals Court and then later the Supreme Court ruled that the FDA does not have the authority to regulate tobacco, the status quo essentially returned to SQ_{1994} , which is the policy preferred by Congress. The return of policy to this point marks the end of this game between Congress, the executive and the Courts, as neither

¹⁶ This simple model is borrowed from Eskridge and Ferejohn (1992) and Spiller and Gely (1992) and assumes: 1) information is complete, in that the preferences of the players, the structure of the game, and the rationality of the actors are all common knowledge; 2) players perfectly anticipate the future course of play; 3) that no one is able to commit to future courses of action; 4) and that all the actors in the model prefer that their decisions not be overturned

the FDA nor the President can now move policy from SQ₁₉₉₄ as there is no such move that would make the House and Senate better off.

In general, when policy is near the President's ideal location, the House and Senate will be irrelevant because they cannot move policy away from the President. The courts have the ability to move policy along the regulatory dimension without the consent of Congress or the executive (Horwitz 1994). As a result of the inability of Congress to act independently, either the President/FDA or courts will be the decisive players in the above game.

Our model does not imply that the Supreme Court is the only relevant judicial actor. In this model the district and appeals courts are both assumed to have their own policy preferences, and the decisions they make are assumed to have policy impact. As our model makes clear, each time a court acts they affect the status quo which then empowers either congress or the president, and this therefore makes the courts powerful players in the game.

From the above model we derive predictions for the four possible models of policy making – congressional dominance, President and FDA dominance, Supreme Court Dominance, and courts as decisive player. The predictions are specified in section 6.1.

5 Research Design

An event study, rather than focusing on direct policy measures, tests the impact of an event by showing significant changes in relevant stock values immediately following the event and ruling out alternative causes. By focusing on firms whose profits will be

affected by the policy changes at stake in a court case, we can use event studies to test the impact of judicial decisions on policy.

We can summarize our argument as follows:

1. Court decisions have a significant and independent impact within public policy making.
2. Public policy affects the profits of firms.

Therefore, court decisions affect the profits of firms.

3. Stock values represent expected future profits (the Efficient Markets Hypothesis).

Therefore, court decisions affect stock values.

Therefore, changes in stock values following court decisions demonstrate an effect on policy.

Our argument rests on the links between court decisions and policy, between policy and the profits of firms, and between profits and stock prices—and thus between court decisions and stock prices. The first link is the hypothesis we test, that judges were decisive actors in the policy making process. The null hypothesis would be that courts did not have a true impact in the policy making process, that congress would have blocked policy change anyway, making the courts' decisions irrelevant (although apparently causal).

The policy-profits link is the argument that public policy affects the profits of firm, by affecting supply and demand, production and consumption, and the “rules of the game.” (Our research design implicitly tests this link as well.) Given this, our hypothesis implies that court decisions that meaningfully affect public policy will affect the profits of firms associated with that area of policy. Specifically, it implies that if court decisions

were decisive over tobacco regulatory policy, then court decisions affect the expected profitability of tobacco and tobacco-advertising firms.

The profits-prices link is actually the Efficient Markets Hypothesis (EMH)—that a stock price reflects all relevant and available information as to future profits for that stock, given the decisions of well-informed and rational market traders.¹⁷ Restated, a stock price represents the current value of the expected stream of future profits.¹⁸ The EMH is standard in the finance and economics literature (see, for example, Cochrane 1991; Fama 1971; Fama 1991; Jensen 1979; Jordan 1983; see, for example, MacKinlay 1997). Given that policy changes will affect future profits, then the EMH means that policy changes (current or future) will affect current prices. The change in current prices serves as a proxy for the expected change in expected profits, and the change in expected profits serves as a proxy for policy change.¹⁹ Combining this with our hypothesis yields

¹⁷ Different strengths of this hypothesis exist. Event studies only assume relative market efficiency, not absolute efficiency (whether the market as a whole is overpriced or underpriced).

¹⁸ One might think to use declared profits directly. Unfortunately, these are not very good indicators of true performance, not least of which because they are highly manipulable, at least in the short run, by the firms themselves. Stock prices, on the other hand, are far less manipulable and are publicly available

McWilliams, Abigail, and Donald Siegel. 1997. Event Studies in Management Research: Theoretical and Empirical Issues. *The Academy of Management Journal* 40:626-657.

¹⁹ Direct measurement of ultimate policy effects might have the advantage of eliminating the need for a proxy for policy such as profits (greater construct validity). The tradeoff is the passage of time necessary for the observation of policy outcomes, which creates problems of inference (history threats), given that other politically relevant events might have occurred in the interim. Rosenberg seems to suggest that the passage

the inference that, if court decisions affect policy even probabilistically, they will affect current prices. If they do not affect policy, then they should not affect current prices.

To accept this approach one must believe that—in the aggregate—market traders use publicly available information to make unbiased (though not perfect) predictions about the effects of policy change on profits and that they take action (buy or sell) on this basis. They have very strong financial incentives to do. Under the EMH, “the market” may make mistakes, but it may not *systematically* do so. So long as the market is not systematically biased, then event study tests are valid. Why should we study the decisions of market traders? Our answer is that market traders are “voters on steroids”—they are everything we want the ideal voter to be, with powerful incentives to be informed and behave rationally.²⁰

of time is a virtue for his case studies: “Each movement spans a sufficient length of time to allow for variance. Covering decades, the debate over these issues has been affected by political, social, and economic variables”

Rosenberg, Gerald N. 1991. *The Hollow Hope: Can Courts Bring About Social Change?* Chicago: University of Chicago Press.. Passage of time might be a virtue for tracking policy changes but not for isolating the causes of those changes.

²⁰ The reactions of the stock market are thus at least as deserving of our attention as public opinion polls, wherein the incentives for obtaining information and behaving rationally are minimal. Market traders cannot afford to be consistently wrong. To be clear, we are not arguing that market traders individually can do better than political scientists at understanding or predicting the aggregate impact of judicial decisions. Rather, we argue that market traders and industry experts are narrow, but deep experts, specializing in how events will affect the profits of a specific firm (or perhaps an industry) and making use of all information available to them. It is the aggregation of very large numbers of these individual narrowly expert reactions that should lead to reliable estimates of impact. There are some very good examples of investors correctly

Given the EMH, prices will change as soon as expectations change as to future profits, and thus as soon as expectations change as to future policy. When new information as to future policy and profits is revealed, market traders quickly update their beliefs about future profits and their resulting trading behavior updates the stock price accordingly. While media coverage of the stock market might suggest otherwise, it is simply false that all news affects the market—both economic theory and evidence come down firmly as showing that only meaningful news does so.

To the extent that future events are predictable or expected, their impact will already be included in stock prices, which can make it difficult to identify the impact of events. Price changes will only occur with respect to deviations from market expectations. This implies that only surprising events—events which reveal new information about policy and profits—can be tested. This also implies that the significance of events can only be measured using *changes* in stock prices, not the absolute levels thereof.²¹ (To be clear,

predicting political events and their consequences see,
Gilligan, Thomas W., and Keith Krehbiel. 1988. Complex Rules and Congressional Outcomes: A Study of Energy Tax Legislation. *Journal of Politics* 50:625-654,
Roberts, Brian E. 2000. The Redistributive Consequences of Changing Majority Control in the U.S. House of Representatives. Paper read at Annual Meeting of the Midwest Political Science Association,
Schwert, William G. 1981. Using Financial Data to Measure the Effects of Regulation. *Journal of Law and Economics* 24:121-158..

²¹ A frequently asked question: What if the prices change after an event but then rebound? Assuming no other events occur or information is revealed in the meantime, then the answer is that such a pattern would be a violation of the EMH, as prices would not be unbiased predictors of future profits. If investors routinely overreact to events (judicial decisions), or if prices always correct for initial reactions, then even marginally

surprise is not enough: to affect prices, the event or outcome has to have the power to affect profits.)

A final implication of the EMH is that to test the impact of an event, one must identify not so much the historical date on which an event occurred, but rather the timeframe of the release of the information that is relevant for future profits—the *event window*. If this occurs very gradually, the event window would have to be large, such that the impact of the event of interest might be drowned out by the noise of other events. Event windows “should be long enough to capture the significant effect of the event, but short enough to exclude confounding effects” (McWilliams and Siegel 1997).²² That is, since event studies do not specify causal chains, alternative causalities must be

clever traders could make a large profit simply by buying or selling in opposition to these trends (skeptics are invited to try this following judicial decisions—using their own money, of course). Furthermore, we control for trends over time statistically using a model of the market. If events always lead to reactions and corrections, then the variance of abnormal returns will be high and we should not find significant results.

²² McWilliams and Siegel consider event window size “possibly the most crucial research design issue” and argue that it is hard to reconcile the market efficiency assumption itself with long event windows. They note that short windows have been shown to be sufficient for capturing impact. Lengthy event windows (some use event windows many years in length) would imply that either that the market was incredibly slow at incorporating information or that information was released incredibly slowly. The longer the event window is, of course, the harder it will be to control for confounding events and the more noise in the sample.

completely ruled out. There must be no *confounding events*—other (surprising) events that might have affected prices at the same exact time as the event of interest.²³

Putting all this together, we can only test an event if it reveals new information, if the timing of the release of this information (the event window) can be identified and isolated, and if this window is not too prolonged. Given these requirements the nature of the judicial process, judicial decisions are strong candidates for event studies (perhaps even more than many subjects of such studies).²⁴ Judicial decisions have clear, short event windows: the judges’ deliberations are private, the decisions themselves are kept secret until officially announced (leaks are almost unheard of), and the decision dates are part of the public record. While the decision itself is a nearly instantaneous event, the case as a whole percolates over a longer period of time—allowing “the market” the time to explore the implications of the possible decisions and then quickly react when the result is clear. The reaction is nearly instantaneous. The analysis and planning need not be.

²³ Should such events occur outside the event window but during the sample period, they will not bias the results, though they may inflate the standard errors. Adding controls for other important events during the estimation period does indeed (trivially) reduce the standard errors in our tests.

²⁴ We thus disagree with the comment that “judicial decisions are not ‘events’ except to the litigants for whom a decision affects a wealth transfer” Bhagat, Sanjai, and Roberta Romano. 2001. *Event Studies and the Law: Part II, Empirical Studies of Corporate Law..* First, this is a rather large exception, particularly where the litigants are major political actors with stakes in the billions of dollars. Second, the implications of judicial decisions often reach far beyond those present in the courtroom itself.

If judicial decisions decisively affect policy and are surprising, then they should affect stock prices. Finding a significant effect following a decision implies both surprise and impact; finding no significant effect implies either that surprise was lacking (any effects were already incorporated into prices) or that there was no impact (the event did not affect future profits)—but not necessarily both. Thus, the event study methodology only captures the lower bound of policy effects, and the results may very well understate these effects.

The general event study design is not controversial. We add only the hypothesis on the power of court decisions, so that the final implication—that surprising decisions produce market reactions in the predicted direction—allows for a clean test of our hypothesis. Since event study tests are unclouded by the impact of both prior and subsequent events, we can isolate the specific impact of judicial decisions to a far greater degree of confidence than can other approaches.

To put all this in the context of our tobacco case study, consider the situation faced by market traders as the regulatory battle developed. Future tobacco-related profits would certainly be affected by the degree to which the FDA would be allowed to regulate tobacco products. The market's baseline predictions are incorporated into current prices at the start. A trader must keep a running tally of the probability that regulatory changes will be made and her profits affected: buying (selling) a tobacco stock is a bet that regulation will not go through (will go through). If an event is relevant to this probability, and thus to expected profits, she will update her tally and trade accordingly—which in the aggregate will affect current stock prices.

If judicial decisions are irrelevant for this calculus, if courts lack independent policy-making capacity, if congressional actions will trump all, then judicial decisions reveal no information about future policy or profits. A rational market trader will ignore the courts and concentrate on Congress. Court decisions, no matter how “shocking,” would not affect tobacco prices. If, on the other hand, court decisions can significantly and independently affect tobacco regulatory policy, if judges have the potential to be decisive players in the policy-making game, then judicial decisions are relevant for future profits, and market traders (at least in the aggregate) must act accordingly. As judicial decisions resolve residual uncertainty as to future tobacco policy, prices will change in a predictable fashion. Though Hamilton’s analysis portrayed the courts as having neither the power of the purse nor the sword, we use the power over the purse to demonstrate the power of the sword.

5.1 The Statistical Model

While there are some variations between statistical models used to conduct event studies, the basic approach remains the same. There is a “normal” (expected) rate of return (change in total value)²⁵ to a stock based on (1) the movement of the market as a whole, (2) the sensitivity of this stock to the market as a whole, and (3) the market-independent rate of return for that stock. This defines the standard “market model.”²⁶

²⁵ More precisely, the rate of return is the change in the total value of an investment in a security, here over the period of one day, expressed as a percentage of the total amount invested

²⁶ One alternative is the Capital Asset Pricing Model (CAPM), but models such as this have not been shown to perform better than the market model and are not recommended by the event study literature

The “abnormal” return is the difference between the normal return we would expect on the basis of the market model and the return we actually observe.²⁷ (See, for example, Figure 1, showing the normal and abnormal returns surrounding the district court decisions.) The central question is whether the abnormal return is significantly different from zero in the predicted direction. Given that we are interested in a set of stocks, the question is whether there is a significant pattern of such abnormal returns.

We use a generalized least squares (GLS) approach, as this has clear advantages for inference in event studies (Angbazo and Narayanan 1996; Malatesta 1986; McWilliams and Siegel 1997).²⁸ The multivariate GLS regression model is

$$\tilde{R}_{it} = \beta_{i0} + \beta_{im} \tilde{R}_{mt} + \sum_{k=1}^K \beta_{ik} D_{kt} + \tilde{\varepsilon}_{it} \quad (1)$$

where \tilde{R}_{it} = rate of return²⁹ for firm i on day t ($i = 1, 2, \dots, N$)

MacKinlay, A. Craig. 1997. Event Studies in Economics and Finance. *Journal of Economic Literature* 35:13-39.. The market model is “the best available model” for event studies

McWilliams, Abigail, and Donald Siegel. 1997. Event Studies in Management Research: Theoretical and Empirical Issues. *The Academy of Management Journal* 40:626-657..

²⁷ Consider an analogy to an electoral study with a “normal vote,” the vote we predict based on prior voting patterns and sensitivity to national vote swings, and an “abnormal vote,” the difference from the observed vote to the expected vote.

²⁸ The GLS approach explicitly takes into account the cross-sectional correlation of the returns of related firms. The non-contemporaneous covariances must be zero, but the contemporaneous covariances can be nonzero. The disturbances are assumed to be independent and identically distributed within each firm, but can vary across firms (heteroscedasticity). GLS also makes more efficient use of the data and allows for more powerful hypothesis testing.

\tilde{R}_{mt} = rate of return for the market index on day t

β_{i0} = market-independent rate of return on firm i

β_{im} = sensitivity of firm i 's rate of return to changes in the market's rate of return

β_{ik} = sensitivity of firm i 's rate of return to event k ($k = 1, 2, \dots, K$)

D_{kt} = dummy variable only equal to one if event k occurred on day t

$\tilde{\varepsilon}_{it}$ = error term (assumed normally distributed and serially independent) for firm i on day t

On the left is the observed rate of return. On the right, the first and second terms constitute the market model, and the dummy variable interaction captures the abnormal return (the impact of the event). Each firm has its own impact coefficient.

Were we interested in only one particular firm, we could simply test its impact coefficient (size and magnitude), but our focus is on a set of related stocks. There are two standard ways to test the impact of an event on a set of stocks, focusing on *joint impact* and *aggregate impact*. Each is sensitive to somewhat different patterns of impact, and are best used in conjunction with each other.³⁰

²⁹ $\tilde{R}_{it} = ((p(t) \cdot f(t) + d(t)) / p(t')) - 1$, where $p(t)$ is the last sale price at time t , $f(t)$ is the factor to adjust the price at t (so that the current and previous prices are adjusted to account for any “splits”—increases in the number of outstanding shares maintaining proportional equity among shareholders), $d(t)$ is the dividend amount, $p(t')$ is the last sale price at the time of the last available price before t .

³⁰ An additional test, a portfolio test (which considers an equally-weighted portfolio of the relevant stocks), yields almost exactly the same results.

The joint impact hypothesis is that the event had a significant impact on each individual firm in the sample. This test is non-directional, however, and could be satisfied by large abnormal returns in the “wrong” direction. A directional test of overall impact is the aggregate impact hypothesis, testing whether the net abnormal return summed over the stocks in the sample is significantly different from zero and in the predicted direction. Abnormal returns in the “wrong” direction will cancel out those in the “right” direction. Aggregate impact tests the sum of the individual impact coefficients, while the joint test aggregates the set of individual tests results into one F-test. While the joint test is better at capturing the breadth of impact across the set of stocks, the aggregate test better captures the magnitude of the impact (while also incorporating the direction of the abnormal returns).

We test these hypotheses on appropriate sets of tobacco and advertising stocks. We now turn to the definition of these stocks and our data.

6 Predictions, Data, and Results

6.1 Events and Predictions

The tobacco timeline we sketched in section 3 suggests a number of key events to study along the road to the Supreme Court’s final blow to the FDA’s attempts to regulate tobacco. We look at the effects of seven of these on stock returns, concentrating, of course, on those that were surprising. For each, we make a pair of directional predictions and rule out confounding events. To define the appropriate event windows and to rule out confounding events, we performed Lexis searches around the event dates for articles

or reports mentioning tobacco, the FDA, or advertising.³¹ We are confident that none of our inferences are undercut by confounding events.

In the list below, we indicate the events we study as well as our (positive or negative) predictions for impact (based on the previous discussion of the tobacco regulatory battle and the idealized game between the Executive, Congress and Courts):

| | Congressional Dominance³² | Executive Dominance³³ | Supreme Court Dominance | Court System Dominance |
|----------------------------------|---|---|--------------------------------|-------------------------------|
| Event | Predictions for Tobacco/Advertising | | | |
| 1. FDA notice | -/- | -/- | 0/0 | 0/0 |
| 2. District court decision | -/- | 0/0 | 0/0 | -/- |
| 3. Death of Judge Russell | 0/0 | 0/0 | 0/0 | -/- |
| 4. Fourth Circuit panel reverses | +/+ | 0/0 | 0/0 | +/+ |
| 5. En banc review denied | 0/0 | 0/0 | 0/0 | +/+ |
| 6. Supreme Court grants cert | 0/0 | 0/0 | -/- | -/- |
| 7. Supreme Court affirms | 0/0 | 0/0 | +/+ | +/+ |

³¹ We do not cite individually the multitudes of news articles on tobacco available for each event—these are available at [website]. There is generally no industry-wide news about advertising.

³² Congressional dominance can only be tested under unified government. Under divided government, as in this case, Congress cannot change the status quo and the Courts acts to reestablish the status quo.

³³ Executive dominance implies that Congress cannot overturn decisions of these actors.

Our event windows are single days for the tests on the tobacco stocks and two days for advertising stocks (given the less direct connection to the court decisions). We are focusing on the instantaneous reactions of the market to news as to policy changes. The chance that there exist unnoticed confounding events on these exact days is vanishingly small. Furthermore, our predictions vary in sign by event and by stock.

The key events—those that were clearly surprising and thus should have strongly affected calculations of the probability that tobacco regulation would stand—are the FDA notice, the district court decision, the death of Judge Russell, and the denial of en banc review. (While we consider these the key tests, we present the results for all seven events.) The reversal by the second circuit court panel was not much of a surprise given the long path from the original panel hearing to the replacement of Judge Russell to the subsequent oral arguments. Furthermore, close attention to the Supreme Court over the period preceding its decision revealed that it would likely affirm the circuit court, and it did. It was somewhat surprising that it granted cert, however.

6.2 Data

We focus primarily on tobacco stocks and secondarily on advertising stocks. We also look more closely at the five major tobacco companies.³⁴ The market's rate of return is taken from the standard source, the Center for Research in Securities Prices (CRSP)³⁵ equally-weighted index of all NYSE/AMEX stocks on the given day.³⁶ The list of

³⁴ These are Phillip Morris, British American Tobacco, R. J. Reynolds, Lorillard, and Liggett.

³⁵ This is the standard data; citations to the CRSP data number in the thousands.

³⁶ While it is possible to use an index with size-weighted returns with little change in the results, the equally-weighted index is the recommended choice

tobacco and advertising stocks comes from the U.S. Department of Labor's Standard Industrial Classification (SIC) codes, with minor exceptions.³⁷ Tables 1A and 1B show

Brown, Stephen, and Jerome B. Warner. 1985. Using Daily Stock Returns: The Case of Event Studies. *Journal of Finance Economics* 14:3-31,

Kwok, Chuck C. Y., and LeRoy D. Brooks. 1990. Examining Event Study Methodologies in Foreign Exchange Markets. *Journal of International Business Studies* 21:189-224.. When the sample contains firms of only one size (which is not the case here), the equally-weighted index can bias against finding significant results using *t*-tests.

Kothari, S. P., and Charles E. Wasley. 1989. Measuring Security Price Performance in Size-Clustered Samples. *The Accounting Review* 64:228-249,

Schwert, William G. 1983. Size and Stock Returns, and Other Empirical Regularities. *Journal of Financial Economics* 33:3-12..

³⁷ First, we then selected all of the stocks from the CRSP database with “tobacco” SIC codes (those with “tobacco” in the description) that had complete trading data for at least one of our event windows. This yielded 16 stocks from major group 21 (Tobacco Products), three stocks with SIC code 5159 (Farm-product raw materials) that were tobacco-related, and one stock with SIC code 5194 (Tobacco and Tobacco Products). (The two exceptions are Loews Corp., whose subsidiary is Lorrillard, and Vector Group, whose subsidiary, is Liggett. Because both Lorrillard and Liggett are named in *Beahm v. FDA* and *Brown & Williamson v. FDA*, and are well known to be two of the major tobacco companies in the U.S., we searched out and added each of these specifically. They were not caught in our initial SIC sweep given their status as holding companies with diverse subsidiaries. The 26 advertising stocks were chosen in similar fashion (code 731 is Advertising). We then omitted two—Clear Channel and Westwood—as tobacco advertising is not allowed on television or radio. Note that Coyne Beahm, despite being a named party to the district court case, is not in the CRSP data, as it is a partnership, not a publicly held firm. For an overview and listing of SIC codes, see <http://www.osha.gov/oshstats/sicser.html>.

which stocks were included for which windows (stocks were only included in a given window if they existed during the year³⁸ surrounding the event).

6.3 Results

Tables 2A and 2B present, respectively, the tobacco and advertising results. Table 3 presents the total gains and losses to the market capitalization on the event days (not controlling for the normal returns). We give results for the full sets of stocks as well as for the five biggest tobacco companies separately.³⁹

³⁸ This period ran from either January to December or July to June depending on which span best centered the event. The results should be robust so long as the span is representative of the variances of the time series. Events 4 and 5 fall in the same time period and are run in the same regression (results are unchanged if they are run individually); other events are run individually.

³⁹ We also confirmed that our major results were not driven by outliers using a non-parametric test of sign percentages

Angbazo, Lazarus A., and Ranga Narayanan. 1996. Catastrophic Shocks in the Property-Liability Industry: Evidence on Regulatory and Contagion Effects. *Journal of Risk and Insurance* 63:619-637,

MacKinlay, A. Craig. 1997. Event Studies in Economics and Finance. *Journal of Economic Literature* 35:13-39,

McWilliams, Abigail, and Donald Siegel. 1997. Event Studies in Management Research: Theoretical and Empirical Issues. *The Academy of Management Journal* 40:626-657..

This tests whether the proportion of positive to negative abnormal returns exceeds that to be expected from the market model. If the event truly has no effect, then on average half the firms should have positive abnormal returns and half negative. The non-parametric test statistic is given by $(G - pN) / \sqrt{pN(1-p)}$, where G is the number of negative sample coefficients, N is the total number of sample coefficients, and p is the probability of a negative estimate under the null hypothesis (.05).

All effects for all events were in the predicted directions, though not equally significant. Overall, the key results for both tobacco and advertising stocks were the FDA notice, the district court ruling, the death of Judge Russell, and the en banc denial (events 1, 2, 3, and 5). Not surprisingly, the advertising stocks, none of which are purely tobacco driven, show a lesser effect than the tobacco stocks themselves, even with longer event windows. In context, the most important result is the dramatic impact of the most surprising event in our sample, the district court decision upholding tobacco regulation.

Event 1: FDA notice

The 2% loss to the market cap following the FDA notice was significant. We show a negative impact on the set of tobacco stocks in the aggregate test, with a larger and more significant impact on the major tobacco companies using either test.⁴⁰ The effect on the advertising stocks is weaker.

Event 2: the district court decision

Figure 1 shows the abnormal returns averaged over the big five tobacco companies around the district court ruling (recall that the market cap for the entire industry dropped six billion dollars). The district court decision has a clearly significant (negative) effect regardless of the test used. (We present the full set of GLS coefficients used to generate

⁴⁰ Note that the FDA's proposals meant that the information they used to determine the status of nicotine as a drug would be released and thus provide useful evidence for the numerous law suits filed against the industry. Thus, we are perhaps over-estimating the effects of the FDA's proposed rule-making itself on asset values.

these tests in Table 4.⁴¹) The advertising stocks, meanwhile, show a significant positive effect (as predicted).

Event 3: Judge Russell dies

The impact of Judge Russell's death is statistically weaker than the results above. 88% of the tobacco stocks (and all of the five major tobacco stocks) dropped on the event day. The joint impact on the advertising stocks is significant.

Event 4: the Fourth Circuit Reverses

No significant surprises are shown.

Event 5: the Fourth Circuit denies en banc review

Regardless of the test used, the en banc denial had a significant positive effect (the market capitalization climbed \$3.5 billion, or 2.2%)—the strongest (both joint tests and the aggregate test on the five main tobacco stocks) are significant at .001. The joint test for the advertising stocks shows a significant effect at .03.

Event 6: the Supreme Court grants cert

There is a significant result for the joint impacts on the five main tobacco stocks and on the advertising stocks.

Event 7: the Supreme Court affirms

⁴¹ We also ran an ordinary least squares regression to explain the sizes of the abnormal returns of the tobacco stocks, predicting correctly that being one of the “big five” and being a pure tobacco company (as compared to a conglomerate) would mean a larger impact due to the event. We had the necessary data for only 12 firms. The respective coefficients (*p*-values in parentheses) were -.0248 (.03) and -.0287 (.05), with a constant of .0000 (.5).

The joint tests show significant effects on the tobacco stocks.

7 Discussion

If the Efficient Markets Hypothesis is accepted, if the event windows are properly designed, and if confounding events are ruled out, then the observed reactions of market traders represent anticipated policy effects due to court decisions, which must in equilibrium represent unbiased predictions of actual policy effects. What we would emphasize in the results is that we have tested a complex pattern of predictions (positive for some stocks and negative for others) and many of them yield highly significant results.⁴² Our conclusions do not rest on any one test, but rather a pattern of results, making the overarching test for judicial impact a powerful one (Trochim 2001). On the other hand, even if the Efficient Markets Hypothesis is not accepted in full, despite the evidence for it, our results still demonstrate the rather substantial impact of individual judges over stock prices.

The test results suggest the following. The sharp turnaround in FDA policy over tobacco jurisdiction did come as a shock, despite the warning signs that this was in the works. Until the actual notice was given, there was always the chance that the Clinton administration or Congress would stop the FDA. Even once the decision was made, it was likely the courts would block the FDA, which made Judge Osteen's decision a shock. The test results suggest the power of even a lone district court judge to affect public policy, as Judge Osteen's decision clearly had the potential to be decisive as to the future of tobacco regulation. The information revealed over the next few months would reduce

⁴² Thus, our results could not be explained by the aphorism that, to the stock market, "all news is bad."

the probability of such regulation considerably. The tobacco companies might have had reasonable hopes of winning on appeal, but such hopes would be restrained by the fear that the Supreme Court's rules for statutory interpretation might justify the FDA's decision. Meanwhile, the chance that advertising regulation would be reinstated was much smaller than the chances that tobacco regulation would go through. The reversal by the appellate panel gave confidence to tobacco investors, while not coming as a particular shock given the composition of the panel and the circuit as a whole. The en banc denial gave a semblance of finality to the verdict. At this point, the granting of cert by the Supreme Court was somewhat of a surprise to tobacco investors, given that the Court tends to reverse far more decisions than it affirms. The Supreme Court's ultimate decision to affirm was only the final nail in the FDA's regulatory coffin (and not too surprising at the time of the final decisions itself).

8 Conclusion

The simple spatial model we introduced in section 4 provided us with a way to test a variety of theories about policymaking. Our primary conclusion is that the courts did wield decisive power over tobacco regulation and their decisions had a major impact on the probability that tobacco would ultimately be regulated by the FDA. Investors were clearly not confident that Congress would block the FDA, that the FDA would cave in, or that President Clinton would call the FDA off—so that when the courts acted, their decisions significantly changed the policy-making calculus. In fact, our results show that the lower bound on the impact of the district court decision is greater than that of any other event in our sample. Hamilton may be right that the judicial branch lacks force and will, having merely “judgment”—but it would be foolish to dismiss such judgments when

\$6 billion dollars can go up in smoke in a single day due to the decision of a single district court judge. Whether or not the judiciary is the *least* dangerous branch, it is indeed a “dangerous” branch within the policy-making process. Our results also suggest that the event study method is a viable method for sorting out causality and judicial impact more broadly.

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Table 1A: List of Tobacco Stocks Included in Each Event Window

| Tobacco Stocks | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Philip Morris Inc* | X | X | X | X | X | X | X |
| Loews Corp. (Lorillard)* | X | X | X | X | X | X | X |
| Vector Group (Liggett)* | X | X | X | X | X | X | X |
| RJ Reynolds Tobacco* | X | X | X | X | X | | X |
| British American Tobacco* | X | X | X | X | X | X | X |
| Standard Comm. Corp. | X | X | X | X | X | X | X |
| Dimon Inc. | X | X | X | X | X | X | X |
| Universal Corp. | X | X | X | X | X | X | X |
| Savia Sa De CV | X | X | X | X | X | X | X |
| UST Inc. | X | X | X | X | X | X | X |
| Culbro Corp. | X | | | | | | |
| Pacific Greystone Corp | | X | | | | | |
| Caribbean Cigar Co. | | X | X | | | | |
| Consolidated Cigar Hldgs. | | X | X | X | | | |
| Swedish Match Co. | | X | X | X | X | X | X |
| Amcon Distributing Co. | | X | X | X | X | X | X |
| General Cigar Hldgs. Inc. | | | X | X | X | X | |
| Gallaher Group PLC | | | X | X | X | X | X |
| Swisher Int. Group Inc. | | | X | X | X | | |
| Premium Cigars Int. LTD | | | | X | X | | |
| Imperial Tobacco | | | | | | | X |
| Star Scientific Inc. | | | | | | | |

*Indicates the five biggest tobacco companies

Table 1B: List of ADVERTISING Stocks Included in Each Event Window

| Advertising Stocks | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Advanced Promotion Inc. | X | | | | | | |
| Metrovision N. Amer. Inc. | X | | | | | | |
| Mickelberry Comm. Inc. | X | | | | | | |
| Site Holdings Inc. | X | | | | | | |
| U.S. Delivery Sysys. Inc. | X | | | | | | |
| True North Comm. Inc. | X | X | X | X | X | X | X |
| Grey Global Group Inc. | X | X | X | X | X | X | X |
| Unico Inc. | X | X | | | | | |
| W.P.P Group PLC | X | X | X | X | X | X | X |
| Greenstone Roberts Inc. | X | X | X | | | | |
| Interpublic Group Inc. | X | X | X | X | X | X | X |
| Omnicom Group Inc. | X | X | X | X | X | X | X |
| Bull Run Corp. | X | X | X | X | X | X | X |
| Cordiant Comm. PLC | X | X | X | X | X | X | X |
| Catalina Marketing Corp. | X | X | X | X | X | X | X |
| Ackerley Group Inc. | X | X | X | X | X | X | X |
| Valassis Comm. Inc. | X | X | X | X | X | X | X |
| Ariely Advertising LTD | | X | | | | | |
| Alternate Marketing Inc. | | X | X | X | X | X | X |
| Food Court Entmt. Inc. | | X | | | | | |
| Digital Generation Inc. | | X | X | X | X | X | X |
| Universal Outdoor Inc. | | X | | | | | |
| Lamar Advertising Co. | | X | X | X | X | X | X |
| Leapnet Inc. | | X | X | X | X | X | X |
| M.D.C. Corp | | X | X | X | X | X | X |
| Outdoor Systems Inc. | | X | X | X | X | X | |
| Advantage Media Group | X | X | X | X | X | X | |
| Healthworld Corp | | | | X | X | X | |
| Saatchi & Saatchi PLC | | | | X | X | X | X |
| Young and Rubicam, Inc | | | | | | X | X |
| Atplan Inc | | | | | | | X |
| The Globe Com | | | | | | | X |
| Genesisintermedia, Inc | | | | | | | X |
| Obie Media Corp | | | X | X | X | X | X |
| TMP Worldwide Inc | | | X | X | X | X | X |
| Doubleclick, Inc | | | | | | X | X |
| 24 7 Real Media | | | | | | | X |
| Verticalnet, Inc | | | | | | | X |
| RH Donnelley Corp | | | | | | X | X |
| Modem Media Inc | | | | | | | X |

Table 2A: Hypothesis Tests for Tobacco Stocks

| Event | All Tobacco Stocks | | The Five Major Tobacco Stocks | |
|-------------------------------------|--------------------|-------------------|-------------------------------|-------------------|
| | Aggregate Impact | Joint Impact | Aggregate Impact | Joint Impact |
| 1. FDA Notice | -1.51* (.07) | 12.98 (.15) | -1.84** (.03) | 8.40* (.07) |
| 2. District Court decision | -1.58* (.06) | 27.37** (.03) | -2.10** (.02) | 19.30*** (.01) |
| 3. Judge Russell dies | -1.32* (.09) | 6.17 (.99) | -0.84 (.20) | 1.61 (.45) |
| 4. 4 th Circuit reverses | .21 (.42) | 13.22 (.72) | 0.28 (0.39) | 1.75 (.88) |
| 5. en banc denied | 1.49* (.07) | 30.56*** (.01) | 2.93*** (.01) | 18.6*** (.01) |
| 6. Supreme Court grants cert | -0.95 (.17) | 18.54 (.14) | -0.69 (.24) | 9.39** (.05) |
| 7. Supreme Court affirms | 0.62 (.26) | 23.41** (.05) | 0.16 (.48) | 14.17*** (.01) |

* significant at 10% level ** significant at 5% level *** significant at 1% level

Notes: Key surprising events are in bold. The coefficients for the aggregate test are the z-stats and for the joint test are the χ^2 -values. The p values in parenthesis (one-tailed for the directional predictions of the aggregate tests and two-tailed for the joint tests). All event windows are single days.

Table 2B: Hypothesis Tests for Advertising Stocks

| Event | Aggregate Impact | Joint Impact |
|---|-------------------------|---------------------|
| 1. FDA notice | -0.59 (0.28) | 8.85 (.88) |
| 2. Dist Court decision | 2.28*** (.01) | 43.72*** (.001) |
| 3. Judge Russell dies | -0.38 (.35) | 83.77*** (.01) |
| 4. 4th Circuit reverses | .10 (.46) | 11.35 (.94) |
| 5. en banc denied | .28 (.38) | 34.88** (.03) |
| 6. Sup Court grants cert | -1.00 (.16) | 31.61* (.07) |
| 7. Sup Court affirms | .10 (.46) | 26.80 (.47) |

* significant at 10%level ** significant at 5% level ***significant at 1% level

Notes: Key surprising events are in bold. The coefficients for the aggregate test are the z-stats and for the joint test is the χ^2 -values. The p values in parenthesis (one-tailed for the directional predictions of the aggregate tests and two-tailed for the joint tests). The event window for event 1 goes from five trading days before the event to one day after. The event window for event 2 goes from the day of the event to 4 days after. Other event windows are single days. Two stocks were dropped for event 1 given missing data.

Table 3: Losses and Gains of Tobacco Stocks

| Event | Dollars^A | % of Market Capitalization^B |
|-------------------------------|----------------------------|---|
| 1. FDA notice | - \$1,801,050,000 | - 2.1% |
| 2. Dist Court decision | - \$6,134,796,000 | - 4.7% |
| 3. Judge Russell dies | -\$1,810,155,000 | -1.3% |
| 5. en banc denied | \$3,550,530,000 | 2.2% |

A Using all tobacco stocks included in the event window, as listed in Table 1A, this is calculated as [(number of shares outstanding on day t) x (price on day t)] – [(number of shares outstanding on day $t-1$) x (price on day $t-1$)], where t is the event day.

B This is calculated by dividing the figure in the Dollars column by the summed market capitalization of the stocks in each event window.

Table 4: Individual GLS Coefficients for Event 2**(district court ruling in *Beahm v. FDA*)**

| Firm Name | Firm Constant β_{i0} | Firm Sensitivity β_{im} | Firm Event Coefficient β_{ik} |
|---------------------------|--|---|---|
| Philip Morris | -0.0013 (0.0013) | 2.4709*** (0.3205) | -0.0399** (0.0201) |
| Loews Corp. (Lorillard) | -0.0009 (0.0009) | 2.0701*** (0.2207) | -0.0071 (0.0138) |
| Vector Group (Liggett) | 0.0024 (0.0031) | -0.5011 (0.7470) | -0.0301 (0.0468) |
| RJ Reynolds | -0.0009 (0.0013) | 2.1717*** (0.3192) | -0.0774*** (0.0200) |
| British American Tobacco | -0.0002 (0.0011) | 1.2901*** (0.2656) | 0.0017 (0.0166) |
| Standard Comm. Corp. | 0.0009 (0.0018) | 0.5476 (0.4348) | 0.0013 (0.0272) |
| Dimon Inc. | -0.0009 (0.0013) | 1.9086*** (0.3208) | -0.0271* (0.0201) |
| Universal Corp. | 0.0006 (0.0011) | 0.9261*** (0.2757) | -0.0141 (0.0173) |
| Savia Sa De CV | -0.0012 (0.0010) | 1.4209*** (0.2480) | 0.0069 (0.0155) |
| UST Inc. | -0.0018* (0.0013) | 1.8330*** (0.3031) | 0.0140 (0.0190) |
| Pacific Greystone Corp. | 0.0007 (0.0015) | 1.7250*** (0.3713) | -0.0028 (0.0233) |
| Caribbean Cigar Co. | -0.0030 (0.0026) | 0.4829 (0.6282) | -0.0427 (0.0393) |
| Consolidated Cigar Hldgs. | 0.0000 (0.0014) | 1.0978*** (0.3359) | -0.0126 (0.0210) |
| Swedish Match Co. | -0.0003 (0.0009) | 0.5813*** (0.2074) | -0.0051 (0.0130) |
| Amcon Distributing | 0.0054 (0.0058) | 0.1052 (1.4087) | -0.0049 (0.0882) |
| Wald - χ^2 | 434.70*** | Observations 3795 (16 stocks x 253 days) | |

* significant at 10% ** significant at 5% *** significant at 1% (standard errors in parentheses)

Figure 1: Event 2

Averaged Normal and Actual Returns for the Five Major Tobacco Companies around the *Beahm v. FDA* District Court Ruling

