# Earnings Management and Price Informativeness

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May 2025

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# Motivation

Carpenter-Lu-Whitelaw (CLW, 2021 JFE) find that the Chinese A share stock market is highly informative

- Current price predicts future earnings (Bai-Philippon-Savov '16)
- With a magnitude comparable to the US S&P500 stocks

Surprising given the previous studies on the A-share market

- Highly volatile and speculative investors (Hu-Pan-Wang '21)
- Poor corporate governance (Allen et al. '22)
- Massive evidence of earnings management and misreport (Piotroski-Wong '12)

How to reconcile?

- More precisely, how to interpret price informative measures in the context of the Chinese stock market?

# This Paper

Bai-Philippon-Savov '16 conduct cross-sectional regressions,

$$\frac{E_{t+k}}{A_t} = \alpha + \beta^k \log\left(\frac{M_t}{A_t}\right) + \gamma \frac{E_t}{A_t} + \epsilon_t, \quad k \in \{1, 2, \ldots, 5\}. \tag{1}$$

- High $\hat{\beta}$ suggests more informative prices
- One critical assumption is that firms' reported earnings equal their real profit
- Which does not necessarily hold in the A-share market

When $E$ can be managed,

- Manager who cares about valuation ($M_t$) may report high future earnings ($E_{t+k}$) to cater investor expectation

Propose a "manipulate-to-cater" mechanism as an alternative explanation of high $\beta$ in China (but not exclusive to CLW's channel)

# Main Result

Unique predictions from the "manipulate-to-cater" mechanism (differentiating from CLW's channel)

- $M_t$ can predict $E_{t+k}$ but not real payout $D_{t+k}$ or cash flow $OCF_{t+k}$
- High $E$ tends to revert back in the long term (earnings reversal)
- Investors overreact to the managed component of high $E$, predicting lower subsequent stock returns (return reversal)

Identification

- Use non-recurring gain and loss (NRGL) to capture the managed component in reported $E$
- The delisting rule reform in 2020 as a shock to earnings management behavior

# Data

China Stock Market Data (CSMAR):

- Firms: A-share, non-financial firms on main board, excluding STAR and ChiNext boards
- Variables: Earnings ($E$), Assets ($A$), Dividend Payouts ($D$, cash dividend + repurchase), Market Cap ($M$), and NRGL
- Data period: 1995-2022

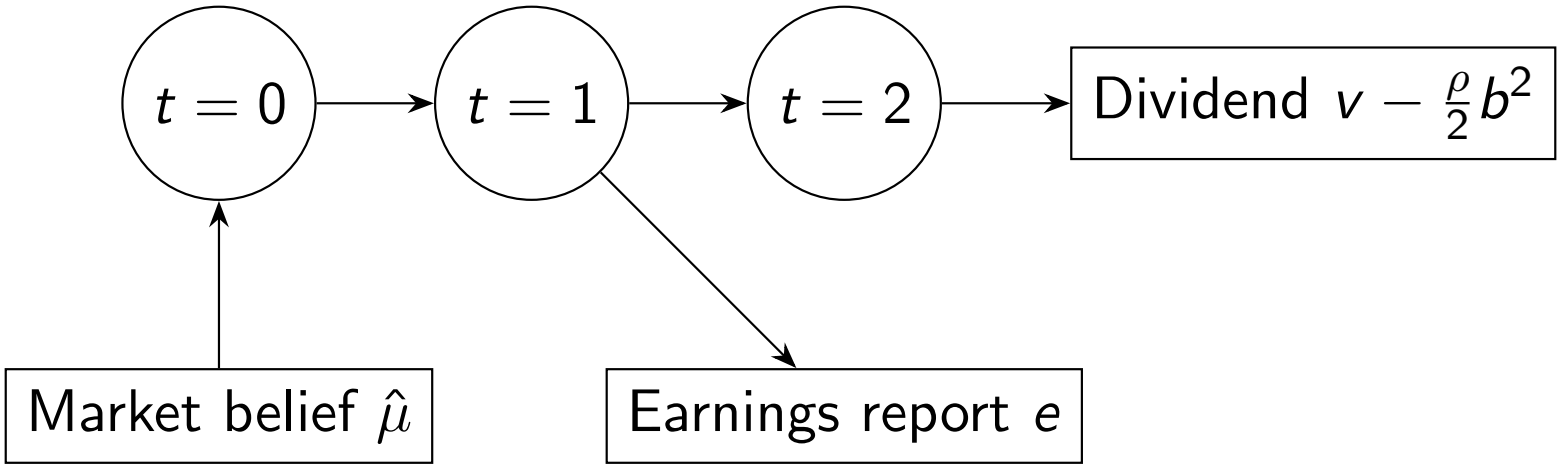
US Data (Compustat):

- Firms: S&P500 non-financial firms
- Data period: 1960-2021

# Hypothesis development

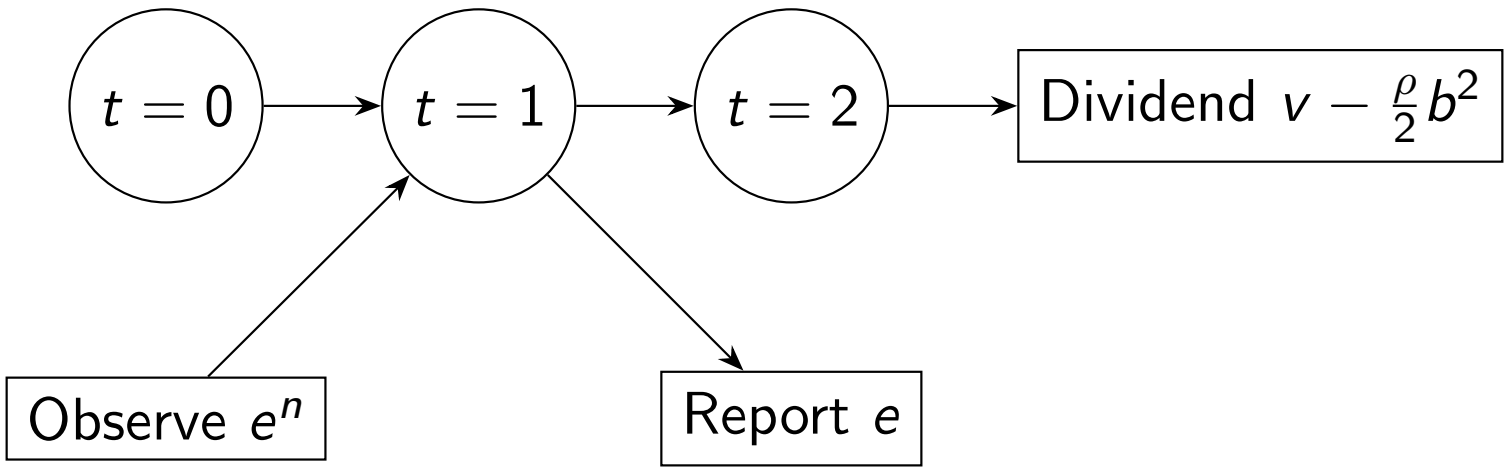
Consider a 3-period model with one asset,

- At $t = 0$, market belief: $v \sim \mathcal{N}\left(\hat{\mu}, \frac{1}{\hat{h}_v}\right)$
- At $t = 1$, firm report earnings $e$
- At $t = 2$, firm generates dividend $v \sim \mathcal{N}\left(\mu, \frac{1}{h_v}\right)$
- If $\hat{\mu} > \mu$, market is optimistic



# Earnings Management

- At $t = 1$, Manager observes interim signal: $e^n = v + \epsilon$, $\epsilon \sim \mathcal{N}\left(0, \frac{1}{h_\epsilon}\right)$
- Reported earnings: $e = e^n + b$, $b$ as earnings inflation.
- Earnings inflation cost: $\frac{\rho}{2} b^2$
- At $t = 2$, final dividend: $v - \frac{\rho}{2} b^2$



# Investor Behavior

- Following Hirshleifer-Teoh '03
- Inattentive investors $\theta$, rational investors $1-\theta$, $\theta \in [0,1]$
- Inattentive investors: interpret $e$ as $e^n$
- Rational investors: adjust for expected earnings management $b^*$
- Stock price at $t=1$, $p_1$, gvies the demand functions

$$d^{ir}(p_1) = \tau(\hat{h}_v + h_\epsilon)[(1-\alpha)\hat{\mu} + \alpha e - p_1]$$
$$d^{r}(p_1) = \tau(\hat{h}_v + h_\epsilon)[(1-\alpha)\hat{\mu} + \alpha(e - b^*) - p_1]$$

where $\alpha = \frac{h_\epsilon}{\hat{h}_v + h_\epsilon}$ as the weight of investors updateing the belief.

# Equilibrium Price

Market-clearing gives,

$$\theta\tau(\hat{h}_v+h_\epsilon)[(1-\alpha)\hat{\mu}+\alpha e-p_1]+(1-\theta)\tau(\hat{h}_v+h_\epsilon)[(1-\alpha)\hat{\mu}+\alpha(e-b^*)-p_1]=1$$

Equilibrium price at $t=1$:

$$p_1=(1-\alpha)\hat{\mu}+\alpha e^n+\alpha\underbrace{[b-(1-\theta)b^*]}_{\text{Manipulation}}-\frac{1}{\tau(\hat{h}_v+h_\epsilon)}$$

In equilibrium ($b=b^*$):

$$p_1=(1-\alpha)\hat{\mu}+\alpha e^n+\alpha\theta b-\frac{1}{\tau(\hat{h}_v+h_\epsilon)}$$

# Manager Behavior

- Manager faces a risk of being fired at $t = 1$
- The probability of retaining the position depends on past stock return and equals $h(p_1 - p_0)$
- $h$ is increasing and concave and $h'(0) > 0, h'(\infty) = 0$
- At $t = 2$, the manager's compensation is $\begin{cases} k\left(v - \frac{\rho}{2}b^2\right) & \text{if } fired = 0 \\ 0 & \text{if } fired = 1 \end{cases}$
- Therefore, at $t = 1$, the manager chooses $b$ to maximize:

$$M = h(p_1 - p_0)E\left(v - \frac{\rho}{2}b^2 \middle| e^n\right) = h(p_1 - p_0)\left(e^n - \frac{\rho}{2}b^2\right)$$

# Proposition 1

## Proposition 1

*The manager's optimal choice of b is independent of $\theta$ (the fraction of inattentive investors), while the stock price $p_1$ increases with $\theta$.*

- Signal jamming mechanism in Stein '89: $b > 0$ even when $\theta = 0$
- Inattentive investors amplify price overvaluation
- Earnings inflation predicts lower future returns

# Proposition 2

## Proposition 2

*Given the private signal $e^n$ observed by the manager at $t = 1$, the earnings inflation $b$ increases with the market's expectation $\hat{\mu}$ and decreases with the cost of earnings inflation $\rho$.*

- Higher market expectations induce greater earnings inflation
- $Cov(b, \hat{\mu}) > 0$
- Cost of manipulation reduces earnings inflation

# Hypotheses 1 and 2

## Hypothesis 1: $M_t$ and $E_{t+k}$

*The presence of earnings inflation increases the predictability of current stock valuation ($M_t$) for future short-term reported earnings ($E_{t+k}$, i.e., small $k$), but weakens its predictability for future long-term earnings ($E_{t+k}$, i.e., large $k$).*

# Hypotheses 1 and 2

## Hypothesis 1: $M_t$ and $E_{t+k}$

*The presence of earnings inflation increases the predictability of current stock valuation ($M_t$) for future short-term reported earnings ($E_{t+k}$, i.e., small $k$), but weakens its predictability for future long-term earnings ($E_{t+k}$, i.e., large $k$).*

## Hypothesis 2: $b$, $M_t$, and $Ret_{t+k}$

*The managed component of reported earnings is positively correlated with current stock share valuation ($M_t$) but negatively correlated with subsequent stock returns.*

# Hypothesis 3: A Regulatory Shock on Earnings Management

## Hypothesis 3

*Following a positive shock to the cost of earnings management, the level of earnings management should decline. Consequently, the correlation between earnings management and market valuation should weaken, as should the correlation between current stock valuation ($M_t$) and future short-term reported earnings ($E_{t+k}$, i.e., small $k$).*

# Carpenter-Lu-Whitelaw (2021) Revisit

We follow the method of CLW with three modifications

- Extend the sample period to 2022
- Conduct the cross-sectional regression at the portfolio level
  - Sort firms into $10 \times 5$ portfolio based on size and book-to-market ratio (Fama-French '95)
- Longer predicting horizons at 6 and 7 years

Predicting Future Earnings,

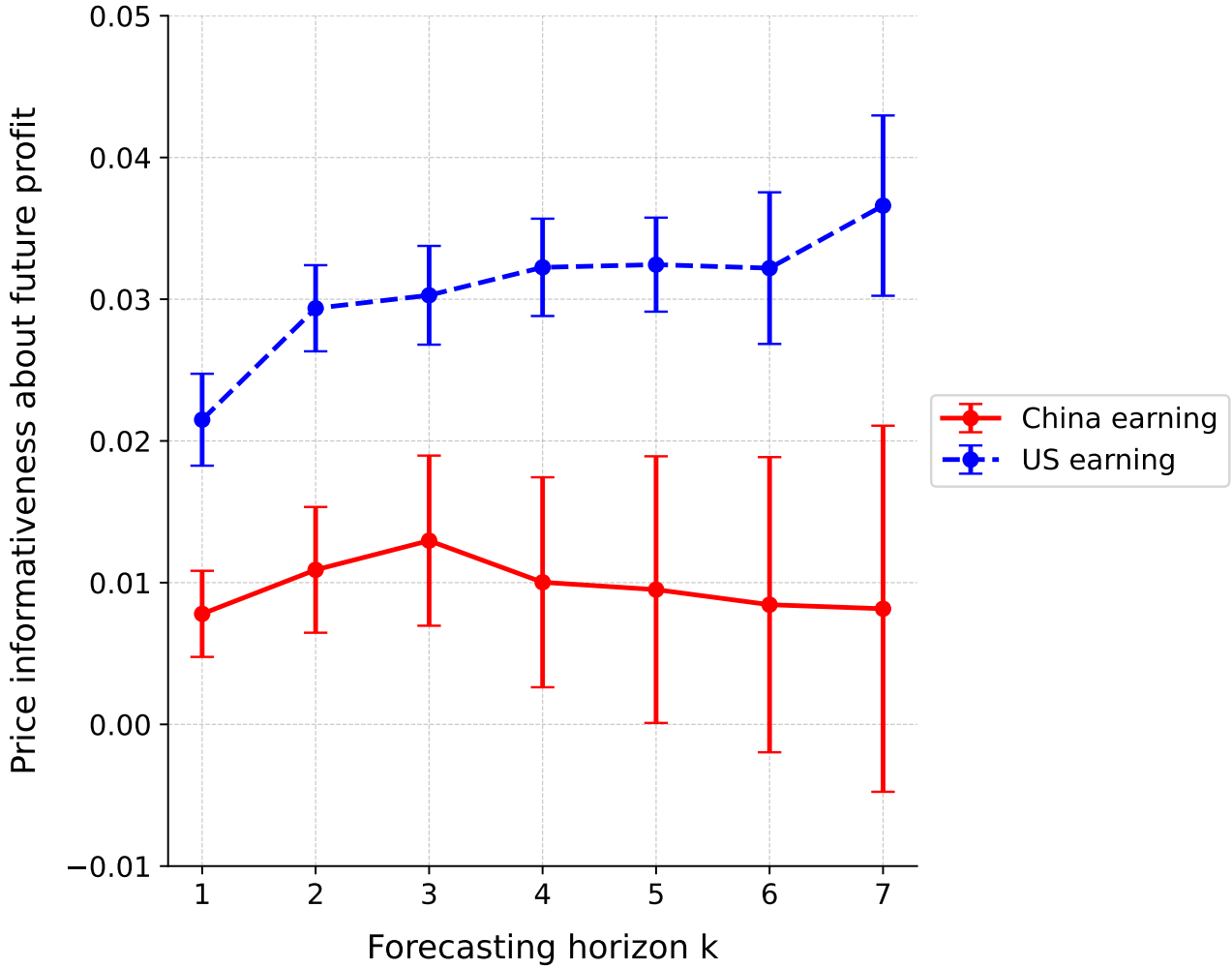
$$\frac{E_{t+k}}{A_t} = \alpha + \beta^k \log\left(\frac{M_t}{A_t}\right) + \gamma\frac{E_t}{A_t} + \lambda\frac{D_t}{A_t} + \epsilon_t, \quad k \in \{1, 2, \ldots, 7\} \tag{2}$$

where we are interested in the predicted variation of $M/A$, that is, $\hat{\beta}\sigma(log(\frac{M_t}{A_t}))$

# Predicting Future $E$ with $M$

| | $k=1$ | $k=2$ | $k=3$ | $k=4$ | $k=5$ | $k=6$ | $k=7$ |
|---|---|---|---|---|---|---|---|
| | | | | Earnings | | | |
| China | 0.008 | 0.011 | 0.013 | 0.010 | 0.009 | 0.008 | 0.007 |
| | (6.03) | (4.83) | (4.39) | (2.99) | (2.59) | (2.01) | (1.29) |
| US S&P500 | 0.021 | 0.029 | 0.030 | 0.032 | 0.032 | 0.032 | 0.037 |
| | (12.99) | (18.94) | (17.03) | (18.41) | (19.17) | (11.80) | (11.28) |

# Predicted variation of M/A on future E

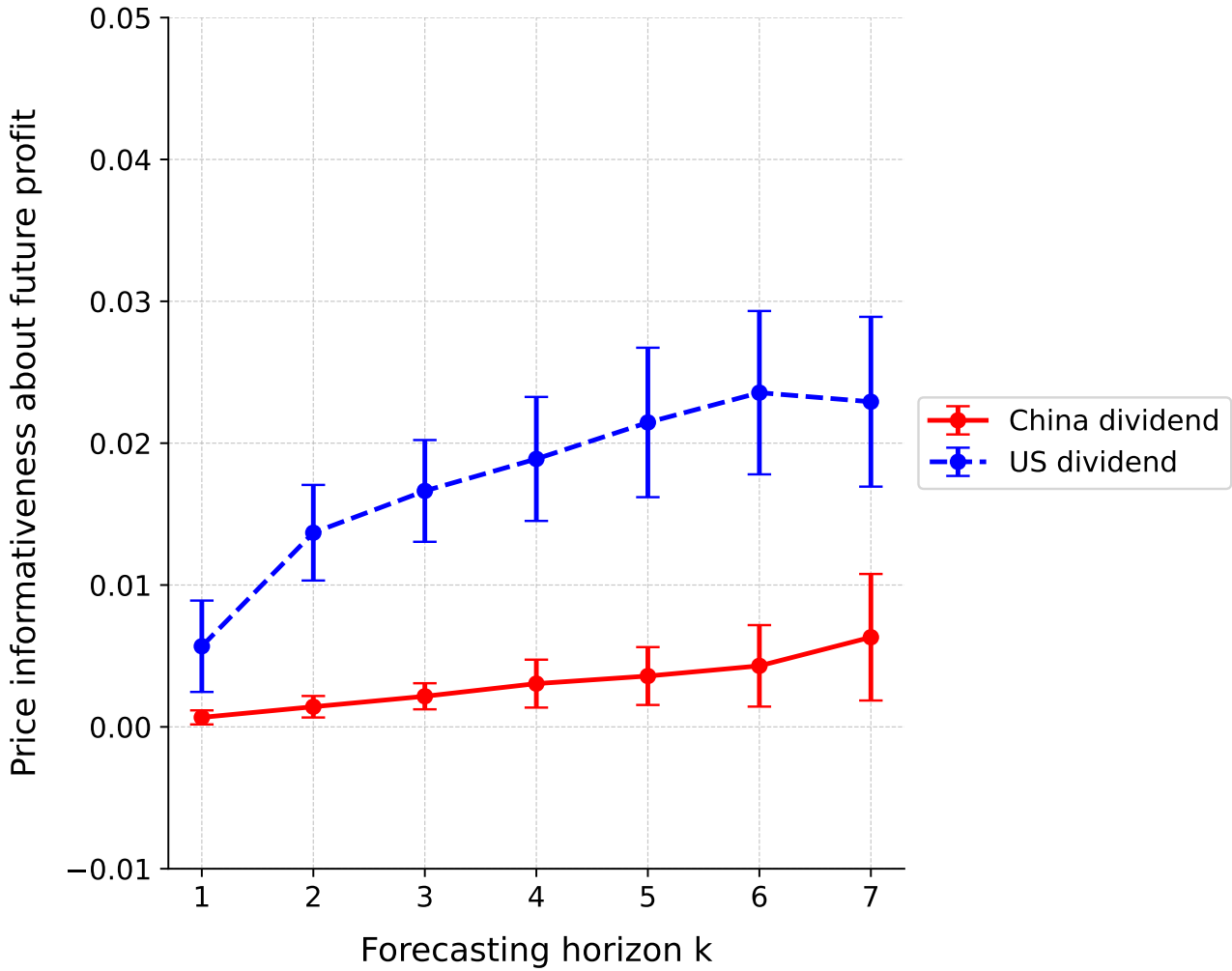


# Predicting Future $D$ with $M$

$$\frac{D_{t+k}}{A_t} = \alpha + \beta^k \log\left(\frac{M_t}{A_t}\right) + \gamma\frac{E_t}{A_t} + \lambda\frac{D_t}{A_t} + \epsilon_t, \quad k \in \{1, 2, \ldots, 7\} \tag{3}$$

| | $k=1$ | $k=2$ | $k=3$ | $k=4$ | $k=5$ | $k=6$ | $k=7$ |
|---|---|---|---|---|---|---|---|
| | | | | Earnings | | | |
| China | 0.008 | 0.011 | 0.013 | 0.010 | 0.009 | 0.008 | 0.007 |
| | (6.03) | (4.83) | (4.39) | (2.99) | (2.59) | (2.01) | (1.29) |
| US S&P500 | 0.021 | 0.029 | 0.030 | 0.032 | 0.032 | 0.032 | 0.037 |
| | (12.99) | (18.94) | (17.03) | (18.41) | (19.17) | (11.80) | (11.28) |
| | | | | Dividends | | | |
| China | 0.001 | 0.001 | 0.002 | 0.003 | 0.004 | 0.004 | 0.006 |
| | (1.63) | (2.50) | (3.27) | (2.84) | (2.49) | (1.90) | (1.71) |
| US S&P500 | 0.006 | 0.014 | 0.017 | 0.019 | 0.021 | 0.024 | 0.023 |
| | (3.46) | (7.96) | (9.09) | (8.47) | (7.99) | (8.02) | (7.51) |

# Predicted variation of M/A on future D

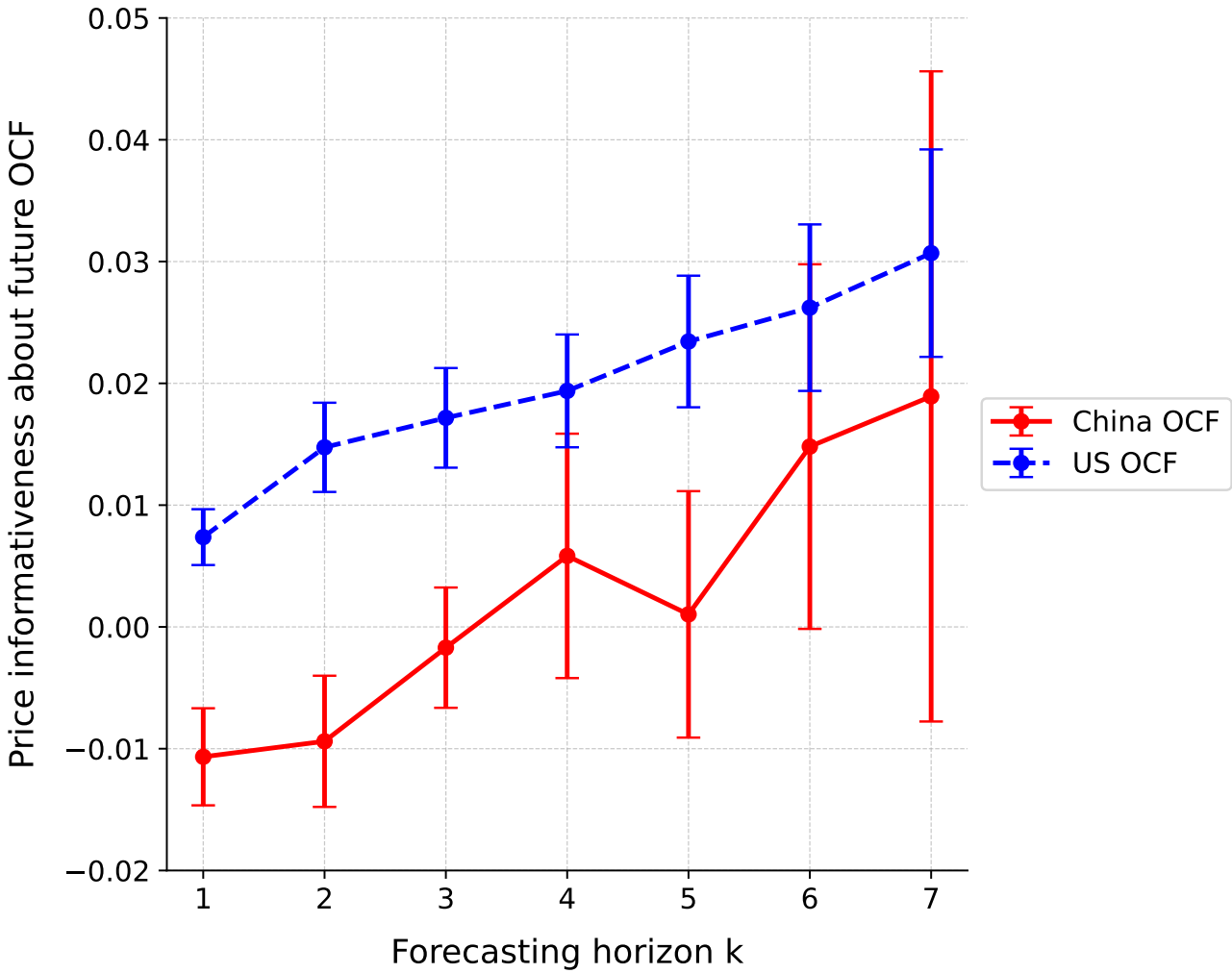


# Predicting Future *OCF* with *M*

$$\frac{OCF_{t+k}}{A_t} = \alpha + \beta^k \log\left(\frac{M_t}{A_t}\right) + \gamma\frac{E_t}{A_t} + \lambda\frac{OCF_t}{A_t} + \epsilon_t, \quad k \in \{1, 2, \ldots, 7\} \tag{4}$$

| | $k=1$ | $k=2$ | $k=3$ | $k=4$ | $k=5$ | $k=6$ | $k=7$ |
|---|---|---|---|---|---|---|---|
| | | | | Earnings | | | |
| China | 0.008 | 0.011 | 0.013 | 0.010 | 0.009 | 0.008 | 0.007 |
| | (6.03) | (4.83) | (4.39) | (2.99) | (2.59) | (2.01) | (1.29) |
| US S&P500 | 0.021 | 0.029 | 0.030 | 0.032 | 0.032 | 0.032 | 0.037 |
| | (12.99) | (18.94) | (17.03) | (18.41) | (19.17) | (11.80) | (11.28) |
| | | | | OCF | | | |
| China | -0.011 | -0.009 | -0.002 | 0.006 | 0.001 | 0.015 | 0.019 |
| | (-5.24) | (-3.42) | (-0.68) | (1.14) | (0.20) | (1.94) | (1.39) |
| US S&P500 | 0.007 | 0.015 | 0.017 | 0.019 | 0.023 | 0.026 | 0.031 |
| | (6.31) | (7.89) | (8.22) | (8.20) | (8.50) | (7.52) | (7.06) |

# Predicted variation of M/A on future *OCF*



# Earnings Reversal

Our "manipulate-to-cater" hypothesis implies that the reported $E$ should eventually reverse

- Whereas CLW's explanation suggests persistence in future $E$

We conduct the following the portfolio level regressions,

$$\frac{E_{j,t+1} - E_{j,t}}{A_{j,t}} = \alpha_j + \beta_j^{0\to1} log(\frac{M_{j,t}}{A_{j,t}}) + \gamma_j \frac{E_{j,t}}{A_{j,t}} + \lambda_j \frac{D_{j,t}}{A_{j,t}} + \epsilon_{j,t}, \tag{5}$$

$$\frac{E_{j,t+3} - E_{j,t+1}}{A_{j,t}} = \alpha_j + \beta_j^{1\to3} log(\frac{M_{j,t}}{A_{j,t}}) + \gamma_j \frac{E_{j,t}}{A_{j,t}} + \lambda_j \frac{D_{j,t}}{A_{j,t}} + \epsilon_{j,t}, \tag{6}$$

$$\frac{E_{j,t+5} - E_{j,t+3}}{A_{j,t}} = \alpha_j + \beta_j^{3\to5} log(\frac{M_{j,t}}{A_{j,t}}) + \gamma_j \frac{E_{j,t}}{A_{j,t}} + \lambda_j \frac{D_{j,t}}{A_{j,t}} + \epsilon_{j,t}, \tag{7}$$

- Our hypothesis expects $\beta_j^{0\to1}$ to be positive, but $\beta_j^{1\to3}$ or $\beta_j^{3\to5}$ to be negative
- CLW predict positive $\beta_j^{0\to1}$ and non-negative $\beta_j^{1\to3}$ and $\beta_j^{3\to5}$

# Earnings Reversal (No FE)

| | China (1995-2022) | | | US SP500 (1960-2021) | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | $E_{t+1} - E_t$ | $E_{t+3} - E_{t+1}$ | $E_{t+5} - E_{t+3}$ | $E_{t+1} - E_t$ | $E_{t+3} - E_{t+1}$ | $E_{t+5} - E_{t+3}$ |
| $\log(M_t/A_t)$ | 0.013 | 0.002 | -0.013 | 0.058 | 0.013 | 0.011 |
| | (2.52) | (0.28) | (-2.97) | (8.03) | (1.27) | (1.08) |
| $D_t/A_t$ | 1.378 | -0.521 | 0.376 | -0.032 | 0.065 | 0.050 |
| | (3.75) | (-1.29) | (0.81) | (-0.47) | (1.21) | (0.79) |
| $E_t/A_t$ | -0.760 | -0.125 | -0.196 | -0.525 | -0.211 | -0.072 |
| | (-8.48) | (-1.45) | (-2.31) | (-7.67) | (-4.50) | (-1.27) |
| Portfolio FE | No | No | No | No | No | No |
| Year FE | No | No | No | No | No | No |
| N | 1050 | 1050 | 1050 | 2602 | 2602 | 2602 |

# Earnings Reversal (Portfolio FE)

| | China (1995-2022) | | | US SP500 (1960-2021) | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | $E_{t+1} - E_t$ | $E_{t+3} - E_{t+1}$ | $E_{t+5} - E_{t+3}$ | $E_{t+1} - E_t$ | $E_{t+3} - E_{t+1}$ | $E_{t+5} - E_{t+3}$ |
| $\log(M_t/A_t)$ | 0.005 | -0.018 | -0.018 | 0.043 | 0.014 | 0.007 |
| | (0.63) | (-2.15) | (-2.41) | (5.22) | (1.02) | (0.45) |
| $D_t/A_t$ | 0.755 | -0.218 | 0.289 | -0.025 | 0.061 | 0.045 |
| | (2.94) | (-0.55) | (0.58) | (-0.36) | (1.13) | (0.72) |
| $E_t/A_t$ | -0.723 | 0.077 | -0.207 | -0.567 | -0.204 | -0.067 |
| | (-7.45) | (1.06) | (-2.01) | (-8.59) | (-4.74) | (-1.20) |
| Portfolio FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | No | No | No | No | No | No |
| N | 1050 | 1050 | 1050 | 2602 | 2602 | 2602 |

# Earnings Reversal (Time FE)

| | China (1995-2022) | | | US SP500 (1960-2021) | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | $E_{t+1} - E_t$ | $E_{t+3} - E_{t+1}$ | $E_{t+5} - E_{t+3}$ | $E_{t+1} - E_t$ | $E_{t+3} - E_{t+1}$ | $E_{t+5} - E_{t+3}$ |
| $\log(M_t/A_t)$ | 0.020 | 0.012 | -0.007 | 0.070 | 0.010 | 0.017 |
| | (5.42) | (2.08) | (-1.12) | (8.65) | (1.20) | (2.29) |
| $D_t/A_t$ | 1.671 | -0.713 | -0.033 | 0.048 | 0.101 | 0.021 |
| | (4.37) | (-1.86) | (-0.07) | (0.48) | (1.39) | (0.33) |
| $E_t/A_t$ | -0.798 | -0.094 | -0.098 | -0.626 | -0.170 | -0.098 |
| | (-9.60) | (-1.45) | (-1.24) | (-8.57) | (-3.42) | (-1.87) |
| Portfolio FE | No | No | No | No | No | No |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 1050 | 1050 | 1050 | 2602 | 2602 | 2602 |

Pattern more consistent with CLW when controlling for year fixed effects

- Suggesting their channel more relevant in the cross section
- Our mechanism is more pronounced in time series of individual firms (i.e., more significant when controlling portfolio fixed effects)
- US patterns are all consistent with Bai-Philippon-Savov '16 (i.e., no earnings reversal irrespective of any fixed effects)

# Evidence from A-H Dual-list Shares

A set of 89 non-financial, A-H dual-listed firms

- H share prices more informative
- More costly to manage earnings subject to HK regulation

$$\frac{E_{t+k}}{A_t} = \alpha + \beta_k^H log(\frac{M_t^H}{A_t}) + \beta_k^A log(\frac{M_t^A}{A_t}) + \gamma \frac{E_t}{A_t} + \lambda \frac{D_t}{A_t} + \epsilon_t \qquad (8)$$

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | $k=1$ | $k=2$ | $k=3$ | $k=4$ | $k=5$ | $k=6$ | $k=7$ |
| $\hat{\beta}_k^A \sigma(log(M_t^A/A_t))$ | 0.006 | 0.006 | 0.005 | -0.003 | -0.008 | -0.011 | -0.009 |
| | (1.992) | (1.259) | (1.008) | (-0.361) | (-1.046) | (-1.453) | (-1.203) |
| $\hat{\beta}_k^H \sigma(log(M_t^H/A_t))$ | 0.009 | 0.012 | 0.013 | 0.015 | 0.017 | 0.022 | 0.022 |
| | (4.744) | (3.502) | (4.001) | (4.679) | (3.921) | (3.431) | (3.975) |

# Earnings Management

One main motive of earnings management in China is to report positive earnings to avoid being labeled as ST and delisted

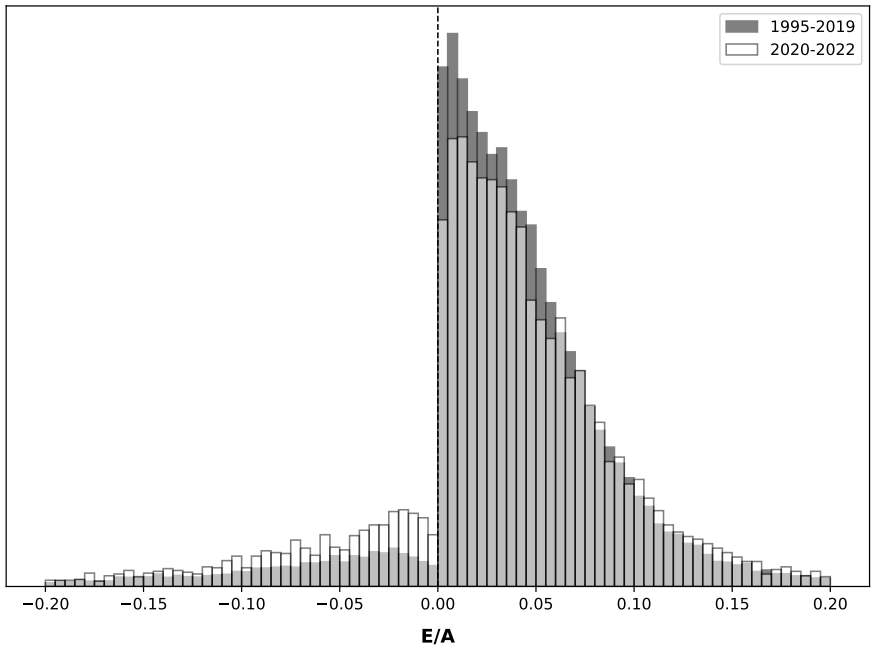
- Due to the ST rule, which solely focused on earnings (net profit) being positive or not
- Firms with two consecutive years' negative earnings will be delisted

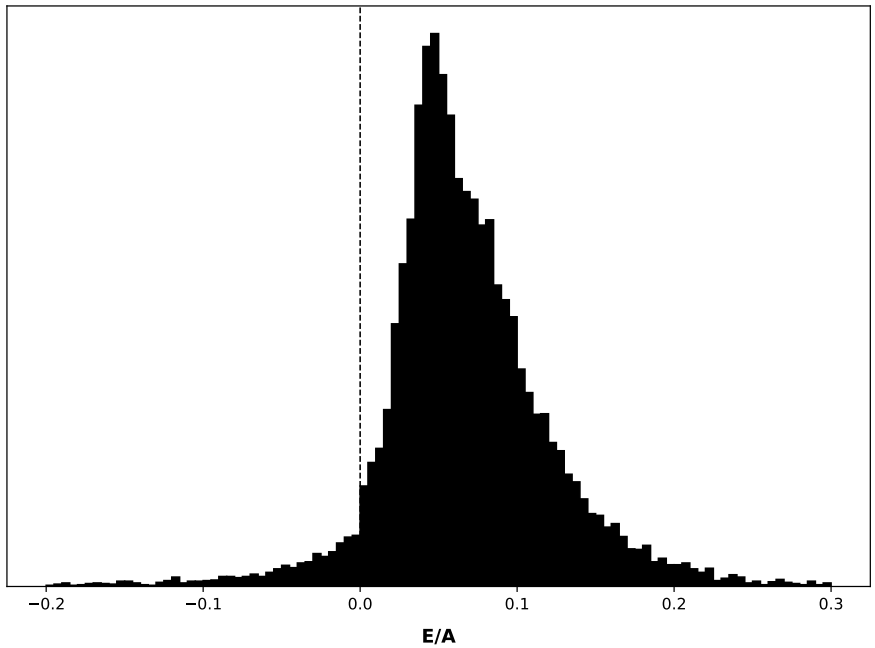
Related, the restriction of IPO gave rise to reverse merger and shell companies

- Shell value of underperforming firms further motivate earnings management (Lee-Qu-Shen '23)

# Distribution of Reported Earnings

China (left) and US S&P500 (right)



# Earnings Management through NRGL

- Anecdotes suggest that A-share firms using Non-Recurring Gain and Loss (NRGL) to boost their reported earnings
  - e.g., asset sales, one-off government subsidies, income from non-operating business
- A concern of regulators and motivated the policy reform in 2020
- Our measure of earnings management: NRGL scaled by total asset ($A_t$)

# $M_t$ and NRGL

| | (1) $NRGL_t$ | (2) $NRGL_{t+1}$ |
|---|---|---|
| $\log(M/A)$ | 0.00486 | 0.00914 |
| | (4.20) | (11.51) |
| $ESP_t$ | 0.241 | 0.106 |
| | (6.62) | (3.10) |
| Past NRGL | -0.0573 | -0.0869 |
| | (-2.43) | (-4.00) |
| Year FE | Yes | Yes |
| Firm FE | Yes | Yes |
| Controls | Yes | Yes |
| R2 | 0.211 | 0.255 |
| N | 26357 | 27884 |

- Consistent with Hypothesis 2 that $M_t$ should be positively correlated with earnings management

# $M_t$ and NRGL

| | (1) $NRGL_t$ | (2) $NRGL_{t+1}$ |
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| $\log(M/A)$ | 0.00486 | 0.00914 |
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- Consistent with Hypothesis 2 that $M_t$ should be positively correlated with earnings management
- Hypothesis 2 also implies negative return predictability of NRGL

# Return Predictability of *NRGL*

| | (1) $R_{q+1}$ | (2) $R_{(q+1,q+2)}$ | (3) $R_{(q+1,q+3)}$ | (4) $R_{(q+1,q+4)}$ |
|---|---|---|---|---|
| $NRGL_q$ | -0.529 | -0.807 | -1.100 | -1.550 |
| | (-4.58) | (-3.68) | (-3.61) | (-3.93) |
| $R_q$ | -0.0293 | -0.0132 | 0.000276 | 0.00454 |
| | (-2.21) | (-0.66) | (0.01) | (0.19) |
| $R_{(q-12,q-1)}$ | -0.00107 | -0.00231 | -0.00515 | -0.00574 |
| | (-0.42) | (-0.49) | (-0.73) | (-0.58) |
| Controls | Yes | Yes | Yes | Yes |
| R2 | 0.119 | 0.125 | 0.132 | 0.135 |
| N | 118704 | 114777 | 110904 | 107104 |

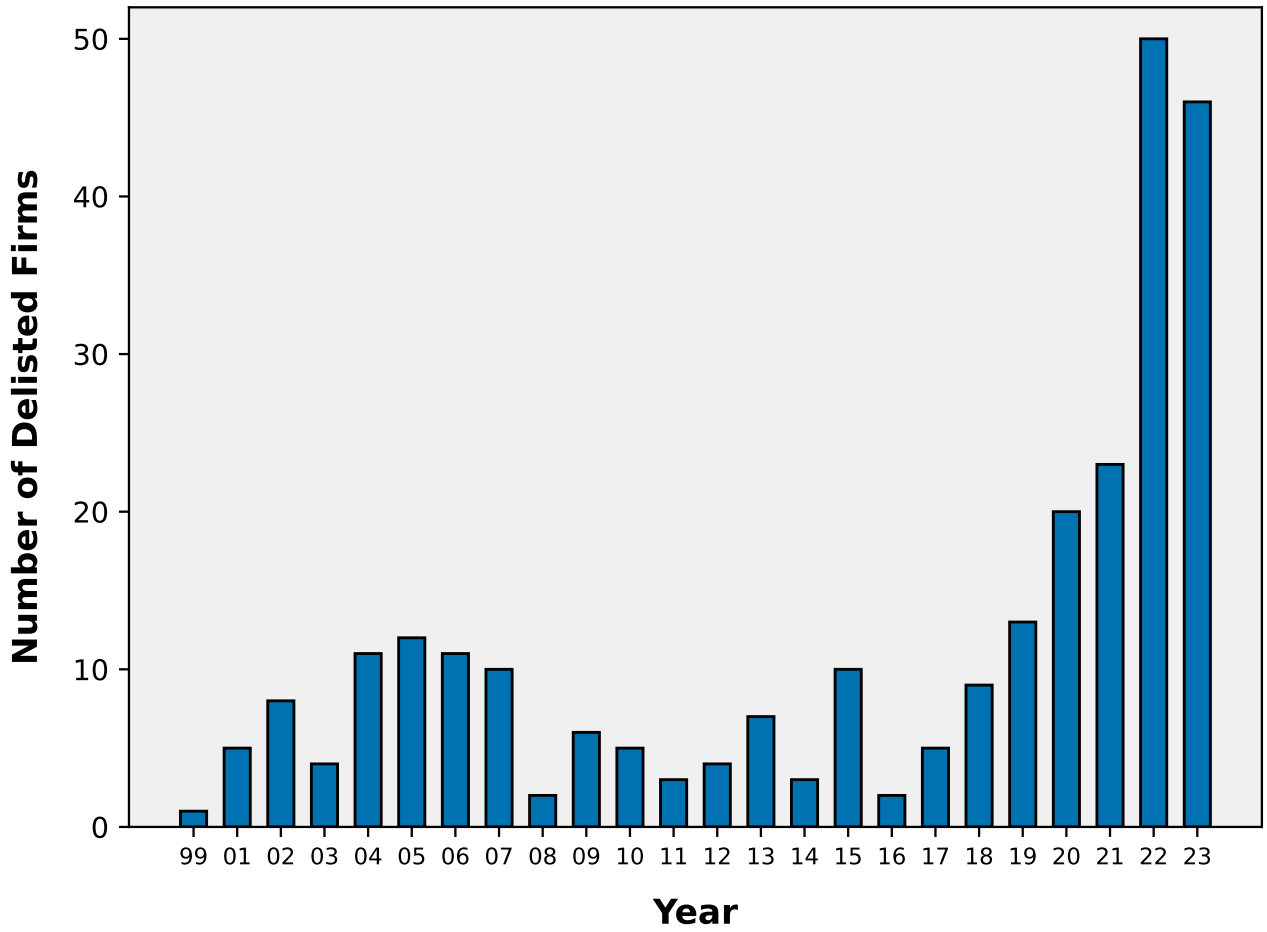
A one-SD increase in NRGL is associated with $-0.70\%$ and $-2.06\%$ lower return over the next quarter and a year, respectively.

# The 2019-2020 Reform on Delisting Rule

- The Chinese A-share stock market is known for extremely low delisting rates
- Related discussion initiated in July 2018 and the final policy in December 2020
- Key changes of the reform (effective for fiscal year 2020 financial reports):
  1. Explicitly exclude NRGL from the calculation of net profit for regulatory purpose
  2. Multi-critiria for ST labeling: negative net profit AND revenue less than 100 million Yuan
- Few reverse merger application approved, making shell firms to be delisted

- We consider this reform a shock to earnings management behavior through NRGL

# Number of Delisted Firms by Year



# $M_t$ and NRGL After the Reform

| | (1) $NRGL_t$ | (2) $NRGL_{t+1}$ |
|---|---|---|
| $\log(M/A) * POST$ | -0.002 | -0.003 |
| | (-3.04) | (-7.28) |
| $\log(M/A)$ | 0.005 | 0.011 |
| | (4.39) | (12.19) |
| Year FE | Yes | Yes |
| Firm FE | Yes | Yes |
| Controls | Yes | Yes |
| R2 | 0.118 | 0.174 |
| N | 26392 | 27884 |

- Consistent with Hypothesis 3 that the correlation between $M_t$ earnings management to be weakened as the cost of earnings management increases

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- Consistent with Hypothesis 3 that the correlation between $M_t$ earnings management to be weakened as the cost of earnings management increases
- So should the correlation between $M_t$ and future reported earnings $E_{t+k}$

# Informativeness of $M$ after the Reform: Predicting Earnings

$$\frac{E_{t+k}}{A_t} = \alpha + \beta_k log(\frac{M_t}{A_t}) + \theta_k log(\frac{M_t}{A_t}) * POST_t + \gamma \frac{E_t}{A_t} + \lambda \frac{D_t}{A_t} + v_t + \epsilon_t \quad (9)$$

- POST $= 1$ if $t + k \in \{2020, 2021, 2022\}$

| | China | | | US S&P500 | | |
|---|---|---|---|---|---|---|
| | $E_{t+1}/A_t$ | $E_{t+2}/A_t$ | $E_{t+3}/A_t$ | $E_{t+1}/A_t$ | $E_{t+2}/A_t$ | $E_{t+3}/A_t$ |
| $\log(M_t/A_t) * \text{POST}$ | -0.013 | -0.010 | -0.009 | -0.011 | 0.004 | 0.004 |
| | (-3.91) | (-3.49) | (-2.24) | (-1.65) | (0.60) | (0.68) |
| $\log(M_t/A_t)$ | 0.018 | 0.023 | 0.025 | 0.070 | 0.085 | 0.085 |
| | (5.85) | (6.07) | (5.01) | (9.29) | (10.05) | (15.75) |
| $D_t/A_t$ | 1.350 | 1.489 | 1.169 | 0.108 | 0.148 | 0.100 |
| | (6.88) | (8.47) | (5.27) | (1.75) | (2.53) | (1.85) |
| $E_t/A_t$ | 0.313 | 0.116 | 0.096 | 0.281 | 0.070 | 0.103 |
| | (4.37) | (1.53) | (1.44) | (6.22) | (2.06) | (3.33) |
| N | 1349 | 1299 | 1249 | 1283 | 1217 | 1158 |
| adj. R2 | 0.551 | 0.419 | 0.299 | 0.655 | 0.612 | 0.608 |

# Informativeness of $M$ after the Reform: Predicting Payouts

$$\frac{D_{t+k}}{A_t} = \alpha + \beta_k log(\frac{M_t}{A_t}) + \theta_k log(\frac{M_t}{A_t}) * POST_t + \gamma \frac{E_t}{A_t} + \lambda \frac{D_t}{A_t} + v_t + \epsilon_t \quad (10)$$

| | China | | | US S&P500 | | |
|---|---|---|---|---|---|---|
| | $D_{t+1}/A_t$ | $D_{t+2}/A_t$ | $D_{t+3}/A_t$ | $D_{t+1}/A_t$ | $D_{t+2}/A_t$ | $D_{t+3}/A_t$ |
| $\log(M_t/A_t) * \text{POST}$ | 0.001 | 0.002 | 0.002 | -0.011 | -0.012 | -0.018 |
| | (2.38) | (2.08) | (1.23) | (-2.07) | (-2.56) | (-2.13) |
| $\log(M_t/A_t)$ | 0.002 | 0.003 | 0.005 | 0.038 | 0.067 | 0.070 |
| | (5.37) | (5.84) | (7.73) | (4.98) | (15.17) | (14.91) |
| $D_t/A_t$ | 0.792 | 0.763 | 0.816 | 0.440 | 0.227 | 0.292 |
| | (13.44) | (9.57) | (8.51) | (4.24) | (3.76) | (4.79) |
| $E_t/A_t$ | 0.036 | 0.038 | 0.026 | 0.090 | 0.070 | 0.066 |
| | (3.96) | (3.11) | (2.68) | (4.36) | (3.55) | (2.68) |
| N | 1349 | 1299 | 1249 | 1283 | 1217 | 1158 |
| adj. R2 | 0.706 | 0.522 | 0.525 | 0.705 | 0.699 | 0.713 |

# Informativeness of $M$ after the Reform: Predicting OCF

$$\frac{OCF_{t+k}}{A_t} = \alpha + \beta_k log(\frac{M_t}{A_t}) + \theta_k log(\frac{M_t}{A_t}) * POST_t + \gamma \frac{E_t}{A_t} + \lambda \frac{D_t}{A_t} + \iota \frac{OCF_t}{A_t} + \nu_t + \epsilon_t \tag{11}$$

Panel C: Predicting operating cash flow

| | China | | | US S&P500 | | |
|---|---|---|---|---|---|---|
| | $OCF_{t+1}/A_t$ | $OCF_{t+2}/A_t$ | $OCF_{t+3}/A_t$ | $OCF_{t+1}/A_t$ | $OCF_{t+2}/A_t$ | $OCF_{t+3}/A_t$ |
| $\log(M_t/A_t) * \text{POST}$ | 0.0140 | 0.0140 | 0.0136 | 0.00555 | 0.0119 | 0.0130 |
| | (2.76) | (3.05) | (2.31) | (1.32) | (3.29) | (3.27) |
| $\log(M_t/A_t)$ | -0.0243 | -0.0183 | -0.0112 | 0.0219 | 0.0371 | 0.0340 |
| | (-6.44) | (-3.00) | (-1.77) | (8.62) | (13.22) | (8.67) |
| $D_t/A_t$ | 2.072 | 2.253 | 2.285 | 0.0949 | 0.133 | 0.0871 |
| | (5.71) | (6.41) | (4.54) | (2.72) | (3.49) | (1.49) |
| $E_t/A_t$ | 0.153 | 0.170 | 0.202 | -0.0477 | -0.111 | -0.0857 |
| | (2.68) | (1.38) | (1.78) | (-1.53) | (-3.51) | (-2.16) |
| $\text{OCF}_t/A_t$ | 0.0479 | 0.0236 | 0.0940 | 0.490 | 0.214 | 0.456 |
| | (1.00) | (0.39) | (1.25) | (6.48) | (4.14) | (4.33) |
| N | 1200 | 1150 | 1100 | 1283 | 1217 | 1157 |
| adj. $R^2$ | 0.261 | 0.224 | 0.168 | 0.731 | 0.683 | 0.667 |

# Conclusion

We propose a "manipulate-to-cater" mechanism to explain the strong correlation between $M_t$ and $E_{t+k}$ in China

- An alternative (but non-exclusive) explanation to the price informativeness hypothesis from CLW
- Provide supportive evidence based on dividend payout, earnings reversal, NRGL, and return predictability
- Exploit the 2020 delisting rule as a shock to firms' earnings management behavior for causal interpretation