Market Reactions to Attorney General Litigation Activity: Evidence From the Property-Casualty Insurance Companies *

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Abstract

We examine market reactions to attorney general litigation activity. Specifically, we observe market reactions to both individual firms and all the firms in an industry as information about a potential attorney general action is released. We find that industry-wide market responses to preliminary litigation activity (including subpoenas and industry reports) are not significant, while industry-wide market responses to ultimate litigation activity (e.g. lawsuits) are significantly negative. We study stock price reactions to New York Attorney General Elliot Spitzer's announcement of a lawsuit against several firms implicated in bid-rigging deals precipitated by contingent commission; specifically, we find that the price reaction attributable to the lawsuit and related press coverage was 1.98% for a portfolio of 75 property-casualty insurance companies. However, we find that announcement of subpoenas alone does not result in negative returns across the portfolio, although event announcements over the entire litigation period produce significant accumulated abnormal returns for the portfolio of -3.07%.

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1 Introduction

When New York Attorney General (NYAG) Elliot Spitzer announced lawsuits against insurance brokers and carriers in 2004, markets reacted significantly and swiftly, punishing the stocks of firms named in the lawsuit as well as other firms in the industry that were not named in the lawsuit. While it is no surprise that a lawsuit will result in negative returns for a named firm, it is not necessarily expected that other firms in the industry will experience similar negative returns. Furthermore, in a semi-strong form efficient market, we should expect some of the negative return to be impounded in security prices as information about the potential lawsuit is introduced into the market. While existing literature does address the impact of information flow in the development of regulation and treaty development, we are not aware of studies that examine the information flow as attorneys general engage in litigation-related activities.

During his tenure as NYAG, Spitzer was particularly active and public about his litigation activities. Spitzer proclaimed victory in forcing reform in numerous industries, including mutual fund trading, liquor distribution, energy production and insurance. Partly as a result of his track record as NYAG, Spitzer was elected Governor of New York in 2006. The very public nature of his actions provides a natural laboratory to research the effects of his activities on the market values of securities in the industries that his litigation activity targeted. Our research focuses on the effects and precision of his activities on the insurance industry in 2004.

There is a rich theoretical and empirical literature on the effect of regulation on firm valuation, especially as reflected in asset prices. See, for example, Binder (1985a,b) for empirical methods, Stigler and Friedland (1962) for early examples and Cornett and Tehranian (1990) for a financial services example.[1] Attorney general litigation is of particular interest since it is related to regulation, in that attorneys general are charged with enforcing regulation and are either elected directly or appointed by elected representatives. Thus, in their work, attorneys general often enjoy the support of elected officials and other regulators, and can also use their role and resources as civil servants to enforce broader reforms than most citizens can achieve on their own. With the threat of fines, punitive damages and profit disengorgement demands, attorneys general can shape the enforcement of

[1]There are numerous other papers on the effect of information release in regulation, including Schipper and Thompson (1983) and Fenn and Cole (1994), and on the effect of litigation (Prince and Rubin, 2002), but no other studies on the effect of attorney general litigation activity.

regulation and drive the legislative agenda in unique ways.

With this enforcement power in mind, it is surprising that little to no empirical study has been undertaken to document the market reactions to attorney general litigation activity. We note that one empirical paper Mizrach and Weerts (2005) studies the effect of regulatory compliance activity on a single firm and another by Cichello and Lamdin (2006) analyzes antitrust activity in the context of merger regulation. Papers by Fields, Ghosh, Kidwell, and Klein (1990) and Grace, Rose, and Karafiath (1995) examine the stock return impact of regulatory changes on insurance company returns when the regulations are enacted by voter referendum. Finally, in a work most closely related to ours, Houge and Wellman (2005) study the impact of NYAG's investigations on stock returns in the mutual fund industry, but limits the review to individual firms and does not review the reaction of the entire industry to specific announcements. However, we do not identify any other study that examines the impact of information flow in the public release of statements and announcements by attorneys general or firms in response to investigations. Thus, our paper contributes to the literature by examining the impact of announced litigation activity during the course of a broad and significant investigation, as well as the impact of the ultimate litigation, on the returns for an industry.

The rest of the paper follows in this order: in section 2, we review the distribution structures prevalent in the insurance industry. In section 3, we explain how the commission structures developed to mitigate agency problems in the industry may create perverse incentives. In section 4, we discuss the events preceding NYAG's lawsuit against Marsh & McLennan Companies and four insurance carriers for alleged anti-competitive practices and in section 5, we posit and discuss our main hypotheses. In section 6, we explain our data, methodology and tests and present results. Section 7 concludes.

2 Insurance Intermediaries

Insurers sell policies through two primary means: direct sales (either through captive agents or a salaried sales staff) and independent agent/broker relationships. Regan and Tennyson (1996) show that the distribution method optimally depends upon the type of risk involved and the level of difficulty involved in categorizing and sorting risks. When the risks are relatively standard and easily observed, the insurer tends to use a direct sales method (call center or internet sales), because the sorting and categorization services

performed by agents are worth less than the cost of commissions. However, when an agent can gather and provide valuable information for pricing and servicing policies, independent agent and broker distribution is preferred.

Independent agents are typically seen as agents for the insurer and brokers are typically seen as agents for the insurance buyers. However, as shown by Cummins and Doherty (2006), these definitions are somewhat arbitrary and not completely accurate. For example, although brokers have fiduciary responsibility to the insurance buyer, they provide a number of services on behalf of the insurer. Similarly, although independent agents have fiduciary responsibility to the insurer, they provide consulting, pricing and risk management advice for the insurance buyer. Both agents and brokers can be better described as insurance market makers, convening buyers and sellers, gathering and disclosing important information to complete the transaction. As such, they demand compensation for their services, and this compensation is typically provided by the insurer. Commissions to brokers are paid by insurance companies, and this creates conflicts that may prevent them from serving adequately in a fiduciary role for the customers.

Agent and broker commissions fall into one of three categories. The first, discussed by Wilder (2004), is a fixed percentage commission, in which the insurer pays the agent some portion of the premium generated by the new or renewed policy, according to market prices and the level of sophistication of the policy. While the agent or broker may have an incentive to undertake extra effort to sell a policy with a higher commission payment (resulting either from a higher premium, a higher commission percentage, or both), if only a fixed fee arrangement is in place, the agent will only do so if the present value of all expected future commissions resulting from this particular business exceeds the difference in commission payments between two insurers. Since an agent receives commissions not only from initial business, but repeat business, reputation effects are important considerations in choosing between two insurers when only a fixed commission is offered.

The second type of commission offered by insurance companies is profit-based contingent commission. Under these plans, agents receive a commission in addition to the base commission when certain profit targets are achieved from the business placed with the insurer. This provides an incentive to the agent to uncover as much information as possible to classify the risk of the new policy correctly. For example, if an agent or broker sells a policy for $1,000 and the losses resulting from that policy, along with sales and underwriting expenses, do not exceed $1,000, then the policy is profitable from the insurer's perspective. When the insurer agrees to share some of that profit with the agent, the agent's incentives are more fully aligned

with those of the insurer. While it is not apparent that this arrangement will create an incentive for bid-rigging, it may create an incentive for the agent to encourage the customer to purchase higher-priced policies for the same level of risk.

The third type of commission offered by insurance companies is volume-based contingent commission. Insurers offer volume-based contingent commissions for several reasons. First, they can achieve economies of scale by increasing the concentration of business from a particular agent or brokerage. Second, as an insurer increases the number of uncorrelated risks assumed, the standard deviations of the losses (that is, the associated volatility of the loss pool) should decrease. This means that increasing the number of policies may decrease the insurer's risk as long as the insurer is selling the policies at a profit.

However, as shown by Wilder (2004), when a broker is close to a volume-based contingent commission threshold, the marginal revenue from a policy may far exceed the standard or profit-based commissions that could be earned by placing the business with another insurer. As Wilder explains, if a broker has placed $499,000 of business with one insurer in a given year, and has a target of $500,000 before the next 2.5% volume-based contingent commission is triggered, a single $1,000 policy has a marginal commission of $500,000x0.025=$12,500 or 1,250%.

With such strong incentives, agents may be inclined to make otherwise less-appropriate policies appear more attractive to purchasers. They could do this by ignoring or not seeking competitive quotes from other companies, over-emphasizing the benefits of the policy that would trigger the contingent commissions, or colluding with other insurers to provide false, higher bids to make the current bid look like a good deal. When the contingent commission arrangements are not disclosed to the clients, the incentives are even stronger, because monitoring by the client has been effectively mitigated.

There are similarities between the insurance intermediary market and the real estate broker market. In fact, similar to the two functions of realtors observed by Miceli, Pancak, and Sirmans (2007), insurance agents and brokers provide two key services to insurance customers: matching and bargaining. In the matching service, the agent determines the risk profile of the customer and identifies insurers likely to accept the customer's risk. In the bargaining service, the broker negotiates prices with the chosen insurers, seeking to find the best price and policy for the customer. As Miceli, Pancak, and Sirmans (2007) observe, a commission paid by the insurance company generates a "perverse incentive" and may prevent the agent from exerting effort on behalf of the customer.

3 The Incentive for Bid-Rigging

Insurance is the business of selling risk management to customers. Because each policy entails the transfer of some risk from the insured to the insurer, a transfer of wealth also must be made to compensate for that risk. The required payment (premium) is a function of the expected loss associated with the policy, the variance of the loss and the additional expenses associated with transferring the risk (including adequate return on capital, overhead expenses and commissions or salaries to insurance salespeople). While the customer typically knows more about his own risk, the insurer knows more about how to evaluate and price the risk. Therefore, in an effort to achieve a risk transfer at the lowest possible price, a potential customer is likely to attempt to withhold as much information as possible from the insurer.

The agent, seeking to generate business, will normally attempt to provide as many feasible policies as possible to the customer. That agent will gather as much information as necessary to generate quotes from a number of insurers and thus help to mitigate the information asymmetry between the customer and the insurer. However, armed with this information, the agent enjoys an information advantage over both the insurer (more complete knowledge of the customer's risk profile) as well as the customer (more complete knowledge of the available products, and their commissions), and can exploit that information advantage to his own benefit. This information asymmetry can impose costs on both insurers and customers.

Also, in the agent's work on behalf of the insurer, the agent has an incentive to shirk in identifying all of the pertinent risks. This is possible because the agent knows more about the insurance products available, and their prices, as well as the commissions they may be able to garner from various products. The agent may also be in a position to withhold products that are superior for the customer but not as lucrative for the agent. In this way, the agent can contribute to an adverse selection problem in which policies are not priced correctly or customers do not know the extent of products available to them.

Without regulations stipulating full disclosure of all commissions, there may be more incentives for the agent to take advantage of the information asymmetry on either side of the transaction. In this section, we review the extant literature on the possible agency issues in the insurance distribution system.

3.1 Information Asymmetry

Generally, as shown by Akerlof (1970), the agent may represent quality or fail to represent quality. If the principal chooses not to, or is unable to (due to asymmetric information) observe the true quality, the agent is in a position to expropriate wealth from the principal. This potential information asymmetry leads to other problems, including adverse selection and moral hazard, discussed in following subsections.

In their study on private information in the insurance industry, D'Arcy and Doherty (1990) note that an insurance agent has an information advantage over insurers and may benefit by selling some of that information to another insurer. Lengwiler and Wolfstetter (2005) show that when the auctioneer is an agent for the seller, as is the case in insurance agency, there are incentives to engage in bid-rigging to benefit the auctioneer. Finally, Crawford and Sobel (1982) argue that an agent will only engage in perfect communication with a principal when its incentives are completely aligned with those of the principal. As noted earlier, the fiduciary responsibility of an agent or broker is not always clear, and there are some incentives that are tied to customers' objectives (primarily reputation and repeat business) while others are tied to insurers' objectives (commission payments of the type described in the previous section). Under direct commission arrangements, it is not clear which incentive will dominate.

In order to prevent the sale of information anticipated by D'Arcy and Doherty, the insurer may choose to share the rent on information by creating a contingent commission, making it costly for the agent to place the business elsewhere. Consistent with Crawford and Sobel's predictions, this action more closely aligns the agent's incentive with the insurer's interests and compels a higher level of information disclosure. Under Lengwiler and Wolfstetter's predictions, an agent may engage in bidrigging or other anti-competitive behavior to entice the customer to place or keep their business with the insurer providing the most attractive contingent commission. One possibility is that employees of an insurer may provide false bids if they share in the contingent commission payoff in the form of kickbacks or may provide the bids as part of a "working arrangement" and a promise of future business. When customers are not aware of the volume-based and/or profit-based contingent commissions, they are not likely to monitor the behavior of the agents.

The agent also has an information advantage over the insurer. Having gathered as much of the customer's risk profile as possible, the agent may sell that information to a competitor, in order to earn a higher commission.

D'Arcy and Doherty (1990) show that insurers can mitigate this problem by paying a contingent commission, sharing the rent from the information with the agent.

3.2 Adverse Selection

As discussed above, the agent has an information advantage over the insurer. Besides the information asymmetry issues, such as the incentive to sell information to competitors, the agent can also contribute to an adverse selection problem. When the incentive to sell a policy dominates the incentive to place only profitable business with the insurer, the agent may have an incentive to withhold information or not invest sufficient effort in gathering information about the customer's risk profile.

D'Arcy and Doherty (1990) show that some insurers mitigate this adverse selection problem by paying a profit-based contingent commission, where part of the commission is paid retroactively, after losses are fully recognized by the insurance company. This profit-based commission provides an incentive for agents to gather and reveal as much information as possible to price policies correctly and thus reduce the likelihood of adverse selection related to information asymmetry.

3.3 Moral Hazard

Moral hazard is the result of an incentive to not invest appropriate effort following the formation of a contract. In strict insurance parlance, moral hazard is reflected in the incentive for a policyholder to take on more risk after he has purchased an insurance policy. In our examples, moral hazard takes the form of the agent investing less effort on behalf of either the customer or the insurer after agreeing to sell insurance. In interactions with the customer, this means the incentive to not search for the best product and price for the customer. In interactions with the agent, this means not exerting sufficient effort to identify all the risk characteristics and/or to close the sale of an insurance policy.

In his discussions about contingent fees in the legal services industry, Hay (1996) argues that attorneys and clients can contract a fee structure that optimizes the attorney's quantity and quality of effort in litigating the case.

Levitt and Syverson (2005) show that in the real estate industry, the agent works hardest for the party that compensates him. However, in the insurance industry, it is not always clear which party is the principal: the

insurer or the insured. Since almost all commissions are paid by insurers and not insured parties, we would expect insurance agents to work on behalf of the insurers and to respond to commission-paying insurers rather than customers.

As discussed earlier, the commission received by the agent takes several forms. With direct commissions, the payment to the agent depends on the amount of premium written. The agent can seek to increase the amount of insurance sold by providing estimates for, and convincing the customer of the need for, more robust insurance policies, or by convincing customers to choose an insurer with a higher premium charge than its competitors. Thus, a direct commission creates a moral hazard opportunity for an insurance agent to invest more effort in selling a higher premium policy, or selling unnecessary coverage. This moral hazard, however, is offset by the agent's investment in reputation and desire to enhance the relationship with the insured to continue the stream of revenue.

In order to more fully align the incentives of the agents and brokers with those of the insurers, specifically in making it attractive for an agent to sell the policies of one insurer over another, some insurance companies offer contingent commissions based on the volume of business placed with that insurer. As shown in the last section, this incentive may be a relatively small part of overall premium generated, but as premium levels approach the thresholds for volume-based contingent commissions, the marginal commission for the last policy before the threshold becomes very large. The volume-based contingent commission may thus become a perverse incentive and stimulate anti-competitive behavior.

It is this type of contingent commission, and the anti-competitive behavior encouraged by it, that captured the interest of the NYAG in 2004.

4 Background and Impact of NYAG Investigation

On October 14, 2004, the NYAG announced a lawsuit against Marsh & McClennan Companies, a leading broker of insurance products.[2] The lawsuit alleged abuse of certain industry marketing practices and indicated that other major insurance carriers would also be affected by the lawsuit. The NYAG said that the action could force significant change in insurance marketing practices. Concurrent with the lawsuit announcement, two senior

[2]See "Investigation Reveals Widespread Corruption in Insurance Industry," Office of New York State Attorney General Elliot Spitzer, October 14, 2004. http://www.oag.state.ny.us/press/2004/oct/oct14a_04.html

executives of American International Group (AIG), one of the largest insurance carriers, pleaded guilty to charges of anti-competitive practices. Marsh & McLennan, Aon Corporation, AIG and The Hartford subsequently settled by agreeing to place hundreds of millions of dollars into a fund to compensate victims of the alleged fraud.

This announcement was not a complete surprise. In fact, as early as February 2004, the NYAG was contacted by the Washington Legal Foundation, a Washington, D.C.-based think tank, which asked him to investigate brokerage commission agreements, and he issued over a dozen subpoenas by May of the same year. Pursuant to Securities and Exchange Commission rules, these subpoenas qualified as "significant events" that must be reported by the subpoenaed companies; a flurry of press releases were published by companies in this time period. Shortly before the NYAG announcement, a lawsuit was filed by an insurance consumer rights group on the issue of contingent commissions. However, the gravity and breadth of the lawsuit apparently surprised investors, as stock prices for both named and most unnamed property and casualty insurance firms fell dramatically in the days following the announcement. A chronology of key events is provided in table 1[3].

Since it is clear that the NYAG's announcement was not a complete surprise, we wish to examine the market reactions to news as it is released. Thus, in addition to examining abnormal returns about the lawsuit announcement, we examine returns within the industry as information about the investigation was released. While prior work has studied the effects of legislation development (Bastin and Hübner, 2006), legislative regulatory change (Cornett and Tehranian, 1990) and referendum regulatory change (Fields, Ghosh, Kidwell, and Klein, 1990, Grace, Rose, and Karafiath, 1995) market reactions to the work of attorneys general has not been studied, to our knowledge.

The NYAG's investigation and subsequent announcement may signal both a regulatory compliance event and also a signal of changing regulatory enforcement. As a regulatory compliance event, we expect that the firms being investigated and/or named in the lawsuit would incur costs in complying with subpoenas and defending themselves in the lawsuit, as well as an uncertain reduction to earnings and cash flow in the event of fines, penalties and disgorgement of profits. The reaction to stock prices for the U.S.-based insurers named in the lawsuit is shown as a dotten line in figure 1, panels

[3]For a complete summary of events, see the reports by the Insurance Information Institute. http://www.iii.org/media/hottopics/insurance/brokercompensation/.

Table 1: Chronology of Events

The series of events leading up to the October 14, 2004 announcement by New York Attorney General Elliot Spitzer. On this day, Spitzer announced a lawsuit against four insurers and one brokers for alleged bid-rigging and other anti-competitive practices. He also indicated that the insurance industry would need to closely examine and correct its business practices with respect to use of contingent commission arrangements.

Event	Date	Descriptions
1	January 13, 2004	J.P. Morgan issues a report suggesting increase in regulatory scrutiny of contingent commissions.
2	February 10, 2004	Washington Legal Foundation asks Spitzer and others to investigate commission practices of major insurers.
3	April 22, 2004	Aon Corporation subpoenaed by Spitzer
4	April 23, 2004	Willis Holdings, Marsh & McClennan Companies, Kaye Insurance Associates (subsidiary of Hub International) subpoenaed by Spitzer (Events 3 and 4 are combined into a single event window for testing purposes)
5	May 19, 2004	Chubb subpoenaed by Spitzer
6	May 24, 2004	Connecticut Attorney General launches investigation into broker compensation practices.
7	June 10, 2004	The Hartford, Cigna, Aetna, MetLife subpoenaed by Spitzer
8	July 30, 2004	Illinois circuit court judge certified a class action lawsuit against insurance broker Aon Corporation.
9	August 5, 2004	UnumProvident subpoenaed by Spitzer
10	August 11, 2004	Insurance policyholder rights group United Policyholders sued three brokers over contingent commission disclosure violations.
11	October 14, 2004	Spitzer filed a civil lawsuit in New York against Marsh & McLennan and four insurers, alleging fraud and anti-trust violations.
12	October 17, 2004	A feature article in the *New York Times* outlined Spitzer's investigation and lawsuit, and indicated that more insurers were likely to be investigated or sued in the near future.

Sources: Timeline and Chronology of Events, Insurance Information Institute; Washington Legal Foundation press release; Attorney General Elliot Spitzer's website and corporate press releases.

A and B. The pattern shows a significant negative return on the equally-weighted portfolio of these three stocks, with an incomplete recovery over the following trading month. The reaction for the sample firms not named in the lawsuit is shown as a solid line in figure 1, panels A and B. Panel A shows the abnormal returns on equally-weighted portfolios relative to the CRSP equally-weighted market portfolio. Panel B shows the same relationship between value-weighted portfolios relative to the CRSP value-weighted market portfolio.

As a signal of changing regulatory enforcement, Spitzer stated that the insurance industry would be more broadly affected by the announcement. To illustrate, we quote from his press release:

> 'The insurance industry needs to take a long, hard look at itself,' Spitzer said. 'If the practices identified in our suit are as widespread as they appear to be, then the industry's fundamental business model needs major corrective action and reform.' 'There is simply no responsible argument for a system that rigs bids, stifles competition and cheats customers,' he added. [4]

Facing a change in regulatory environment for the insurance industry, we expect similar firms not named in the suit to have negative returns as well, especially if the changes would affect their profitability and cash flow position in the future.

5 Hypotheses

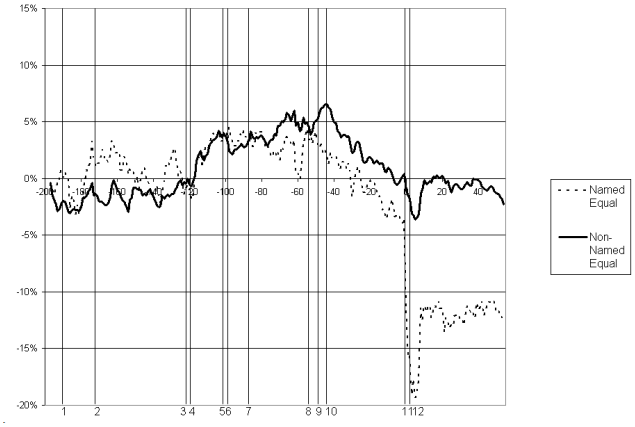
Binder (1985a) asserts that stock prices of affected firms will change on the event date only when that information was unanticipated. Baucus and Baucus (1997) note that following discovery and consequences of illegal corporate behavior, offending firms achieve lower accounting returns and slower sales growth and show that markets react to this change in expectations with sharp reductions to stock prices of these firms. In research about litigation related to securities fraud, Griffen, Grundfest, and Perino (2000) show that stock prices of firms named in federal class-action litigation react negatively to announcement of the litigation. Based on this evidence, we state a hypothesis:

[4] From http://www.oag.state.ny.us/press/2004/oct/oct14a_04.html.

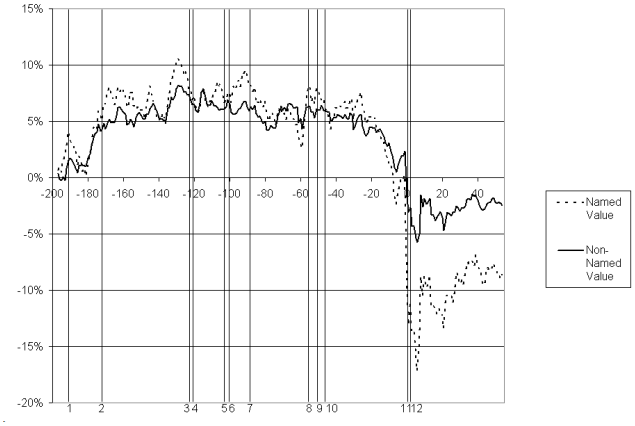
Figure 1: Cumulative Average Abnormal Returns

Cumulative average abnormal returns relative to a market portfolio return. Day 0=October 14, 2004, the date of the announcement of a lawsuit by New York Attorney General Elliot Spitzer. Panel A shows the cumulative returns of two equally-weighted insurance portfolios relative to an equally-weighted market portfolio. Panel B shows the cumulative returns of two value-weighted insurance portfolios relative to a value-weighted market portfolio. The solid lines reflect portfolio returns for the portfolio of property and casualty insurance companies not named in Spitzer's lawsuit and the dotted lines reflect portfolio returns for the portfolio of three property and casualty insurance companies named in Spitzer's lawsuit.

Panel A: Equally Weighted Portfolio



Panel B: Value Weighted Portfolio



Hypothesis 1 *Spitzer's announcement of the lawsuit about the anti-competitive pricing strategy of three publicly-traded U.S. property casualty insurance companies (AIG, Ace and The Hartford) was unanticipated by the market and would induce negative valuation effects in these stocks.*

To test this hypothesis, we will jointly estimate equation 1 for AIG, The Hartford and Ace for every trading day in 2004:

$$R_{jt} = \alpha_j + \beta_j R_{mt} + s_j SMB_t + h_j HML_t + p_j HiNPWmLoNPW_t + \gamma_{jt} D_t + \epsilon_{jt} \quad (1)$$

R_{jt} is the return on security j on day t. R_{mt} is the excess return on a value-weighted market portfolio above the risk-free rate, SMB_t is the difference between the day t return on two portfolios of small book-value equity securities and the day t return on two portfolios of big book-value equity securities and HML_t is the difference between the day t return on two portfolios of high book-to-market ratio equity securities and the day t return on two portfolios of low book-to-market ratio equity securities. The first three right-hand side variables were collected from Kenneth French's website. $HiNPWmLoNPW_t$ is an industry-specific variable to capture the effect of size and risk level assumed for each firm. It was created by sorting our sample by 2004 net premium written and separating the sample into terciles. The variable is the difference between the day t portfolio return on the high net premium written tercile and the day t portfolio return on the low net premium written tercile. D_t is a series of dummy variables corresponding to the eleven event windows. They are set to 1 during the event window and 0 otherwise.

The null hypothesis for each event window is that returns on the securities named in the lawsuit were not significantly different from zero during that event window. If we observe a significant negative change in the three named insurance company stock prices during the event window, the market did not anticipate the event, or at least its breadth and gravity.

Regarding the other industry firms that were not named in the lawsuit, Prince and Rubin (2002) show that some lawsuits have a broad and uniform impact on the industry, while other lawsuits impact the named firm negatively and the competitors positively. They suggest that when the industry involves "common design parameters," lawsuits affecting one firm will eventually affect the competing firms, eliciting a negative reaction from many stock prices in the industry. In Prince and Rubin's model, common design parameters were defined as technologies or factors of production that were

common across several firms. For example, the auto industry generally designs cars with relatively common parts. When Ford Motor Company was sued for using unsafe parts in the Pinto, other companies that used similar parts in their vehicles experienced negative returns as well. The common parts were the common design parameters. In the insurance industry, part of the technology of production is the distribution method. Since the lawsuit related to commission practices, we would expect to see negative abnormal returns for companies using the same distribution method. In essence, this is a "contagion effect".

Conversely, when the industry involves heterogeneous design parameters, such as in the pharmaceutical industry, a lawsuit against one company will diminish that company's market position and improve those of competitors. In Prince and Rubin, when a pharmaceutical company is sued for negative drug reactions, firms that sell a substitute chemical compound to treat the same illness will have increased cash flows as patients switch to that drug and away from the drug that is the subject of the lawsuit. In our case, if firms using independent agents had a competitive advantage generated by their use of contingent commissions and risked losing it as a result of the NYAG's actions, firms that did not rely on that distribution method will have a relative advantage.

Consequently, companies whose primary distribution methods are through independent channels (agents and independent brokers) will have negative stock price reactions, while companies whose primary distribution methods are through direct channels (captive agents and employee sales forces) will have positive stock price reactions. In aggregate, since independent agents and brokers are the most common form of distribution in the property and casualty insurance sector, this is likely to impact our overall portfolio negatively. In short, this is a "competitive effect".

Based on these notions, we propose our second "contagion effect" hypothesis:

Hypothesis 2 *Sptizer's announcement will have an overall negative impact on the portfolio of property and casualty firms.*

To test this hypothesis, we jointly estimate equation 1 for all firms in our sample. The null hypothesis is no statistically significant negative valuation effects following the announcement for the portfolio of property and casualty firms. If we reject the null hypothesis, we find support for our "contagion effect" hypothesis. Failing to reject the null hypothesis lends support to the alternative "competitive effect" hypothesis.

Antweiler and Frank (2005) demonstrate that markets over-react and usually reverse losses within a few days of the publication of negative news. In the event under study, there are two possible scenarios. First, after the initial announcement, more information may be released, either explicitly or through market transactions, to reassure investors that there is a very low probability many of the non-named companies will be implicated in a subsequent lawsuit. The release of this information will cause the stock price losses to reverse over time. The overall effect for the portfolio will be mean-reverting. Second, as the competitive effects of the announcement become apparent, investors will shift their holdings from firms that are likely to be negatively impacted by the regulatory change to the firms that stand to benefit from the change. The overall result for the portfolio should also be mean-reverting.

Given these predictions, we propose our third hypothesis:

Hypothesis 3 *Because some of the firms not named in the lawsuit are likely to gain a competitive edge from the possible regulatory change, the valuation loss sustained by these companies at the announcement will be reversed soon after the market recognizes that potential.*

To test this hypothesis, we jointly estimate equation 1 over a 16-day event window that begins on the day of Spitzer's lawsuit announcement for sample firms not named in the lawsuit. The null hypothesis is no statistically significant negative valuation effects that persist following the announcement for the firms not named in the suit. Our hypothesis finds support when we fail to reject the null hypothesis.

As shown in table 1, information was released over the course of the year 2004 in the form of subpoenas, court cases, analyst reports and new articles. Since there was information released during each event window, we expect prices to impound that information on its release. Thus, we state our fourth hypothesis:

Hypothesis 4 *Public disclosures of investigation and litigation activity prior to the lawsuit are reflected in prices immediately following the disclosures.*

We test this hypothesis in two forms. First, we test the effect of subpoenas and lawsuits on the returns of the firms explicitly named in the suits. Second, we test the effect of subpoenas and lawsuits on the returns of the portfolio of all insurance companies. The null hypothesis is no statistically significant negative valuation effects. If we reject the null hypothesis for

named firms, we find support for our hypothesis. Rejecting the null hypothesis for the entire sample, we find further support for the "contagion hypothesis" discussed earlier. Failing to reject the null hypothesis for the entire sample would support the "competitive effect" hypothesis.

To test the effect of this hypothesis on particular types of activity, we will aggregate and test the significance of abnormal returns in response to "subpoena" activity, when firms announce subpoenas from Spitzer and the response to "litigation" activity, in which lawsuits are announced. We also test the effect of other attorneys general announcing their own investigations.

Subpoenas issued by Attorneys General may signal information to the market about the firm's future cash flows. In particular, firms facing subpoenas will at least have cash flows reduced due to legal costs associated with subpoena compliance. Furthermore, a subpoena may signal potential future litigation and negatively impacted cash flows due to profit disgorgement, fines and changes in practice that affect cash flows. Therefore, we suggest another hypothesis:

Hypothesis 5 *A firm should experience negative returns when it is named in a subpoena by an Attorney General.*

We will test this hypothesis by regressing our abnormal returns for each firm and event (obtained from our initial event analysis) against indicators for the existence of a subpoena in that event period. We will also control for ultimate naming in Spitzer's lawsuit. A significant relationship between subpoena and abnormal returns would support this hypothesis.

Since the lawsuit focused on allegations of improper behavior related to use of contingent commissions, we would also expect negative returns to be positively related to a firm's reliance on contingent commissions as a business practice. Thus, our final hypothesis:

Hypothesis 6 *A firm should experience negative returns on event days in proportion to its use of contingent commissions.*

We test this hypothesis by regressing abnormal returns for each firm and event (obtained from our initial event analysis) against measures of contingent commission intensity. The three measures of contingent commission intensity are the 2004 contingent commission to NPW ratio, 2004 contingent commission to total commission ratio and the natural log of contingent commissions. We control for naming in events and also test interactions between contingents and naming in events.

6 Empirical Results

6.1 Data

We constructed our sample from the universe of U.S. publicly-traded companies selling property and casualty insurance and for which premium and commission data was readily available. We began by choosing all companies from the Mergent On-line database that were traded on U.S.-based exchanges and with primary and secondary two-digit SIC codes of 63 (Insurance Carriers). For these companies, we verified that the company is an insurance company by reviewing the company's narrative entry in the Mergent database.

Next, we cross-referenced this list with entries in *A.M. Best Aggregates and Averages*, 2004, including only companies for which net premium written (NPW), direct commission and contingent commission data were available. We eliminate firms for which return data exist for less than 200 days in the estimation period. 77 firms entered the sample: 3 U.S.-based property and casualty insurers that were named in the lawsuit and 74 U.S.-based property and casualty insurers that were not named in the lawsuit.

Descriptive statistics for selected variables are presented in table 2. We calculate means, medians and standard deviations for the entire sample, for the firms named in the lawsuit, and then for each group of firms using one of the standard distribution channels. We analyze net premium written for the year ending 2003, direct commission to net premium written (NPW) ratio, contingent commission to NPW ratio and market capitalization, defined as the product of common shares outstanding and per share price as of September 1, 2004. From these descriptive statistics, we can see that the firms named in the lawsuit have larger market shares and market capitalization than the average for the portfolio, but pay lower commission and lower contingent commission ratios than the average for the portfolio. We also see that means are higher than medians for market share and market capitalization and contingent commission ratios for all subsets of the sample, suggesting that these data are skewed. Furthermore, means and medians for direct commissions appear to be distributed symmetrically.

6.2 Methodology

In a pair of companion papers, Bhagat and Romana (2001b) and Bhagat and Romana (2001a) show that event studies are an effective method for determining the effect of lawsuits on corporate law and corporate governance

Table 2: Descriptive Statistics

Descriptive statistics for property and casualty insurance firms in the sample.

	Firm Characteristics					
	All firms	Named firms	Broker	Independent Agent	Exclusive Agent	Direct Marketing
N	75	3	24	58	44	27
Net Premium Written						
Mean	2,534,395	13,426,843	4,202,019	2,717,155	1,610,066	3,454,711
Median	718,507	8,876,260	958,168	754,542	705,310	774,854
Standard Deviation	5,274,686	12,887,368	7,137,790	5,128,448	2,249,459	7,013,462
Direct Commission/Net Premium Written						
Mean	12.12%	9.04%	12.4%	13.46%	13.86%	9.83%
Median	13.7%	9.36%	13.94%	14.07%	14.43%	7.96%
Standard Deviation	4.12%	0.97%	6.58%	5.8%	6.22%	8.94%
Contingent Commission/Net Premium Written						
Mean	1.16%	1.02%	1.49%	1.29%	1.05%	1.48%
Median	0.52%	0.87%	0.68%	0.61%	0.87%	0.03%
Standard Deviation	2.5%	1.15%	3.6%	2.76%	1.27%	3.83%
Market Capitalization						
Mean	7,183,818	70,426,091	15,703,218	8,180,623	262,826	14,138,553
Median	1,196,223	17,696,888	2,375,537	1,238,409	1,191,679	1,282,357
Standard Deviation	24,602,196	97,490,482	41,987,177	27,643,789	3,802,561	39,815,367

Note: some firms use more than one distribution method, and thus are included in more than one column.

issues. They note, however, that event studies may underestimate the negative impact of a lawsuit or regulation change, because information leaked to the market ahead of the announcement may already be impounded into stock prices. They also show that while a one-day event window is preferred, a three-day event window does not lose significant statistical power.

Henderson (1990) lists a number of issues in event studies, including the problem of calendar clustering, where the events for a number of firms occur on or near the same day. In such a case, we cannot assume that returns are not cross-correlated. As suggested by Binder (1985b), Malatesta (1986),Karafiath (1988), Ingram and Ingram (1993) and others, we use a joint generalized least squares (commonly called Seemingly Unrelated Regression (SUR)) approach to generate estimates that are robust to these cross-correlation problems. This is the method used by Fenn and Cole (1994) in a similar insurance industry study focused on a common event date, by Cornett and Tehranian (1990) in their review of regulatory events on banking returns and by Bastin and Hübner (2006) in their review of the effects of presidential announcements about federal funding for genetic research on the returns of biotech firms.

Following Cornett and Tehranian (1990) and Banker, Das, and Ou (1997), we test each of our hypotheses for three different effects by testing restrictions on the primary equation. First, we test for abnormal returns for each firm jointly equal to 0: $H_A : \sum_{j=1}^{J} \gamma_{jk} = 0 \forall k \in K$.. Next, we test for abnormal returns jointly equal for each firm: $H_B : \gamma_{ik} = \gamma jk \forall i, j \, (i \neq j)$. Finally, we test for abnormal returns for all firms jointly equal to zero for each event: $H_C : \gamma_{jk} = 0 \forall j$. The economic interpretation of H_A is that the returns for the portfolio are equal to zero. Rejecting H_A, we would find that portfolio returns are significantly different from zero. The economic interpretation of H_B is that abnormal returns for each firm in the sample are jointly equal to one another. Rejecting H_B would imply that the economic impact of the event on each firm is not the same. The economic interpretation of H_C is that abnormal returns for each firm in the sample are jointly equal to zero. Rejecting H_C, we would find that the market reaction for all firms in the sample are significantly different from zero.

We conduct these tests using the model presented in equation 1 and for robustness, test them using the standard market model, with both a value-weighted market return and an equally-weighted market return in separate estimations. The robustness test results are provided in the appendix.

6.3 Results

6.3.1 Hypothesis 1

Table 3, Panel A shows results from our three tests for all eleven event periods for the firms ultimately named in the lawsuit. The results for events 11 and 12 are as expected and significant for H_A. It is no surprise that firms named in a major lawsuit will experience significantly negative returns following the public announcement of the suit and its subsequent news coverage. The results are also significant for H_B and H_C. The returns for each firm named in the suit are jointly not the same across firms and each named firm's returns are not equal to zero. Hypothesis 1 is supported.

6.3.2 Hypothesis 2

Table 3, Panel B shows results from our three tests for all eleven periods for the portfolio of property and casualty companies. The results for events 11 and 12 are as expected and significant for all three tests. We reject the null hypothesis H_A and find support for a "contagion effect" among the property and casualty insurance companies. Furthermore, H_B is rejected, suggesting that returns for all companies in the sample were not equally affected and H_C is also rejected, indicating that returns for all companies in the sample are jointly not equal to zero.

For further analysis, we also conducted our tests on a portfolio that excluded the firms named in the suit and present results in table 3, Panel C. Results are qualitatively similar. Hypothesis 2 is supported.

6.3.3 Hypothesis 3

Table 4 shows the abnormal returns for the sub-sample of firms not named in the lawsuit over a 16-day window following the announcement. As suggested in hypothesis 3 and shown in figure 1a, the cumulative portfolio returns over this period are not significantly different from zero. Thus, we fail to reject the null and find that the losses for non-named firms are reversed shortly after the initial announcement. Hypothesis 3 is supported.

6.3.4 Hypothesis 4

We analyzed abnormal returns for each of the event windows containing a Spitzer subpoena announcement for any property and casualty insurance firm. We also tested H_A on abnormal returns over all subpoena announcement periods. All three panels of our table 3, analyzed earlier, contain

Table 3: Abnormal Returns

Abnormal returns for a portfolio of three property and casualty insurance firms named in Spitzer's lawsuit for event windows surrounding specified Attorney General litigation activity. The window for Events 3 and 4 covers a three-day (0,2) window with day 0 representing the date of the subpoena announced by Aon Corporation and day 1 representing the date of the subpoenas announced by other insurance brokers, including Willis Holdings, Marsh & McLennan and Kaye Insurance Associates. All other events cover two-day (0,1) event windows with day 0 representing the date of the corporate announcement of the subpoena as filed on form 8-K, the date of the letter or the date the lawsuit was filed. F-statistics are reported for each restriction hypothesis on each event or set of events, with p-values reported beneath.

	Panel A: Named				Panel B: All				Panel C: Non-Named			
	CAAR	H_A	H_B	H_C	CAAR	H_A	H_B	H_C	CAAR	H_A	H_B	H_C
Event	Num. d.f.	1	2	3		1	74	75		1	71	72
Number	Denom. d.f.	708	708	708		17,700	17,700	17,700		17,208	17,208	17,208
1	-0.030%	0.00 0.956	1.21 0.298	0.82 0.486	0.217%	0.79 0.374	1.49 0.004	1.50 0.004	0.228%	0.89 0.346	1.44 0.009	1.45 0.008
2	0.259%	0.23 0.634	1.55 0.212	1.21 0.305	-0.292%	1.40 0.237	2.68 < 0.001	2.70 < 0.001	-0.315%	1.67 0.197	2.69 < 0.001	2.72 < 0.001
3, 4	-0.517%	1.37 0.241	0.20 0.816	0.73 0.534	-0.159%	0.63 0.427	1.65 < 0.001	1.65 < 0.001	-0.144%	0.53 0.466	1.65 0.001	1.64 0.001
5	-0.186%	0.12 0.730	2.34 0.097	1.57 0.196	-0.032%	0.02 0.896	1.43 0.009	1.42 0.010	-0.026%	0.01 0.916	1.39 0.017	1.37 0.020
6	0.042%	0.01 0.938	0.64 0.530	0.46 0.709	-0.494%	3.97 0.046	1.08 0.308	1.06 0.339	-0.516%	4.45 0.035	1.01 0.465	1.01 0.465
7	0.095%	0.03 0.861	0.12 0.885	0.11 0.956	0.123%	0.25 0.618	1.31 0.038	1.31 0.036	0.124%	0.26 0.610	1.33 0.034	1.32 0.034
8	-0.488%	0.82 0.364	0.05 0.950	0.28 0.838	-0.144%	0.35 0.555	1.65 < 0.001	1.63 < 0.001	-0.130%	0.29 0.590	1.68 < 0.001	1.66 < 0.001
9	-0.532%	0.96 0.327	1.21 0.299	1.27 0.284	-0.104%	0.18 0.673	1.46 0.006	1.44 0.008	-0.086%	0.13 0.724	1.43 0.011	1.41 0.013
10	-0.661%	1.49 0.222	0.95 0.388	1.41 0.238	-0.299%	1.48 0.224	1.53 0.002	1.51 0.003	-0.284%	1.37 0.242	1.52 0.003	1.50 0.004
11	-5.574%	104.99 < 0.001	3.33 0.037	37.33 < 0.001	-1.319%	28.44 < 0.001	6.29 < 0.001	6.45 < 0.001	-1.142%	21.86 < 0.001	6.21 < 0.001	6.31 < 0.001
12	-1.157%	4.45 0.035	5.23 0.006	4.71 0.003	-0.710%	8.09 0.004	1.73 < 0.001	1.73 < 0.001	-0.691%	7.86 0.005	1.41 0.013	1.42 0.012
11, 12	-6.731%	73.92 < 0.001	1.26 0.285	24.79 < 0.001	-2.029%	32.47 < 0.001	4.92 < 0.001	5.05 < 0.001	-1.833%	27.19 < 0.001	4.88 < 0.001	4.98 < 0.001
All Events	-8.748%	22.49 < 0.001	1.20 0.301	7.76 < 0.001	-3.214%	14.67 < 0.001	1.93 < 0.001	1.94 < 0.001	-2.983%	12.97 < 0.001	2.00 < 0.001	2.01 < 0.001
3, 4, 5, 7, 9	-1.140%	1.17 0.279	0.53 0.591	0.65 0.582	-0.172%	0.13 0.719	1.26 0.066	1.25 0.074	-0.132%	0.08 0.780	1.27 0.061	1.26 0.071
8, 10, 11	-6.724%	51.23 < 0.001	0.42 0.658	18.13 < 0.001	-1.763%	17.03 < 0.001	3.15 < 0.001	3.17 < 0.001	-1.557%	13.61 < 0.001	2.94 < 0.001	2.94 < 0.001

Table 4: Abnormal Returns: Non-named firms

Abnormal returns for a portfolio of 72 property and casualty insurance firms not named in Spitzer's lawsuit for the event window beginning on the day of the announcement of the suit and ending 16 trading days later. F-statistics are reported for each restriction hypothesis on each event or set of events, with p-values reported beneath.

	Fama-French Four Factor			
	CAAR	H_A	H_B	H_C
Num. d.f., Den. d.f.		1,17686	71,17686	72,17686
		0.18	2.02	2.09
16-day period	0.04%	0.6706	0.0001	0.0001

these results. For named firms, we did not find a significant impact on returns associated with any individual subpoena event, nor the set of subpoena events. H_B is rejected with weak significance for only event 5, the Chub subpoena, and not at all for the sum of all subpoena events. Thus, we cannot reject the null hypothesis of no jointly non-zero market effects nor equal market effects resulting from subpoenas. The market does not appear to predict which firms will ultimately be named in lawsuits from subpoena activity. Alternative specifications using the market model result in qualitatively similar results.

When expanding the sample to include all property and casualty firms, we still do not find significantly negative market reactions to subpoena events across the sample for the entire portfolio. This finding suggests that the market does not react negatively to subpoena announcements and hypothesis 4 is not supported. For a sample as large as ours, we only expect H_A to contain reliable results. Rarely would we expect a large sample to have firm returns jointly equal to one another and/or jointly equal to zero, as suggested by H_B and H_C.

6.3.5 Other findings

In addition to the subpoenas, we also analyzed some other material events during 2004. Specifically, we examined the market effects of a major analyst prediction of regulatory attention to the contingent commission issue, announcements by consumer watchdog groups and the involvement of another prominent attorney general, Richard Blumenthal of Connecticut, on the returns for both the named firms and the portfolio of property and casualty

firms.

These results are also provided in tables 3 . The only other pre-lawsuit event resulting in significantly negative results for the portfolio was event 6, the Connecticut attorney general's announcement upon joining the investigation. However, even this announcement was significant only in the main specification for this paper; it was not supported in our robustness tests. One explanation for this discrepancy is that our main model's industry-specific risk factor, $HiNPWmLoNPW$, captures a size effect. We might expect that the larger firms would be impacted more by such an announcement than smaller firms. Our robustness test models do not allow firm size to factor into the analysis.

Finally, we noted that information was potentially released to the market in each of these announcement and events. So we tested the sum of the market responses to events for both the sample of named firms and the total sample. Results are provided in each panel of table 3 as $\sum_{k=1}^{12}$. For the sample of named firms, H_A and H_C are rejected, and H_B is not rejected. All three restrictions are rejected for the sample of all firms, as well as the sample of non-named firms. This finding suggests that the portfolio of property and casualty firms experienced cumulative negative returns over the total of all pertinent events and that the returns differed across firms over the total of the events. For named firms, we did not find that returns for the three firms were jointly different from zero over the sum of the event periods.

6.3.6 Cross-sectional results

To determine whether the market impounded cash flow changes resulting from events, we performed cross-sectional regressions. We extracted the abnormal returns from the event study regression for each firm-event and regressed them against indicator variables representing naming in a subpoena and contingent commission information. The event study specification already controlled for size with the $HiNPWmLoNPW$ variable, so we did not make any further adjustments for size.

Hypothesis 5 suggested that a subpoena should result in negative returns for a firm named in the subpoena. As shown on table 5, we did not find evidence that a firm being named in a subpoena resulted in negative returns in the subpoena event period. This finding is unchanged when we control for a firm being ultimately named in the lawsuit, and when controlling for firm fixed effects. In table 5, model 1 shows the relationship between pre-suit event abnormal returns and a firm's being subpoenaed, controlling for

Table 5: Cross-Sectional Results

Results of cross-sectional regressions, with abnormal event and firm returns as dependent variables and a vector of explanatory variables as independent variables, with p-values reported beneath. Adjusted R-square and model F-statistics are also reported.

	Model 1	Model 1 with Firm Fixed Effects	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	-0.001 0.0383	-0.020 < 0.001	-0.001 0.319	-0.001 0.039	-0.001 0.205	-0.001 0.59	-0.001 0.039	-0.001 0.217
Named in Subpoena	-0.007 0.347	-0.005 0.473	-0.007 0.347	-0.007 0.347	-0.007 0.346	-0.012 0.41	-0.015 0.226	-0.014 0.28
Named in Lawsuit	-0.007 0.002	-0.012 0.370	-0.007 0.002	-0.007 0.002	-0.007 0.002	-0.014 0.003	-0.009 0.007	-0.009 0.005
Event 10	-0.012 < 0.001	-0.012 < 0.001	-0.012 < 0.001	-0.012 < 0.001	-0.012 < 0.001	-0.012 < 0.001	-0.012 < 0.001	-0.012 < 0.001
Event 11	-0.0058 < 0.001	-0.006 < 0.001	-0.006 < 0.001	-0.006 < 0.001	-0.006 < 0.001	-0.006 < 0.001	-0.006 < 0.001	-0.006 < 0.001
Log (Cont. Comm.)			< 0.001 0.978			< 0.001 0.64		
Cont. Comm./ Total Comm.				< 0.001 0.878			< 0.001 0.901	
Cont. Comm./ NPW					-0.009 0.642			-0.01 0.603
Subpoena * Log (Cont. Comm.)						< 0.001 0.625		
Lawsuit * Log (Cont. Comm.)						< 0.001 0.092		
Subpoena * Cont./ Total							0.093 0.226	
Lawsuit * Cont./ Total							0.029 0.007	
Subpoena * Cont./ NPW								0.603 0.526
Lawsuit * Cont./ NPW								0.315 0.374
Adj. R-Square	0.0882	0.1085	0.0871	0.0871	0.0873	0.0889	0.087	0.087
F-Stat	20.92 < 0.001	2.29 < 0.001	16.72 < 0.001	16.72 < 0.001	16.77 < 0.001	12.49 < 0.001	12.19 < 0.001	12.19 < 0.001

a firm's being named in the ultimate lawsuit. We do not find support for hypothesis 5.

Hypothesis 6 suggested that a firm's abnormal returns should be related to its intensity of contingent commission use. Table 5 shows that after controlling for firm size, no measure of contingent commission intensity predicts abnormal returns. The findings do not change when controlling for being named in the event subpoena or ultimately being named in the lawsuit. In table 5, models 2-4 show the relationship between pre-suit event abnormal returns and a firm's subpoena, controlling for contingent commission intensity. Models 5-7 show the relationship between pre-suit event abnormal returns and the interaction of its subpoena with its contingent commission intensity.

Finally, in table 6, models 8-10 show the relationship between a firm's lawsuit and *New York Times* coverage event abnormal returns and its contingent commission intensity for firms not named in the lawsuit. We find a weak relationship only between the press coverage event and natural log of contingent commissions for firms not named in the suit. Other measures of contingent commission intensity do not explain abnormal returns for firms not named in the suit.

Our cross-sectional results suggest that the market did not respond to changes in expected cash flows resulting from subpoenas at the firm level. However, our results do provide some evidence that the market did incorporate expectations for firms that were ultimately named in the lawsuit during the course of the investigation, as evidenced by the significant relationship between abnormal returns and the indicator for ultimate naming in the lawsuit. We do not find support for hypothesis 6.

7 Conclusion

In this paper, we have analyzed market reactions to major investigation and litigation activity by a prominent state attorney general, Elliot Spitzer of New York. We have reviewed the insurance distribution structure and literature regarding compensation for agents and brokers, showing that a perverse incentive may exist, especially from volume-based contingent commissions. We showed that the potential for this perverse incentive drove Spitzer's investigation into alleged bid-rigging and other anti-competitive practices.

We found, consistent with our predictions, that the returns for both firms named in the lawsuit, as well as other firms in the industry, were sig-

Table 6: Cross-Sectional Results

Results of cross-sectional regressions, with abnormal event and firm returns as dependent variables and a vector of explanatory variables as independent variables, with p-values reported beneath. Adjusted R-square and model F-statistics are also reported.

	Model 8	Model 9	Model 10
Intercept	> -0.001 0.732	> -0.001 0.044	> -0.001 0.299
Named in Lawsuit	-0.008 0.001	-0.008 0.001	-0.008 0.001
Event 10	-0.014 < 0.001	-0.012 < 0.001	-0.012 < 0.001
Event 11	-0.011 0.002	-0.006 < 0.001	-0.007 0.001
Log (Cont. Comm.)	> -0.001 0.527		
Cont. Comm./ Total Comm.		> -0.001 0.798	
Cont. Comm./ NPW			-0.015 0.475
Event10 * Log (Cont. Comm.)	< 0.001 0.564		
Event11 * Log (Cont. Comm.)	< 0.001 0.091		
Event10 * Cont./ Total		0.002 0.616	
Event11 * Cont./ Total		0.003 0.387	
Event10 * Cont./ NPW			0.003 0.965
Event11 * Cont./ NPW			0.063 0.322
Adj. R-Square	0.088	0.086	0.086
F-Stat	14.31 < 0.001	13.93 < 0.001	13.97 < 0.001

nificantly negative upon the announcement of the lawsuit. We demonstrated the presence of a "contagion effect" on the returns of firms not named in the suit, which generally precludes an immediate "competitive effect".

We also found evidence that the contagion effect is mitigated shortly after a lawsuit announcement, as the market becomes convinced that further punitive action is not likely for the firms not named in the suit.

Finally, we showed that the market does not respond significantly to announced investigation activity. The absence of negative market returns upon any subpoena announcements suggests that either the subpoena information was leaked into the market before the announcement date, or that the market does not respond to announcements of investigations prior to a lawsuit. However, we did find evidence that the market anticipated negative returns for firms that were ultimately named in the lawsuit.

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