



## Do Stock Prices in China Reflect the Information in Earnings Persistence?

Farshid Navissi  
(Monash University)  
Malik Mirza  
(Queensland University of Technology)  
Ivy Yao  
(Independent)

1

## Background

- Transparency and reliability of accounting information as a condition that had to be met for China to be accepted to WTO.
- A costly process where international accounting firms were involved to overhaul the accounting system in China.
- The purpose was to improve market efficiency via a transparent and reliable accounting information.

## Purpose

The purpose of our study is:

1. to examine persistence of earnings,
2. to investigate which component of earnings attributes more to earnings persistence, and
3. Whether investors use this component when pricing equities.

## Earnings Components

- Accruals:
  - Non-cash transactions
  - To smooth earnings series
  - Less reliable
- Cash Flows:
  - High reliability
  - Frequently used in equity valuation

## Information Contained in Persistence

- Questions that we address include:
  - 1. Do accounting earnings released by firms in China exhibit persistence (as a measure of earnings quality)?
  - 2. Is the persistence more attributed to accruals or cash flows?
  - 3. Do market participants use the information in persistence in pricing shares?

## Approach

- We follow an approach similar to Sloan (1996) for firms listed on the two stock exchanges in China.
- The idea is to compare the results from an emerging market with those already documented in the well established capital markets.

## Models

- Models

We first evaluate the persistence of earnings for the sample firms using the following model:

$$Earnings_{t+1} = \alpha_0 + \alpha_1 Earnings_t + v_{t+1}$$

## Models

- Furthermore, we decompose earnings into accruals and cash flows and test whether the persistence of earnings is more attributed to accruals or cash flows:

$$Earnings_{t+1} = \gamma_0 + \gamma_1 Accruals_t + \gamma_2 CashFlows_t + v_{t+1}$$

## Models

We use Mishkin (1982) and Sloan (1996) models to investigate whether investors in China use the information in earnings persistence and earnings components to price stock.

$$r_{t+1} - r_{t+1} / \phi_t = \beta(X_{t+1} - X_{t+1}^e) + \varepsilon_{t+1}$$

That is, abnormal return is a function of abnormal earnings. If there is perfect persistence, then

$$r_{t+1} - r_{t+1} / \phi_t = 0$$

## Models

We can rearrange the return equation as:

$$r_{t+1} - r_{t+1} / \phi_t = \beta(Earnings_{t+1} - \alpha_0 - \alpha_1^* Earnings_t) + \varepsilon_{t+1}$$

The right-hand-side is the re-arrangement of earnings persistence model.

## Models

$$Earnings_{t+1} = \gamma_0 + \gamma_1 Accruals_t + \gamma_2 CashFlows_t + v_{t+1}$$

$$r_{t+1} - r_{t+1} / \phi_t = \beta(Earnings_{t+1} - \gamma_0 - \gamma_1^* Accruals_t - \gamma_2^* CashFlow_t) + \varepsilon_{t+1}$$

11

11

## Data

- Industrial firms listed on Shanghai and Shenzhen exchanges.
- Accounting and market data obtained from Datastream from 1989 to 2004.
- Industry info from Datastream indicates 91 industries.
- We allocate industries to 17 broad sectors, to be used in models to control for industry effects.
- The data ranges from 3170 to 3992 firm years for various tests.

12

12

## Results

**TABLE 2**  
Results from OLS Regressions of Future Earnings Performance on  
Current Earnings Performance for 3922 Firm-years from 1989 to 2003

$$Earnings_{t+1} = \alpha_0 + \alpha_1 Earnings_t + v_{t+1}$$

	Pooled Mean (t-statistic)	Mean (t-statistic)	Industry Level		
			Q1	Median	Q3
<i>Panel A: Regressions using actual values</i>					
$\alpha_0$	0.0064 (6.38) <sup>***</sup>	0.0076 (3.67) <sup>***</sup>	0.0027	0.0041	0.0107
$\alpha_1$	0.5107 (35.43) <sup>***</sup>	0.4967 (12.34) <sup>***</sup>	0.3855	0.4607	0.6247
<i>Panel B: Regressions using decile rankings</i>					
$\alpha_0$	1.3417 (20.22) <sup>***</sup>	1.4160 (16.03) <sup>***</sup>	1.2339	1.3417	1.6018
$\alpha_1$	0.7385 (69.04) <sup>***</sup>	0.7304 (38.18) <sup>***</sup>	0.6747	0.7319	0.7872

**TABLE 3**  
**Results from OLS Regressions of Future Earnings Performance on**  
**the Accrual and Cash Flow Components of Current Earnings Performance for**  
**3222 Firm-years from 1989 to 2003**

$$Earnings_{t+1} = \gamma_0 + \gamma_1 Accruals_t + \gamma_2 CashFlow_t + v_{t+1}$$

	Pooled		Industry Level		
	Mean (t-statistic)	Mean (t-statistic)	Q1	Median	Q3
<i>Panel A: Regressions using actual values</i>					
$\gamma_0$	0.0055 (4.95)***	0.0067 (2.79)***	0.0011	0.0031	0.0086
$\gamma_1$	0.4888 (29.64)***	0.4701 (10.77)***	0.3620	0.4223	0.6071
$\gamma_2$	0.5002 (29.98)***	0.4761 (11.55)***	0.3436	0.4333	0.5529
<i>t-statistic of <math>\gamma_1 = \gamma_2</math> : 1.82</i>					
<i>Panel B: Regressions using decile rankings</i>					
		Mean	Q1	Median	Q3
$\gamma_0$	-1.7190 (-6.54)***	-3.2053 (-4.76)***	-5.2010	-2.9120	-1.2471
$\gamma_1$	0.7388 (28.11)***	0.7189 (11.82)***	0.5327	0.6629	0.9009
$\gamma_2$	0.8373 (31.85)***	0.8227 (12.26)***	0.6085	0.7685	1.0682
<i>t-statistic of <math>\gamma_1 = \gamma_2</math> : 32.53***</i>					

**TABLE 4**  
**Results from Nonlinear Generalized Least Squares Estimation of the Stock Price**  
**Reaction to Information in Current Earnings about Future Earnings for 3687**  
**Firm-years from 1989 to 2003**

$$Earnings_{t+1} = \alpha_0 + \alpha_1 Earnings_t + v_{t+1}$$

$$r_{t+1} - r_{t+1} / \phi_t = \beta(Earnings_{t+1} - \alpha_0 - \alpha_1^* Earnings_t) + \varepsilon_{t+1}$$

Parameter	Estimate	Standard Error
<i>Panel A: Regressions using actual values</i>		
$\alpha_1$	0.5107	0.0144
$\alpha_1^*$	0.1857	0.0650
$\beta$	0.1565	0.1081
Test of market efficiency:	$\alpha_1 = \alpha_1^*$	
Likelihood ratio statistic:	7.38***	
<i>Panel B: Regressions using decile rankings</i>		
$\alpha_1$	0.7385	0.0107
$\alpha_1^*$	0.0687	0.0166
$\beta$	0.1130	0.0398
Test of market efficiency:	$\alpha_1 = \alpha_1^*$	
Likelihood ratio statistic:	49.74***	

**TABLE 5**  
**Results from Non-linear Generalized Least Squares Estimation of the Stock Price Reaction to Information in the Accruals and Cash Flow Components of Current Earnings about Future Earnings for 3170 Firm-years from 1989 to 2003**

$$Earnings_{t+1} = \gamma_0 + \gamma_1 Accruals_t + \gamma_2 CashFlow_t + v_{t+1}$$

$$r_{t+1} - r_{t+1} / \phi_t = \beta(Earnings_{t+1} - \gamma_0 - \gamma_1^* Accruals_t - \gamma_2^* CashFlow_t) + \varepsilon_{t+1}$$

Parameter	Estimate	Standard Error
<i>Panel A: Regressions using actual values</i>		
$\gamma_1$	0.4888	0.0165
$\gamma_1^*$	0.1942	0.0654
$\gamma_2$	0.5002	0.0167
$\gamma_2^*$	0.2544	0.0667
$\beta$	0.0952	0.0154
Test of market efficiency:	$\gamma_1 = \gamma_1^*$	$\gamma_2 = \gamma_2^*$
Likelihood ratio statistic:	1.14	7.44***
<i>Panel B: Regressions using decile rankings</i>		
Parameter	Estimate	Standard Error
$\gamma_1$	0.7388	0.0263
$\gamma_1^*$	0.0779	0.0307
$\gamma_2$	0.8373	0.0263
$\gamma_2^*$	0.1042	0.0306
$\beta$	0.1108	0.0674
Test of market efficiency:	$\gamma_1 = \gamma_1^*$	$\gamma_2 = \gamma_2^*$
Likelihood ratio statistic:	46.55***	52.91***

\*\*\* Significant at the 1% level using a two-tailed test.

## Conclusion

- It appears that although significant earnings persistence exists in Chinese firms, the information contained in earnings persistence is not effectively used by investors.
- Furthermore, both components of earnings prove to be under-utilized by investors.
- A possible reason for this could be that investors still do not trust the quality of financial information reported by Chinese firms.