

Intermediary Incentives and Pricing: Evidence from Health Insurance Brokers

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This Version: *September 16, 2026*

Abstract

Standard economic theory often views side payments to intermediaries as agency conflicts that distort advice and harm consumers. This paper challenges that view by showing that, in markets with significant information frictions, such payments can serve as incentives for information acquisition and efficient matching. Using a regulatory change that reduced contingent commissions for major insurance brokers, I find that affected employer health plans experienced premium increases of 8 to 10 percent and declines in plan quality. The premium increase is concentrated among firms with more favorable ex ante risk profiles, consistent with brokers losing incentives to sort clients by risk type and facilitate risk-adjusted pricing, rather than simply extracting rents. The adverse effects are mitigated in firms with stronger corporate governance, in unionized firms, and in more competitive broker markets, where alternative mechanisms partially substitute for the lost incentives. These findings demonstrate that regulations targeting apparent agency conflicts can inadvertently destroy information channels that support efficient pricing.

Keywords: Brokerage; contingent commissions; information intermediation; health care; insurance

*Ivey Business School, University of Western Ontario. Email: jtong@ivey.ca. This project receives financial support from Social Sciences and Humanities Research Council's Insight Development Grant. The author thanks Abhishek Bhardwaj, Alon Brav, John Graham, Junyang Guo, Jonathan Holmes, Simi Kedia, Mary Kelly, Lily Yuanzhi Li, Si Li, Steven Miller, Veronika Pool, Antoinette Schoar, Tracy Wang, Yenan Wang and seminar participants at Wilfrid Laurier, CEA (Ottawa), FMA-Europe (Lyon), Informs Healthcare (Toronto), FMA (Chicago), MFA (Chicago), AFFECT workshop (San Francisco) for helpful comments. This paper was previously circulated under the title "Advising Sophisticated Customers: Evidence from Health Insurance Brokers." All remaining errors are my own.

1. Introduction

Brokers and other intermediaries play a central role in many financial and corporate transactions by facilitating search, matching, and bargaining. At the same time, because intermediaries are often compensated by product providers, their incentives may be misaligned with customers, raising concerns about biased advice and steering (e.g., [Bergstresser, Chalmers, and Tufano, 2008](#); [Mullainathan et al., 2012](#); [Anagol, Cole, and Sarkar, 2017](#); [Egan, 2019](#)). The standard policy response is to restrict or eliminate provider-paid commissions. Yet intermediaries may also create value in markets with severe information frictions, where matching requires costly information acquisition and where relevant “soft” information is difficult to verify ([Howells, 2006](#); [Cummins and Doherty, 2006](#)). Restricting the compensation that shapes intermediaries’ incentives could therefore weaken their incentives to acquire and transmit information, harming the very customers regulation seeks to protect.

The welfare implications of commissions are theoretically ambiguous and depend on what commissions incentivize intermediaries to do. In the insurance setting, [Cummins and Doherty \(2006\)](#) argue that contingent commissions can help brokers credibly transmit private information about client quality to insurers, mitigating adverse selection and supporting risk-based pricing. More broadly, [Inderst and Ottaviani \(2012\)](#) show that commissions can either distort advice or incentivize intermediaries to acquire valuable information, depending on consumers’ ability to discipline them. [Stoughton et al. \(2011\)](#) similarly show that intermediary compensation can reduce investor welfare when it primarily promotes aggressive selling, but can improve participation when it supports valuable intermediation. [Inderst \(2015\)](#) further shows that restricting commissions can reduce market efficiency by weakening intermediaries’ incentives to steer customers toward better-quality products. Despite these predictions, credible evidence on how broker incentive changes affect market outcomes is scarce, largely because it is difficult to observe broker–client relationships and transaction terms, and to find plausibly exogenous changes in broker compensation. I examine this question in the U.S. employer-sponsored health insurance market, where broker compensation is important and insurer pricing depends heavily on soft information.

This paper studies insurance brokers in the U.S. employer-sponsored health insurance

market, where both information production and conflicted steering can plausibly operate. Health insurance contracts are complex and heterogeneous, and underwriting depends in part on information that is costly to gather and difficult to credibly transmit. As a result, many employers rely on brokers and benefits consultants to navigate underwriting rules, search across carriers, and design benefit menus (Cebul, Rebitzer, Taylor, and Votruba, 2011; Marquis and Long, 2000). By sitting between employers and insurers, brokers can affect the terms employers obtain through several channels: they may acquire and transmit underwriting-relevant information that facilitates risk-based pricing and matching, while their compensation may also create incentives to steer employers toward particular insurers or plans. These issues are economically important given the scale of employer-sponsored health insurance: approximately 60% of Americans under age 65, or 164.7 million people, received coverage through an employer in 2023.¹ The central question is what happens when regulation disrupts the compensation system that shapes brokers' incentives in a market characterized by complex contracts and difficult-to-verify information.

To answer this question, I combine a novel broker–insurer–employer matched dataset with a quasi-experimental shock to broker incentives. The data are drawn from Form 5500 welfare benefit plan filings maintained by the U.S. Department of Labor. These filings report plan-level insurance arrangements for sufficiently large welfare plans, including insurer identity, broker identity, and detailed expense items. I aggregate plan-level filings to the employer using Employer Identification Numbers (EINs) and merge to Compustat via EIN and name matching, which allows me to measure employer characteristics and to implement within-firm comparisons across plans that use different brokers.

The regulatory shock is the 2004 investigation led by New York State Attorney General Eliot Spitzer, which targeted bid-rigging and steering in the property-and-casualty insurance brokerage industry. A key consequence of the investigation was that three large brokers—Marsh & McLennan, Aon, and Willis (hereafter referred to as *Spitzer brokers*)—discontinued receiving contingent commissions. Contingent commissions are performance-based compensation to brokers paid by the insurer, often based on profitability, relationship duration, or other

¹KFF, *Employer-Sponsored Health Insurance 101* (Oct. 8, 2025), reporting 2023 coverage rates.

metrics. Because the investigation originated in the property-and-casualty insurance brokerage industry, involving a different set of carriers from those in employer health insurance, it does not mechanically alter health-plan pricing; instead, it changes the incentive environment of a subset of intermediaries that also operate in health insurance. Since contingent commissions are an important source of brokers' income, this investigation has material impacts on the involved brokers. Prior work on this episode primarily examines impacts on brokers and insurers (Cummins et al., 2006; Cheng et al., 2010; Ghosh and Hilliard, 2012), with limited evidence on downstream effects for customers. The ban was lifted in 2010, and the three brokers resumed receiving contingent commissions.

A simple model formalizes how contingent commissions can support broker information production. By increasing the broker's return to costly screening, these commissions allow favorable-risk employers to be identified and priced separately; removing them reduces screening and therefore predicts higher premiums concentrated among employers with better ex ante risk profiles.

Before turning to these predictions, I first document that broker intermediation is pervasive in this market. On average, 76.3% of public firms in the sample use brokers for one or more of their health plans, indicating that brokers play a central role in employer-sponsored health insurance rather than serving a small subset of firms. Broker use also varies systematically with firm size: smaller firms are more likely to rely on brokers than larger firms, consistent with economies of scale in internalizing the intermediation function. These patterns suggest that disruptions to broker incentives could have meaningful effects on plan outcomes.

I then use a difference-in-differences research design to compare changes in insurance premiums for health plans using brokers targeted by the Spitzer investigation with those using other brokers in the three years before and after 2004. Because a firm can have several health plans, each with a different broker, I control for firm fixed effects and compare premium changes across plans within the same firm, alleviating concerns about selection of particular brokers by firms. The baseline results show that health plans using Spitzer brokers experience 8 to 10 percent higher premiums after the investigation, with results robust to insurer fixed effects, alternative control groups, and the 2010 ban lift—which produces

effects in the opposite direction. These findings are difficult to reconcile with the view that contingent commissions primarily allowed brokers to extract rents from employers, in which case restricting such payments should have lowered premiums.

To distinguish the information channel from a pure rent-extraction interpretation, I exploit cross-sectional variation in employer risk quality. Contingent commissions can give brokers incentives to acquire and transmit information that helps insurers identify favorable risks and offer them more favorable pricing. If the 2004 ban weakened these screening incentives, favorable-risk firms should experience larger premium increases because they lose the pricing advantage generated by broker screening. Consistent with this prediction, the post-2004 premium increase is substantially larger among firms in safer industries, more profitable firms, and larger firms—three *ex ante* proxies for favorable risk quality.

The screening channel implies a further boundary condition: the effect should be muted where brokers have limited scope to produce verifiable signals about client quality. I test this using private firms that appear in the welfare plan filings. Private employers are more heterogeneous and provide fewer publicly observable indicators to insurers, which limits brokers' ability to screen clients and translate soft information into pricing-relevant signals. Because the broker-information channel contributes less to pricing differentiation for private firms to begin with, eliminating contingent commissions should have smaller effects on their outcomes. In line with this prediction, the estimated post-2004 premium effect for the affected brokers is small and statistically indistinguishable from zero in the private-firm sample. This null result demonstrates that the public-firm effects are not a mechanical feature of the broader brokered market and are instead concentrated precisely where broker-mediated screening is most likely to shape pricing.

Changes in broker incentives do not only raise the price for health plans, but also have negative effects on plan quality. Examining insurer financial characteristics using statutory accounting data, I find that after the ban, treated plans shifted toward insurers with higher underwriting margins but weaker surplus growth, a pattern consistent with more aggressive or lower-quality carriers. Using A. M. Best Financial Strength Ratings, which evaluate insurers' ability to meet policy obligations, I further show that Spitzer brokers became less likely

to match clients with insurers holding superior ratings or recent rating upgrades after the investigation. Together, these results indicate that the commission ban degraded the quality of broker-facilitated insurer matching.

If the commission ban harmed employers by weakening broker screening incentives, firms with alternative disciplining mechanisms should be partially insulated from the effect. Better-governed firms—those with diverse, busy, well-connected, or well-compensated boards—show no differential premium increase conditional on using brokers, but are significantly more likely to exit brokerage relationships altogether after the investigation. Firms that terminate brokerage service subsequently experience lower premiums, suggesting that well-governed firms respond to deteriorating broker quality by internalizing the search function. Unionized firms are also partially insulated, but through a different margin: they experience lower premium increases while maintaining broker relationships, consistent with unions’ comparative advantage in monitoring employee benefit plan intermediaries (Bolton, Freixas, and Shapiro, 2007; Karaca-Mandic, Feldman, and Graven, 2018). Finally, firms in more competitive broker markets experience lower premium increases, consistent with competition partially substituting for the lost incentive effects of contingent commissions.

This paper contributes to the literature on biased advising and conflicts of interest between intermediaries and their clients. A large empirical literature documents distortionary effects of broker incentives: Anagol, Cole, and Sarkar (2017) find that life insurance agents in India steer customers toward high-commission products; Bergstresser, Chalmers, and Tufano (2008) find that broker-sold mutual funds deliver lower risk-adjusted returns; Foerster, Linnainmaa, Melzer, and Previtero (2017) show that financial advisors fail to customize their advice; and Christoffersen, Evans, and Musto (2013) and Egan (2019) document similar steering toward high-fee products in investment markets. At the same time, theoretical work shows that intermediary compensation can also support valuable activities such as information acquisition and transmission (Stoughton et al., 2011; Inderst and Ottaviani, 2012; Cummins and Doherty, 2006). This paper provides empirical evidence for this less-explored channel. In a market with substantial information frictions, contingent commissions can sustain brokers’ incentives to acquire soft information, screen clients, and communicate client quality to

insurers. The finding that eliminating these commissions raises premiums and worsens insurer match quality shows that compensation that creates apparent conflicts of interest can also support economically valuable intermediation.

This paper also contributes to the literature on commission regulation and its consequences. Existing evidence shows that restricting conflicted compensation can reduce distorted product recommendations. [Bhattacharya, Hackethal, Kaesler, Loos, and Meyer \(2012\)](#) and [Agarwal, Ben-David, and Yao \(2017\)](#) study interventions designed to mitigate conflicts in financial advice, while [Egan, Ge, and Tang \(2020\)](#) find that the Department of Labor’s fiduciary rule sharply reduced sales of high-expense variable annuities. At the same time, [Robles-Garcia \(2019\)](#) shows that a complete ban on broker commissions in the U.K. mortgage market can reduce consumer welfare. I provide evidence of a distinct cost of commission regulation: restricting contingent commissions can weaken brokers’ incentives to produce and transmit information. In my setting, the ban raises premiums and worsens insurer match quality, illustrating how regulations aimed at eliminating agency conflicts can also disrupt information-producing functions of intermediaries.

This paper also contributes to the literature studying firm-level use of intermediaries ([Goyal and Wahal, 2008](#); [Agarwal, Nanda, and Ray, 2013](#); [Pool, Sialm, and Stefanescu, 2016](#)). A distinguishing feature of this setting is that employers are direct customers who bear the majority of health insurance costs—unlike institutional investors or retirement plan sponsors, who act as another layer of intermediary between final customers and the underlying product. This makes the employer-sponsored health insurance market a particularly clean setting for studying how changes in intermediary incentives affect end-customer outcomes. The paper extends this literature by documenting the informational role of broker compensation in facilitating efficient client-insurer matching, and by showing how corporate governance, labor unions, and broker market competition shape firms’ responses when that channel is disrupted.

Finally, this paper adds to the literature on the employer-sponsored health insurance market by looking into broker activities. There are currently very few papers exploring the topic (one exception is [Karaca-Mandic et al., 2018](#)). This paper furthers the discussion in [Tong \(2024\)](#) on questioning the role played by private firms in the provision of health care in

the US and the impact of the health care system on private business.

The rest of the paper is organized as follows. Section 2 provides institutional background on employer-sponsored health benefits and the 2004 investigation. Section 3 develops a simple theoretical framework that formalizes the screening channel and generates testable predictions. Section 4 describes the data construction and sample. Section 5 presents the empirical design, main results, mechanism evidence, and heterogeneity tests. Section 6 concludes.

2. Background

2.1. Employer-Sponsored Health Benefits

In the US, employers play a crucial role in the provision of health care. Employer-sponsored health benefits cover more than 150 million employees and their dependents. Employer plans have the highest enrollment among all existing plan types, followed by Medicaid and Medicare, which cover 60 million and 40 million individuals respectively. Affordable Care Act (ACA) marketplaces and the individual market cover 20 million people. If consumers have a choice, they usually prefer health plans offered by their employers over ones from the individual market because employer-sponsored health benefits have pricing advantages as a result of economies of scale and favorable tax treatment.

The cost of employer-sponsored health benefits has increased sharply in the past twenty years. In 2018, the average family plan premium was \$19,616, up from \$5,791 in 1999.² Because health benefits are important tools for firms to attract and retain talent, employers, especially large ones, are reluctant to reduce benefits out of concern for their firm's reputation and employee morale. Therefore despite the cost rise, large employers continue to offer generous plan benefits.

Evidence of this is the employer contribution, which has been steady over the past twenty years; a typical large employer contributes 80% or more of the cost for single premiums and 75% for family premiums. Anecdotal evidence shows that employers explicitly state their contribution ratio when introducing health plan offerings to employees, and it reflects badly on the employer if the ratio decreases.

²Kaiser Family Foundation Employer Health Benefits Survey (KFF Survey), 2018.

Although offering health benefits is voluntary, large employers rarely cancel their plans. In the period 1999 to 2018, more than 98% of firms with 200 or more employees offered health benefits; for firms with 10-199 employees, however, the offering rate dropped from 81% to 70%.³ In other words, big employers are not likely to use contribution ratio adjustments or termination of plans to buffer health care price hikes.

Employers may choose a number of methods to sponsor a health care plan. A plan can be fully insured, self-insured, or a combination of these two plan funding methods. In a traditional fully insured plan, the employer purchases health policies from outside health insurance companies. In self-insurance, the employer pays employees' medical claims directly, setting up tax-exempt reserves for claim payouts and making regular contributions to the reserve. Insurance companies are still hired by self-insured firms as third-party administrators (TPAs) for network access, plan design, and medical claim processing, but insurers earn less per deal because they extract mark-up only through administrative services. Some employers also buy stop-loss insurance for catastrophic losses.

Firms usually offer a menu of health plan options to employees, varying in the restrictiveness of the provider network, or in the ratio between out-of-pocket expenses and annual premiums. HMO (health maintenance organization), POS (point of service), PPO (preferred provider organization), and indemnity plans are the most common traditional plans. Their restrictiveness ranges from HMOs, the most restrictive, covering only in-network providers, to indemnity plans, with no restrictions on the network status of providers. Besides those traditional plans, high deductible health plans (HDHPs) gained popularity in the mid-2000s, but employers have to provide higher incentives for employees to take HDHPs.

In purchasing employer health insurance, brokers/benefits consultants sit between employers and carriers. They help employers solicit and compare quotes, assemble information relevant for underwriting, and communicate employer characteristics to insurers. Because some information about expected claims and workforce composition is costly for insurers to collect or verify independently, brokers can affect how finely insurers distinguish among employer risks. Brokers also evaluate carriers and plan offerings on behalf of employers,

³KFF Survey, 2018.

creating a second information role on the insurer side of the market.

2.2. The 2004 New York State Attorney General’s Investigation

In October 2004, New York State Attorney General Eliot Spitzer filed suit against the broker Marsh & McLennan Companies (Marsh or MMC) for bid-rigging and steering customers toward insurers in exchange for kickbacks. Several property-casualty insurance companies, including American International Group, Hartford, Ace Ltd. were also sued. The lawsuit had a profound impact on the insurance and insurance brokerage industry. Marsh’s stock price dropped about 45 percent in two days, and CEO Jeffrey Greenberg resigned soon after the allegation. Marsh agreed to pay \$850 million as part of the settlement in January 2005, and another broker Aon Corp. (Aon) agreed to pay \$190 million in March 2005.

Marsh was alleged to have received more than \$1 billion in contingent commissions, which are kickbacks paid by the insurance company to brokers for bringing large volume or profit. Brokerage industry leading players, Marsh, Aon, and Willis Group, announced that they would terminate the practice of receiving contingent commissions from insurance carriers in the same month the investigation started.⁴ The ban was lifted in 2010 and those brokers resumed receiving contingent commissions.⁵ The detailed timeline is shown in Figure 1.

Insurance brokers generally receive two types of commissions from insurers: premium-based commissions, which as a fixed percentage of the premium paid; and contingent commission, which is performance-based, and depends on profitability, duration or other metrics. In 2004, premium-based commission is about 10.5% of the total premium for the property-casualty insurance industry. At that time, contingent commissions accounted for 2.0% of Aon’s revenue, 7.3% for Marsh & McLennan and 4.0% for Willis (Cummins and Doherty, 2006).

Contingent commissions could affect consumer welfare and market efficiency either positively or negatively. Attorney General Spitzer claimed that contingent commissions might cause brokers to mismatch insurers and insureds, and steer the consumers to suboptimal

⁴For other notable brokers, USI Holdings Corp stated in their 2006 10-K filing that they had not discontinued receiving contingent commissions since the 2004 investigation. In January of 2005, Arthur J. Gallagher announced they would stop receiving contingent commissions only for the retail market (therefore not including the group benefits market).

⁵<https://www.bloomberg.com/news/articles/2010-02-17/spitzer-fee-ban-lifted-for-insurance-brokers-aon-marsh-willis>

contracts that do not fit consumers’ general profile and risk preferences (Schwarcz, 2006). Since contingent commission can be awarded based on profit, it is possible that brokers steer high-risk customers away from those insurers that offer contingent commissions, to maintain a high profit level. On the other hand, supporters of contingent commissions argue that since brokers have better knowledge about customers and have more information on their clients from their interactions, contingent commissions help to facilitate the communication between brokers and insurers to reveal customers’ type, and therefore reduce adverse selection (Cummins and Doherty, 2006). Since contingent commissions can only be offered by the more efficient firms with higher margins because of lower costs, it is beneficial to steer recommendations towards the efficient ones. Regulation on banning commissions can therefore reduce market efficiency (Inderst, 2015).

Spitzer’s investigation has national-level and industry-wide implications. It was a high-profile case; numerous brokers and insurers experienced short-run negative abnormal returns after the investigation was announced (Cheng et al., 2010). Several other states followed New York and initiated similar suits. New York enforces an extraterritorial application, which requires carriers writing business in other states to comply with New York regulations in that state, and therefore the effects of the lawsuit were not confined to the state of New York (Ghosh and Hilliard, 2012).

3. A Simple Framework

This section develops a stylized framework that organizes the empirical analysis. The framework draws on the literature on intermediated markets with asymmetric information (Cummins and Doherty, 2006; Stoughton et al., 2011; Inderst and Ottaviani, 2012), and on the classical view of financial intermediaries as producers of information about the quality of the parties they intermediate for (Leland and Pyle, 1977; Diamond, 1984; Boyd and Prescott, 1986). Full derivations are presented in Appendix A.

The institutional setting motivates several modeling choices. An employer’s expected health-cost profile is complex and only partly observable to outside insurers. Underwriting therefore relies on information that can be credibly documented at the time of pricing. Brokers

occupy an intermediating position with potential informational advantages: through ongoing relationships with employer clients, they can help assemble employee demographics, claims histories, workforce composition, and other underwriting-relevant characteristics that are costly for insurers to collect independently. Producing and transmitting this information is costly, however, so whether brokers undertake these activities depends on the incentives created by their compensation. Premium-based commissions, paid as a fraction of the policy premium, reward brokers for placing business but do not directly reward better screening. They may even create a countervailing incentive: identifying a favorable-risk client can lower the premium and, with it, the broker's commission. Contingent commissions, by contrast, can allow insurers to share with brokers some of the value created by better screening and information transmission. These payments therefore provide brokers with an additional incentive to acquire and transmit underwriting-relevant information.

3.1. Setup

The model features three participants. *Employers* purchase health insurance for their employees; they differ in expected health costs and are otherwise passive. A *broker* intermediates between employers and the insurer; the broker's only choice is how much costly screening effort to exert, that is, whether to collect, verify, and transmit underwriting-relevant information about its employer clients. A representative *insurer*, operating in a competitive insurance market, observes whatever information the broker transmits, sets premiums accordingly, and compensates the broker.

Consider a market in which employers differ in expected health cost $c \in \{c_L, c_H\}$, with $c_L < c_H$, where the subscripts denote low and high expected health costs; a fraction $\mu \in (0, 1)$ of employers are low-cost (good-risk) types. A broker stands between employers and insurers, who compete for underwriting business; competition drives premiums to the expected cost of coverage, so it suffices to track a single representative insurer. The insurer does not observe employer type directly. The broker can exert screening effort $e \in [0, 1]$ at private cost $\frac{\kappa}{2}e^2$, where $\kappa > 0$ governs the marginal cost of collecting, verifying, and transmitting underwriting-relevant information, such as claims histories, employee demographics, and

workforce composition. Screening is imperfect and one-sided: effort certifies a low-cost employer with probability ϕe , where the verifiability parameter $\phi \in (0, 1]$ reflects how easily the employer's underlying characteristics can be documented, and it never generates favorable information for a high-cost employer, so certification is fully credible to the insurer.

Premiums are set competitively given available information. A certified low-cost employer pays its true expected cost, $p_L = c_L$. Employers without verifiable favorable information—high-cost risks and uncertified low-cost risks—are priced in a residual pool. Let $q = \phi e$ denote the effective certification probability, so that the residual pool contains a mass $\mu(1 - q)$ of low-cost risks and a mass $1 - \mu$ of high-cost risks. The pool premium equals the conditional expected cost of pool members plus an uncertainty loading $\lambda > 0$:

$$\bar{p}(q) = \frac{\mu(1 - q)c_L + (1 - \mu)c_H}{1 - \mu q} + \lambda. \quad (1)$$

This pricing rule embeds the standard adverse-selection logic: as broker screening separates more low-cost risks from the residual pool, the remaining pool deteriorates and the pool premium rises. The loading reflects the real cost of underwriting business whose risk cannot be precisely classified such as capital, reinsurance, and margins for forecast error, and therefore survives competition among insurers.

The broker is compensated through two channels, and both are modeled explicitly. The first is a *premium-based commission*: the broker retains a fraction $\alpha \in (0, 1)$ of every premium dollar its clients pay. The second, available only before the regulatory intervention, is a *contingent commission*: a performance-based payment from the insurer, modeled in reduced form as an expected payment $\gamma \geq 0$ that the broker receives for each client it places with verifiable favorable underwriting information. The parameter γ should be interpreted as the broker's marginal share of the surplus created by better risk classification. Verifiable screening reduces the insurer's uncertainty and improves the expected profitability of the underwritten book; in a competitive insurance market, insurers compete for access to such better-underwritten business by sharing part of this surplus with the broker.

The two channels push screening effort in opposite directions. Contingent commissions reward certification directly: each successful certification yields γ . Premium-based commis-

sions penalize it: certification lowers the certified client's premium from the pool price $\bar{p}(q)$ to c_L , shrinking the base on which the broker's commission is computed.

To see the net effect on the commission base, note that with effort e a client is certified with probability $\mu\phi e$ and pays c_L , and otherwise pays the pool price $\bar{p}(\phi e)$, so the expected premium per client is

$$\mathbb{E}[p \mid e] = \mu\phi e c_L + (1 - \mu\phi e) \bar{p}(\phi e) = \mu c_L + (1 - \mu)c_H + (1 - \mu\phi e)\lambda, \quad (2)$$

where the second equality follows from substituting Equation (1). The expected-claims component, $\mu c_L + (1 - \mu)c_H$, is unaffected by screening: certification lowers the certified client's premium but raises the pool price for everyone else, and these composition effects exactly offset. Screening instead reduces the share of clients who remain in the pool and pay the uncertainty loading λ . Because an additional certified client avoids this loading, each unit of effective certification reduces the broker's premium-based commission revenue by $\alpha\lambda$.

The broker chooses screening effort $e \in [0, 1]$ to maximize total compensation net of the private cost of effort,

$$V(e) = \underbrace{\alpha [\mu c_L + (1 - \mu)c_H + (1 - \mu\phi e)\lambda]}_{\text{premium-based commissions}} + \underbrace{\gamma \mu \phi e}_{\text{contingent commissions}} - \frac{\kappa}{2} e^2. \quad (3)$$

The marginal value of screening effort is $\mu\phi(\gamma - \alpha\lambda) - \kappa e$: each unit of effort generates certifications at rate $\mu\phi$, and each certification earns the contingent payment γ while reducing premium-based commission revenue by $\alpha\lambda$. The optimal screening effort is

$$e^*(\gamma) = \min \left\{ 1, \frac{\mu\phi(\gamma - \alpha\lambda)^+}{\kappa} \right\}, \quad (4)$$

where $x^+ = \max\{x, 0\}$.

Equation (4) makes the role of each compensation channel explicit. Screening is active only when the contingent-commission reward exceeds the premium-commission penalty, $\gamma > \alpha\lambda$. When it is active, effort increases with γ and with the verifiability of employer characteristics, ϕ , and decreases with the cost of information production, κ , and with the size of the penalty,

$\alpha\lambda$.

Eliminating contingent commissions sets $\gamma = 0$ and leaves the broker with only premium-based compensation; the marginal return to screening is then strictly negative ($-\mu\phi\alpha\lambda - \kappa e$), because certification cannibalizes the broker's own commission base. Zero screening is therefore the broker's strict optimum after the ban, not a knife-edge case. More generally, the framework requires only that the removal of contingent commissions reduces broker information production.

3.2. Empirical Implications

The framework yields several implications that guide the empirical analysis. The first follows directly from Equation (4): when contingent commissions are eliminated, the broker is left with only premium-based compensation, which rewards placing business at high premiums and actively discourages certification, so the incentive to acquire and transmit underwriting-relevant information collapses. Employers who were previously certified as favorable risks lose the pricing benefit of separation and are absorbed into the residual pool. Because the residual pool is priced with an uncertainty loading, the model predicts that the average premium rises after the ban.

The effect is asymmetric across employers. Employers with favorable ex ante risk profiles benefit most from broker certification before the ban and therefore lose the most when certification incentives weaken. Employers without certifiable favorable information do not lose a certification discount; in the stark version of the model, their pool price even falls slightly as previously certified employers return to the residual pool and improve its average composition. The model's central cross-sectional prediction is therefore not a uniform premium increase, but an increase concentrated among employers with favorable ex ante risk profiles.

The magnitude of these effects depends on ϕ , the verifiability of employer characteristics. When employer characteristics are easier to document and verify, broker screening is more likely to generate information that insurers can use in pricing, and the consequences of eliminating contingent commissions are larger. When employer characteristics are more

opaque, the screening channel is weaker and the effects are attenuated. This logic motivates heterogeneity tests based on employer transparency. Public firms, with audited financial statements, richer external information, and more standardized reporting, correspond to settings in which broker-produced information is easier to verify. Private firms, with more opaque financial information, correspond to settings in which certification is more difficult.

Beyond pricing, the same incentive logic applies to another information-producing role of brokers. Brokers produce information on both sides of the market: they screen employers on behalf of insurers, and they evaluate insurers on behalf of employers by assessing financial strength, claims-paying ability, and the suitability of plan offerings. Both activities involve costly information production of the type emphasized by [Leland and Pyle \(1977\)](#) and [Diamond \(1984\)](#). Appendix [A](#) formalizes this second task as a match-quality effort choice and shows that it has the same basic incentive logic: contingent commissions raise the broker’s return to placing well-matched business, so their removal weakens the incentive to search for and document better insurer matches. If broker-acquired information helps direct employers toward financially stronger or more suitable carriers, the post-ban decline in this effort should therefore be visible in measures of insurer quality.

4. Data and Variable Construction

To investigate employers and their health insurance brokers, I first extract employee health benefits information from Form 5500 welfare benefit plan data maintained by the Department of Labor. The Employee Retirement Income Security Act of 1974 requires firms with 100 or more participants on their welfare benefits plan to file Form 5500 to report plan coverage and characteristics. A firm may submit multiple filings for each benefit plan it sponsors. Each plan contains information about the type of benefits (e.g., health, dental, vision, life insurance), number of participants, and other plan characteristics such as funding method. Several schedules serving various purposes may be attached to the main form; the one relevant to my study is Schedule A, “Insurance Information,” which contains insurer information and insurance expense. Each plan may attach multiple Schedule A forms for each insurer it hires. Data are available by filing year from 1999 onward.

I retain the plans for health benefits and drop plans containing only non-health benefits, such as dental, vision, and life insurance. After collapsing Form 5500 plan-level filing information to firm level, I merge the data with the Compustat universe using the employer identification number (EIN). A firm might have separate EINs for its subsidiaries, but Compustat keeps only one EIN at the consolidated firm level. I therefore manually match Compustat and Form 5500 data by company name, industry and address. I also retrieve the subsidiary list for US public firms from Bureau van Dijk and match by subsidiary names, again restricting on address and industry.

Insurer and broker information is gathered using Form 5500, Schedule A. To be included in the sample, the Form 5500 filing must have a Schedule A attached. Schedule A is required for benefit plans that are provided by an insurance company. Each insurance contract requires a separate Schedule A. Insurers are identified by the insurance carrier name, EIN and National Association of Insurance Commissioners (NAIC) code filed in Schedule A.⁶ For individual insurers, I cross-validate with NAIC data on national-level insurer affiliation and link the local branches to their parent firms. Broker’s name, as well as total amount of fees and commissions are required in Part I of Schedule A. Multiple brokers can be reported for one Schedule A. I use fuzzy matching to further consolidate insurer and broker names.

Two key variables on brokers are constructed: *I(Has Broker)* is a dummy variable that equals one if the health plan uses any brokers, and *Spitzer Brokers* is a dummy variable that equals one if the broker belongs to one of the following brokerage companies: Marsh, Aon, and Willis Group. The funding status of fully, self, or mixed insured is determined by several factors, including premium per participant, third-party administrator (TPA) status, stop-loss status, and funding source (see the Appendix for more details). Funding status indicates to what extent insurance expenses from Form 5500 represent total health care costs. I create two main datasets. The first one is at the plan-year-level (at each Schedule A level), and the second aggregates plan-level information to the firm-year level.

Table 1 shows the summary statistics at the firm-year level. Panel A shows that 76.3% of the firms in the sample use brokers for one or more of their plans in a given firm-year. On

⁶NAIC code is the unique insurance company identifier assigned by NAIC.

average, 17.9% of the firms use the brokers involved in Spitzer’s investigation. Note that the average premium per participant is lower than the ones from other sources (e.g., KFF survey); this is because firms are only required to report their *insurance* expense in Form 5500, not the part they pay out of their own pocket if they choose to self-insure part of their plan. Panel B reports the summary statistics of non-missing key Compustat variables from the Form 5500-Compustat merged sample and the Compustat universe for the period 1999-2016.

[Insert Table 1 Here.]

5. Empirical Analysis

5.1. Use of Brokers

I start by first examining the prevalence of broker use by firms. Firms can decide for each individual plan whether to hire an external broker, and I aggregate this information to firm level to capture whether the firm hires brokers for *any* of its plans. The trend for using brokers across year and firm size at firm level is shown in Table 2. Panel A shows that the probability of using brokers at the firm-level ranges from 65% to 80% across the years. There is a general increasing trend of using brokers at firm-level from 1999 to 2008, and it falls slightly afterward. In Panel B, I divide the sample firms into ten deciles by their asset size. The tabulation shows that the probability of using brokers decreases monotonically as the size increases. This is likely because larger firms have more resources to internalize the searching and bargaining process. If brokers ever receive compensation from the firm, it is usually on a per month per participant basis. Although larger firms can usually get a discount, it might still be more cost-saving to internalize the intermediation to enjoy larger economies of scale.

The findings in Table 2 Panel B complement those of [Marquis and Long \(2000\)](#), who find that the use of external brokers increases by the number of employees, varying from fewer than 25 (46% use brokers), to 500 employees or more (65%). Aggregating firms of all sizes, there is an inverted U shape trend on the probability of using brokers for employers’ health benefits plans. This is reasonable as very small firms have limited financial resources to hire

a broker, and more simply-structured health plans; the probability of hiring a broker grows with plan complexity and firms' financial resources, until reaching a threshold where it is more cost-efficient to internalize the service.

[Insert Table 2 Here.]

Next, I look at what type of firms are more likely to use brokers for their health plans. Table A.1 shows the OLS results for plan-level regression. The dependent variable is whether the plan uses one or more brokers in a given year. Column (1) shows that across firms, smaller and younger firms are more likely to use brokers, as well as those who have more cash and higher book-to-market ratio. After adding firm fixed effects, Column (2) shows that within a firm, when the firm has fewer employees and lower cash flow, it is more likely to use brokers for health plans. No other firm-level characteristics stand out after controlling for firm fixed effects. Health plan type and funding method also play an important part in whether brokers are involved. The positive sign for *log(participants at plan level)* indicates that, within the firm, the larger plans are more likely to have brokers than the smaller plans. The negative sign on self-insured plans and HMO plans indicates that firms are less likely to use brokers if there are lower payments to insurers.

5.2. Effect of Brokers' Incentive Changes on Health Plan Premiums

In this section, I examine whether brokers' incentive changes have any effects on customer outcomes, conditional on having a broker. Theoretical work highlights that broker compensation can have ambiguous effects on client outcomes: commissions may distort intermediary behavior, but they can also support costly information acquisition and transmission. In a market with substantial information frictions, restricting such compensation may therefore weaken brokers' information-producing role and adversely affect the terms obtained by their clients. To investigate the effects of brokers' incentive changes empirically, I look at an event that brings sudden changes to a number of brokers' compensation structure: the 2004 New York Attorney General Spitzer's investigation into the insurance and brokerage industry for bid-rigging and steering customers via contingent commissions. As discussed in Section 2.2,

three large brokers Marsh, Aon, and Willis stopped receiving contingent commissions after the investigation; these commissions had contributed a significant portion to their income.

Since these brokers are also involved in the health insurance business, the effect of this investigation can be taken both ways for employers. On the one hand, the change in incentive and the ban of contingent commissions can have positive effects on employers' health plans. If the ban can deter steering to particular insurers and thereby improve consumer welfare, then we will see employers have higher quality and less expensive plans, controlling for plan characteristics. On the other hand, employers might need to pay higher premium after the ban because, (1) brokers do not transmit all information about employers to insurers, and therefore insurers assume higher risk (Cummins and Doherty, 2006); (2) brokers exert less effort in information acquisition as they cannot cover the cost, and therefore only find suboptimal deal (Inderst and Ottaviani, 2012); or (3) brokers lose income from contingent commissions and try to recoup through premium-based commissions by seeking higher-premium plans.

I use a difference-in-differences research design to look at health plan changes from three years prior to three years after the 2004 investigation. The sample contains all health plans that use brokers from 2001 to 2007. Using the seven-year's window minimizes the effects of the financial crisis post-2007. The treatment group is the health plans that hire Marsh, Aon, or Willis, and the control group includes the firms that use other brokers. The specification is shown by Equation 5. The dependent variable *HealthPlanCosts* takes the log form of the total health insurance premium paid for the plan p at year t by firm i (Columns (1)-(2)), the log form of average health insurance premium per plan participant (Columns (3)-(4)), the ratio between broker compensation and insurance premium (Columns (5)-(6)), or broker compensation per participant (Columns (7)-(8)). $I(\textit{Spitzer Broker})$ is a dummy variable that equals one if the plan p hires Marsh, Aon, or Willis for that year t . Firm and year fixed effects are included in all specifications. In Columns (2), (4), (6) and (8), insurer fixed effects are also added to control for insurer-level time-invariant characteristics and rule out the possibility that some insurers might systematically charge a higher price and are potentially tied to specific brokers. I also include firm and plan-level controls to ensure that the results are not driven by firm-level time-varying factors and plan characteristics.

Firm-level controls include asset, age, employment, and cash flow. Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at the firm levels to account for potential heteroskedasticity and arbitrary correlation in the error term within the firm over time.

$$\begin{aligned} HealthPlanCost_{ipt} = & \beta_1 \cdot SpitzerBroker_{ipt} \times Post2004_t + \beta_2 \cdot SpitzerBroker_{ipt} \\ & + \delta_1 \cdot FirmControls_{it} + \delta_2 \cdot PlanControls_{ipt} + \alpha_i + \tau_t + \epsilon_{ipt} \end{aligned} \quad (5)$$

The results are shown in Table 3. The analysis is conducted at the plan-year level, as firms can use a different broker for each plan.⁷ Conducting plan-level analysis allows us to explore within-firms across-plan differences for plan outcomes, and alleviate the concern that results are driven by selection of some particular brokers by the firm. Looking at Columns (1)-(4), the results show that the plans with Spitzer brokers experience higher premium and higher average premium per person after the investigation. The coefficient of the interaction term $I(Spitzer\ Brokers) \times I(Post\ 2004)$ in Column (1) indicates that plans using Spitzer brokers experience a 10% higher increase in total health insurance premiums than the ones that use other brokers in the period of 2005–2007. Another thing to notice is that there is no significant difference between plans that use Spitzer brokers and other brokers in normal times, as the coefficient for $I(Spitzer\ Brokers)$ is statistically insignificant for Columns (1) to (4). The coefficient magnitude of $I(Spitzer\ Brokers) \times I(Post\ 2004)$ in Columns (2) and (4) is lower, after adding insurer fixed effects, indicating that it is possible that some insurers might consistently have more expensive plans and are linked to Spitzer brokers. However, the statistical significance and economic magnitude are still large, indicating insurer patterns are not driving the results. The results with insurer fixed effects also indicate that insurer-level higher risk after the ban on contingent commissions is not the driving force for premium increases. The results are stable and robust if controlling for additional firm-level

⁷Because firms might change their plan name and plan code from time to time, it is not possible to control for plan fixed effects. Instead, I add a set of plan characteristics for controls.

characteristics used in Table A.1 or excluding all firm-level controls.

An alternative explanation for the premium increase is that the Spitzer brokers attempted to offset the loss of contingent commissions by increasing premium-based compensation or by placing clients in higher-premium plans. Columns (5)–(8) of Table 3 provide little support for this explanation. I examine the ratio of brokers’ total compensation to insurers’ total premium, as well as average broker compensation per participant. Column (6) shows that, after the 2004 investigation, the broker-to-insurer expense ratio decreases by 0.01, relative to a sample mean of 0.045. Columns (7) and (8) show no statistically significant change in broker compensation per participant. Thus, the higher premiums experienced by plans using Spitzer brokers are not accompanied by an increase in observed broker compensation. These results suggest that the premium increase is unlikely to be driven by brokers recouping lost contingent commissions through premium-based compensation. As a robustness check, I later exploit the 2010 lifting of the contingent-commission ban and show that the estimated premium effect reverses sign (Table 8).

[Insert Table 3 Here.]

Figure 2 shows the effect of banning contingent commissions on health plan costs by the difference in years relative to the event. The specification is the same as in Table 3, Column 2, except for breaking down the pre- and post-period into individual years. The Y-axis shows the magnitude of the coefficient estimate as well as the 95% confidence interval. The X-axis is the year relative to 2004. As shown by the graph, before 2004 the estimated difference between control plans and treatment plans is not statistically significant from zero, indicating that there is no pre-trend. Following the 2004 investigation, the health plan price increases significantly in the affected plans relative to the control plans that do not use Spitzer brokers.

[Insert Figure 2 Here.]

5.3. Mechanism: Broker-Mediated Screening and Risk-Based Pricing

The baseline results show that banning contingent commissions raised premiums for broker-intermediated plans. The theoretical framework suggests that one possible mechanism

is a reduction in brokers’ incentives to acquire and transmit information about client quality. I examine this mechanism using two complementary tests. First, if contingent commissions supported broker screening, the premium increase should be larger for favorable-risk employers that previously benefited most from being identified as such. Second, the effect should be weaker where brokers have less scope to produce and communicate informative signals about employer quality. I examine this second prediction using private firms, for which employer characteristics are less transparent and more difficult to verify. Together, these tests assess whether the premium effects of the ban are consistent with a decline in broker-mediated information production.

5.3.1. Heterogeneous Effects by Employer Risk Quality

In a well-functioning intermediated market, brokers invest in acquiring and transmitting soft information about client quality. This information allows insurers to differentiate across clients with greater confidence and to extend more favorable pricing to employers that are observably or credibly low risk. Contingent commissions, which reward brokers on the basis of profitability or volume, provide an incentive to sustain this screening effort: by directing demonstrably good risks to a particular insurer, the broker improves the insurer’s book of business and earns a larger contingent payment. If the 2004 ban weakened this incentive, brokers should have reduced their investment in screening, making favorable-risk clients less likely to be identified and priced separately. The resulting decline of risk-based pricing implies a sharp cross-sectional prediction: the post-ban premium increase should be concentrated among good-risk employers—those that previously received the largest risk-adjusted discounts—while employers with less favorable risk profiles should experience smaller changes.

Table 4 tests this prediction by splitting the sample into higher- and lower-type firms using three pre-determined proxies for employer risk quality: occupational risk exposure, profitability, and firm size. Each proxy captures a different dimension of the employer’s expected health care cost profile.

Columns (1)–(2) use industry occupational-risk as the sorting variable. The lower

occupational-risk (safer) group comprises sectors with predominantly office-based workforces and relatively predictable health-risk exposure.⁸ Firms in this group experience a statistically significant 13.4% increase in premiums, whereas firms in higher-exposure industries—those with higher occupational hazard exposure and more volatile health costs—show a small and statistically insignificant change. The difference between these two coefficients is statistically significant ($p = 0.0576$). Columns (3)–(4) deliver a similar pattern using profitability as a proxy for financial solvency and employer stability: highly profitable firms experience a 17.3% premium increase, while low-profit firms show no meaningful change; the difference is economically large and marginally significant ($p = 0.082$). Finally, Columns (5)–(6) use firm size as a proxy for risk quality, since larger firms tend to have more diversified workforces and more stable claims experience. Premiums rise by 11.8% for large firms compared to 5.1% for small firms.

The pattern is consistent across all three proxies: the post-ban premium increase is substantially larger among high-type firms, while low-type firms experience smaller and often statistically insignificant changes. This cross-sectional structure helps narrow the set of plausible mechanisms behind the baseline effect. If the premium increase were driven primarily by brokers recouping lost income through higher-premium placements, the effect would likely be more similar across employer types, rather than concentrated among firms with stronger ex ante indicators of favorable risk profiles. Likewise, a generic decline in broker effort after the ban does not, by itself, generate a reason for the effect to load systematically on these pre-determined risk-quality proxies. By contrast, a broker-mediated screening channel implies that the ban should matter most precisely where screening previously had the greatest scope to affect underwriting terms. When brokers have weaker incentives to screen and communicate client-specific information, the incremental pricing advantage associated with being classified as a lower-cost employer is reduced, producing a larger premium response for the high-type group.

⁸In Columns (1)–(2), the “lower occupational-risk industry” group is defined using three-digit SIC codes and includes finance, insurance, and real estate (SIC 600–679); professional services (SIC 810–829 and 870–879); selected technology and communications industries (SIC 737 and SIC 480–489); wholesale trade (SIC 500–519); and selected high-technology manufacturing industries (SIC 357, SIC 360–369, and SIC 380–389).

[Insert Table 4 Here.]

5.3.2. Boundary Test: Private Firms

The information-production mechanism developed above implies the following pattern: the premium effects of the contingent-commission ban should be strongest where brokers can credibly differentiate client risk, and weakest where that differentiation is difficult. I examine this implication using private firms. The screening mechanism requires two conditions: brokers must be able to assess client quality, and they must be able to credibly communicate that assessment to insurers. For public firms, audited financial statements, well-defined industry classifications, and other publicly observable signals provide a verifiable basis for brokers to form and support risk assessments. For private firms, these signals are limited. Private employers are more heterogeneous, their financial conditions are less transparent, and the information that brokers may learn is more difficult to verify and to price. As a result, brokers have less scope to facilitate fine risk-based price discrimination for private-firm clients, and contingent commissions should play a smaller role in sustaining that function. If the premium increases documented above are driven by the loss of broker-enabled risk differentiation, the corresponding effects for private firms should be muted.

Table 5 tests this prediction. The private firm sample is obtained from Form 5500: firms with more than 100 participants on their welfare plans are required to file, and a firm is classified as private if it cannot be matched to Compustat via EIN or name matching. I run the same difference-in-differences specification as in Table 3 using this private firm sample. Because Compustat variables are unavailable for private firms, the regressions do not include firm-level financial controls; health plan controls are included in all specifications.

Consistent with the prediction, the estimated post-2004 premium effect for Spitzer brokers is small and statistically indistinguishable from zero across all specifications. The interaction coefficient $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ is negative but economically modest in Columns (1) and (3) (Total Premium and Premium per Participant), and remains close to zero after adding insurer fixed effects in Columns (2) and (4). At the same time, the level difference between Spitzer and non-Spitzer brokers is large in this sample: the coefficient on

$I(\text{Spitzer Brokers})$ is strongly positive across specifications, indicating that the private-firm plans served by the Spitzer brokers are systematically higher-premium even before the shock and highlighting substantial selection in which employers hire these brokers.

This null result is informative for two reasons. First, it demonstrates that the public-firm effects are not a mechanical feature of the broader brokered market. If the premium increase reflected a generic change in Spitzer broker behavior, such as reduced effort or higher fee pass-through, it should appear in both the public and private samples. The fact that it appears only among public firms is consistent with a mechanism that operates through verifiable information and risk-adjusted pricing, rather than through a broad deterioration in service quality. Second, the private-firm estimates provide a placebo check: they suggest the treatment indicator is not capturing an unobserved post-2004 shock affecting all Spitzer-broker clients. The effect is concentrated where broker-mediated screening is most likely to influence pricing and insurer choice.

[Insert Table 5 Here.]

5.4. Quality of Insurers

The information-production role of brokers extends beyond screening employers for insurers. As discussed in the theoretical framework, brokers also evaluate insurers on behalf of employers, helping clients assess dimensions such as financial strength and claims-paying ability. If contingent commissions supported brokers' incentives to acquire and process such information, the 2004 ban may have affected not only the prices employers paid, but also the quality of the insurers with which they were matched. I therefore examine whether the insurer characteristics of plans placed through the affected brokers changed following the investigation.

Financial Strength of Insurers Table 6 examines how the insurer characteristics of the plans placed through the Spitzer brokers changed following the 2004 investigation. The analysis uses statutory accounting measures from insurers' regulatory filings, which provide an objective and backward-looking view of operational performance and balance-sheet risk.

Each dependent variable is an indicator equal to one if the matched insurer’s *lagged* ratio falls in the top half of the annual distribution. Because insurer characteristics are observed for all plans regardless of whether a broker is involved, the sample includes both brokered and non-brokered plans, which allows simultaneous estimation of the level effect of broker use and the differential effect of the commission ban. The coefficient on $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ therefore captures whether, after 2004, the plans associated with the implicated brokers are underwritten by a systematically different set of insurers relative to other plans, conditional on firm fixed effects, year fixed effects, and firm and plan controls. With firm and year fixed effects, the estimates reflect changes in the characteristics of the insurer underwriting a given employer’s plan, rather than within-insurer balance-sheet adjustments. If the commission ban reduced brokers’ screening and placement incentives, the set of insurers willing (or selected) to underwrite these plans may change even holding the employer fixed.

Column (1) shows that after 2004, treated plans become more likely to be underwritten by insurers with high underwriting margins: the interaction coefficient is positive and statistically significant (0.124, $t = 3.909$). In economic terms, this estimate implies a 12.4 percentage point increase in the probability that the matched insurer falls in the top half of the underwriting profitability distribution. A natural interpretation is that the post-ban matching tilted toward insurers with a more aggressive pricing and profit model, insurers that are better able (or more willing) to earn high margins on the business they write, rather than toward insurers that compete primarily by offering more generous terms. Because underwriting margin is measured from statutory accounts, higher values capture higher realized profitability on the written business, which need not reflect higher quality from the purchaser’s perspective.

Column (2) shows that treated plans also shift toward insurers with weaker capital accumulation: the coefficient on above-median surplus growth is negative and highly significant (-0.115 , $t = -5.842$). Despite the high reported margins documented in Column (1), the insurers underwriting treated plans after the ban are not building surplus over time. This combination of high margins and low surplus growth is consistent with a “hollow profit” pattern in which the post-ban insurers appear profitable on underwriting but do not translate that profitability into a stronger capital position.

Columns (3) and (4) examine whether the post-ban shift extends to other insurer dimensions. Column (3) shows no change in insurer size, measured as log policyholder surplus (0.007, $t = 0.812$), ruling out the possibility that the Spitzer brokers simply moved clients to smaller, less established carriers. Column (4) shows no change in premium-to-surplus leverage (0.000, $t = 0.009$), indicating that the post-ban insurers do not write systematically more or less premium per dollar of surplus. Together, these null results help narrow the interpretation: the deterioration in insurer matching is concentrated in underwriting and capital-management characteristics rather than in a broad shift toward smaller or more leveraged carriers.

Taken together, Table 6 indicates that after 2004, treated plans are increasingly underwritten by insurers that appear more profitable on underwriting while exhibiting weaker capital accumulation. In the health insurance context, higher underwriting profitability is not necessarily reassuring from the buyer’s perspective, since it can reflect more aggressive pricing or claims management rather than stronger fundamentals. The absence of comparable changes in insurer size or leverage suggests that this reallocation is concentrated in underwriting and capital-management characteristics rather than reflecting a broad shift toward weaker carriers. Overall, the statutory evidence points to a post-2004 shift toward insurers that look high-margin but do not translate that profitability into a stronger capital position. The next table asks whether this same reallocation shows up in an external, forward-looking quality metric using AM Best financial strength ratings.

[Insert Table 6 Here.]

Insurer Rating When shopping for insurance plans, insurers’ ability to meet ongoing policy obligations is a fundamental consideration. This is because no matter how good the customer service that the insurance policy can provide, if the insurer cannot pay for the claim, the policy is worthless. If brokerage service is value-adding, then the broker should help customers to find plans from insurers that are financially sound and stable. Therefore, in this part, I look at whether the 2004 investigation changes the type of insurers that brokers find for their customers, with regards to insurers’ financial strength.

Insurers’ financial strength data is from A. M. Best’s Financial Strength Rating (FSR)

database. A. M. Best is the leading rating agency for insurance companies and is commonly used by practitioners and in finance research (e.g., [Ge and Weisbach, 2021](#)). It covers 2,050 health insurers from 2000 to 2020. The rating varies from A++, which indicates that the insurance company has a superior ability to meet their ongoing insurance obligations, to D, which means the financial strength of the insurer is extremely vulnerable to changes in underwriting and economic conditions.⁹

I merge the A. M. Best FSR data with the main dataset used in the baseline analysis by NAIC code, for the period of 2001 to 2007. I construct several variables to measure the level and changes of insurers' financial strength. *Superior Rating* equals one if the insurer receives A++ or A+ rating for the year; *Vulnerable Rating* equals one if the insurer receives a rating that is below B+. Both terms are defined by A. M. Best. In the FSR data, 2.2% and 30.9% of the companies receive *Superior Rating* and *Vulnerable Rating* respectively from 2001 to 2007. Variables *Rating Upgrade(Downgrade)* are constructed to capture the dynamics in the rating over time, which equals one if the insurer receives a higher (lower) rating from last year. 12.1% and 10.9% of the companies' ratings are upgraded or downgraded respectively from 2001–2007.

The analysis is done on all health plans that can be merged with the FSR data. The results on how the use of broker and brokers' incentive changes would affect plan selection, reflected by insurers' financial strength, are shown in Table 7. The results first indicate that using brokers is positively associated with better ratings for insurers, as shown by the coefficients on $I(\text{has broker})$ for Columns (1) and (2). From the coefficient on $I(\text{has broker})$ for Columns (3) and (4), using brokers is associated with a lower probability of both rating upgrade and downgrade, possibly because brokers would help to choose insurers that are more stable in their rating and therefore in their financial condition. Importantly, the coefficient on $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ show that after the investigation, using Spitzer brokers is associated with insurers that are less likely to have superior ratings, more likely to have vulnerable ratings, and less likely to experience a recent rating upgrade. However, Spitzer brokers do not systematically find insurers with weaker financial strength, as shown by the

⁹*Guide to Best's Financial Strength Ratings*, <https://www.ambest.com/ratings/guide.pdf>

coefficient on $I(\textit{Spitzer Brokers})$. This set of results complements the previous findings that after brokers' incentive change, broker-intermediated plans are not only more expensive, but with worse quality in the aspects of customer experience and insurers' financial strength.

[Insert Table 7 Here.]

5.5. Robustness Tests

Post-2010 Contingent Commission Ban Lift In 2010, the ban on Marsh, Aon and Willis that stopped them from receiving contingent commissions was lifted by officials in New York, Illinois and Connecticut, effective from the first of January in 2010. Soon after the lifting of the ban, Aon and Marsh announced that they would resume accepting contingent commissions in early 2010.¹⁰ Willis announced that they would begin to take contingent commissions in 2012.¹¹ As a robustness test, I test whether the lifting of the ban has an opposite effect to the 2004 ban. The results are shown in Table 8. The setting is similar to Table 3, but for the period of 2007 to 2013. The treated group is composed of plans with brokers that are banned from contingent commissions in 2004. I use 2010 as my event time despite Willis' announcement in 2012 as, legally speaking, they were allowed to receive contingent commission starting in 2010.

The coefficients on $I(\textit{Spitzer Brokers}) \times I(\textit{Post 2010})$ for Columns (1)-(4) of Table 8 show opposite signs to Table 3. The plans using Spitzer brokers experience lower premiums compared to their peers after the 2010 ban lifting. This confirms that the baseline results of premium increase after banning contingent commission are not driven by other contemporaneous events. The statistical significance of the coefficients is weaker than what is in Table 3, probably because some brokers take action later than others to resume receiving contingent commissions. The magnitude is comparable to Table 3. Also, Spitzer brokers receive higher compensations after the ban was lifted, as shown by Columns (5) to (8). Interestingly, the coefficients on $I(\textit{Spitzer Brokers})$ for Columns (1)-(4) are positively significant for this analysis. This indicates that Spitzer brokers on average are linked to more expensive health plans in

¹⁰<https://www.wsj.com/articles/SB10001424052748704684604575381143146598092>

¹¹<http://m.pianet.com/issues-of-focus/compensation/2012/02-22-12-08>

the period of 2007–2013. This indicates that the 2004 ban might have a permanent effect on the operation of those brokers that were banned from contingent commissions.

[Insert Table 8 Here.]

Firms that always use Spitzer brokers An alternative explanation for the baseline results in Table 3 is that this is driven by the firms that did not choose Spitzer brokers pre-2004, but chose those brokers after 2004. Given the high-profile nature of the investigation, the firms that “join” Spitzer brokers post-2004 might be of lower quality, and therefore experience a higher increase in premiums for their own inability in cost control. To rule out this possibility, I use the subsample of firms that always use Spitzer brokers during the sample period of 2001 to 2007 as the treatment group, and the control group is set to be the ones that never use Spitzer brokers within this period of time, and perform the same analysis as in Table 3. The results are shown in Table A.2. The positive effect on premiums for Spitzer brokers still holds after focusing on this subsample. When compared to Table 3, the economic magnitude and statistical significance are stronger with regard to changes in premiums. This set of results shows that the increase in premiums is not driven by firms that select Spitzer brokers after 2004.

Larger brokers only A potential concern is that the baseline estimates compare the Spitzer brokers to a control group that includes many small, infrequently observed brokers that may differ systematically in client mix or service intensity. Table A.4 addresses this concern by restricting the comparison to other large brokerages, defined empirically as broker groups with an above-median presence in the broker-level data (median = 126). The premium effects remain economically similar and statistically significant. When insurer fixed effects are included (Columns (2) and (4)), the estimates remain positive and statistically significant at conventional levels. Overall, the results are not driven by comparisons to small brokers; they persist when the control group is restricted to other frequently observed, large intermediaries.

5.6. What Types of Firms Are Affected Less

5.6.1. Better-governed Firms

Although public firms are relatively large and resourceful organizations, they differ in their ability to evaluate health plan choices and monitor the intermediaries involved in those decisions. Some firms may have weaker internal expertise, face greater organizational frictions, or devote less attention to benefit-plan selection. Corporate boards can mitigate these frictions through their monitoring and advisory roles, helping firms evaluate broker performance and respond when broker incentives change. Better-governed firms may therefore be better able to adjust their use of intermediaries or internalize parts of the search and evaluation process, reducing their exposure to adverse changes in broker behavior and health plan costs.

The first dimension of board characteristics I look at is whether the firm has a gender-diverse board. Female board members facilitate board discussion and decision making, and bring new perspectives, experience and expertise to the boardroom ([Banerjee et al., 2020](#)). For example, [Kim and Starks \(2016\)](#) find that women directors enhance advisory effectiveness as measured by heterogeneity in functional expertise. They find female directors possess more types of expertise. Compared to their male counterparts, female directors are more likely to possess skills in Human Resources, Regulatory/Legal/Compliance, among four other skills, which are closely related to health plan selection. [Adams and Ferreira \(2009\)](#) find that having a more gender-diverse board mitigates board attendance problems and results in a greater allocation of effort towards monitoring. Therefore, a gender-diverse board is likely to possess more sophistication in making decisions on benefit plan purchases.

Another measure I employ is whether the board members, on average, have multiple appointments (“busy board,” hereinafter cited as busy boards). [Fama and Jensen \(1983\)](#) suggest that multiple outside appointments for directors signals director quality. [Fich \(2005\)](#) also finds that CEOs with past good performance are rewarded with outside directorships. Therefore, a “busy board” might indicate a higher-quality board. [Ferris et al. \(2003\)](#) do not find evidence that busy boards lack monitoring capability. [Field et al. \(2013\)](#) argue that busy

boards are excellent advisors because of their experience and contacts, and this is reflected by their more than proportional presence in newly-IPOed firms, that lack experience. Therefore, busy boards are more likely to have more experience in purchasing firms' health plans, and are more aware of brokers' potential biased advising. Overall, the board's advising ability is much more relevant in our context than its monitoring role. In a similar spirit, I also look at whether or not the board members are on average well-connected and whether they receive higher compensation.

I use BoardEx as my main source of board member information to construct variables for the above measures. I collect director-year level information on gender, individual network size,¹² total compensation, and total current number of other boards a member sits on, and aggregate that information to the firm-year level by taking the average. *Diverse Board* measures whether the board is gender-diverse, and is an indicator variable that equals one if the firm has female directors; *Busy Board* equals one if the average number of outside appointments is higher than the sample median; *Rich Board* equals one if the average compensation of a firm's board is higher than the sample median; *Connected Board* equals one if the average individual network size is higher than the sample median.

First, I look at whether better-governed firms will experience different premium increase when brokers' incentive change by running the baseline analysis interacting with firms' board measures. Table 9, Panel A shows the results. The sample for analysis is restricted to health plans that use brokers. The interaction terms $I(\textit{Spitzer Brokers}) \times I(\textit{Post 2004}) \times I(\textit{Better Board})$ are not statistically significant for all governance measures, meaning that there is no statistical difference for plan premium between high and low better-board subsamples after the 2004 investigation. The triple-interaction coefficients are not statistically significant across the board measures, indicating no evidence that the post-2004 premium response differs systematically between better- and worse-governed firms among plans that continue to use brokers. It is possible that better-governed firms do not act differently in dealing with biased advice. Alternately, better-governed firms might take a different approach from their peers in dealing with the issue.

¹²Network size of selected individual (number of overlaps through employment, other activities, and education)

[Insert Table 9 Here.]

To explore better-governed firms' actions further, I look at the extensive margin of the decision to hire brokers between better/worse-governed firms. Table 9, Panel B shows the results. The sample includes all health plans with or without a broker. $I(\text{Better Board})$ is the same indicator variable as in the last analysis. The interaction term $I(\text{Better Board}) \times I(\text{Post } 2004)$ shows that better-governed firms are much less likely to use brokers after the 2004 investigation compared to their peers. Therefore, rather than be exposed to brokers' potential distortions, better-governed firms choose to internalize the search process and stop using brokers. $I(\text{Better Board})$ itself does not carry a negative sign, and is even marginally positive in Column (4), indicating that better-governed firms are not less likely to use brokers during normal times.

It is still an open question whether stopping using brokers is a good strategy after contingent commissions were banned, and whether "exiting" is welfare improving. To test this, I look at the difference in post-2004 premiums for the firms that use Spitzer brokers throughout the period of 2001 to 2007, and compare the premiums with the ones who use Spitzer brokers pre-2004, but either (1) stop using Spitzer brokers, or (2) no longer use any brokers at all after the 2004 investigation. The results are shown in Table A.3. The analysis is done for the post-investigation period of 2005–2007. It is evident that those with Spitzer brokers experience a much higher premium compared to those that no longer use brokers or Spitzer brokers during this period.

Combining the findings from this section reveals that better-governed firms are more likely to decide against using brokers following the 2004 investigation, and there is no premium difference between better and worse-governed firms for those that continue to employ brokers. The ones that quit using Spitzer brokers or any brokers at all are more likely to have a lower premium than the ones that stay with the brokers.

5.6.2. Unionized Firms

Labor unions' main objectives are to protect employees' interests and improve employee welfare. Given the significance of health benefits in workers' overall compensation, unions

care about the type and quality of health benefits offered by the firm. Therefore, companies with stronger union presence may be more likely to prevent deterioration in health plan price when insurance brokers' incentives shift.

I test this hypothesis using industry-level unionization data from Union Membership and Coverage Database (Hirsch and Macpherson, 2003), which has been widely used in the literature (e.g., Chen, Kacperczyk, and Ortiz-Molina, 2011). The data are compiled from the Current Population Survey and is available at Census Industry Classification (CIC) industry level, which is then converted to four-digit Standard Industrial Classification (SIC) codes. Table 10 shows the results running the same analysis as in the last section, Section 5.6.1. The variable of interest $I(Union)$ indicates whether the average unionization level of the industry is above 10% or 15%.¹³ In Panel A, the results show that more unionized firms experience a lower increase in health premium compared to lower-unionized firms after the 2004 investigation. Panel B shows that there is no difference between more/less unionized firms on the probability of using brokers after the investigation.

The results on unionized firms are in sharp contrast to the results in Section 5.6.1. Better-governed firms deter brokers' misbehaviors at the extensive margin by terminating broker relations, while unionized firms do this on the intensive margin by lowering broker-intermediated plan premiums. Corporate board represents shareholders' interest and they take actions against cost rise that can hurt investors; in this case, the labor costs associated with higher health plan premium. Given the advising role of the board, a better board is more capable in assisting the management to choose a high-quality health plan without the use of brokers. But supervising and disciplining brokers is costly for the board, and therefore better-governed firms are more likely to discontinue the brokerage service. Conversely, unions are better equipped to monitor and alter brokers' behavior since they have more experience with issues relating to employee benefits. Therefore, they are able to directly control the broker-intermediated plan price.

[Insert Table 10 Here.]

¹³Median unionization rate is about 5% for the sample; using the median as the cutoff cannot clearly distinguish between higher and lower unionization industries.

5.6.3. Firms in More Competitive Broker Markets

Studies have shown that a more competitive broker market helps to facilitate the purchase of health plans and leads to better consumer outcomes (Karaca-Mandic et al., 2018; Bolton et al., 2007), as competition enhances information provision and reduces conflict of interest. On the other hand, it is also possible that competition in the intermediary market leads to more aggressive use of kickbacks and rebates, causing a greater drop in consumer welfare in a more competitive market after the banning of contingent commissions. Therefore, it is not clear whether firms in a more competitive broker market will be affected more or less by the 2004 investigation.

To test whether local broker market competitiveness affects the extent to which the ban on contingent commissions affects health plan outcomes, I construct a measure of local market concentration. Using all Schedule A filings from Form 5500 in each year, including those by private firms, I aggregate each broker’s total premium underwritten at the Core-Based Statistical Area (CBSA) level using employer zip code information. I then calculate CBSA-level broker market Herfindahl-Hirschman Index (HHI) for each year using broker premium shares within each CBSA. To ensure that the competition measure is not itself affected by the investigation, broker HHI is measured using its pre-event CBSA-level value in 2003. I split the sample by whether the plan’s CBSA has above- or below-median pre-shock broker HHI, and also estimate a continuous specification that interacts the treatment variable with the demeaned HHI measure directly.

Table 11 reports the results. The dependent variable is the log of premium per participant. Columns (1)–(2) and (4)–(5) present subsample analyses for high- and low-concentration markets; Columns (3) and (6) report the continuous interaction specification, which includes the full set of lower-order interaction terms. In the subsample analysis, the post-ban premium increase is concentrated in markets with high broker concentration: plans in less competitive markets experience an 11.6 percent increase in premiums (Column 1, $t = 2.449$), while plans in more competitive markets show a smaller and statistically insignificant effect (Column 2, $t = 0.814$). The continuous specification confirms this pattern. The coefficient on $I(\text{Spitzer Brokers}) \times I(\text{Post 2004}) \times \text{Broker HHI}$ is positive and statistically significant across all

specifications (0.765, $t = 2.266$ without insurer fixed effects; 0.723, $t = 2.468$ with insurer fixed effects), indicating that the treatment effect increases monotonically with local broker market concentration. None of the lower-order HHI interaction terms are statistically significant, confirming that the result is not driven by broker concentration correlating independently with post-period premium trends or with broker selection. The results are stable when insurer fixed effects are added, ruling out the possibility that systematic matching between concentrated broker markets and particular insurers drives the finding. Overall, these results demonstrate that broker market competition partially substitutes for the lost incentive effects of contingent commissions: where competitive pressure disciplines broker behavior, the adverse consequences of the ban are attenuated.

[Insert Table 11 Here.]

6. Conclusion

This paper studies how broker compensation affects outcomes in the employer-sponsored health insurance market. Exploiting the 2004 investigation of major insurance brokers and the subsequent elimination of contingent commissions, I find that health plans placed through the affected brokers experienced premium increases of approximately 8–10% relative to plans using other brokers. The effects extend beyond prices: treated plans also shifted toward insurers with less favorable underwriting and capital-management characteristics and were less likely to be matched with insurers receiving superior or improving financial strength ratings.

The evidence is consistent with a reduction in broker-mediated information production. Premium increases are larger among firms with more favorable ex ante risk profiles and are muted among private firms, where brokers have less scope to produce verifiable signals about employer quality. The results on insurer quality further suggest that brokers also produce information on the other side of the market by evaluating insurers and facilitating matching. Governance, union monitoring, and broker-market competition partially mitigate the adverse effects of the commission ban.

More broadly, the results highlight a tradeoff in regulating intermediary compensation. Payments that create conflicts of interest can also support costly information acquisition, screening, and matching. Regulations that restrict such compensation may therefore reduce distorted incentives while also weakening the information-producing role of intermediaries, with unintended consequences for prices and market outcomes.

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Figure 1. Timeline for the 2004 Investigation

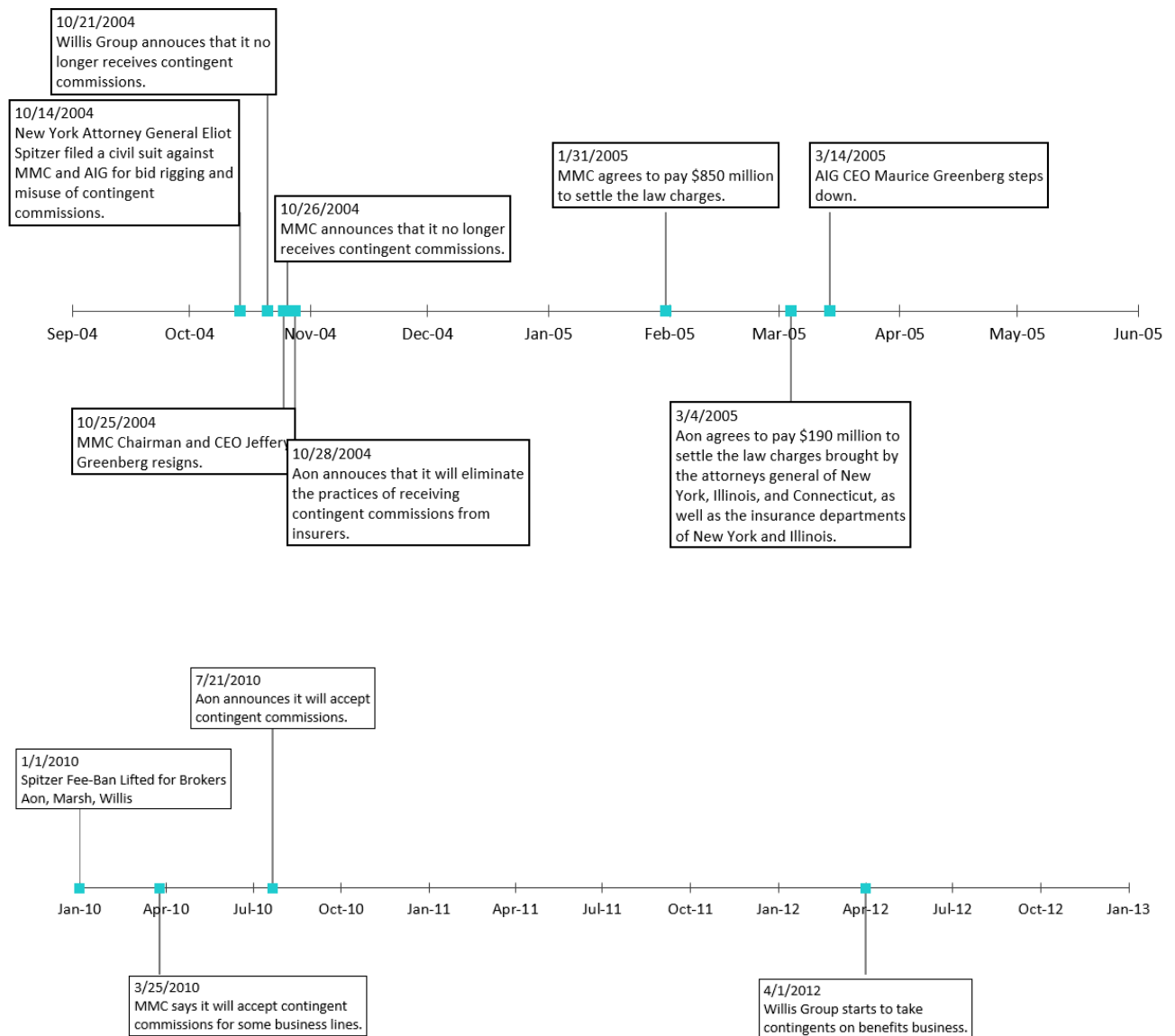


Figure 2. The Difference in Health Plan Price by Year to the 2004 Investigation

This figure presents the dynamics of change in health plan price from 2001 to 2007, i.e. three years before to three years after the 2004 Investigation. The coefficient estimate and 95% confidence intervals are estimated using the following specification:

$$\begin{aligned} \text{Health Plan Cost}_{ipt} = & \sum_{k=-3}^3 \beta_k \{ \text{SpitzerBroker}_{ipt} \times I(\text{year} = 2004 + k) \} \\ & + \phi_1 \cdot \text{Firm Controls}_{it} + \phi_2 \cdot \text{Plan Controls}_{ipt} + \alpha_i + \lambda_t + \epsilon_{ipt} \end{aligned}$$

The dependent variable $\log(\text{Premium})$ is the log form of health plan price for the plan. Independent variables are the set of year dummies interacting with the indicator variable of whether the plan uses a Spitzer broker. I plot the β_k coefficients, which are the estimates representing the differences in $\log(\text{Premium})$ between the treated plan and plans that do not use Spitzer brokers during the sample period. The indicator variable of Spitzer broker is omitted. The specification includes firm, year and insurer fixed effects, as well as firm and plan-level controls.

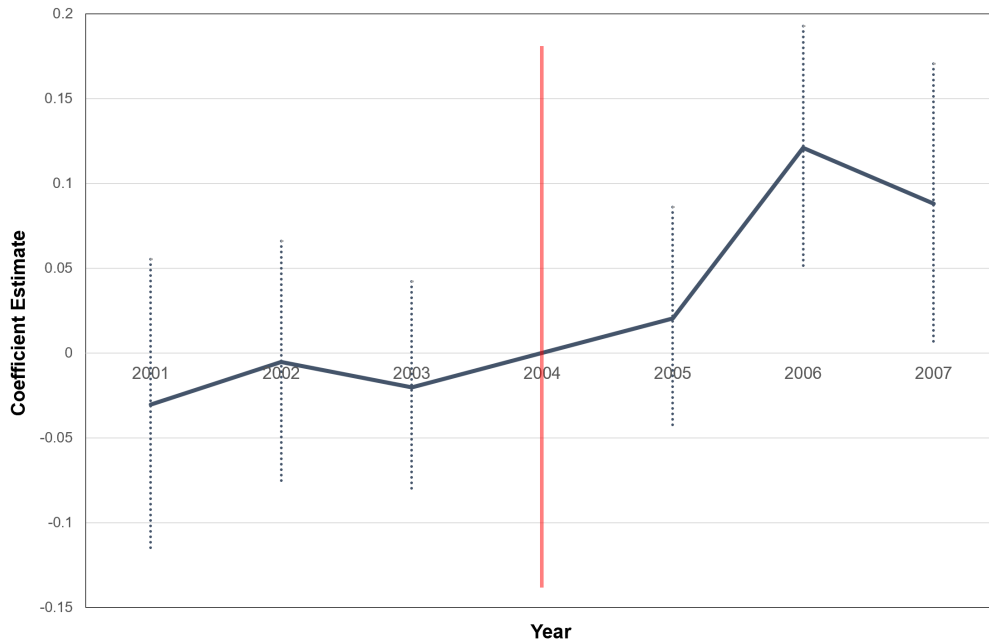


Table 1
Form 5500-Compustat Merged Sample Summary Statistics

This table provides the summary statistics of the sample of employer-sponsored health benefits data linked to the Compustat universe. Employer-sponsored health benefit data come from Form 5500 filings maintained by the Department of Labor. The sample covers all public firms from 1999 to 2016 that filed at least one Form 5500 and can be linked to Compustat via an Employer Identification Number (EIN) or name matching, excluding all utility and financial firms.

Panel A reports firm-level information on Form 5500 variables. Panel B reports firm-level information on Compustat variables on the Form 5500-Compustat Merged Sample. Variable definitions can be found in Section 4 of the paper and the Appendix. For each variable, I report the mean, standard deviation, and 25th, 50th, and 75th percentiles.

Panel A: Form 5500 Variables (N=33,297)

	Mean	Std.Dev	p25	p50	p75
Premium per Participant	4273.95	6360.53	1942.79	3642.65	5520.38
Fully Insure	0.542	0.498	0.000	1.000	1.000
Self-Insure	0.148	0.355	0.000	0.000	0.000
Mix Insure	0.310	0.462	0.000	0.000	1.000
HMO Plan	0.552	0.497	0.000	1.000	1.000
PPO Plan	0.393	0.488	0.000	0.000	1.000
Indemnity Plan	0.098	0.298	0.000	0.000	0.000
I (Has Broker)	0.763	0.425	1.000	1.000	1.000
I (Spitzer Broker)	0.179	0.384	0.000	0.000	0.000
Broker-to-insurer Expense	0.045	0.124	0.000	0.020	0.044

Panel B: Compustat Variables – Form 5500-Compustat Merged Sample (N=33,297)

	Mean	Std.Dev	p25	p50	p75
Assets(\$mil)	3807.56	13243.78	155.46	555.56	2181.76
Age	21.73	16.15	9.00	17.00	31.00
Employment(thousand)	11.45	25.73	0.55	2.30	8.80
log(MV)	6.353	2.101	4.994	6.390	7.731
Cash Flow	0.041	0.250	0.019	0.081	0.135
Leverage	0.276	0.507	0.019	0.189	0.363
Profit Margin	-0.379	4.456	-0.034	0.028	0.073
Cash	0.242	0.442	0.035	0.119	0.309
Book-to-market	0.527	1.144	0.245	0.443	0.746

Table 2
Probability of Having Broker by Year and Firm Size

This table provides an overview of the sample of Form 5500-Compustat merged firms and the status of whether they use a broker in purchasing health benefits. The sample covers all Compustat firms that can be merged to Form 5500 by employer identification number and name matching, from 1999 to 2016. All financial and utility firms are excluded. The sample is tabulated by year (Panel A) and by firm size (Panel B). Panel B divides the sample firms into ten equal number bins by their asset size. Decile 1 has the smallest average size, and Decile 10 has the largest. In each panel, I report the number of firms in each year/size bin, and the proportion of firms that use brokers for one or more of their health plans.

Panel A: By Year

Year	N	I(has broker)
1999	1,503	0.649
2000	2,206	0.710
2001	2,275	0.737
2002	2,210	0.748
2003	2,151	0.737
2004	2,065	0.750
2005	2,038	0.773
2006	1,975	0.786
2007	1,961	0.803
2008	1,844	0.811
2009	1,814	0.798
2010	1,758	0.797
2011	1,715	0.788
2012	1,661	0.781
2013	1,644	0.779
2014	1,573	0.769
2015	1,513	0.763
2016	1,391	0.758

Panel B: By Size

Decile	N	Mean(size)	I(has broker)
1	3,340	36.86	0.907
2	3,326	94.07	0.890
3	3,332	173.64	0.846
4	3,329	291.64	0.825
5	3,327	490.61	0.803
6	3,329	804.21	0.743
7	3,333	1,332.26	0.712
8	3,328	2,372.93	0.671
9	3,330	4,905.24	0.639
10	3,323	27,629.66	0.590

Table 3
Broker Incentive Change and Health Plan Price

This table presents how employers' health plan prices are affected by changes in brokers' incentives, which is induced by banning of contingent commissions for some brokers following the New York Attorney General Eliot Spitzer's 2004 investigation. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . The sample includes all health plans that use brokers in a given year in the period of 2001 to 2007. The dependent variable *TotalPremium* is the log form of plan-level health insurance plan premium; *Premium Per Participant* is the log form of average health insurance premium per participant; *Broker to Insurer Expense* is the ratio of total broker compensation to total insurance premium; *Broker Payment Per Participant* is the log form of average broker compensation per participant. Independent variable $I(\text{Spitzer broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. $I(\text{Post 2004})$ is a dummy variable that equals one if the time is after 2004. $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ is the interaction term of the two. Firm and year fixed effects are included in all analysis. Insurer fixed effects are included in Columns (2), (4), (6) and (8). Firm-level controls include total asset, age, employment, and cash flow. Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Premium	Total Premium	Premium Per Par- ticipant	Premium Per Par- ticipant	Broker-to- Insurer Expense	Broker-to- Insurer Expense	Broker Payment Per Par- ticipant	Broker Payment Per Par- ticipant
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$	0.100*** (3.178)	0.082*** (2.970)	0.097*** (3.100)	0.080*** (2.890)	-0.009* (-1.791)	-0.010** (-2.028)	0.043 (0.904)	0.036 (0.821)
$I(\text{Spitzer Brokers})$	-0.003 (-0.077)	-0.008 (-0.254)	0.000 (0.007)	-0.005 (-0.184)	-0.012** (-2.188)	-0.007 (-1.441)	-0.084* (-1.747)	-0.073 (-1.582)
Firm-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Health plan controls	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Insurer FE		Y		Y		Y		Y
Observations	26,933	26,933	26,933	26,933	26,933	26,933	26,933	26,933
R ²	0.769	0.816	0.610	0.684	0.419	0.478	0.501	0.546

Table 4
Broker Incentive Change and Health Plan Price: Employer Risk Quality

This table examines whether the premium increases following the ban on contingent commissions are concentrated among employers with more favorable ex ante risk profiles. The analysis is conducted on a health plan-level data set. The sample includes all health plans that use brokers in a given year in the period of 2001 to 2007. The dependent variable is the log form of plan-level health insurance premium. The sample is split into "High Type" and "Low Type" subsamples based on three pre-determined proxies for employer risk quality: *Occupational Risk Exposure* (Low if the firm operates in a predominantly office-based industry such as finance, technology, professional services, or wholesale; High otherwise), *Profitability* (High if net profit margin is in the top quartile; Low otherwise), and *Firm Size* (High if total assets are in the top quartile; Low otherwise). Independent variable $I(\text{Spitzer Broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis). $I(\text{Post 2004})$ is a dummy variable that equals one if the time is after 2004. $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ is the interaction term of the two. Firm, year, and insurer fixed effects are included in all analysis. Firm-level controls include total asset, age, employment, and cash flow. Health plan controls include the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. The bottom rows report the difference in the interaction coefficient between the High and Low subsamples and the p-value of that difference. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) Occupational Risk Exposure Low	(2) High	(3) Profitability High	(4) Low	(5) Firm Size High	(6) Low
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$	0.134*** (3.403)	0.029 (0.745)	0.173*** (2.640)	0.045 (1.317)	0.118** (2.337)	0.051 (1.580)
$I(\text{Spitzer Brokers})$	0.023 (0.709)	-0.020 (-0.413)	-0.089 (-1.265)	0.030 (0.930)	-0.068 (-1.271)	0.022 (0.615)
Firm & Plan Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
Insurer FE	Y	Y	Y	Y	Y	Y
Observations	11,293	15,640	6,706	20,227	6,852	20,081
R ²	0.836	0.808	0.823	0.823	0.819	0.820
<i>Difference Test</i>						
Diff (Favorable - Less Favorable)		0.105		0.129		0.066
P-val of Diff		0.0576		0.082		0.269

Table 5
Broker Incentive Change and Health Plan Price: Private Firms

This table presents how employers' health plan prices are affected by changes in brokers' incentives, which is induced by banning of contingent commissions for some brokers following the New York Attorney General Eliot Spitzer's 2004 investigation. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a private firm i in the year of t . The sample includes all health plans from non-Compustat firms that use broker in a given year between the period of 2001 to 2007. The dependent variable *TotalPremium* is the log form of plan-level health insurance plan premium; *Premium Per Participant* is the log form of average health insurance premium per participant. Independent variable $I(\text{Spitzer broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. $I(\text{Post 2004})$ is a dummy variable that equals one if the time is after 2004. $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ is the interaction term of the two. Firm and year fixed effects are included in all analysis. Insurer fixed effects are included in Columns (2) and (4). Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) Total Premium	(2) Total Premium	(3) Premium Per Participant	(4) Premium Per Participant
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$	-0.018 (-1.287)	-0.010 (-0.820)	-0.016 (-1.180)	-0.009 (-0.709)
$I(\text{Spitzer Brokers})$	0.121*** (7.033)	0.081*** (5.543)	0.121*** (7.079)	0.081*** (5.564)
Health plan controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Insurer FE		Y		Y
Observations	201,184	193,398	201,184	193,398
R^2	0.782	0.816	0.649	0.702

Table 6
Broker Incentive Change and Insurer Financial Characteristics

This table examines how the financial characteristics of insurers changed following the ban on contingent commissions. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in year t . The sample includes all health plans in a given year in the period of 2001 to 2007. The dependent variables are indicator variables equal to one if the insurer's lagged financial ratio falls in the top half of the annual distribution derived from insurer statutory filings. *Underwriting Margin* equals one if the ratio of underwriting income to total premium income is above the annual median. *Surplus Growth* equals one if the ratio of the net change in capital and surplus to the absolute value of total capital and surplus is above the annual median. *Insurer Size* equals one if the log of policyholder surplus is above the annual median. *Leverage* equals one if the ratio of total premium income to total capital and surplus is above the annual median. Independent variable $I(\text{Has Broker})$ is a dummy variable indicating whether the health plan uses a broker for the given year. $I(\text{Spitzer Broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis). $I(\text{Post 2004})$ is a dummy variable that equals one if the time is after 2004. $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ is the interaction term of the two. Firm and year fixed effects are included in all specifications. Firm-level controls include total asset, age, employment, and cash flow. Health plan controls include the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t -statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) Underwriting Margin	(2) Surplus Growth	(3) Insurer Size	(4) Leverage (Prem/Surplus)
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$	0.124*** (3.909)	-0.115*** (-5.842)	0.007 (0.812)	0.000 (0.009)
$I(\text{Spitzer Brokers})$	-0.068*** (-2.876)	0.051*** (2.620)	0.026* (1.895)	0.015 (0.702)
$I(\text{Has Broker})$	0.018* (1.694)	-0.000 (-0.024)	0.007 (0.772)	-0.046*** (-3.604)
Firm & Plan Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Observations	43,022	42,966	43,063	42,741
Adjusted R^2	0.223	0.150	0.214	0.303

Table 7
Broker Incentive Change and Insurer Rating

This table presents how employers' health plan quality are affected by changes in brokers' incentives, which is induced by banning of contingent commissions for some brokers following the New York Attorney General Eliot Spitzer's 2004 investigation. Employers' health plan quality is measured by the financial strength of the insurance company involved. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . The sample includes all health plans in a given year which has an insurer that can be merged to the A. M. Best's insurer financial strength rating (FSR) data. The sample period is between the period from 2001 to 2007. The dependent variables are dummy variables indicating the rating status. *Superior Rating* equals one if the insurer receives A++ or A+ rating for the year (defined by A. M. Best); *Vulnerable Rating* equals one if the insurer receives below B+ rating (defined by A. M. Best); *Rating Upgrade(Downgrade)* equals one if the insurer's rating is upgraded (downgraded) from last year. Independent variable $I(\text{Spitzer Broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. Independent variable $I(\text{has broker})$ is a dummy variable indicating whether the health plan uses broker for the given year. $I(\text{Post 2004})$ is a dummy variable that equals one if the time is after 2004. $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ is the interaction term of the two. Firm and year fixed effects are included in all analysis. Firm-level controls include total asset, age, employment, and cash flow. Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) Superior Insurer Rating	(2) Vulnerable Insurer Rating	(3) Insurer Rating Upgrade	(4) Insurer Rating Downgrade
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$	-0.025*** (-3.371)	0.043*** (2.915)	-0.056*** (-4.349)	-0.001 (-0.133)
$I(\text{Spitzer Brokers})$	-0.009 (-1.343)	-0.045*** (-3.272)	0.028*** (2.933)	-0.004 (-0.408)
$I(\text{Has broker})$	0.018*** (5.490)	-0.052*** (-6.404)	-0.009* (-1.920)	-0.008** (-1.990)
Firm-level controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Observations	81,159	81,159	81,159	81,159
R^2	0.223	0.185	0.121	0.147

Table 8
Broker Incentive Change and Health Plan Price: 2010 Ban Lift

This table presents how employers' health plan prices are affected by changes in brokers' incentives, which is induced by the lift of ban on receiving contingent commissions in 2010. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . The sample includes all health plans that use a broker in a given year between the period of 2007 to 2013. The dependent variable *TotalPremium* is the log form of plan-level health insurance plan premium; *Premium Per Participant* is the log form of average health insurance premium per participant; *Broker to Insurer Expense* is the ratio of total broker compensation to total insurance premium; *Broker Payment Per Participant* is the log form of average broker compensation per participant. Independent variable $I(\text{Spitzer broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. $I(\text{Post 2010})$ is a dummy variable that equals one if the time is after 2010. $I(\text{Spitzer Brokers}) \times I(\text{Post 2010})$ is the interaction term of the two. Firm and year fixed effects are included in all analysis. Insurer fixed effects are included in Columns (2), (4), (6) and (8). Firm-level controls include total asset, age, employment, and cash flow. Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Premium	Total Premium	Premium Per Par- ticipant	Premium Per Par- ticipant	Broker-to- Insurer Expense	Broker-to- Insurer Expense	Broker Payment Per Par- ticipant	Broker Payment Per Par- ticipant
$I(\text{Spitzer Brokers}) \times I(\text{Post 2010})$	-0.091** (-2.450)	-0.083** (-2.399)	-0.096*** (-2.606)	-0.087** (-2.521)	0.010** (2.149)	0.010** (2.167)	0.307*** (2.646)	0.296** (2.573)
$I(\text{Spitzer Brokers})$	0.184*** (4.367)	0.166*** (4.335)	0.194*** (4.590)	0.174*** (4.534)	-0.003 (-0.660)	-0.001 (-0.153)	0.173 (1.560)	0.189* (1.688)
Firm-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Health plan controls	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Insurer FE		Y		Y		Y		Y
Observations	22,628	22,628	22,628	22,628	22,628	22,628	22,628	22,628
R ²	0.821	0.849	0.660	0.713	0.365	0.406	0.484	0.508

Table 9

Broker Incentive Change and Health Plan Price: Role of Corporate Governance

This table presents how employers' health plan prices are affected by changes in brokers' incentive, conditional on corporate board measures (Diverse Board, Busy Board, Richer Board, and Connected Board). Corporate board data are from BoardEx. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . Panel A includes all health plans that use a broker in a given year between the period of 2001 to 2007. The dependent variable *TotalPremium* is the log form of plan-level health insurance plan premium. Panel B includes all health plans between the period of 2001 to 2007. The dependent variable $I(Has\ Broker)$ is a dummy variable that equals one if the health plan use a broker. Independent variable $I(BetterBoard)$ is a dummy variable that equals one if the corporate board measures are higher than zero (Diverse Board) or the sample median (Busy Board, Richer Board, Connected Board). $I(Spitzer\ broker)$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. $I(Post\ 2004)$ is a dummy variable that equals one if the time is after 2004. Firm, year and insurer fixed effects are included in all analysis. Firm-level controls include total asset, age, employment, and cash flow. Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Health Plan Price

	(1) Diverse Board	(2) Busy Board	(3) Richer Board	(4) Connected Board
Better board =				
$I(Spitzer\ Brokers) \times I(Post\ 2004) \times I(Better\ Board)$	0.004 (0.061)	-0.080 (-1.138)	0.115 (1.099)	-0.067 (-1.024)
$I(Spitzer\ Brokers) \times I(Post\ 2004)$	0.118** (2.480)	0.177*** (2.911)	0.035 (0.462)	0.153*** (2.904)
$I(Better\ Board) \times I(Post\ 2004)$	-0.117* (-1.832)	-0.041 (-0.649)	-0.079 (-0.853)	-0.017 (-0.239)
$I(Spitzer\ Brokers)$	0.072 (1.398)	0.032 (0.623)	0.036 (0.537)	0.005 (0.086)
Firm-level & Health plan controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Insurer FE	Y	Y	Y	Y
Observations	18,085	18,085	6,583	18,085
R ²	0.828	0.828	0.817	0.828

Panel B: Probability of Using Brokers after the 2004 Investigation

	(1)	(2)	(3)	(4)
Better board =	Diverse Board	Busy Board	Richer Board	Connected Board
I(Better Board) $\times$ I(Post 2004)	-0.021*** (-2.740)	-0.024*** (-3.283)	-0.053** (-2.425)	-0.048*** (-3.244)
I(Better Board)	0.002 (0.204)	0.009 (1.343)	0.012 (0.985)	0.028* (1.849)
Firm-level & Health plan controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Insurer FE	Y	Y	Y	Y
Observations	60,604	60,604	35,582	60,604
R ²	0.542	0.542	0.469	0.542

Table 10
Broker Incentive Change and Health Plan Price: Role of Labor Union

This table presents how employers' health plan prices are affected by changes in brokers' incentive, conditional on the probability that the firm is unionized. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . Panel A includes all health plans that use a broker in a given year between the period of 2001 to 2007. The dependent variable *TotalPremium* is the log form of plan-level health insurance plan premium. Panel B includes all health plans between the period of 2001 to 2007. The dependent variable $I(Has\ Broker)$ is a dummy variable that equals one if the health plan uses a broker. Independent variable $I(Union)$ is a dummy variable that equals one if the average unionization level of the industry is above 10% or 15%. $I(Spitzer\ broker)$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. $I(Post\ 2004)$ is a dummy variable that equals one if the time is after 2004. Firm, year and insurer fixed effects are included in all analysis. Firm-level controls include total asset, age, employment, and cash flow. Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Health Plan Price

	(1)	(2)
Average Industry Unionization Rates $\geq$	15%	10%
$I(Spitzer\ Brokers) \times I(Post\ 2004) \times I(Union)$	-0.235*** (-2.936)	-0.133** (-2.021)
$I(Spitzer\ Brokers) \times I(Post\ 2004)$	0.117*** (3.976)	0.119*** (3.764)
$I(Spitzer\ Brokers)$	-0.025 (-0.866)	-0.025 (-0.821)
Firm-level & health plan controls	Y	Y
Year FE	Y	Y
Firm FE	Y	Y
Insurer FE	Y	Y
Observations	26,921	26,921
R ²	0.819	0.819

Panel B: Probability of Using Brokers after the 2004 Investigation

	(1)	(2)
Average Industry Unionization Rates $\geq$	15%	10%
I(Union) $\times$ I(Post 2004)	-0.013 (-0.966)	-0.006 (-0.475)
Firm-level & health plan controls	Y	Y
Year FE	Y	Y
Firm FE	Y	Y
Insurer FE	Y	Y
Observations	85,898	85,898
R ²	0.550	0.550

Table 11
Broker Incentive Change and Health Plan Price – Role of Broker Market Competition

This table presents how employers' health plan prices are affected by changes in brokers' incentive, conditional on broker competition in the local market. Broker competition in the local market is measured by the Herfindahl-Hirschman Index (HHI), which is calculated using total premium written at the Core-Based Statistical Area (CBSA) level. Total premium written is gathered using all health plans in Form 5500, including both public and private firms. Broker HHI is fixed at its 2003 (pre-shock) value to ensure the competition measure is not affected by the investigation. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . The sample includes all health plans that use brokers in a given year between the period of 2001 to 2007. The dependent variable *Premium Per Participant* is the log form of average health insurance premium per participant. In Columns (1)–(2) and (4)–(5), the sample is split by whether the plan is in a CBSA with above-median (High) or below-median (Low) pre-shock broker HHI. Columns (3) and (6) interact $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ with the demeaned continuous broker HHI; the constituent lower-order interactions $I(\text{Spitzer Brokers}) \times \text{Broker HHI}$, $I(\text{Post 2004}) \times \text{Broker HHI}$, and Broker HHI are included in the specification and reported. $I(\text{Spitzer Broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. $I(\text{Post 2004})$ is a dummy variable that equals one if the time is after 2004. Firm and year fixed effects are included in all specifications. Insurer fixed effects are included in Columns (4)–(6). Firm-level controls include total asset, age, employment, and cash flow. Health plan controls include the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at the firm level. The t -statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Broker HHI					
	High	Low	Continuous	High	Low	Continuous
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004}) \times \text{Broker HHI}$			0.765** (2.266)			0.723** (2.468)
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$	0.116** (2.449)	0.036 (0.814)	0.077** (2.383)	0.092** (2.339)	0.050 (1.224)	0.067** (2.344)
$I(\text{Spitzer Brokers})$	−0.002 (−0.041)	−0.029 (−0.678)	−0.009 (−0.282)	−0.021 (−0.511)	−0.034 (−0.866)	−0.015 (−0.530)
$I(\text{Spitzer Brokers}) \times \text{Broker HHI}$			0.444 (1.406)			0.273 (1.104)
$I(\text{Post 2004}) \times \text{Broker HHI}$			−0.200 (−1.033)			−0.145 (−0.923)
Broker HHI			−0.278 (−1.303)			−0.046 (−0.221)
Firm & plan-level controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
Insurer FE				Y	Y	Y
Observations	11,962	12,983	24,945	11,956	12,978	24,934
R ²	0.628	0.620	0.610	0.720	0.685	0.687

Internet Appendix

Key Variable Definitions

Variable	Definition and Construction
Financial variables	
Assets	Total book assets in millions, adjusted to 2004 US dollars. The natural logarithm of this variable is used in the paper.
Age	Number of years since IPO. The natural logarithm of this variable is used in the paper.
Employment	Compustat Employment. The natural logarithm of this variable is used in the paper.
Profit Margin	Income before extraordinary items divided by sales.
Book-to-market	The book value of the common equity scaled by the market value of common equity.
Cash	Cash and short-term investment scaled by total assets.
Cash Flow	Income before extraordinary items plus depreciation and amortization, scaled by total assets.
Leverage	The sum of long-term debt and debt in current liability scaled by total assets
MV	Price-close multiplied by common shares outstanding. The natural logarithm of this variable is used in the paper.
Form 5500 variables	
Total Premium	The natural logarithm of total insurance expense. Information is from Schedule A. For firm level, the value is aggregated to firm level by Employer Identification Number (EIN).
Premium per Participant	The natural logarithm of (total insurance expense/total number of participants covered by insurance contract). Information from Schedule A. For firm level, total insurance expense and number of participants are aggregated to firm level by Employer Identification Number (EIN).
Self-/Mix/Fully insure	An indicator variable that takes a value of one if a firm's health benefits funding method is self-/mix/fully insured. For details, see Appendix "Form 5500 Data."
HMO/PPO/Indemnity Plan	An indicator variable that takes a value of one if the insurance contract is indicated as HMO/PPO/Indemnity. Information is from Schedule A.
I(Has Broker)	An indicator variable that takes a value of one if the insurance contract fills broker information on Schedule A Part I.
I(Spitzer Brokers)	An indicator variable that takes a value of one if the broker is under the three brokerage companies: Marsh, Aon, and Willis.
Broker-to-insurer Expense	Total broker compensation scaled by total insurance expense. Information is from Schedule A.
Other variables	

Diverse Board	An indicator variable that takes a value of one if the firm has female directors. Data is from BoardEx.
Busy Board	An indicator variable that takes a value of one if the average number of outside appointments that a firm's board has is higher than the sample median. Data is from BoardEx.
Richer Board	An indicator variable that takes a value of one if the average compensation of a firm's board is higher than the sample median. Data is from BoardEx.
Connected Board	An indicator variable that takes a value of one if the average individual network size is higher than the sample median. Data is from BoardEx.
Broker HHI	The Herfindahl-Hirschman Index calculated using total premium written by the insurer at CBSA level.
Insurer Underwriting Margin	Ratio of underwriting income to total premium.
Insurer Surplus Growth	Ratio of the net change in capital and surplus to the absolute value of total capital and surplus.
Insurer Leverage (Premium-to-Surplus)	Ratio of total premium income to total capital and surplus.

A. Theoretical Framework: Formal Derivation

This appendix provides a simple framework that formalizes the information-production channel discussed in Section 3. The goal is not to model the full details of broker compensation contracts, but to capture one central mechanism: contingent commissions increase the broker's return to costly screening, and screening allows low-risk employers to be credibly separated from the residual pool.

Setup. The environment is that of Section 3; the primitives are restated here so that the appendix is self-contained, while their institutional interpretation is discussed in the main text. There is a continuum of employers, a representative broker, and an insurance sector in which insurers compete for underwriting business; competition drives premiums to the expected cost of coverage, so it suffices to track a single representative insurer. Each employer has expected health cost $c_i \in \{c_L, c_H\}$, with $c_L < c_H$; a fraction $\mu \in (0, 1)$ of employers are low-cost types. The insurer does not observe employer type directly. The broker can exert screening effort $e \in [0, 1]$ at private cost $\frac{\kappa}{2}e^2$, with $\kappa > 0$. Screening is one-sided: it certifies a low-cost employer as c_L with probability ϕe , where $\phi \in (0, 1]$ captures the verifiability of employer characteristics, and it never generates favorable information for a high-cost employer. Employers without verifiable favorable information remain in the residual pool.

Pricing. Insurers compete, so premiums equal expected cost given available information. A certified low-cost employer receives premium

$$p_L = c_L. \quad (6)$$

Employers without certification are placed in the residual pool. Let

$$q = \phi e$$

denote the effective certification probability. The residual pool contains a mass $\mu(1 - q)$ of low-cost employers and a mass $1 - \mu$ of high-cost employers, so the total mass of employers in the residual pool is $1 - \mu q$. Conditional on being in the residual pool, the posterior probability that an employer is a low-cost risk is

$$\hat{\mu}(q) = \frac{\mu(1 - q)}{1 - \mu q}. \quad (7)$$

The corresponding posterior probability that a residual-pool employer is a high-cost risk is

$$1 - \hat{\mu}(q) = \frac{1 - \mu}{1 - \mu q}.$$

The residual-pool price is therefore

$$\bar{p}(q) = \hat{\mu}(q)c_L + (1 - \hat{\mu}(q))c_H + \lambda = \frac{\mu(1 - q)c_L + (1 - \mu)c_H}{1 - \mu q} + \lambda. \quad (8)$$

As discussed in Section 3, the loading λ is a real underwriting cost of imprecisely classified business rather than a markup, so competition does not eliminate it; certified business, being precisely classified, carries no such loading.

Broker Incentives. The broker is compensated through two channels: a *premium-based*

commission, under which the broker retains a fraction $\alpha \in (0, 1)$ of every premium dollar paid by its clients, and, before the regulatory intervention, *contingent commissions*, summarized by a reduced-form parameter $\gamma \geq 0$: the broker receives expected payment γ for each client placed with verifiable favorable underwriting information. Section 3 discusses the interpretation of γ as the broker's marginal share of the surplus generated by verifiable screening.

Consider first the broker's expected premium-commission revenue per client. With effort e , a client is a certified low-cost risk with probability $\mu\phi e$ and pays c_L ; otherwise the client pays the residual-pool price $\bar{p}(\phi e)$. The expected premium per client is therefore

$$\mathbb{E}[p \mid e] = \mu\phi e c_L + (1 - \mu\phi e) \bar{p}(\phi e) = \mu c_L + (1 - \mu)c_H + (1 - \mu\phi e)\lambda. \quad (9)$$

As discussed in Section 3, the expected-claims component, $\mu c_L + (1 - \mu)c_H$, does not depend on screening; certification changes only the mass of clients who escape the uncertainty loading λ , so each unit of effective certification reduces the broker's premium-commission revenue by $\alpha\lambda$.

Combining the two compensation channels, the broker's expected payoff from screening is

$$V(e) = \alpha[\mu c_L + (1 - \mu)c_H + (1 - \mu\phi e)\lambda] + \gamma\mu\phi e - \frac{\kappa}{2}e^2. \quad (10)$$

The marginal value of effort is

$$V'(e) = \mu\phi(\gamma - \alpha\lambda) - \kappa e,$$

and the broker's optimal screening effort is

$$e^*(\gamma) = \min \left\{ 1, \frac{\mu\phi(\gamma - \alpha\lambda)^+}{\kappa} \right\}. \quad (11)$$

Screening is active only when $\gamma > \alpha\lambda$. When contingent commissions are eliminated, $\gamma = 0$ and $V'(e) = -\mu\phi\alpha\lambda - \kappa e < 0$ for all $e > 0$, so zero screening is the broker's strict optimum. The comparative statics and their interpretation are discussed in Section 3.

More generally, the model requires only that removing contingent commissions reduces broker information production. The zero-effort case provides the sharpest version of the mechanism.

A.1. Empirical Implications

Average premiums. Let $q^* = \phi e^*$ denote the pre-ban effective certification probability. Before the ban, a mass μq^* of employers is certified as low-cost risks and pays c_L . The remaining mass $1 - \mu q^*$ is priced in the residual pool and pays $\bar{p}(q^*)$. Therefore, the average premium before the ban is

$$\begin{aligned} \mathbb{E}[p \mid q^*] &= \mu q^* c_L + (1 - \mu q^*) \bar{p}(q^*) \\ &= \mu q^* c_L + \mu(1 - q^*) c_L + (1 - \mu)c_H + (1 - \mu q^*)\lambda \\ &= \mu c_L + (1 - \mu)c_H + (1 - \mu q^*)\lambda. \end{aligned} \quad (12)$$

The final term reflects that the uncertainty loading λ is paid only by employers remaining in the residual pool, whose total mass is $1 - \mu q^*$.

After the ban, screening effort falls to zero in the benchmark case, so all employers are priced in

the unscreened pool. The average premium after the ban is therefore

$$\mathbb{E}[p \mid 0] = \bar{p}(0) = \mu c_L + (1 - \mu)c_H + \lambda. \quad (13)$$

Therefore, the average premium change is

$$\Delta \mathbb{E}[p] = \mathbb{E}[p \mid 0] - \mathbb{E}[p \mid q^*] = \mu q^* \lambda > 0. \quad (14)$$

The ban raises average premiums because it increases the mass of employers priced in the uncertainty-loaded residual pool. The expected claims component, $\mu c_L + (1 - \mu)c_H$, is unchanged; the increase comes from the larger share of employers paying the residual-pool loading.

Heterogeneity by employer risk. True low-cost employers are most affected because they are the ones who benefited from certification before the ban. Their expected premium before the ban is

$$\mathbb{E}[p \mid c_L, q^*] = q^* c_L + (1 - q^*) \bar{p}(q^*). \quad (15)$$

After the ban, they pay $\bar{p}(0)$. Their premium change is

$$\Delta p_{c_L} = \bar{p}(0) - \mathbb{E}[p \mid c_L, q^*] = q^* \left[\frac{(1 - \mu)^2 (c_H - c_L)}{1 - \mu q^*} + \lambda \right] > 0. \quad (16)$$

The sign is not immediate, because the residual-pool price is higher before the ban than after it ($\bar{p}(q^*) > \bar{p}(0)$): a low-cost employer trades a lottery over the certified price and a worse pool for certain membership in a better pool. The explicit expression shows that the loss of the certification discount always dominates. Thus, removing contingent commissions raises expected premiums for favorable-risk employers because they lose the possibility of being certified and priced separately.

By contrast, employers that were already in the residual pool do not lose the same certification discount. With a constant residual-pool loading λ , their pool premium falls after screening is eliminated in the benchmark case because previously certified low-cost employers return to the pool.

Specifically,

$$\Delta p_{\text{pool}} = \bar{p}(0) - \bar{p}(q^*) = -\frac{\mu q^* (1 - \mu) (c_H - c_L)}{1 - \mu q^*} < 0. \quad (17)$$

The stark model therefore does not predict that all employers experience higher premiums. Rather, its central cross-sectional prediction is that the post-ban premium increase is concentrated among employers with more favorable ex ante risk profiles, who lose the certification discount. If the ban also raises the loading on residual-pool business, the predicted decline for residual-pool employers is attenuated or reversed, while the prediction for favorable-risk employers is reinforced. The empirical analysis therefore treats the concentration of the premium increase among favorable-risk employers, rather than the sign of the change for the residual pool, as the model's distinguishing implication.

Verifiability. The effect is increasing in $q^* = \phi e^*$: the consequences of the ban are larger when broker screening is more informative and employer characteristics are easier to verify. This underlies the transparency-based heterogeneity tests discussed in Section 3.

Match quality. The baseline model focuses on pricing, but the same incentive logic extends to other costly information-producing activities performed by brokers. Let $m \in [0, 1]$ denote the broker's effort to identify and document a more suitable or financially stronger insurer match.

Suppose this effort succeeds with probability ψm , where $\psi \in (0, 1]$ captures the effectiveness of match-quality effort, and suppose the effort cost is $\frac{\eta}{2}m^2$, with $\eta > 0$. If contingent commissions provide the broker with marginal incentive value $\gamma_M \geq 0$ for producing better-matched business, the broker's match-quality payoff is

$$V_M(m) = \gamma_M \psi m - \frac{\eta}{2} m^2. \quad (18)$$

The optimal match-quality effort is therefore

$$m^*(\gamma_M) = \min \left\{ 1, \frac{\gamma_M \psi}{\eta} \right\}. \quad (19)$$

Thus, match-quality effort has the same comparative statics as screening effort: it increases with the incentive value of contingent commissions and with the productivity of broker information production, and decreases with the cost of effort. When contingent commissions are removed, γ_M falls, and the broker's incentive to search for, verify, and document better insurer matches weakens.

This extension yields the match-quality prediction used in the empirical analysis: if broker effort helps employers match with financially stronger or more suitable carriers, removing contingent commissions should worsen insurer-employer match quality.

Table A.1
Probability of Using Brokers by Firm Characteristics

This table presents how the probability of using a broker is correlated with firm-level financial and health plan characteristics. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . The sample time period is from 1999 to 2016. The dependent variable $I(Has\ Broker)_{ipt}$ is a dummy variable indicating whether the plan p of firm i uses a broker for year t . Independent variables $\log(Assets)$, $\log(Age)$, $\log(Employment)$, $\log(MV)$, $Cash\ Flow$, $Leverage$, $Profit\ Margin$, $Cash$, $Book\ to\ market$ are constructed based on Compustat variables; independent variables $\log(participants\ at\ plan\ level)$, $I(self\ insure)$, $I(mix\ insure)$, $I(HMO)$, $I(PPO)$, $I(Indemnity)$ are from Form 5500. See Appendix for details about variable construction. Columns (1) and (3) include year fixed effects; Columns (2) and (4) include both firm and year fixed effects. Standard errors are clustered at the firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
$\log(Assets)$	-0.067*** (-8.192)	0.007 (0.630)	-0.058*** (-7.067)	0.004 (0.372)
$\log(Age)$	-0.049*** (-4.899)	-0.009 (-0.414)	-0.043*** (-4.685)	-0.014 (-0.625)
$\log(Employment)$	-0.037*** (-5.473)	-0.039*** (-3.083)	-0.034*** (-5.122)	-0.044*** (-3.446)
$\log(MV)$	0.010** (2.008)	0.003 (0.630)	0.011* (1.951)	0.002 (0.359)
Cash Flow	-0.053*** (-2.851)	-0.030** (-2.181)	-0.066*** (-3.672)	-0.031** (-2.212)
Leverage	-0.007 (-0.581)	-0.002 (-0.461)	-0.006 (-0.624)	-0.004 (-0.898)
Profit Margin	-0.001 (-1.504)	-0.000 (-0.664)	-0.001 (-1.447)	-0.000 (-1.057)
Cash	0.040*** (3.119)	-0.006 (-0.726)	0.029** (2.380)	-0.010 (-1.307)
Book-to-market	0.013*** (3.591)	-0.001 (-0.566)	0.012*** (3.409)	-0.002 (-0.665)
$\log(participant\ at\ plan\ level)$			0.043*** (17.987)	0.038*** (15.508)
$I(self-insure)$			-0.092*** (-8.509)	-0.076*** (-8.049)
$I(mix\ insure)$			-0.092*** (-7.257)	-0.078*** (-8.190)
$I(HMO)$			-0.054*** (-6.903)	-0.041*** (-6.504)
$I(PPO)$			0.046*** (4.055)	0.026*** (2.862)
$I(Indemnity)$			-0.013 (-0.783)	-0.002 (-0.134)
Year FE	Y	Y	Y	Y
Firm FE	N	Y	N	Y
Observations	162,109	162,109	161,283	161,283
R ²	0.233	0.457	0.279	0.482

Table A.2
Broker Incentive Change and Health Plan Price: Firms That Always Use Spitzer Brokers

This table presents how employers' health plan prices are affected by changes in brokers' incentives, which is induced by banning of contingent commissions for some brokers following the New York Attorney General Elliot Spitzer's 2004 investigation. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . The sample includes health plans that use broker in a given year between the period of 2001 to 2007, with the condition that they either always use Spitzer broker before and after 2004, or never use Spitzer brokers. The dependent variable *TotalPremium* is the log form of plan-level health insurance plan premium; *Premium Per Participant* is the log form of average health insurance premium per participant; *Broker – to – Insurer Expense* is the ratio between total broker compensation to total insurance premium. Independent variable $I(\text{Spitzer broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. $I(\text{Post 2004})$ is a dummy variable that equals one if the time is after 2004. $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ is the interaction term of the two. Firm and year fixed effects are included in all analysis. Insurer fixed effects are included in Columns (2), (4) and (6). Firm-level controls include total asset, age, employment, and cash flow. Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Total Premium	Total Premium	Premium Per Participant	Premium Per Participant	Broker-to- Insurer expense	Broker-to- Insurer expense
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$	0.107*** (3.183)	0.103*** (3.475)	0.104*** (3.113)	0.100*** (3.410)	-0.007 (-1.272)	-0.010* (-1.846)
$I(\text{Spitzer Brokers})$	0.011 (0.226)	-0.009 (-0.213)	0.013 (0.284)	-0.007 (-0.161)	-0.011 (-1.494)	-0.005 (-0.789)
Firm-level controls	Y	Y	Y	Y	Y	Y
Health plan controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
Insurer FE		Y		Y		Y
Observations	18,000	17,993	18,000	17,993	18,000	17,993
R ²	0.762	0.810	0.593	0.671	0.378	0.445

Table A.3
Health Plan Price for Ones Who Quit Using Brokers

This table presents how employers' health plan price is correlated with whether the firm does not use a broker or uses a non-Spitzer broker. The analysis is conducted on a health plan-level data set, and each observation is a health plan p for a Compustat firm i in the year of t . The sample includes all health plans that use Spitzer brokers in the period of 2001 to 2003. The sample period for the analysis is 2005 to 2007. The dependent variable *TotalPremium* is the log form of the plan-level health insurance plan premium. *Premium Per Participant* is the log form of average health insurance premium per participant. Independent variable *I(No Broker or Other Brokers)* is a dummy variable that equals one if the plan is no longer using Spitzer brokers (i.e. switching to other brokers, or using no brokers at all) after 2004. Firm and year fixed effects are included in all analysis. Insurer fixed effects are added in Columns (2) and (4). Firm-level controls include total asset, age, employment, and cash flow. Health plan control includes the dummy of self-insure, mix insure, HMO, PPO, Indemnity, and the log form of total number of participants. Standard errors are clustered at firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Total Premium		Premium Per Participant	
I(No Broker or Other Brokers)	-0.221*** (-4.738)	-0.176*** (-4.222)	-0.207*** (-4.604)	-0.159*** (-3.973)
Firm-level & health plan controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Insurer FE		Y		Y
Observations	10,580	10,578	10,580	10,578
R ²	0.835	0.877	0.513	0.626

Table A.4
Robustness Check: Restricting Control Group to Large Brokers

This table presents a robustness check of the effect of the Spitzer investigation on health plan prices, restricting the sample to plans serviced by either a Spitzer-implicated broker or another large brokerage, defined empirically as those with an above-median presence in the broker-level data (median = 126). The analysis is conducted at the health plan level in the period of 2001 to 2007. The dependent variable in Columns (1) and (2) is *Total Premium*, the log form of the plan-level health insurance premium. The dependent variable in Columns (3) and (4) is *Premium Per Participant*, the log form of the average health insurance premium per participant. Independent variable $I(\text{Spitzer Broker})$ is a dummy variable that equals one if the plan hires one of three brokers (Marsh, Aon and Willis). $I(\text{Post 2004})$ is a dummy variable that equals one if the time is after 2004. $I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$ is the interaction term of the two. Firm and health plan controls, along with Firm and Year fixed effects, are included in all specifications. Insurer fixed effects are included in Columns (2) and (4). Standard errors are clustered at the firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) Total Premium (Log)	(2) Total Premium (Log)	(3) Premium Per Participant (Log)	(4) Premium Per Participant (Log)
$I(\text{Spitzer Brokers}) \times I(\text{Post 2004})$	0.086** (2.284)	0.066** (2.016)	0.084** (2.261)	0.064** (1.964)
$I(\text{Spitzer Brokers})$	-0.057 (-1.346)	-0.054 (-1.454)	-0.057 (-1.373)	-0.054 (-1.467)
Firm & Health Plan Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Insurer FE	N	Y	N	Y
Observations	14,022	14,018	14,022	14,018
R ²	0.811	0.850	0.645	0.712

Table A.5
The Effect of the Spitzer Investigation on Insurer Switching

This table presents the effect of the 2004 Spitzer investigation on the likelihood of employers switching their primary health insurer. The dependent variable is *Switch Insurer*, a dummy variable that equals one if the firm's dominant health insurer in year t differs from its dominant insurer in year $t - 1$, strictly requiring consecutive annual observations to identify an active switch. The analysis is conducted at the firm-year level in the period of 2001 to 2007. Column (1) includes the full sample, while Column (2) restricts the sample to firms that actively use a broker on any of its health plans. Independent variable $I(\textit{Spitzer Broker})$ is a dummy variable that equals one if the firm hires one of three brokers (Marsh, Aon and Willis) that banned contingent commissions after 2004. $I(\textit{Post 2004})$ is a dummy variable that equals one if the time is after 2004. $I(\textit{Spitzer Brokers}) \times I(\textit{Post 2004})$ is the interaction term of the two. $I(\textit{Has Broker})$ is a dummy variable indicating if the firm uses any broker. Firm and health plan controls, along with Firm and Year fixed effects, are included in all specifications. Standard errors are clustered at the firm level. The t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) Switch Insurer (Full Sample)	(2) Switch Insurer (Broker Sample)
$I(\textit{Spitzer Brokers}) \times I(\textit{Post 2004})$	-0.033 (-1.447)	-0.037 (-1.529)
$I(\textit{Spitzer Brokers})$	-0.029 (-1.268)	-0.023 (-0.931)
$I(\textit{Has Broker})$	-0.011 (-0.634)	
Firm & Health Plan Controls	Y	Y
Year FE	Y	Y
Firm FE	Y	Y
Observations	12,702	9,424
R ²	0.303	0.320

B. Form 5500 Data

B.1. Overview

The Employee Retirement Income Security Act (“ERISA”) and the Internal Revenue Code (“Code”) establish disclosure requirements for the private-sector employee benefit plans. The Department of Labor (“DOL”), the Internal Revenue Service, and the Pension Benefit Guaranty Corporation jointly developed the Form 5500 series in 1975 to allow private firms that sponsor benefit plans for their employees to report and satisfy ERISA and Code requirements. Most Form 5500s are filed for employee pension plans. Welfare plans with certain size and characteristics are exempt from reporting. Exceptions include plans with fewer than 100 participants, plans for highly compensated employees only, government plans, church plans, and overseas plans that serve mainly nonresident aliens.

I retrieve and download all available Form 5500 welfare plan filings data using the EFAST2 system of the DOL. To clean up the data, I first drop all retirement plans, direct filing entities, voluntary filings with fewer than 100 participants, and duplicate filings. I keep plans that indicate they are for health benefits, and therefore exclude stand-alone welfare plans for other non-health benefits such as dental, life insurance, and long-term disability. I aggregate plan level information to firm level using Employer Identification Numbers (“EIN”) reported in Form 5500. I then merge the Form 5500 data to Compustat universe using EIN as well as name match.

B.2. Imputation of Variables

How the plan is funded – whether fully insured, self-insured, or a mix of the two (mixed insured) – is not reported and must be imputed using available information. I follow the algorithm created by the Department of Labor and described in Form 5500 Group Health Plan Research File User Guide (“User Guide”) to sort plans into fully, mixed or self-insure. Generally speaking, if the per capita premium amount reported is below \$1,800¹⁴ or the filing indicates that the insurance policy could be for stop-loss coverage or payments to a third party administrator (TPA), and if the plan is funded through trust or general assets or reports benefit payments, then it will be treated as self-insured. Mixed insure is defined as plans that do not meet the requirements for self-insure; the number of individuals covered under insurance contracts as reported on Schedule A is less than half of the total number

¹⁴This is used in the User Guide, I also use 0.35 multiplied by the annual average single premium for robustness.

of participants as of the end of the plan year; the filing indicates that the plan is funded through a trust or general assets of the sponsor; or the filing has an attached Schedule H or I that indicates benefit payments. Fully insure is defined as plans that do not satisfy the above criteria. For firm-level funding status, if all plans of a firm are fully insured, then the firm is labeled as a fully insured firm; if all plans are self-insured, then the firm is self-insured; otherwise, the firm is mix insured.

For total premium, as suggested by the User Guide, the maximum of the values in the following items is used as the premium for that contract. Part I, 2(a), total amount of commissions paid; Part I, 2(b), total amount of fees paid; Part II, 6(b), premiums paid to carrier; Part III, 9(a)(4), earned premium; Part III, 9(b)(3), incurred claims; Part III, 9(b)(4), claims charged; and Part III, 10(a), total premiums or subscription charges paid to carrier. For total number of participants, I use the number of individuals covered under insurance contracts from Schedule A.

B.3. Broker-related Variables

The status of whether brokers are involved for an insurance contract can be found in Schedule A. For each Schedule A, it is required to report the name and address of all brokers and agents that receive commissions and fees via the insurance contract in Part I, 3(a). The total amount of commissions and fees paid are reported in Part I, 2(a) and (b). Total broker compensation on an insurance contract is calculated as the sum of Part I 2(a) and (b).