



# **Earnings Management through Real Activities Manipulation: Evidence from Health Insurers**

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# Motivation

- Firms manage earnings Fields, Lys and Vincent (2001) JAE

“An accounting choice is any decision whose primary purpose is to influence the output of the accounting system in a particular way, including not only financial statements published in accordance with GAAP, but also tax returns and **regulatory filings.**”

# Background

- Incentives/motives for firms' management of earnings:
  - Meet prescribed metrics
  - Shareholder expectations
  - Managerial compensation
  - Reduce tax burden
  - Regulatory oversight
  - Avoid reporting losses



# Background

- Insurers manage earnings
  - Income smoothing Weiss (1985) JRI; Beaver, McNichols and Nelson (2003) JAE
  - Financial weakness Petroni (1992) JAE; Gaver and Paterson (2004) JAE
  - Tax incentives Grace (1990) JRI
  - Rate regulation Nelson (2000) TAR; Grace and Leverty (2010) JAR
  - Executive compensation Eckles and Halek (2010) JRI;
- Discretionary component – estimate of largest liability: unpaid claims
  - Reserve error

# Background

- How do firms manage earnings?
  - Accrual based management
  - Real activities manipulation (Roychowdury, 2006 JAE)
    - Reducing discretionary expenses such as R&D or advertising
    - Overproducing goods to reduce COGS
    - Temporarily under pricing to allow for more sales
  - Trade-offs between the two (Cohen and Zarowin, 2010 JAE; Zang, 2012 TAR)

# Background

- Health insurers may have further real activities manipulation opportunities through managed care:
  - Preauthorization
    - Denial of treatment
    - Delay of treatment
  - Utilization review
  - Case management
- Could have direct consequences for consumers



# Research Question

- Given that health insurers have the same motives for managing earnings, **how** do health insurers manage earnings?
  - Does it show in the loss reserve error (i.e. accrual)?
  - Or in the real activities manipulation?
- Implications of real activities manipulation:
  - Cost effectiveness of “managing” care
  - Quality of care?
  - Bad faith?

# Research Objectives and Contributions

- Identify firm-years that may be “suspect”
- For those suspect firm-years, evaluate:
  - accrual-based management vs. real activities manipulation
- **Contributions:**
  - Little attention paid to health insurer earnings management
  - Use of quarterly statutory data
  - Situation where real activities may directly impact consumers



# Hypotheses

- H1: Suspect firm-years are more likely to manage earnings through manipulation of real activities.
- H2: Suspect firm-years are more likely to manage earnings through accrual-based management.

# Data

- Statutory health insurer quarterly and annual filings from the NAIC
- 2003-2017
- Exhibit of Premiums, Enrollment and Utilization – pg. 7
  - quarterly losses incurred, premiums earned, member months, utilization
- Assets, surplus, year established, number of states licensed, expenses, premiums by line of business, publicly traded

## EXHIBIT OF PREMIUMS, ENROLLMENT AND UTILIZATION

	1 Total	Comprehensive (Hospital & Medical)		4 Medicare Supplement	5 Vision Only	6 Dental Only	7 Federal Employees Health Benefit Plan	8 Title XVIII Medicare	9 Title XIX Medicaid	10 Other
		2 Individual	3 Group							
<b>Total Members at end of:</b>										
1. Prior Year	26,307	0	391	0	0	0	0	25,916	0	0
2. First Quarter	16,328	0	350	0	0	0	0	15,978	0	0
3. Second Quarter	15,989	0	273	0	0	0	0	15,716	0	0
4. Third Quarter	0	0	0	0	0	0	0	0	0	0
5. Current Year	0	0	0	0	0	0	0	0	0	0
6. Current Year Member Months	97,749	0	2,037	0	0	0	0	95,712	0	0
<b>Total Member Ambulatory Encounters for Period:</b>										
7. Physician	235,335	0	1,884	0	0	0	0	233,451	0	0
8. Non-Physician	131,866	0	2,161	0	0	0	0	129,705	0	0
9. Total	367,201	0	4,045	0	0	0	0	363,156	0	0
10. Hospital Patient Days Incurred	13,930	0	45	0	0	0	0	13,885	0	0
11. Number of Inpatient Admissions	1,285	0	8	0	0	0	0	1,277	0	0
12. Health Premiums Written (a)	82,256,292	0	1,143,176	0	0	0	0	81,113,116	0	0
13. Life Premiums Direct	0	0	0	0	0	0	0	0	0	0
14. Property/Casualty Premiums Written	0	0	0	0	0	0	0	0	0	0
15. Health Premiums Earned	82,256,292	0	1,143,176	0	0	0	0	81,113,116	0	0
16. Property/Casualty Premiums Earned	0	0	0	0	0	0	0	0	0	0
17. Amount Paid for Provision of Health Care Services	77,498,844	0	1,004,096	0	0	0	0	76,494,748	0	0
18. Amount Incurred for Provision of Health Care Services	71,918,989	0	854,437	0	0	0	0	71,064,552	0	0

(a) For health premiums written, amount of Medicare Title XVIII exempt from state taxes of less \$ 0, 110, 110

# Data

- Filters:
  - The firm is a stock or mutual domiciled in the United States that reports as a health insurer (i.e. managed care organization)
  - The firm is not primarily a reinsurer (i.e. premiums written are greater than premiums assumed)
  - Positive premiums, losses incurred, member months
  - Insurer must have reported business in all four quarters of a given year
- Final sample: 14,236 firm-quarter observations; 3,559 firm-year observations

# Key Variables

- *QuarterlyLosses* = Amount incurred for provision of health care services
- *QuarterlyUtilization* = Physician Encounters, Non-Physician Encounters, HospDays, HospAdmissions
- *Error* = One year developed losses paid losses vs. estimate
- Controls: Size, Leverage, Age, NumStatesLicensed, ExpenseRatio, PctGovBusiness, PctUninsuredPlans, Public

# Identify Suspect Firm-Years

$$Q4LossesPerMemMos_{it} = X'_{it}\beta + \mu_t + \epsilon_{it}$$

$X'_{it}$  is a vector of controls: *Q1LossesPerMemMos, Q2LossesPerMemMos, Q3LossesPerMemMos, Assets, Leverage, Age, NumStatesLicensed, ExpenseRatio, PctGovBusiness, PctUninsuredPlans, Public, and Year Indicators* for insurer  $i$  in year  $t$ .

Robust Standard Errors, fixed effects panel regression

*Suspect*=1 if residual is below 25<sup>th</sup> percentile

# Identify Abnormal Real Activities

$$Q4UtilizationPerMemMos_{it} = X'_{it}\beta + \mu_t + \epsilon_{it}$$

$X'_{it}$  is a vector of controls: *Q1 UtilizationPerMemMos, Q2 UtilizationPerMemMos, Q3UtilizationPerMemMos, Assets, Leverage, Age, NumStatesLicensed, ExpenseRatio, PctGovBusiness, PctUninsuredPlans, Public, and Year Indicators* for insurer  $i$  in year  $t$ .

Utilization: *PhysEncounters, NonPhysEncounters, HospDays, HospAdm*

Robust Standard Errors, fixed effects panel regression

*AbnormalUtilization*=difference between actual 4<sup>th</sup> quarter utilization and predicted 4<sup>th</sup> quarter utilization

# Hypotheses

- H1: Suspect firm-years are more likely to manage earnings through **manipulation of real activities**.
  - Confirmed if negative and statistically significant relationship between *Suspect* and *AbnormalUtilization*
- H2: Suspect firm-years are more likely to manage earnings through **accrual-based management**.
  - Confirmed if negative and statistically significant relationship between *Suspect* and *Error*



# Methodology-Test H1 and H2

How are *AbnormalEM* and *Suspect* related?

e.g., quantile regression estimation evaluates whether or not *AbnormalEM* for a given insurer, *AbnormalEM*, lies within a particular quantile of the entire distribution. The  $\theta$ th quantile of *AbnormalEM*, given  $X$  is linear, minimizes the following:

$$\min_{\beta} \frac{1}{n} \sum_{i=1}^n [\theta \rho(\text{AbnEM}_{it} \geq X'_{it}\beta) + (1 - \theta) \rho(\text{AbnEM}_{it} < X'_{it}\beta)] |\text{AbnEM}_{it} - X'_{it}\beta|$$

$X'_{it}$  is a vector of controls: *Assets*, *Leverage*, *Age*, *NumStatesLicensed*, *ExpenseRatio*, *PctGovBusiness*, *PctUninsuredPlans*, *Public* for insurer  $i$  in year  $t$ .

# Results

	(1)	(2)	(3)	(4)	(5)
	AbnPhysEnc	AbnNonPhysEnc	AbnHospDays	AbnHospAdm	Error
Suspect	-0.098*** [0.012]	0.004 [0.004]	-0.002*** [0.001]	-0.001*** [0.000]	-0.001 [0.001]
Assets	-1.076*** [0.006]	-0.588*** [0.000]	-0.085*** [0.000]	-0.015*** [0.000]	0.000*** [0.000]
Leverage	-0.038*** [0.004]	-0.006*** [0.002]	0.000*** [0.000]	0.000 [0.000]	0.000 [0.000]
Age	0.061*** [0.000]	0.032*** [0.000]	0.004*** [0.000]	0.000*** [0.000]	-0.000*** [0.000]
NumStatesLicensed	-0.100*** [0.001]	-0.059*** [0.000]	-0.009*** [0.000]	-0.001*** [0.000]	0.000** [0.000]
ExpenseRatio	-8.775*** [0.334]	-1.348*** [0.083]	-0.667*** [0.009]	-0.123*** [0.002]	0.045*** [0.008]
PctGovBusiness	-0.285*** [0.016]	-0.111*** [0.004]	-0.024*** [0.001]	-0.004*** [0.000]	0.001** [0.000]
UninsuredBusiness	-0.059*** [0.022]	-0.007 [0.005]	0.000 [0.001]	0.000 [0.000]	0.000 [0.001]
Public	-0.290*** [0.013]	-0.156*** [0.003]	-0.027*** [0.000]	-0.004*** [0.000]	0.001*** [0.000]
_cons	-0.420*** [0.018]	-0.372*** [0.005]	-0.006*** [0.001]	0.006*** [0.000]	0.003*** [0.001]
<i>N</i>	3559	3559	3559	3559	3139

Standard errors in brackets  
\*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

# Preliminary Conclusions and Limitations

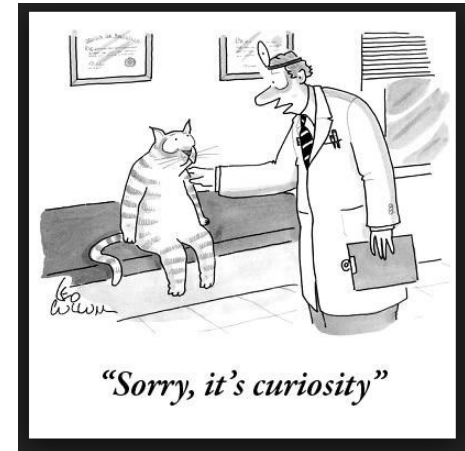
- Evidence of real activities manipulation
  - Three of the four types of utilization management
  - May have welfare consequences for consumers
- No evidence of accrual-based management
- Limitation: Not including life insurers that write health business

## Future Work

- Two stage least squares model to measure extent of tradeoff between the two types of management (Cohen and Zarowin, 2010; Zang, 2012)
  - First: Estimate decision to manage
  - Second: Given the decision to manage, estimate the choice between real activities manipulation and accrual-based management
- Robustness to other definitions of “suspect”
- Economic significance
- Control for business subject to minimum MLR regulation

## Related Research Questions

- Why are health insurers managing earnings?
- Volatility of quarterly loss ratio management between P&C insurers and health insurers?
- Quarterly management of losses associated with target minimum MLR?



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**Thank you!**

Questions/Comments?

