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Health-Insurer Bargaining Power and Firms' Incentives to Manage Earnings: Evidence from an Economic Shock

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Health-insurance premiums account for a significant portion of the cost base of U.S. corporations. A recent study finds that health-insurance premiums increase for firms that experience positive profit shocks (Dafny 2010), suggesting that the U.S. health-insurance market is not perfectly competitive. Motivated by this finding and the economic importance of health-insurance premiums, this is the first study to examine firms' earnings-management incentives in the face of insurance carriers with strong bargaining power. We use an innovative dataset for a large sample of U.S. firms with detailed information on insurance premiums and insurance-plan characteristics. Employing an economic shock to insurance firms' bargaining power and difference-in-differences tests, we find that firms manage their reported earnings downward when insurance providers have strong bargaining power. We further show that this effect is more pronounced in settings in which there are ex-ante reasons to expect stronger incentives to manage earnings downward. We also provide preliminary evidence suggesting that downward earnings management has the intended effect of mitigating future increases in health-insurance premiums. Our analyses highlight an inefficient health-insurance market as an important determinant of firms' financial reporting choices.

Key words: Health-insurance premiums; bargaining power; downward earnings management; non-investor stakeholders; exogenous shock

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Health-Insurer Bargaining Power and Firms' Incentives to Manage Earnings: Evidence from an Economic Shock

1. Introduction

The United States relies primarily on the private health-insurance market to intermediate health-care. The overall costs involved are substantial, both to the economy as a whole and to individual firms sponsoring their employees' health-insurance coverage. For example, overall U.S. health-insurance premiums reached $917 billion in 2012.[1] Additionally, the mean level of premiums paid by firms in our sample that have only fully-insured plans is 29% of net income. One of the main suggested benefits of a private health-care system is that it has the potential to be more efficient than a government-driven system because of increased competition. However, in a recent study, Dafny (2010) uses proprietary data to illustrate that firms that report positive shocks to profitability subsequently face higher health-insurance premiums. This evidence suggests that the U.S. health-insurance market is not perfectly competitive, as premiums appear to co-move with firm profits.[2] Dafny (2010) concludes that insurance companies have significant bargaining power to extract additional premiums above the competitive market rate when firms are more profitable. The economic importance of health insurance to U.S. companies and Dafny's findings provide the motivation for our study. Our primary interest lies in assessing firms' incentive to manage earnings *downward* when contracting with health-insurance providers that have the ability to extract above-market rents due to greater bargaining power.

[1] Relevant statistics are available at http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/highlights.pdf

[2] This conclusion is supported by evidence that U.S. health-insurance markets are concentrated and that there are often substantial barriers to entering these markets (Robinson 2004, 2006; Austin and Hungerford 2009).

We focus on firms with fully-insured plans and obtain firm-level health-insurance data from Form 5500 filings.[3] While this data source has not been employed much in research to date, it is used extensively by the Department of Labor (DOL) for supervising employers' compliance with ERISA, as well as for other purposes.[4] As explained further in Section 3 and Appendix A, considerable work is required to construct these "plan-level" data (using Schedule A of Form 5500) and to eventually match these data with COMPUSTAT firms. We use three different empirical proxies to measure firms' earnings management: two widely used accruals-based measures as well as a model-free proxy: restatements (i.e., if earnings are restated *upward* in future). In addition, we provide evidence using the first principal component of the three separate proxies.

For identification purposes, we measure insurance carriers' bargaining power by making use of a natural experiment. Specifically, we utilize the increase in bargaining power that ensues from the merger of two large health-insurance carriers. This merger represents an *exogenous shock* to insurance carriers' negotiation power and thus has the advantage of providing strong *causal* evidence. The intuition for this bargaining-power construct is that health insurers should experience an increase in bargaining power vis-à-vis their client firms when insurance-provider concentration increases due to an insurance-company merger. Motivated by prior research, we focus on the large merger between Aetna and Prudential Healthcare in 1999. By exploiting the differential impact across states of a national merger of these two health-insurance giants, we form

[3] We start the sample in 1999 as this is the first year Form 5500 is electronically filed. The Form 5500 Series is part of the Employee Retirement Income Security Act's (ERISA) overall reporting and disclosure framework, and is used by Department of Labor, plan participants and beneficiaries, Federal agencies, Congress, and the private sector in assessing employee benefit, tax, economic trends, and policies. For further details, please see http://www.dol.gov/ebsa/5500main.html.

[4] For example, the Employee Benefits Security Administration of the DOL generates the annual Group Health Plans Report based on Form 5500 (see http://www.dol.gov/ebsa/pdf/ACA-ARC2013.pdf). A joint work by the DOL and the U.S. Census Bureau has checked the quality of health-insurance data from Form 5500 and concludes that the data are representative of firms providing health plans (http://aspe.hhs.gov/hsp/05/admin-data-emp-ins/report.pdf).

a difference-in-differences test. We find a subsequent *increase* in income-decreasing discretionary accounting choices for firms housed in states where the health-insurance industry concentration significantly increased following the merger relative to firms in other states.

The multivariate analyses also include extensive controls motivated by prior research. We include seven standard earnings-management controls (e.g., size, leverage, net operating assets, etc.), four controls for other earnings-management incentives related to analysts and external financing, three plan-related characteristics, and *year, state, and industry* fixed effects. We find evidence consistent with the idea that employers have strong incentives to report lower profits (in a discretionary manner) when contracting with insurance companies that have greater bargaining power. Specifically, the estimated coefficients on the bargaining-power proxy are negative and statistically significant at the 0.05 level or better using two-sided tests. This finding holds using all three individual earnings-management proxies as well as the aggregate measure. The coefficients are also economically meaningful.[5]

We next examine cross-sectional variations in the net benefits of deflating earnings among our sample firms by partitioning the sample in various ways. We test whether the results are stronger in subsamples for which we have ex-ante reasons to expect greater net benefits of downward earnings management. In our first subsample test, we predict and find that the effects are only present for firms that are fully-insured but not for those that are at least partly self-insured. We further show that the effect is more significant for firms with high labor intensity. Finally, Fang and Gavazza (2011) document that employers exhibit fewer incentives to invest in workers' health when labor turnover is high. Thus, we expect that health insurers have less leverage over

[5] In additional analyses we show that our findings are also robust to using association tests for a much larger sample.

firms in which employee job tenure is shorter. Our results confirm this expectation. These partition tests also provide additional credibility to the primary findings.

While our primary interest is in exploring whether inefficiencies (i.e., a lack of competitiveness) in the health-insurance market are factored into firms' discretionary accounting choices, we further assess whether downward earnings management in a given period has the desired effect of lowering future health-insurance premiums. Prior research documents higher insurance premiums in states that experience significant increase in health-insurance industry concentration after the merger between Aetna and Prudential Healthcare (Dafny, Duggan, and Ramanarayanan 2012). We find that the increases in insurance premiums are indeed negatively associated with income-decreasing accounting choices. This result provides support for the notion that a manager's actions are successful in lowering future premiums and that health insurers cannot *fully* undo firm's management of earnings.

This is the first study to consider a firm's incentive to manage earnings in response to potential rent extraction from a health-insurance provider. More generally, there are relatively few extant studies that examine the motives associated with stakeholders in the health-care sector.[6] We also extend the economics literature on health-insurance premiums as, to date, the economics literature has not investigated accounting earnings and managers' incentives to manage earnings when firms contract with powerful health-insurance providers. Our paper fills that gap and complements prior research that documents evidence of price discrimination in the health-insurance market. Similarly, we add to research in health-care management by focusing on which actions managers take to reduce health-insurance premiums and also by exploring the effects of

[6] Christensen, Floyd, and Maffett (2015) and Floyd (2014) assess the impact of pricing disclosure regulation on the pricing choices of health-care providers. Note that, in contrast, our paper assesses *firm responses* to health-insurer pricing decisions.

managing earnings downward on future premiums. Finally, our results further complement the literature that looks at how differences in bargaining power in the supply chain can affect management incentives (see for example Kinney and Wempe 2002; Balakrishnan, Linsmeier, and Venkatachalam 1996; Hui, Klasa, and Yeung 2012).

The next section provides background on the health-insurance market and discusses the potential role of earnings management. We explain the data and the sample in Section 3, provide empirical findings in Section 4, and conclude in Section 5. Finally, Appendix A describes the health-insurance data we use and Appendix B contains definitions of all variables used in the empirical analyses.

2. Health-Insurance Markets and the Potential Role of Earnings Management

The United States relies heavily on the private insurance sector to intermediate health-care for its residents and private, employment-based systems provide insurance to most of the working-age population (e.g., Fang and Gavazza 2011).[7] According to a recent survey, employer-sponsored health insurance covers about 149 million non-elderly people, which represents 56% of the non-elderly population (Kaiser Family Foundation 2013). The assumption underlying this system is that fierce competition among private insurers will yield more efficient outcomes (Enthoven 1978). Nevertheless, the aggregate spending involved in the American health-care sector remains comparatively high. For example, when incorporating both private and public health-care expenditures, health-care costs equal roughly 17.9% of GDP in the U.S. over the period 2009 – 2013.[8] This level of spending represents the highest health-care cost expenditure expressed as a

[7] This has not changed with the recent "Affordable Care Act" legislation.
[8] http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS

percentage of GDP among developed nations.[9] Based on this evidence, one may question to what extent the U.S. private health-insurance market is actually competitive.

Prior studies observe characteristics of the U.S. health-insurance market that suggest less than perfect competition. Most importantly, research concludes that the health-insurance markets are both highly concentrated and have substantial barriers to entry (Robinson 2004, 2006; Austin and Hungerford 2009),[10] and that employers and their workers bear significant costs to switching health plans (Strombom, Buchmueller, and Feldstein 2002; Handel 2013; Cunningham 2013).[11]

In a novel study, Dafny (2010) tests for health-insurer behavior that should only occur in an imperfectly-competitive health-insurance market. Specifically, Dafny (2010) investigates whether firms with higher profits subsequently pay higher premiums. If the health-insurance industry is competitive, one would expect uniform pricing at employer-specific cost. In contrast, "direct price discrimination" is feasible only in imperfectly-competitive settings. In her study, Dafny uses a proprietary database of fully-insured health plans for large firms between 1998 and 2005. Her empirical tests rely on the insight that employers and insurers bargain annually over insurance contracts. In a typical case, contracts are signed three to six months prior to the start of the benefit year. She finds that firms that report *positive profit shocks* in one period, subsequently face *higher premium growth*, even for the same health plans. Her findings are robust to the inclusion of several control variables and to various econometric specifications. Dafny concludes

[9] http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS

[10] The Kaiser Family Foundation reports that in a median state, the largest three insurers accounted for a combined market share of 88 percent in 2012. The Department of Justice and Federal Trade Commission state that the difficulty to establish a large provider network and a large number customer base at the same time, the worse risk pool left for new entrants, and trade-name recognition inhibit entry (DOJ/FTC 2004).

[11] The switching costs include time spent learning about new plan benefits and claim reimbursement systems, identifying physicians who belong to the new plan's network, disruptions in care due to arranging new patient visits, and transferring medical records and prescriptions. Consistent with the existence of significant costs, Cunningham (2013) finds that only 7.5% of workers experience health-plan change due to employers changing plan offerings.

that her results challenge the assumption that U.S. health-insurance markets are highly competitive.[12]

We argue that this finding has potential implications for the strategic accounting choices of firms that contract with private health insurers. As we note above, health-care costs are a costly input of production for many firms. For example, prior to its restructuring in 2009, health-care costs at General Motors accounted for $1,500 of the cost base of every car it produced (Griswold 2005). In general, when the market for any input is perfectly competitive, the firm procuring the input should pay the same price irrespective of whether it experiences a positive or negative shock to its profits. That is, if a supplier in a perfectly-competitive input market attempts to raise its prices in response to a positive shock to a buyer's profits, the buyer, in turn, should be able to easily procure inputs from another supplier at the competitive market price. In this setting, input prices should not co-move with buyer profits, and buyers should have no incentive to manage earnings downward.

However, when the supplier market is highly concentrated or switching costs are borne by the buyer, a frictionless transition to another supplier that charges the competitive market price may not be possible (Cebul, Rebitzer, Taylor, and Votruba 2011). In these settings, as Dafny (2010) illustrates, an insurer can extract additional rents above the competitive market price following a positive shock to the employer's profits.[13] In such an environment, we posit that the buyer has an

[12] Dafny's findings complement those reported by Ho (2009) who finds that insurers successfully extract rents from hospitals in their networks. While the bargaining between insurers and hospitals is not the focus of this paper, studies by Krishnan (2001), Krishnan and Krishnan (2003), and Krishnan, Joshi, and Krishnan (2004) examine this issue.

[13] While state rate regulation affects charged premiums for property-casualty insurers, state regulators do not review or approve rates in health insurance for large employers (i.e., employers with more than 50 workers), which are the focus of our paper. See Corlette and Lundy (2010) for details.

incentive to manage earnings *downward* (or, alternatively to engage in less upward earnings management) in order to look less profitable.[14]

While we believe that evidence of this economic phenomenon constitutes a novel contribution, our study also contributes more broadly to the earnings management literature. First, we note that the bulk of the earnings-management literature assesses settings in which executives have an incentive to manage earnings *upward* for a variety of reasons including: incentives linked to equity compensation (Cheng and Warfield 2005), avoiding debt-covenant violations (DeFond and Jiambalvo 1994), and meeting or beating earnings targets (Degeorge, Patel, and Zeckhauser 1999). In contrast, there is a much smaller literature which investigates managers' incentives to manage earnings downward. Second, the majority of the earnings-management literature assesses incentives to manage earnings in response to shareholder or debtholder objectives (see examples above), with far fewer studies focusing on earnings management as a response to other stakeholder objectives.

Interestingly, the comparatively limited literature that assesses executives' incentives to manage earnings downward often intersects with the comparatively small literature that examines executives' incentives to manage earnings in response to non-investor stakeholder objectives. Examples include studies that focus on a manager's incentive to manage earnings when faced with rent extraction from an employee base (Liberty and Zimmerman 1985; Bova 2013; Dou, Khan, and Zou 2016), a competitor (Healy, Serafeim, Srinivasan, and Yu 2014), or a government regulator (Watts and Zimmerman 1978; Jones 1991; Cahan 1992; Key 1997). While health-

[14] We argue that a buyer may have an incentive to manage earnings downward irrespective of whether the health-insurance provider can undo the manipulation (Section 4.5 provides further discussion). Note that insurers do not necessarily have to literally read clients' financial statements in order for their perceptions to be shaped by reported earnings. Insurers' perceptions of client firms' profitability can also be influenced by information intermediaries (e.g., media, analysts, ratings agencies, etc.) who intensively use reported earnings.

insurance carriers represent an important stakeholder group as discussed above, their influence on firms' financial reporting has not been studied.

Taken together, given the comparatively limited prior research that assesses deflationary earnings management in general and earnings management in response to other stakeholder behavior in particular, we believe that our analysis provides an added contribution to the literature by highlighting an economic phenomenon at the intersection of these two research streams.

Building on our points above, we also note that the incentives to manage earnings upward appear to have increased over time. For example, two factors that provide managers with an incentive to inflate earnings – equity compensation and the market's fixation on earnings thresholds – have been increasing over time (Carter, Lynch, and Tuna 2007 and Brown and Caylor 2005).[15] Importantly, our sample period assesses an era in which both equity-based compensation as a percentage of total pay and the incentive to meet or beat earnings targets were comparatively high. Thus, our tests of downward earnings management may suffer from low test power, due to managers' strong incentives to inflate earnings upward over our sample period. As a consequence, if we document evidence of downward earnings management *despite* the potentially low power of our tests, this evidence would highlight an inefficient health-care market as a particularly important factor in determining managers' accounting choices.

A manager's incentive to manage earnings in one period in a particular direction is driven by the aggregate costs and benefits of managing earnings in that direction.[16] We argue that when

[15] Bowen, DuCharme, and Shores (1995) argue that firms may have an incentive to choose long-run income-increasing accounting methods when contracting with suppliers due to ongoing implicit claims (see also Dou, Hope, and Thomas 2013). However, these arguments are based on maintaining a good reputation with respect to paying short-term supplier obligations. We argue that implicit claims are not be as big an issue for firms that contract with a health-insurance provider, as firms typically *prepay* their health-care premiums as opposed to owe them after the service has been provided.

[16] Our empirical analyses include controls for known incentives to manage earnings.

a firm contracts with a powerful health-insurance provider, there may be additional benefits to downward earnings management or additional costs to upward earnings management. Conditional on our tests having sufficient power, we expect managers to deflate (inflate) earnings more (less) often when providers have significant negotiation leverage. Based on the discussion above, our primary hypothesis (in the alternative) is stated as:

H1: Ceteris paribus, firms that contract with more powerful health-insurance providers have more incentives to manage earnings downward.

In this hypothesis, we do not posit that firms will *always* manage earnings downward as such a strategy may be impractical given the possible accrual reversals[17] and insurer bargaining power is not time-invariant. Rather, we test a client firm's propensity to manage earnings over a *specific* period where we argue that the firm experiences an exogenous shock to insurer bargaining power.

Next, we consider that the incentives to engage in downward earnings management may differ across firms depending on the aggregate net benefits of manipulating earnings. First, we expect the incentives for income-decreasing earnings management to be different for firms that self-insure at least a portion of their health-care costs, relative to firms that fully-insure all of their health-care costs. Firms with self-insured plans pay realized costs of care out of operating funds, and some large employers choose to self-insure at least part of their health-care obligations.[18] Such

[17] For example, while the recognition of revenue can be deferred to future periods, it cannot be deferred forever. Thus, downward earnings management in a current period must be reversed in a future one, and managers cannot suppress profits indefinitely. This is an advantage of our short-window exogenous shock test.

[18] Employers may also save state premium tax which is only levied on premiums paid to insurers (Ke, Petroni, and Shackelford 2000).

employers can spread risk across large pools of enrollees and may purchase stop-loss insurance to limit their remaining exposure (Lenhart 1995). Initiating self-insured plans requires substantial investment in building up the in-house insurance system, recruiting a third party administrator, and constructing a network of providers. We argue that when a firm self-insures at least a portion of its health-care costs, it should in turn be subject to lower switching costs, because it should be easier to switch from a plan administered by a price-setting health-insurance provider to an in-house (and often low-cost) self-insured plan. As we note above, higher switching costs lead to greater provider bargaining power, and greater bargaining power increases the incentives for firms to manage earnings downward. Thus, we expect employers who self-insure at least a portion of their health-care costs to have *fewer* incentives to engage in income-decreasing behavior, relative to their counterparts who fully-insure all of their health-care obligations.

Second, we predict that incentives to reduce reported profits will be higher for firms in which labor intensity is higher. We measure labor intensity as the ratio of total labor compensation to the total value of production. As labor becomes a more important input in to production, firms' health-care considerations should also become more important. Conversely, as a firm becomes more automated, firms should be less concerned about compensatory issues. For these reasons, we argue that switching health-insurance providers is more costly when labor intensity is higher. Thus, we posit that firms with greater labor intensity should have an increased incentive to manage earnings downward.

Third, we examine the role of employee tenure. Short-term employees are much less likely to be covered by health-insurance plans because *future* employers reap the benefit of a current employer's investment in health-care when employee turnover is high (Fang and Gavazza 2011). As a result, the firm-borne switching (or even termination) costs of changing health-insurance

providers should be *smaller* for firms in which employees have a shorter tenure, as these firms have a reduced incentive to provide health-care benefits in the first place. Thus, we expect that firms where employees have lower job tenure should also have a reduced incentive to manage earnings downward. We summarize these predictions as our second hypothesis (stated in the alternative):

H2a: Ceteris paribus, the incentive to manage earnings downward (in the face of powerful health-insurance providers) is greater for firms without self-insured plans.

H2b: Ceteris paribus, the incentive to manage earnings downward (in the face of powerful health-insurance providers) is increasing in firms' labor intensity.

H2c: Ceteris paribus, the incentive to manage earnings downward (in the face of powerful health-insurance providers) is increasing in employee tenure.

3. Data, Sample, and Descriptive Statistics

3.1 Data and Sample

There is considerable work associated with extracting and creating our health-insurance related dataset. First, our sample includes only firms that have at least one fully-insured plan. As explained in greater detail in Dafny (2010, 1402-1403), fully-insured premiums depend on actual risks, the type and degree of benefits included, and insurance-carrier characteristics including overall reputation. In contrast to Dafny (2010), we do not have access to proprietary data. However, we are able to create a data set by making use of the detailed information contained in Form 5500 filings for the period 1999 - 2011. Appendix A provides the details of this data collection and Appendix B explains how all variables are measured. To identify the effect of insurer bargaining

power, we focus on a short window (1999-2000) around a merger of two large health insurance companies.

3.2 Exogenous Shock to Bargaining Power

We motivate our health-insurance provider bargaining-power measure from insights in the health-economics literature.[19] We utilize the merger of two large health insurers as an exogenous shock to health-insurer bargaining power. As the health-insurance supplier market becomes more concentrated, the remaining suppliers in the market should increasingly wield greater market power over their respective buyers. Consistent with this intuition, Dafny et al. (2012) demonstrate that employers in states with higher concentration after the merger pay more health insurance premiums; Dafny (2010) shows that the relation between lagged profits and future premiums (and implicitly, health-insurer bargaining power) is larger, the more concentrated the market structure.

Following Dafny et al. (2012), we exploit the 1999 merger of two industry giants, Aetna and Prudential Healthcare. As this event generates heterogeneous increases in local market concentration, we first identify states with large pre-merger shares of the two merging firms. Specifically, we calculate the simulated change in the Herfindahl-Hirschman index (HHI) as per Dafny et al. (2012, equation 2). In their horizontal merger guidelines, the U.S. Department of Justice and the Federal Trade Commission consider that mergers resulting in an increase in the HHI of more than 100 points raise significant competitive concerns. We identify seven states (including Texas) whose simulated changes in HHI cross the threshold of 100 points.[20] However,

[19] This literature illustrates that provider bargaining power arises because either (1) the provider maintains a monopolistic position to its clients, or (2) the employer is reluctant to switch plans due to high switching costs (Wholey, Feldman, and Christianson 1995; Austin and Hungerford 2009; Dafny 2010; Cebul et al. 2011; Cunningham 2013).

[20] The six other states are California, the District of Columbia (considered a "state" for this purpose by the Department of Justice), Florida, Georgia, Ohio, and Maryland. Note that these states are not all

as the regulators required Aetna to divest its Texas-based HMO businesses as part of the merger, we exclude Texas from this list. We use our sample firms in 1999-2000 and create an indicator variable equal to one for firms headquartered in these six states in 2000, and zero otherwise (*CARRIERMA*).

Note that Compustat reports a firm's current rather than historical headquarter location, and ignoring this source of measurement error could introduce bias (Heider and Ljungqvist 2015). Consequently we search each firm's 10-K report via EDGAR for its headquarter address. We then use the 1999 sample of firms that use fully insured plans (excluding firms in Texas) to estimate a probit model, in which the dependent variable indicates firms in the six states and the explanatory variables include all firm characteristics as detailed below. Then each treatment firm (i.e., firms in the six states) is matched with a control firm from other states based on the propensity score. If the distance in score between a treatment firm and the closest control firm is greater than 0.01, we delete the whole pair. This yields a matched sample with 229 treatment firms and 229 control firms for two years (i.e., 916 observations). The quality of matching is assessed in Section 3.4.

For this sample of 916 observations in 1999 and 2000, we regress our earnings-management variables on *CARRIERMA*, all controls, and year, state, and industry fixed effects. This specification represents a *difference-in-differences* approach, as we assess the incentives to manage earnings for contracting firms from these six states both before and after the merger *and* vis-à-vis their peers that are headquartered in other states over the same time period. Because we

geographically close to each other. This geographic dispersion increases the likelihood that firms in these six states: (1) have fundamentally different economic drivers, and (2) are affected by different sorts of exogenous shocks to their respective markets (i.e., droughts, hurricanes, etc.). Thus, we argue that the geographic dispersion between firms from these six states further mitigates the likelihood that there is some macroeconomic factor that is common to these six states in the year 2000 and driving lower earnings management in 2000.

include state and year fixed effects, *CARRIERMA* captures a factor that is related to the change in all six states, but that is orthogonal to any state-specific and time-specific factor.[21]

3.3 Regression Model, Earnings-Management Proxies, and Control Variables

Our empirical analyses are based on different versions of the following regression model (where *EM* refers to one of the four downward earnings-management proxies):

$$EM_{i,t} = \alpha_0 + \beta_1 CARRIERMA + \alpha_n Control_{n,i,t} + \varepsilon_{c,i} \quad (1)$$

We assess three individual earnings-management proxies as well as an aggregate measure. First, we consider a directional version of the Dechow and Dichev (2002) accrual measure (*MDDAAC*) (McNichols 2002). Next, we use the Kothari, Leone, and Wasley (2005) measure of performance-matched discretionary accruals (*KMJAAC*). Third, as a model-free proxy we employ *RESTATED*, which is an indicator variable equal to one if earnings of that year are restated *upward* in future, otherwise zero. Finally, we provide results using an aggregate measure of earnings management (*EM*) by taking the first principal component of *MDDAAC*, *KMJAAC*, and *RESTATED*.

Our first set of controls are intended to capture normal variations in accounting outcomes and consists of log of total assets (*LNTA*), tangible assets as a percentage of total assets (*TANG*),

[21] As Dafny et al. (2012) suggests, when competition *decreases* for input suppliers (i.e., health insurers), the remaining input suppliers should accrue increased pricing power provided the products they are offering are differentiated in some way. Thus, in our setting, bargaining power should increase for insurers in the six states most affected by the Aetna merger, because the market for health insurance becomes more concentrated (i.e., less competitive). This increase in insurer bargaining power should occur even if a client firm in one of the six states uses an insurance carrier *other* than the merged Aetna entity. This outcome arises because the client firm has fewer options to transfer to another insurer, which leads to switching costs for client firms are greater market power for insurers.

market-to-book ratio (*MB*), leverage (*LEV*), operating cash flows divided by total assets (*CFO*), number of participants divided by total number of employees *(EMCOV),* cash-flow volatility (*CFOVOL*), and net operating assets at the beginning of the year (*LAGNOA*). *LAGNOA* accounts for the reversal of managed earnings in prior periods (Barton and Simko 2002; Baber, Kang, and Li 2011).

Next, prior literature on earnings management extensively investigates the incentives associated with stock-market effects, sell-side financial analysts, and the need for external financing. Accordingly, we include annual stock returns (*ARET*), log of analyst coverage (*LNAF*), equity issuance (*ISSUEEQ*), and debt issuance (*ISSUEDEBT*). Additionally, we include three plan characteristics that should impact the premiums charged to employers: indicators equal to one for the presence of HMO contracts (*HMO*), PPO contracts (*PPO*), and indemnity contracts (*INDEM*), and zero otherwise.[22,23]

3.4 Descriptive Statistics

Given that we rely on difference-in-differences tests using treatment states and control states, in Table 1 we provide descriptive statistics on important macroeconomic conditions in these states in both pre-event and event-period years. Specifically, we compare GDP growth rates, unemployment rates, stock returns aggregated at the state level, and stock-return volatility. Importantly, we find no meaningful differences between treatment and control states, suggesting

[22] In terms of restrictiveness of the provider network for each plan, the order of these plans is: Indemnity (all providers covered), PPO (preferred providers fully covered, non-preferred providers covered in part), and HMO (care is managed and preferred providers are fully covered).

[23] As mentioned the model includes state fixed effects. We also include industry fixed effects in all of our models, as the relation between earnings management and insurer bargaining power may be related to industry characteristics (e.g., certain industries may use more human capital). Finally, we include year fixed effects in all of our models to control for temporal effects.

that our difference-in-differences analyses should be able to capture causal effects and not be confounded by other changes occurring around the same time. We present descriptive statistics for treatment and control firms in the pre-event year (i.e., 1999) in Table 2 Panel A, and find that they are statistically indistinguishable, suggesting that the matched sample is balanced. Summary statistics for all variables used in regressions are presented in Table 2 Panel B.

4. Empirical Results

4.1 Tests of H1: Exogenous Shock to Bargaining Power (Difference-in-Differences Test)

Table 3 contains the findings from our primary tests. The adjusted R^2s range from 20.5% for *RESTATED* to 53.3% for *KJMAAC*. More importantly, in all four columns, an exogenous increase in bargaining power (*CARRIERMA*) is significantly associated with downward earnings management (at the 0.05 level, using two-tailed tests). These results provide support for H1 that firms have strong incentives to engage in discretionary income-decreasing accounting choices when their health-insurance carriers have relatively strong bargaining power. Most importantly, these findings provide evidence of a *causal link* between bargaining power and earnings management. The coefficients are also economically meaningful. For example, the consolidation event decreased abnormal accruals by 13% of the standard deviation for *KJMAAC* for firms in the six affected states.[24,25] Several of the control variables are also statistically significant. For example,

[24] Alternatively, the event reduced abnormal accruals by 1% of total assets when using *KJMAAC* as the earnings-management proxy.

[25] As an additional gauge of economic significance, we compare the effect of our test variable to that of firm size, arguably one of the most important control variables. Since our test variable is dichotomous, for the purpose of this comparison we consider the change from minimum to maximum for LNTA (a continuous variable). In Column 4 of Table 3, the min-max change is 9.21 for LNTA, which translates into 9.21×0.07=0.6447 impact on EM. The coefficient on our test variable is 0.256, which is considerable in comparison to 0.6447.

TANG and *ARET* are both positive and significant, whereas *CFOVOL* is negative and significant for most earnings-management proxies.[26]

Overall, we conclude that the evidence suggests that there are strong incentives for firms to engage in downward earnings management when contracting with insurers that potentially have the power to charge high premiums due to their market power. Our empirical evidence suggests that firms react to such perceived bargaining power by using discretionary accounting choices to reduce their reported profitability. For brevity, in all following tests we use *EM* as our proxy for earnings management.

4.2 Firm Fixed Effects, Longer-Window Tests, and Falsification Tests

In Table 4, we first provide results using the "traditional difference-in-differences" specification. In this regression, *TREAT* refers to one of the affected states and *POST* refers to the time period following the merger. Column 1 reports results and we observe a negative and statistically significant estimated coefficient on *CARRIERMA*, thus supporting our hypothesis. In column 2, we re-run our analysis with *firm and year fixed effects* and our inferences continue to hold even in this strong econometric specification that controls for time-invariant firm characteristics.

Next, Dafny et al. (2012, 1173) discuss how the increase in insurance-carriers' negotiation power dissipated over time because "employers to some extent substituted away from Aetna and Prudential in the wake of the merger." Consistent with this idea, they show that the increase in the Herfindahl index concentrated in 2000-2001 and dissolved over time. If this is the case, we should

[26] There is no indication of any serious multicollinearity in our empirical tests. For example, the largest Variance Inflation Factor in Table 3 is 3.22. Nonetheless, we rerun all regressions after excluding one control variable at a time and our conclusions do not change.

observe that earnings management disappears after 2001. We follow Bertrand and Mullainathan (2003), and use a longer-window design which we label *TREAT1999 – TREAT2003.* The sample spans 1998-2003. Specifically, we need 1998 as the baseline year so that *TREAT1999* can be used to test parallel pre-trends. As shown in Table 4, column 3, our results are not driven by non-parallel pre-trends and are consistent with the prediction regarding the timing of the effect.

In Table 4, column 4, we replace *CARRIERMA* with a continuous measure (*CARRIERMAHHI*) that captures the change in simulated HHI in 2000 (and zero otherwise – that is, zero for control firms throughout and treatment firms in 1999). We continue to find a positive effect of this continuous measure. We employ the binary variable as our primary measure to better capture meaningful impacts of the merger because the U.S. Department of Justice and the Federal Trade Commission actually use the cutoff point of 100 points to identify merger cases that raise competitive concerns. This binary variable also helps mitigate endogeneity concerns following arguments made in Dafny et al. (2012) for health-insurance markets and arguments in Hentschel and Kothari (2001) for broader settings.[27]

In column 5 of Table 4, as an additional sensitivity analysis, we make use of the regulatory details related to the merger and provide a *placebo* analysis. In particular, we examine the effect of the merger in Texas alone. The Department of Justice required the combined Aetna-Prudential Healthcare to cede customers to its rivals in Texas, thus the competition-reducing effects were not felt in that state. Using the same matching procedure, we identify 28 treatment firms in Texas and 28 control firms in other states. When we rerun the analysis after replacing *CARRIERMA* with

[27] As Dafny et al. (2012) suggest, differences in market concentration across various markets may arise due to outcomes that are not exogenous to premiums. For example, if a market has an economy that is not doing well, customers may purchases products more exclusively from low-cost providers. This leads to higher market concentration, but a *reduced* ability to charge high market premiums. Hentschel and Kothari (2001, 109) argue that crude partition less likely picks up the endogenously determined variation in test variables.

TEXAS2000, we find that the latter is *not* significant. This analysis provides further comfort that we are indeed picking up an increase in bargaining power by using the merger as a natural experiment.

4.3 Tests of H2

In this section, we analyze whether the documented effect of greater downward earnings management is more pronounced in subsamples in which there are ex-ante reasons to expect the results to be stronger.[28] In particular, we consider variations in the net benefits associated with downward earnings management in the face of a health-insurance carrier with strong bargaining power.[29]

We first examine the role of self-insured plans (H2a). Recall that the bargaining-power arguments do not apply to such plans, and that the existence of self-insured plans suggests lower switching costs. To conduct the test, we collect information from Form 5500 and require the same three conditions as described in Appendix A (second paragraph).[30] We retain forms indicating that the funds and benefits are from general assets or trusts (i.e., self-insured plans that draw funds to pay costs from general assets or trusts). Finally, we match these observations to our sample firms via their EIN number. Based on this new merged dataset, we partition our existing sample into two groups: those firms that self-insure at least a portion of their health-care obligations and those that do not use self-insured plans (i.e., all of their health-care obligations are fully insured by a health-

[28] In these analyses, we test for statistical differences across subsamples using Seemingly Unrelated Regressions (Stata command suest).

[29] To assess the independence among our partitioning analyses, we calculate pairwise correlation coefficients within these three partitioning variables. The magnitudes of these correlation coefficients are below 0.1.

[30] To be precise, as explained above, our sample includes all the firms that file fully-insured plans via Form 5500. Among these firms, consistent with Dafny (2010) some also report self-insured plans. We thus partition our sample firms based on whether a self-insured plan is reported on Form 5500.

insurance provider). Table 5 tabulates the results. We find strong evidence of a negative and significant coefficient on *CARRIERMA* when the firm has *no* self-insured plans. In contrast, consistent with our predictions, there is *no* significant relation for firms that self-insure at least a portion of their health-care obligations.

Next, recall that we predict that incentives to reduce reported profits should be higher for firms in industries with higher labor intensity than for firms with lower labor intensity (H2b). For this purpose, we use data from the Bureau of Labor Statistics to calculate the ratio of total labor compensation to the total value of production at the three-digit NAICS-year level**.** We choose the median of this variable as the partitioning cut-off. The evidence reported in Table 6 indicates that, consistent with our hypothesis, firms that rely more on people as opposed to other inputs exhibit stronger income-decreasing behavior in the face of increased insurance-company bargaining power.

Finally, to test the impact of employee tenure (H2c), we obtain the job-separation rate at the two-digit NAICS-year level from the Bureau of Labor Statistics (the three-digit NAICS-year level data are not available) and use the median to partition the sample. Table 7 shows that, consistent with expectations, the income-decreasing effect is found only for the subsample of firms from industries with longer job tenure.

Overall, these results provide support for H2a-c and also further strengthen the inferences from our primary analyses (H1) in that we find stronger results in subsamples for which we expect the relation between earnings management and bargaining power to be greater.

4.4 Additional Analyses: Using a Much Larger Sample of Firms (Untabulated)

As explained, we base our inferences on an exogenous shock to insurance-carriers' bargaining power to avoid endogeneity issues and to enable us to make causal inferences. However, large-sample association tests have the potential to generalize the results found using the economic shock. For this purpose we use a large sample of firms with fully-insured plans over the period of 1999 – 2011 (10,930 firm-year observations). To proxy for insurance-carriers' bargaining power we use a relative size measure. This measure proxies for the bargaining power of the supplier (health-insurance provider) *relative* to the buyer (the employer) at the state level. Alternatively, we measure the variable at the national level. Using either proxy, we find strong and consistent evidence that firms engage in downward earnings management when facing health-insurance carriers with strong bargaining power (untabulated). We also find strong support for the cross-sectional hypotheses. These results help generalize the findings using the exogenous shock.

4.5 Additional Analyses: Consequences of Earnings Management for Future Premiums

In this study, our interest lies primarily in examining firms' *incentives* to manage earnings downward when health-insurance carriers' bargaining power are high. However, as an additional analysis we also explore whether such intervention into the financial reporting system has the intended effect of reducing future premiums. Specifically, we test whether increases in premiums after the merger associate negatively with downward earnings management.

Importantly, we note that if health-insurance providers can undo employer earnings management, then downward earnings management in one period may have *no* impact on lowering premiums in a subsequent period. Thus, we do not have a strong ex-ante prediction about the test's outcome. Nevertheless, we note that there may be incentives for employers to manage earnings downward *irrespective* of whether health-insurance providers can see through the manipulation or not.

First, we argue that it is plausible that health-insurance providers cannot fully undo earnings management. While it may be reasonable to suggest that providers should be relatively sophisticated users of financial statements, there is evidence that other sophisticated users, such as investors, are at least partially "fooled" by managers' attempts to manipulate earnings (e.g., Sloan 1996; Xie 2001). More broadly, many of our earnings-management proxies (e.g., write-downs) are generated using opaque inputs, so it is not clear that any market participants could undo these sorts of manipulation. Second, relative to other stakeholders that contract with the firm, (e.g., creditors), health-insurance provider contracts do not typically include provisions or covenants based on accounting numbers. Thus, providers may have a reduced incentive to assess, for example, the inputs that go into net income. When providers cannot fully undo earning management, downward earnings management should arise in equilibrium, and downward earnings management in one period should reduce premiums in a future one.

Second, even if health-insurance providers can fully undo an employer's manipulations, it is still possible that employers will engage in downward earnings management. For example, in a signal-jamming model, Stein (1989) posits that managers may still have an incentive to manage earnings upward even if the market expects them to do so, provided the market cannot observe the true earnings and anticipates such earnings management. In this setting, firms are punished for not

inflating earnings because the market expects them to do so. Thus, a comparable outcome may arise. Specifically, if insurers expect employers to manage earnings downward, then health-insurance providers might charge *even* higher premiums than they would otherwise, if employers fail to manage earnings. Accordingly, downward earnings management in one period should *not* reduce premiums in a future period, however the employer should *still* have an incentive to manage earnings downward in equilibrium.

Taken together, our consequences analysis provides for a joint test of the role of reported earnings and whether insurance companies are able to undo earnings management. We present the test results in Table 8. In this test, we create an indicator variable (*Downward EM*) equal to one for *EM* below the median, zero otherwise. Consistent with Dafny et al. (2012), the dependent variable is the log of next year's premiums per participant. We find a significantly positive main effect of *CARRIERMA*, consistent with Dafny et al. (2012). More importantly, the interaction between *CARRIERMA* and *Downward EM* is negative and statistically significant (at the 0.05 level using a two-sided test). The sum of the coefficients on *CARRIERMA* and *CARRIERMA*×*Downward EM* is not statistically significant. This result suggests that downward earnings management indeed mitigates the increase in healthcare premiums. These findings suggest that firms' opportunistic reporting behavior pays off in terms of reductions in premiums paid to insurance companies. The results also imply that health-insurance providers do not or cannot fully undo management's discretionary reporting behavior.

5. Conclusions

This is the first study to investigate the role of health-insurance carriers' bargaining power on firms' earnings-management decisions. Specifically, based on the facts that health-care costs

are highly material for U.S. firms and that prior research concludes that the U.S. health-insurance market is less than fully competitive, we are interested in firms' incentives to manage earnings when facing health-insurance providers with strong bargaining power. Our primary hypothesis is that such bargaining power provides incentives for firms to engage in downward earnings management. We further explore whether this hypothesized effect is greater when the expected net benefits to downward earnings management are higher.

Extracting firm-level health-care data from Form 5500 and making use of an exogenous shock to insurance-carriers' bargaining power based on a merger between two of the largest suppliers, we find evidence suggesting that firms are motivated to make discretionary profit-reducing accounting choices when the health-insurance carriers have relatively high negotiation power. Given our identification strategy we believe we provide relatively strong evidence of a causal link.

We further find that the relation only exists when all plans of a firm are fully-insured, but not when some plans are self-insured. In addition, the relation strengthens when labor intensity is higher and for firms in which job tenure is longer. In other words, the effect is stronger in subsamples in which there are ex-ante reasons to expect the results to be more pronounced. In additional analyses we test whether downward earnings management achieves the intended outcome of reducing future health-insurance premiums and find corroborative empirical evidence.

We contribute to the literature by focusing on a novel non-investor stakeholder in determining earnings management. Our study further adds to extant research by employing an interesting and useful data source (Form 5500) which has been underutilized in accounting research to date. Finally, our results may point to additional societal costs related to imperfect competition in the health-care market. The frequently cited cost of an inefficient private health-

care market is that it allows for providers to price discriminate. This ability to price discriminate leads to cost inefficiencies for employers, and a reduction in total welfare for the economy. Our findings suggest that *additional* costs to society may accrue following employers' attempts to reduce inefficiencies in the health-care market. Specifically, to the extent that inefficiencies in the health-insurance market cause managers to manage earnings downward, employers (and their shareholders) may also be worse off than if health-insurance markets were perfectly competitive, as managing earnings downward is costly. For example, downward earnings management may have a negative impact on the firm's accounting quality, stock price, or cost of capital. Thus, our results imply that an uncompetitive health-insurance market may generate additional costs for society, above and beyond those traditionally discussed. As we do not assess these additional costs directly in our analyses, we leave their assessment for future research.

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Appendix A: Health-Insurance Data Used in this Study

The Employee Retirement Income Security Act (ERISA) requires companies that sponsor employee benefits plans with 100 or more participants to annually report details on such plans on a Form 5500. The Form 5500 consists of a main form and a number of schedules, depending on the type of plan. Our dataset spans the 1999 – 2011 time period. We start in 1999 as this is the first year Form 5500 was electronically filed.

We start by downloading all the Forms 5500 via http://www.dol.gov/ebsa/foia/foia-5500.html#1999. Following guidance from Department of Labor (page 5 of http://www.dol.gov/ebsa/pdf/2010-5500-researchfileuserguide.pdf), we require (1) welfare feature code contains "4A" indicating a health (other than vision or dental) form; (2) single-employer plans; and (3) non-collective bargained plans. The data are at the form (i.e., "aggregated plan") level. Firms tend to aggregate health plans into one form to ease the filing process. For example, IBM filed only three health "aggregated plans" (forms) in 2010 through Form 5500. At the aggregated plan level, we have access to the following variables: aggregated plan beginning date, aggregated plan ending date, sponsor name, sponsor EIN, sponsor headquarter location, number of employee participants, number of active (non-retirement) employee participants, funding arrangement, and benefit arrangement. We then focus on forms likely containing fully-insured plans by requiring that the funding or benefit arrangement is through insurance, because the arguments regarding bargaining power do not hold for self-insured plans. As a Form 5500 could include multiple plans, some of which may not be a fully-insured health plan, we do not use data on the number of (active) employee participants from the form.

Next, to extract individual insurance contract (i.e., plan) information, we download Schedule A, which only applies to fully-insured plans as opposed to self-insured plans.[31] Again, following the guidance from the DOL, we select all Schedule A's attached to the Form 5500 and require Line 7 of Schedule A to indicate either Health contracts, HMO contracts, PPO contracts, or Indemnity contracts. Usually, each Schedule A indicates a contract or corresponds to one carrier (i.e., companies can aggregate multiple contracts signed with the same carrier and file one Schedule A). We assume each Schedule A indicates one contract. At the contract level, we know sponsor name, sponsor EIN, carrier name, carrier EIN, contract beginning date, contract ending date, number of persons covered, total premiums paid, welfare features (among health, HMO, PPO, and Indemnity). All the characteristics of fully-insured plans used in the paper are extracted from Schedule A.

Finally, we match all the qualified Schedule A entries to Compustat via sponsor EIN. For our empirical analyses, we aggregate all the contract information to the *firm level*.

[31] Schedule A must be attached to the Form 5500 filed for every defined-benefit pension plan, defined-contribution pension, and welfare-benefit plan, if any benefits under the plan are provided by an insurance company, insurance service, or other similar organization (such as Blue Cross, Blue Shield, or HMO). This includes investment contracts (such as guaranteed investment) and insurance contracts (only for fully-insured contracts, see http://www.dol.gov/ebsa/pdf/ACASelfFundedHealthPlansReport032811.pdf). Information on self-insured plans through trusts is filed on Schedule H or I.

Appendix B: Variable Definitions

Variable	Definition	Source
Earnings-Management Variables		
MDDAAC	The residuals from the Dechow-Dichev (2002) model modified by McNichols (2002). We estimate the following regression for each three-digit SIC industry with more than 30 observations: $Accruals_t = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta Sales_t + \beta_5 PPE_t + \varepsilon_t$, where $Accruals_t$ is income before extraordinary items (ib) minus operating cash flows (oancf), and CFO_t is operating cash flows (oancf) in year t. $\Delta Sales_t$ is the change in sales (sale) from the previous year to the current year, and PPE_t is the end of year property, plant and equipment (ppegt).All variables are scaled by lagged total assets (at).	Compustat
KMJAAC	The abnormal accruals from equation (2) minus the abnormal accrual of a matching firm, where the match is from the same two-digit SIC and year and has the closest prior year return on assets, defined as prior year net income (ni) divided by lagged total assets. The abnormal accruals are the residuals from the following regression for each three-digit SIC industry with more than 30 observations: $Accruals_t = \alpha + \beta_1 (\Delta Sales_t - \Delta REC_t) + \beta_2 PPE_t + \varepsilon_t$, (2) where $Accruals_t$, $\Delta Sales_t$, and PPE_t are defined in the same way as above, and ΔREC_t is the difference in accounts receivable (rect) from the start to the end of the year. All variables are scaled by lagged total assets.	Compustat
RESTATED	The indicator equal to one if earnings of that year are restated upward in future, and zero otherwise	Audit Analytics
EM	The principal component of *MDDAAC*, *KMJAAC*, and *RESTATED*.	
Shock Variable		
CARRIERMA	An indicator equal to one for firms headquartered in Florida, California, D.C., Georgia, Ohio, and Maryland in 2000; zero otherwise. The six states experienced changes in HHI of carrier market shares greater than 100 points, due to the merger of Aetna and Prudential Healthcare in 1999.	Form 5500
TEXAS2000	An indicator equal to one for firms headquartered in Texas in 2000; zero otherwise.	Form 5500

TREAT1999	An indicator equal to one for firms headquartered in Florida, California, D.C., Georgia, Ohio, and Maryland in 1999; zero otherwise.	
TREAT2000, TREAT2001, TREAT2002, and *TREAT2003* is defined in the same fashion.		
CARRIERMAHHI	The change in simulated HHI of carrier market shares due to the merger of Aetna and Prudential Healthcare in 2000; zero otherwise.	Form 5500
Firm Variables (Control Variables)		
LNTA	Log of total assets (at).	Compustat
TANG	Tangible assets following Berger, Ofek, and Swary (1996), calculated as (che + 0.715×rect + 0.547×invt + 0.535×ppent)/at.	Compustat
MB	Market-to-book ratio ((at+mkvalt-ceq-txdb)/at)	Compustat
LEV	Debt in current liabilities (dlc) plus long-term debt (dltt) scaled by total assets (at).	Compustat
CFO	Operating cash flows scaled by total assets (oancf/at).	Compustat
EMCOV	Number of participants divided by total number of employees	
CFOVOL	Standard deviation of operating cash flows scaled by total assets (oancf/at) over the past five years.	Compustat
LAGNOA	Net operating assets (seq-che+dlc+dltt) scaled by total sales (sale), lagged by one year.	Compustat
ARET	Annual stock returns over the year.	CRSP
LNAF	Log of one plus the number of analyst following.	I/B/E/S
ISSUEEQ	The increase from year t to year t+1 in equity capital (ceq+caps+pstkl-tstk) scaled by total assets (at). If this calculation yields a negative number, we replace the value with 0 (Carter et al. 2007).	Compustat
ISSUEDEBT	The increase from year t to year t+1 in debt capital (dlc+dltt) scaled by total assets (at). If this calculation yields a negative number, we replace the value with 0 (Carter et al. 2007).	Compustat
Plan Variables (Control Variables)		
EMCOV	Number of participants in all plans, scaled by total number of employees.	Form 5500
HMO	An indicator equal to one for the presence of a HMO plan; zero, otherwise.	Form 5500
PPO	An indicator equal to one for the presence of a PPO plan; zero, otherwise.	Form 5500
INDEM	An indicator equal to one for the presence of an indemnity plan; zero, otherwise.	Form 5500

Partition Variables (H2)		
Self-Insurance	Any sample firm that also self-insures at least a portion of its health-care obligations.	Form 5500
Labor Intensity	The ratio of total labor compensation to the total value of production at the three-digit NAICS-year level.	Bureau of Labor Statistics
Job Tenure	The inverse of the job-separation rate at the two-digit NAICS-year level.	Bureau of Labor Statistics
State Variables		
GDP growth	State-level GDP growth rates.	Census Bureau
Unemp rate	State-level unemployment rates.	Bureau of Labor Statistics
State stock rets	Value-weighted average annual stock returns of firms headquartered in a state.	Compustat/CRSP
State stock ret volatility	The standard deviation of annual stock returns of firms headquartered in a state.	Compustat/CRSP

Table 1: State-Level Economic Characteristics Around the M&A of Aetna and Prudential

	Treatment States			Control States			
	Pre-event year mean (1)	Event year mean (2)	Diff. (2)–(1)	Pre-event year mean (3)	Event year mean (4)	Diff. (4)–(3)	Diff in Diff [(2)–(1)] – [(4)–(3)]
GDP growth$_t$	1.073	1.061	-0.012	1.057	1.061	0.004	-0.016
t-stats.	.	.	-1.117	.	.	0.931	-1.198
Unemp rate$_t$	4.583	4.250	-0.333	4.044	3.831	-0.213	-0.120
t-stats.	.	.	-0.578	.	.	-1.040	-0.200
State stock rets$_t$	0.684	0.576	-0.108	0.574	0.596	0.022	-0.131
t-stats.	.	.	-0.244	.	.	0.067	-0.138
State stock rets$_{t-1}$	0.362	0.625	0.263	0.233	0.391	0.159	0.104
t-stats.	.	.	0.917	.	.	1.678	0.370
State stock ret volatility$_t$	0.049	0.060	0.010	0.047	0.054	0.007	0.003
t-stats.	.	.	1.626	.	.	3.320	0.545

The table presents means of state-level economic characteristics of treatment and control states in the event year and the pre-event year. Treatment states are states that experienced changes in HHI of carrier market shares greater than 100 points, due to the merger of Aetna and Prudential Healthcare in 1999, including Florida, California, D.C., Georgia, Ohio, and Maryland. Control states include all other states. Event year is 2000 and Pre-event year is 1999. *GDP growth* is the state-level GDP growth. *Unemp rate* is the state-level unemployment rate. *State stock rets* is the value-weighted average annual stock return of firms headquartered in a state. *State stock ret volatility* is the average across firms headquartered in a state of the firm-level standard deviation of daily returns within a year.

Table 2: Firm Characteristics

Panel A: Pre-event comparison

	Treat		Control		Treat – Control	
Variable	mean	median	mean	median	t-stats	z-stats
LNTA	6.041	5.887	5.947	5.562	0.267	1.613
TANG	0.564	0.547	0.565	0.563	-0.028	-0.709
MB	3.491	2.299	3.021	1.954	0.690	0.692
LEV	0.172	0.121	0.168	0.097	0.111	0.923
CFO	0.068	0.078	0.074	0.100	-0.231	-0.148
CFOVOL	0.092	0.065	0.089	0.059	0.249	-0.339
LAGNOA	0.494	0.426	0.473	0.373	0.599	1.638
ARET	0.689	0.283	0.413	0.102	1.125	0.111
LNAF	1.927	2.079	1.901	1.946	0.248	1.529
ISSUEEQ	0.402	0.076	0.275	0.029	0.934	0.848
ISSUEDEBT	0.051	0.000	0.042	0.000	0.693	0.656
EMCOV	0.592	0.600	0.565	0.600	0.603	1.094
HMO	0.977	1.000	0.988	1.000	-0.546	0.645
PPO	0.755	1.000	0.763	1.000	-0.177	-0.930
INDEM	0.693	1.000	0.669	1.000	0.578	-0.525

Panel B: Descriptive statistics

Variable	N	mean	sd	p10	p25	p50	p75	p90
MDDAAC	916	-0.002	0.134	-0.155	-0.058	-0.004	0.058	0.159
KMJAAC	916	-0.022	0.083	-0.138	-0.079	-0.021	0.036	0.110
RESTATED	916	0.071	0.285	0.000	0.000	0.000	0.000	0.000
EM	916	0.141	1.455	-1.808	-0.644	0.094	1.021	2.163
CARRIERMA	916	0.254	0.436	0.000	0.000	0.000	1.000	1.000
LNTA	916	5.998	1.959	3.733	4.456	5.769	7.358	8.456
TANG	916	0.559	0.159	0.345	0.454	0.560	0.679	0.761
MB	916	2.787	2.428	0.834	1.132	1.809	3.605	6.445
LEV	916	0.162	0.184	0.000	0.002	0.083	0.296	0.423
CFO	916	0.054	0.147	-0.117	-0.002	0.078	0.141	0.200
CFOVOL	916	0.094	0.082	0.024	0.042	0.064	0.117	0.194
LAGNOA	916	0.491	0.407	0.132	0.228	0.416	0.623	0.933
ARET	916	0.282	1.007	-0.692	-0.396	0.000	0.580	1.774
LNAF	916	1.898	1.009	0.693	1.099	1.946	2.639	3.178
ISSUEEQ	916	0.246	0.551	0.000	0.000	0.025	0.165	0.652
ISSUEDEBT	916	0.038	0.100	0.000	0.000	0.000	0.016	0.127
EMCOV	916	0.579	0.502	0.060	0.209	0.600	0.600	1.032
HMO	916	0.959	0.200	1.000	1.000	1.000	1.000	1.000
PPO	916	0.501	0.500	0.000	0.000	1.000	1.000	1.000
INDEM	916	0.377	0.485	0.000	0.000	0.000	1.000	1.000

Please see Appendix B for variable definitions.

Table 3: Health-Insurance Carrier Bargaining Power and Earnings Management (H1).

	(1)	(2)	(3)	(4)
	MDDAAC	*KMJAAC*	*RESTATED*	*EM*
CARRIERMA	-0.027**	-0.012**	0.049**	-0.256***
	(2.45)	(2.40)	(1.99)	(2.74)
LNTA	0.007**	0.004***	-0.012	0.070***
	(2.27)	(2.96)	(0.95)	(2.77)
TANG	0.052	0.013	0.004	0.382
	(1.58)	(1.00)	(0.04)	(1.35)
MB	-0.003	-0.001	0.021***	-0.032*
	(1.48)	(1.34)	(2.61)	(1.78)
LEV	-0.025	-0.005	0.104	-0.203
	(1.33)	(0.51)	(1.03)	(1.17)
CFO	-0.203***	-0.212***	0.012	-2.866***
	(6.31)	(14.61)	(0.13)	(10.35)
CFOVOL	-0.156***	-0.107***	-0.345**	-1.617***
	(2.88)	(3.72)	(2.09)	(3.19)
LAGNOA	0.005	0.002	0.002	0.041
	(0.42)	(0.50)	(0.04)	(0.45)
ARET	0.007**	0.002	-0.009	0.054*
	(2.11)	(1.05)	(0.72)	(1.83)
LNAF	-0.010*	-0.006***	0.072***	-0.125***
	(1.77)	(2.63)	(4.08)	(2.75)
ISSUEEQ	0.014*	0.005	-0.033	0.121*
	(1.71)	(1.41)	(1.42)	(1.80)
ISSUEDEBT	0.045	0.002	0.067	0.228
	(1.64)	(0.17)	(0.58)	(0.96)
EMCOV	0.009	0.003	-0.040*	0.088
	(1.41)	(1.04)	(1.81)	(1.50)
HMO	-0.001	-0.005	0.044	-0.056
	(0.04)	(0.50)	(1.14)	(0.33)
PPO	0.009	0.005	-0.006	0.091
	(1.19)	(1.32)	(0.18)	(1.36)
INDEM	0.007	-0.001	-0.033	0.044
	(0.91)	(0.17)	(1.10)	(0.64)
Constant	-0.001	0.013	-0.051	0.361
	(0.04)	(1.01)	(0.44)	(1.38)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	916	916	916	916
Adj. R^2	0.270	0.533	0.205	0.409

Please see Appendix B for variable definitions. Standard errors are clustered by firm. ***, **, and * indicate significance (two-tailed) at the 1%, 5%, and 10% levels, respectively.

Table 4: Additional Tests

	Traditional Diff-in-diff	*Firm FE*	*Long-Window Tests 1998-2003*	*Continuous Measure*	*Falsification Test for Texas*
	(1)	(2)	(3)	(4)	(5)
CARRIERMA	-0.253***	-0.286***			
	(2.80)	(2.73)			
TREAT	-0.128**				
	(2.32)				
POST	0.077				
	(1.33)				
TREAT1999			0.034		
			(0.53)		
TREAT2000			-0.197**		
			(2.01)		
TREAT2001			-0.152*		
			(1.77)		
TREAT2002			0.020		
			(0.21)		
TREAT2003			0.095		
			(1.16)		
CARRIERMAHHI				-15.739**	
				(2.19)	
TEXAS2000					0.010
					(0.07)
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes
State FE	No	No	Yes	Yes	Yes
Industry FE	Yes	No	Yes	Yes	Yes
Firm FE	No	Yes	No	No	No
Observations	916	916	2256	916	112
Adj. R^2	0.385	0.622	0.409	0.615	0.577

Please see Appendix B for variable definitions. Standard errors are clustered by firm. ***, **, and * indicate significance (two-tailed) at the 1%, 5%, and 10% levels, respectively.

Table 5: Partition Analyses Based on Self-Insurance (H2a)

	Self-Insurance	
	No	*Yes*
	(1)	(2)
CARRIERMA	-0.537***	-0.076
	(4.73)	(1.11)
Controls	Yes	Yes
Year FE	Yes	Yes
State FE	Yes	Yes
Industry FE	Yes	Yes
Diff in *CARRIERMA*	p-value <0.01	
Observations	578	338
Adj. R^2	0.417	0.340

Please see Appendix B for variable definitions. Standard errors are clustered by firm. ***, **, and * indicate significance (two-tailed) at the 1%, 5%, and 10% levels, respectively.

Table 6: Partition Analyses Based on Labor Intensity (H2b)

	Labor Intensity	
	High	*Low*
	(1)	(2)
CARRIERMA	-0.530***	-0.171***
	(4.20)	(2.72)
Controls	Yes	Yes
Year FE	Yes	Yes
State FE	Yes	Yes
Industry FE	Yes	Yes
Diff in *CARRIERMA*		p-value <0.01
Observations	434	482
Adj. R^2	0.446	0.377

Please see Appendix B for variable definitions. Standard errors are clustered by firm. ***, **, and * indicate significance (two-tailed) at the 1%, 5%, and 10% levels, respectively.

Table 7: Partition Analyses Based on Job Tenure (H2c)

	Job Tenure	
	High	*Low*
	(1)	(2)
CARRIERMA	-0.590***	-0.037
	(5.39)	(0.57)
Controls	Yes	Yes
Year FE	Yes	Yes
State FE	Yes	Yes
Industry FE	Yes	Yes
Diff in *CARRIERMA*	p-value <0.01	
Observations	379	537
Adj. R^2	0.378	0.507

Please see Appendix B for variable definitions. Standard errors are clustered by firm. ***, **, and * indicate significance (two-tailed) at the 1%, 5%, and 10% levels, respectively.

Table 8: Health-Insurance Carrier Bargaining Power, Earnings Management and Future Premiums Paid

	ln(Premiums$_{t+1}$)
CARRIERMA	0.296***
	(2.74)
CARRIERMA× Low EM	-0.258**
	(2.02)
Low EM	0.148
	(1.61)
LNTA	-0.037
	(1.15)
TANG	0.102
	(0.32)
MB	-0.030
	(1.49)
LEV	-0.194
	(0.83)
CFO	-0.506
	(1.36)
CFOVOL	-0.061
	(0.10)
LAGNOA	-0.145
	(1.39)
ARET	0.013
	(0.34)
LNAF	0.067
	(1.00)
ISSUEEQ	0.172*
	(1.87)
ISSUEDEBT	-0.159
	(0.42)
EMCOV	-0.300***
	(4.10)
HMO	-0.510
	(1.63)
PPO	-0.082
	(0.86)
INDEM	0.302**
	(2.25)
Constant	7.504***
	(19.14)
Year FE	Yes
State FE	Yes
Industry FE	Yes
Observations	554
Adj. R^2	0.244

ln(Premiums$_{t+1}$) is the log of dollar amount of premiums per participant paid by a firm in next year. *Downward EM* is equal to one if *EM* is below the median, and zero otherwise. Please see Appendix B for variable definitions. Standard errors are clustered by firm. ***, **, and * indicate significance (two-tailed) at the 1%, 5%, and 10% levels, respectively.