# Heterogeneous beliefs and return volatility around seasoned equity offerings

JFE 2020.08

汇报人：刘若玉

2019年9月30日

# Authors

Ann Marie Hibbert

- Associate Professor and Finance Ph.D. Program coordinator in John Chambers College of Business and Economics, West Virginia University

## EDUCATION

- Ph.D., Finance, Florida International University, 2008
- MBA, Florida International University, 2003
- B. S., (Honors) Electrical and Computer Engineering, University of the West Indies, 1995

**Research Interests**: behavioral corporate finance, corporate governance, SEOs and mergers and acquisitions

Qiang Kang

- Associate Professor Department of Finance in College of Business, Florida International University, Modesto A. Maidique Campus

## EDUCATION

- PhD, Economics, University of Pennsylvania, Philadelphia, Pennsylvania
- Master of Arts, Economics
  University of Iowa, Iowa City, Iowa
- Master of Arts, Economics, Graduate School of the People' s Bank of China, Beijing , China
- Bachelor of Arts, Economics
  Renmin University of China, Beijing, China

- **Research Interests:** Capital Market Research in Accounting, Corporate Governance in connection with Macroeconomics, Empirical Asset Pricing and Managerial Compensation, Interactions between Financial Markets and Corporate Decisions

## Publications:

[1] Kang, Q. (2019). Business-Cycle Pattern of Asset Returns: A General Equilibrium Explanation. *Annals of Finance, 15*(4).
[2] Huang, L., & Kang, Q. (2018). Information, Investment Adjustment, and the Cost of Capital. *Journal of Financial and Quantitative Analysis, 53*(4).

ALOK KUMAR

- Gabelli Asset Management Professor in Miami Herbert Business School, University of Miami,

## EDUCATION:

- Ph.D., Economics, Cornell University, 2003
- Management, Finance, Yale University, 2001
- M.E., Engineering Management, Dartmouth College, 1993
- M.S., Engineering Science, Robotics, Dartmouth College, 1992
- B.Tech., Mechanical Engineering with honors, Indian Institute of Technology (Kharagpur, India), 1991

**Research Interests:** Behavioral finance; empirical asset pricing; corporate finance; computational economics

## Publications:

[1] Political Values, Culture, and Corporate Litigation (with Irena Hutton and Danling Jiang). *Management Science*, 61 (12), 2905-2925.

[2] Income Hedging and Portfolio Decisions (with Yosef Bonaparte and George Korniotis). *Journal of Financial Economics*, 113 (2), 300-324.

Suchismita Mishra

- Professor Department of Finance in College of Business, Florida International University, Modesto A. Maidique Campus

## EDUCATION:

- PhD, Finance
  University of Nebraska, Lincoln, Nebraska
- Master of Arts, International Economics
  University of Nebraska, Lincoln, Nebraska
- Master of Arts, Applied & Analytical Economics
  Utkal University, Bhubaneswar, India
- Bachelor of Arts, Economics
  Utkal University, Bhubaneswar, India
- **Research Interests**: Corporate Finance, Financial Markets and Institutions, International Finance, Interactions Between Financial Markets and Corporate Decisions, Corporate Governance in Connection with Macroeconomics, Regulations and Capital Market Research

## Publications:

[1] Mishra, S., Lobanova, O., Aidov, A., & Raghunandan, K. (2020). Dual–Class Ownership Structure and Audit Fees. *International Journal of Auditing, 24*(1).

**1. Introduction**

**2. Sample construction, data description, and variable definitions**

**3. Dynamics of heterogeneous beliefs around SEOs**

**4. Linking heterogeneous beliefs to firm volatility around SEOs**

**5. Further evidence from institutional trading and short selling**

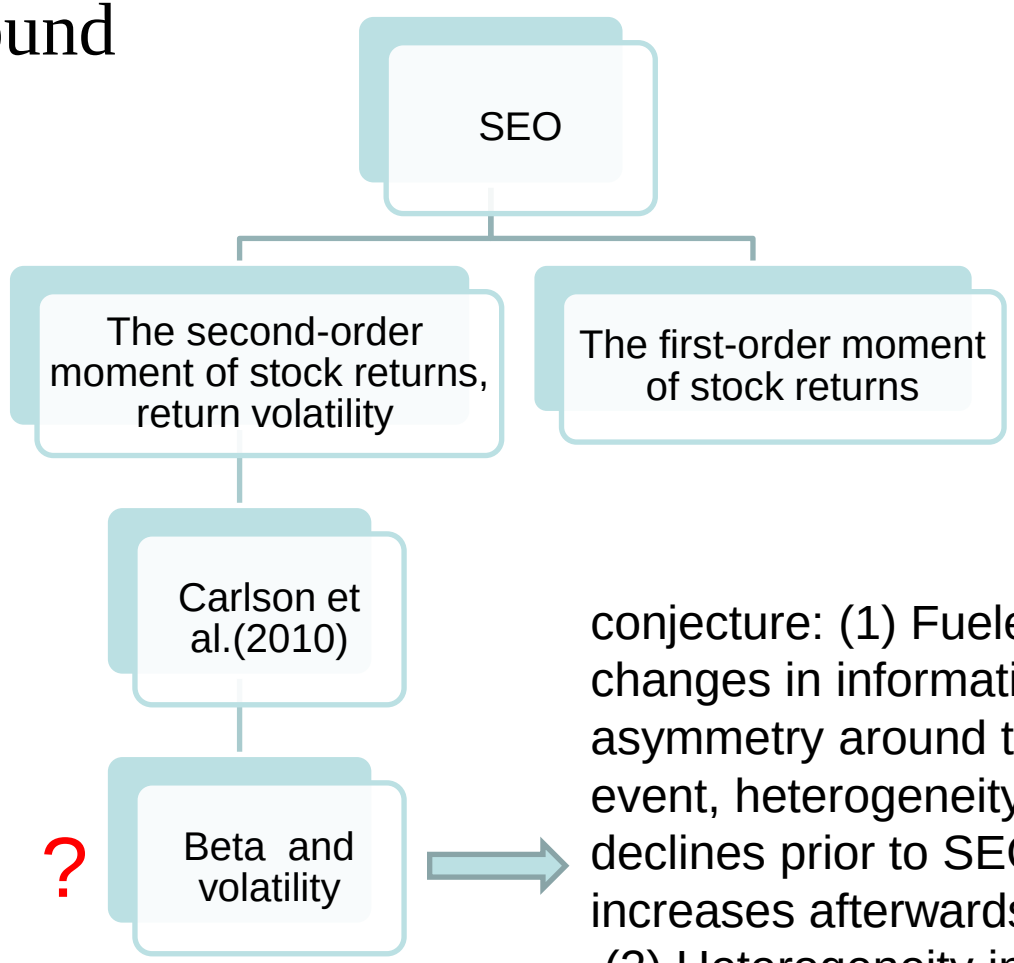
**6. Summary and conclusion**

# Abstract


- We investigate the dynamics of heterogeneous beliefs and link them to the volatility pattern throughout the seasoned equity offering (SEO) event window.
- In sync with a reduction in information asymmetry related to management information releases around the SEO event, belief heterogeneity declines.
- Moreover, heterogeneity in beliefs, proxied by either analyst- or institutional-trade-based measures, is a robust and salient determinant of SEO firm volatility, which provides an explanation for the volatility timing “puzzle” identified in the SEO market.
- Furthermore, the relation between heterogeneous beliefs and return volatility weakens as short sale constraints tighten, suggesting a potential causal link.

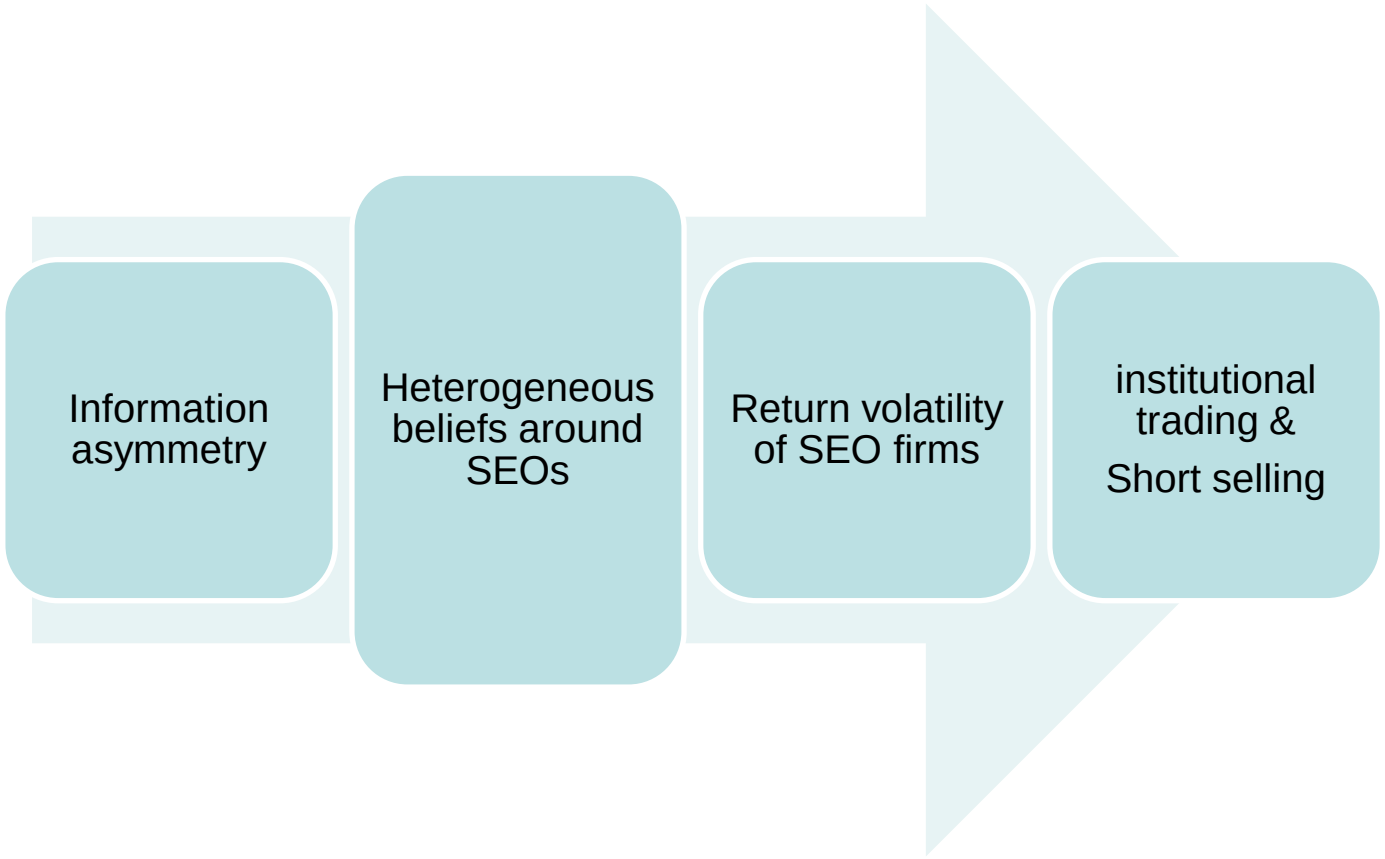
# 1.Introduction

# A. Background




conjecture: (1) Fueled by the changes in information asymmetry around the SEO event, heterogeneity in beliefs declines prior to SEOs and increases afterwards,
(2) Heterogeneity in beliefs affects return volatility.

# B. The main work



# C. Contribution

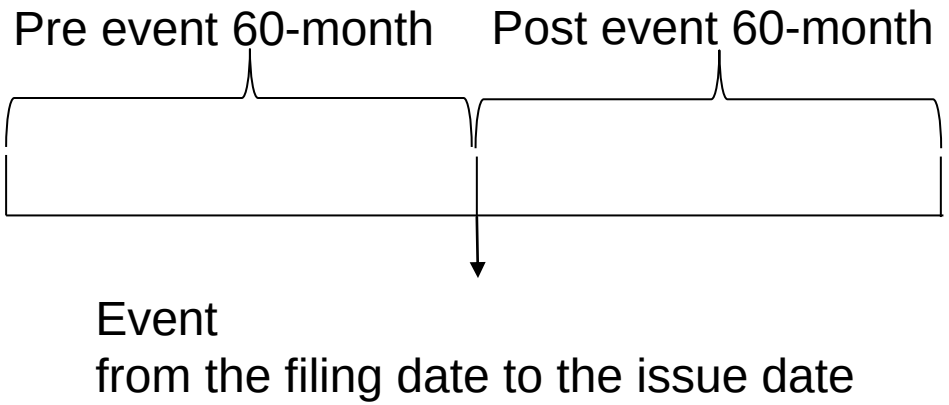
- We document the V-shaped dynamics of heterogeneous beliefs around the SEO event, which is new to the literature.
- We find that total return volatility and analyst earnings forecast dispersion share similar dynamics, i.e., decreasing before the announcement of the SEO and increasing after issuance.
- We consider two categories of beliefs, i.e., optimism and pessimism, to further understand the divergence in beliefs after the SEO event.
- We test the robustness of our findings with a subsample of actual institutional trading of the SEO firms that are often regarded as sophisticated traders.
- We find that the link between heterogeneous beliefs and return volatility weakens as the level of short interest increases.

## 2. Sample construction, data description, and variable definitions

# A. **Data**

Our initial sample includes data on all SEOs conducted by U.S. companies from January 1980 to December 2011 from Thomson Reuters' Securities Data Corporation (SDC) Platinum database, a total of 15,087 observations.

our final sample contains 4501 issuances made by 2630 firms.



# B. Variable definitions

| Variables | Definitions |
|---|---|
| **Volatility measures** | |
| *Firmvol* | Firm volatility, calculated as the square root of the annualized variance of the firm's daily returns. The return variance in each month is calculated as the average of the daily squared returns in the month. |
| *Mktvol* | Market volatility, calculated as the square root of the annualized variance of the market's daily returns. The return variance in each month is calculated as the average of the daily squared returns in the month. |
| **Heterogeneity in beliefs measures - Analyst forecasts** | |
| *Disp* | Forecast dispersion, calculated as the standard deviation of earnings forecasts for the current fiscal year end scaled by the absolute value of the mean of the forecasts. |
| *Ferror* | Analyst earnings forecast error, calculated as the absolute value of the difference between the actual earnings and the mean of the forecasts for the current fiscal year end, and scaled by the absolute value of the actual earnings. |
| *Dconf* | Indicator variable that is equal to one if the mean of the earnings forecast is two standard deviations above the actual earnings, and zero otherwise. |
| *Dpess* | Indicator variable that is equal to one if the mean of the earnings forecast is two standard deviations below the actual earnings, and zero otherwise. |
| **Regression controls** | |
| *Me* | Market capitalization, calculated as share price x number of shares outstanding. |
| *Beta* | Stock beta, estimated by regressing the log of firm excess returns against log of the market excess returns over the 21-day (monthly) periods. For the event period defined as between the filing and issue dates, we require at least ten trading days for estimation; if not, we expand the period by adding one week before the filing date and one week after the issue date to estimate stock betas. |
| *Turnover* | Share turnover ratio, calculated as trading volume divided by the number of shares outstanding. |
| *Numest* | Analyst coverage, i.e., the number of analysts covering a firm, set to zero if it is missing. |
| Variables | Definitions |
| *Firmage* | Firm age, calculated as the number of years since the firm first appeared in CRSP/Compustat. |
| *Firmret* | Firm return, calculated as the compounded daily returns accrued in each month for each firm. |
| *Amihud* | Stock illiquidity, calculated per Amihud (2002) as the ratio of the daily absolute return to the dollar trading volume on that day, averaged across each month. |
| *Mtb* | Market-to-book asset ratio, calculated as the market value of assets divided by book value of assets, where the market value of assets equals the sum of stock market capitalization, total debt, and preferred stock carrying value minus deferred taxes and investment tax credit. |
| *Bklev* | Firm book leverage, calculated as the ratio of total debt to total asset, where total debt is the sum of debt in current liabilities and total long-term debt. |

Earnings quality

| | |
|---|---|
| *Abtac_ib* | The absolute value of the ratio of total accruals to earnings; we measure accruals as the difference between earnings and cash flows, where earnings is income before extraordinary items and cash flows is net cash flows from operating activities. |
| *Abdtac* | The absolute value of discretionary accruals, estimated using the modified cross-sectional Jones (1991) model over each two-digit-SIC industry containing at least ten firm observations. |
| *RM1* | A measure of real earnings management, calculated as the abnormal production costs less abnormal discretionary expenses (Cohen and Zarowin, 2010). |
| *RM2* | A measure of real earnings management, calculated as the negative of the sum of abnormal cash flow from operations and abnormal discretionary expenses (Cohen and Zarowin, 2010). |
| *Mbeat1* | Indicator variable that equals one if a firm's reported EPS equals analyst consensus EPS forecast or exceeds the consensus forecast by no more than one cent, and zero otherwise. |
| *Mbeat2* | Indicator variable that equals one if a firm's reported EPS equals analyst consensus EPS forecast or exceeds the consensus forecast by no more than two cents, and zero otherwise. |
| *Abpcdif* | The absolute value of the difference between the mid-point EPS guidance and analyst consensus EPS forecast, scaled by the absolute value of analyst consensus forecast. The mid-point guidance is equal to the average value of the lower and upper bounds of EPS guidance if a range is given or the EPS guidance if no range is given. |

Heterogeneity in beliefs measures - Institutional traders

| | |
|---|---|
| *BSIratio* | The daily buy-minus-sell dollar volume of a stock for each institution from ANcerno, scaled by the total dollar volume of that stock for the same day obtained from CRSP, similar to Goetzmann et al. (2015). |
| *Pctneg* | The number of institutions with negative average *BSIratio* during that period divided by the total number of institutions having traded the stock (i.e., the sum of the number of institutions with negative average *BSIratio* and the number of institutions with positive average *BSIratio*) during the same period. |
| *Abspct* | Equals *Pctneg* if *Pctneg* is less than 0.5, and equals one minus *Pctneg* otherwise. |

Short selling constraint

| | |
|---|---|
| *pcshort* | Monthly short interest ratio, calculated as the ratio of the month-end split-adjusted short interest for each calendar month, obtained from the Compustat monthly short interest database, to the corresponding monthly total shares outstanding, obtained from the CRSP monthly return file. |
| *Relative pcshort* | Relative monthly short interest ratio, calculated as the difference between the stock's current *pcshort* and its past 12-month average level of *pcshort*. |

# 3. Dynamics of heterogeneous beliefs around SEOs

# Summary statistics

*Panel A: Variables in monthly frequency*

| | Nobs | Mean | Stdev | P50 | Min | P1 | P99 | Max |
|---|---|---|---|---|---|---|---|---|
| Firmvol | 406,611 | 0.576 | 0.407 | 0.481 | 0.000 | 0.134 | 1.999 | 30.740 |
| Mktvol | 406,611 | 0.150 | 0.091 | 0.125 | 0.021 | 0.054 | 0.493 | 0.828 |
| Beta | 406,611 | 1.014 | 1.397 | 0.949 | −64.069 | −2.608 | 4.858 | 48.331 |
| Disp | 316,559 | 0.244 | 1.420 | 0.060 | 0.000 | 0.000 | 3.063 | 146.000 |
| Ferror | 344,567 | 0.672 | 3.791 | 0.127 | 0.000 | 0.000 | 8.750 | 255.000 |
| Dconf | 346,135 | 0.244 | 0.429 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 |
| Dpess | 346,135 | 0.277 | 0.447 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 |
| Turnover | 402,735 | 1.852 | 2.759 | 1.127 | 0.000 | 0.063 | 11.233 | 262.573 |
| Ln(Me) | 405,694 | 12.616 | 1.695 | 12.584 | 5.135 | 8.772 | 16.943 | 20.042 |
| Firmage | 405,693 | 11.252 | 13.102 | 6.762 | 0.077 | 0.252 | 67.625 | 89.389 |
| Numest | 346,197 | 7.583 | 6.223 | 6.000 | 1.000 | 1.000 | 29.000 | 51.000 |
| Firmret | 405,694 | 0.018 | 0.197 | 0.004 | −0.972 | −0.419 | 0.624 | 13.495 |
| Amihud | 403,770 | 0.299 | 0.672 | 0.118 | 0.000 | 0.008 | 2.913 | 45.449 |
| Bklev | 379,640 | 0.244 | 0.250 | 0.201 | 0.000 | 0.000 | 1.048 | 4.910 |
| Mtb | 379,355 | 2.226 | 2.859 | 1.434 | 0.031 | 0.377 | 11.620 | 105.004 |

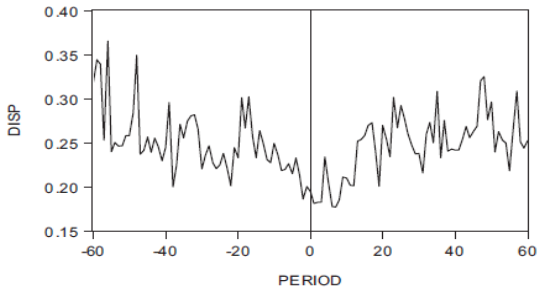
*Panel B: Variables in annual frequency*

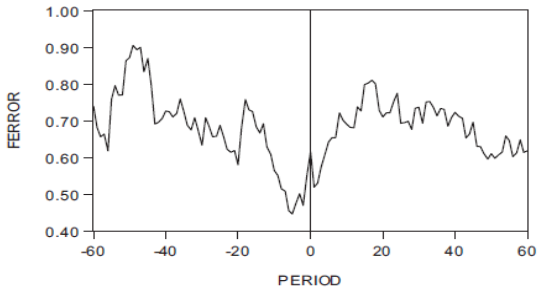
| | Nobs | Mean | Stdev | P50 | Min | P1 | P99 | Max |
|---|---|---|---|---|---|---|---|---|
| Abtac_ib | 33,953 | 2.455 | 5.109 | 0.913 | 0.000 | 0.014 | 31.329 | 37.190 |
| Abdtac | 33,800 | 0.100 | 0.126 | 0.056 | 0.000 | 0.001 | 0.655 | 1.042 |
| RM1 | 26,250 | −0.137 | 0.492 | −0.074 | −4.056 | −1.880 | 1.047 | 3.201 |
| RM2 | 27,942 | −0.109 | 0.335 | −0.059 | −2.722 | −1.298 | 0.639 | 2.418 |
| Mbeat1 | 32,432 | 0.138 | 0.345 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 |
| Mbeat2 | 32,432 | 0.229 | 0.420 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 |
| Abpcdif | 12,616 | 0.153 | 1.343 | 0.029 | 0.000 | 0.000 | 1.439 | 101.000 |

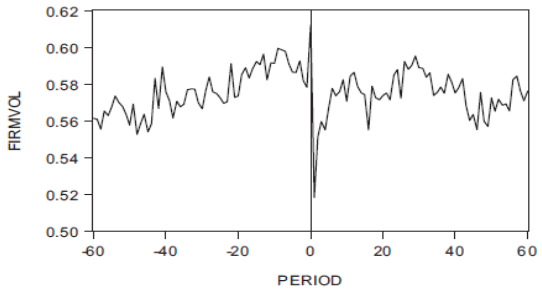
# *3.1Dynamics of heterogeneous beliefs*

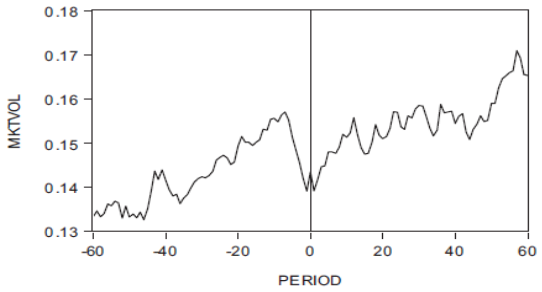
Regressions of selected variables against event times

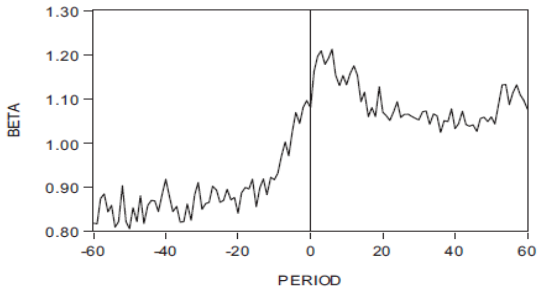
| | (1) Disp | (2) Ferror | (3) Firmvol | (4) Mktvol | (5) Beta | (6) Turnover | (7) Amihud |
|---|---|---|---|---|---|---|---|
| Constant: | 0.192*** | 0.557*** | 0.567*** | 0.140*** | 1.115*** | 2.181*** | 0.185*** |
| Base = [−1,+1] | (0.012) | (0.043) | (0.006) | (0.001) | (0.016) | (0.050) | (0.006) |
| $D_{[-60,-25]}$ | 0.067*** | 0.178*** | 0.002 | −0.002 | −0.258*** | −0.930*** | 0.286*** |
| | (0.016) | (0.066) | (0.007) | (0.002) | (0.018) | (0.046) | (0.016) |
| $D_{[-24,-13]}$ | 0.060*** | 0.114** | 0.017*** | 0.009*** | −0.229*** | −0.817*** | 0.234*** |
| | (0.019) | (0.054) | (0.006) | (0.001) | (0.016) | (0.042) | (0.011) |
| $D_{[-12,-2]}$ | 0.030** | −0.041 | 0.024*** | 0.012*** | −0.129*** | −0.543*** | 0.132*** |
| | (0.012) | (0.040) | (0.004) | (0.001) | (0.014) | (0.035) | (0.007) |
| $D_{[2,12]}$ | 0.005 | 0.092* | 0.004 | 0.008*** | 0.057*** | 0.115*** | −0.013*** |
| | (0.011) | (0.050) | (0.004) | (0.001) | (0.013) | (0.036) | (0.003) |
| $D_{[13,24]}$ | 0.064*** | 0.201** | 0.008* | 0.011*** | −0.028* | −0.017 | 0.019*** |
| | (0.015) | (0.084) | (0.005) | (0.001) | (0.015) | (0.042) | (0.005) |
| $D_{[25,60]}$ | 0.069*** | 0.118** | 0.010* | 0.018*** | −0.050*** | −0.051 | 0.060*** |
| | (0.013) | (0.051) | (0.006) | (0.001) | (0.016) | (0.045) | (0.008) |
| Nobs | 316,559 | 344,567 | 406,611 | 406,611 | 406,611 | 402,735 | 403,770 |
| *R*-squared | 0.000 | 0.000 | 0.000 | 0.006 | 0.006 | 0.022 | 0.026 |

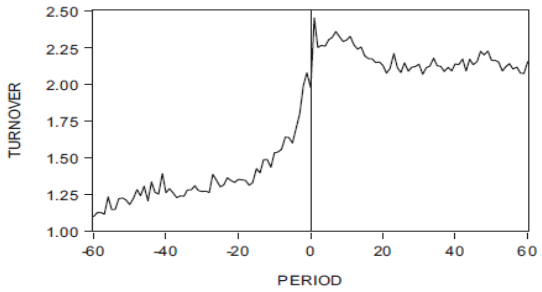


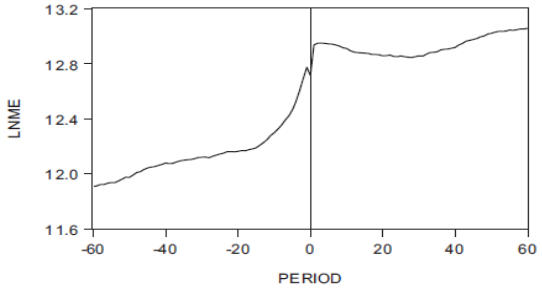



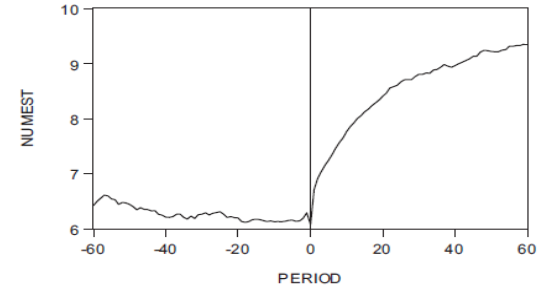



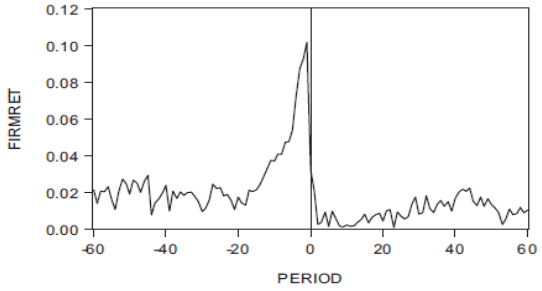



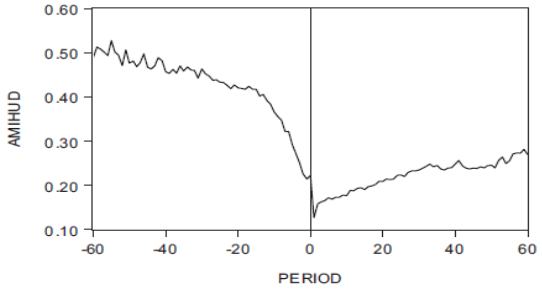



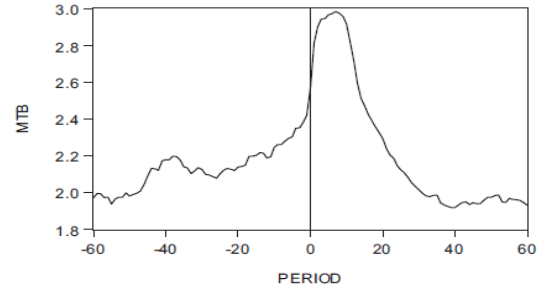



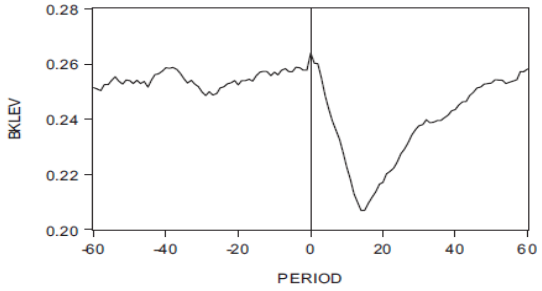



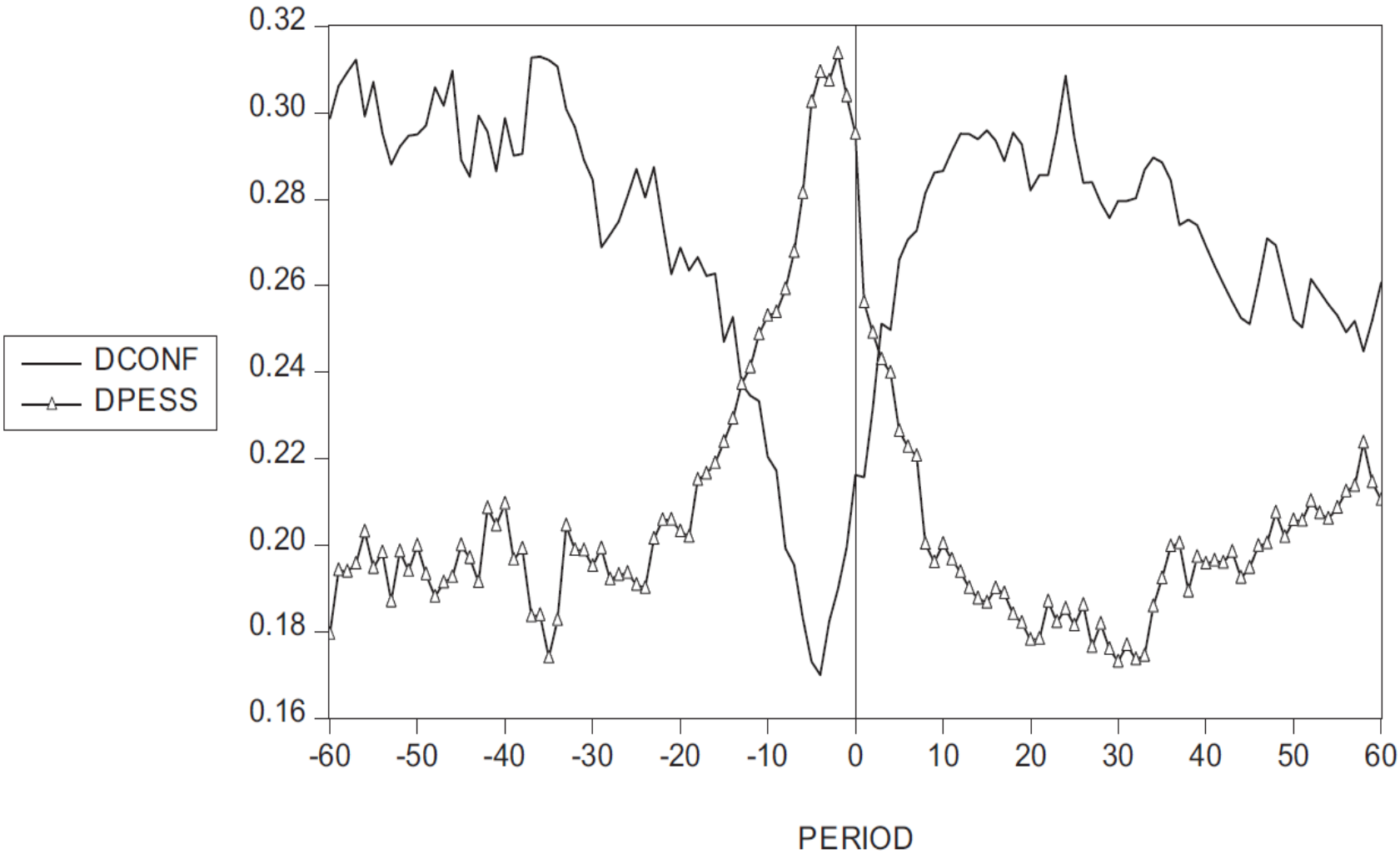



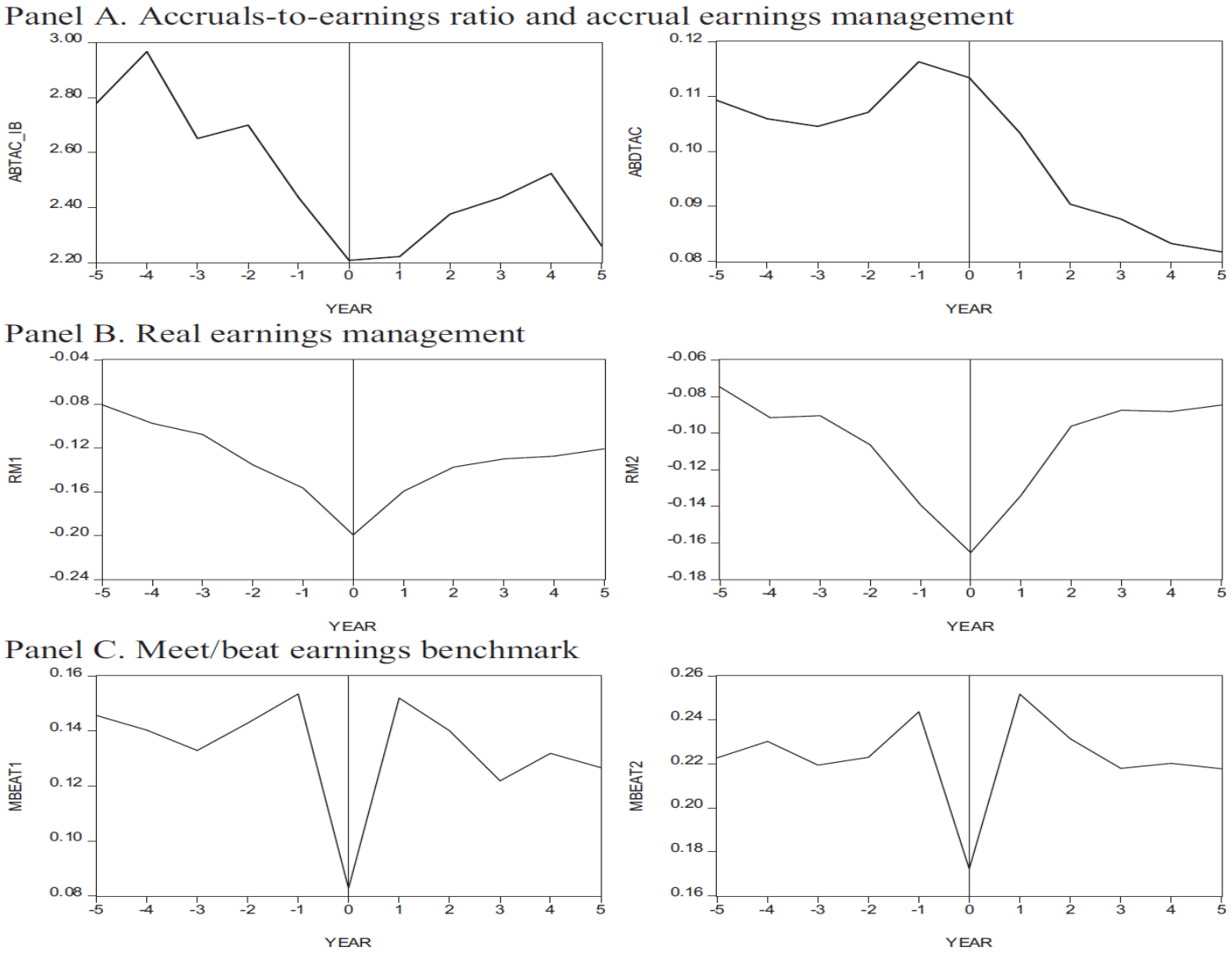



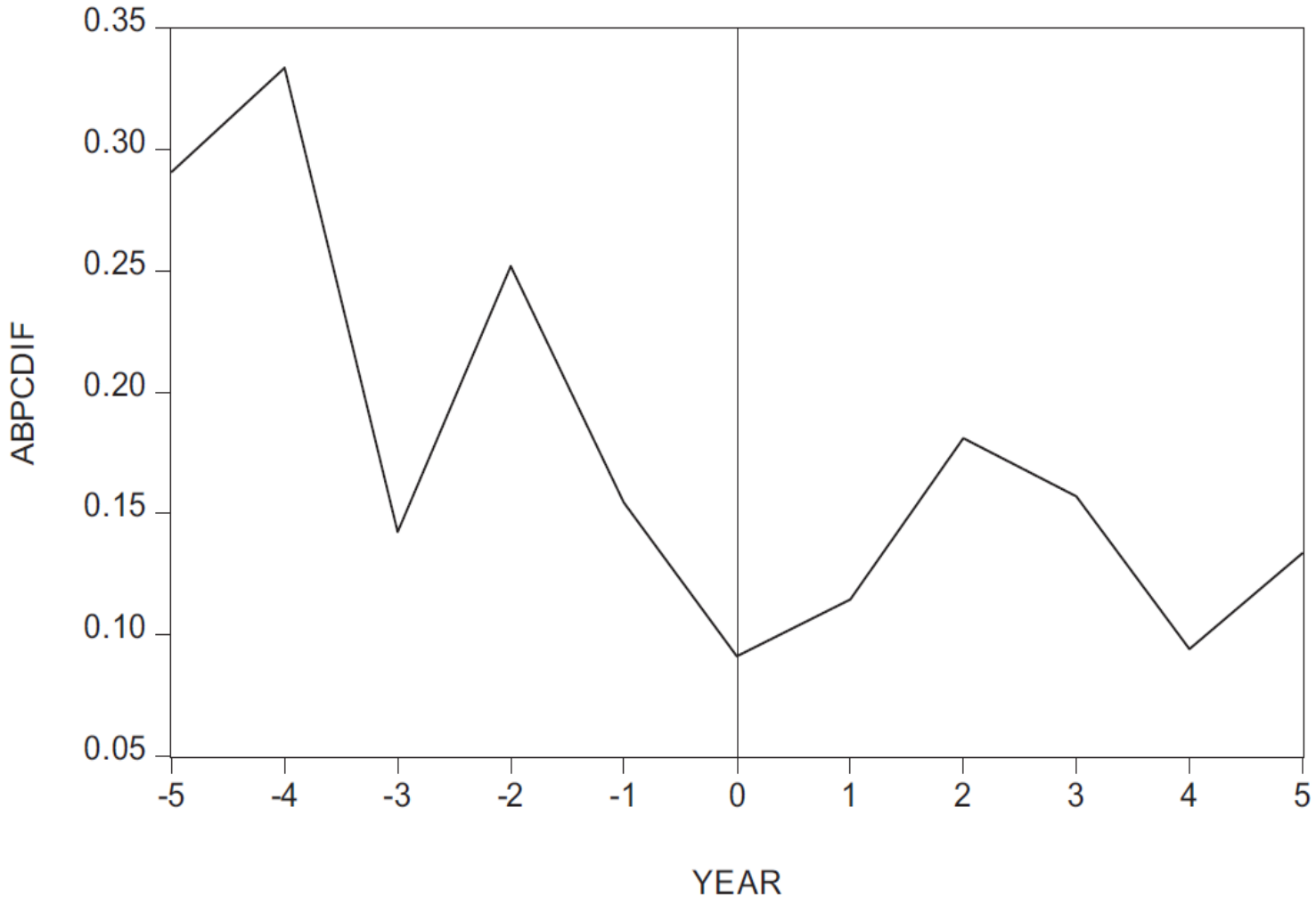




DCONF
DPESS
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
-60
-50
-40
-30
-20
-10
0
10
20
30
40
50
60
PERIOD

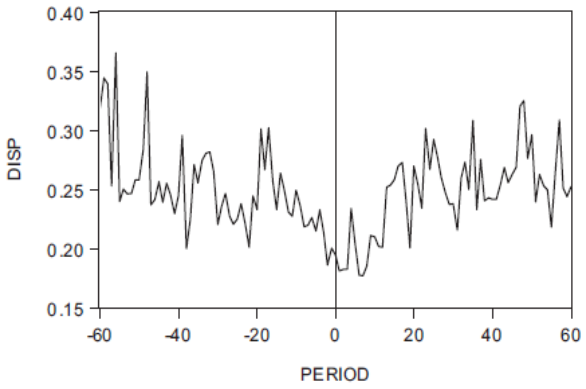
## *3.2. Potential mechanisms for dynamics of heterogeneous beliefs*

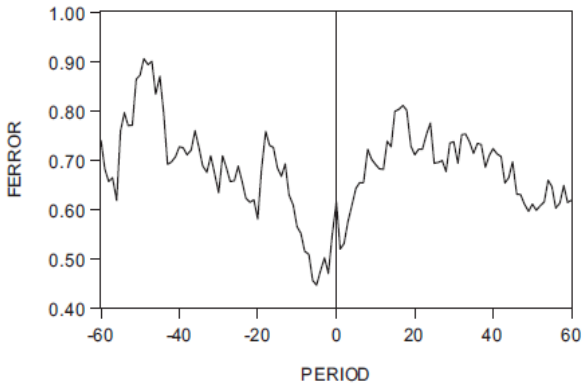


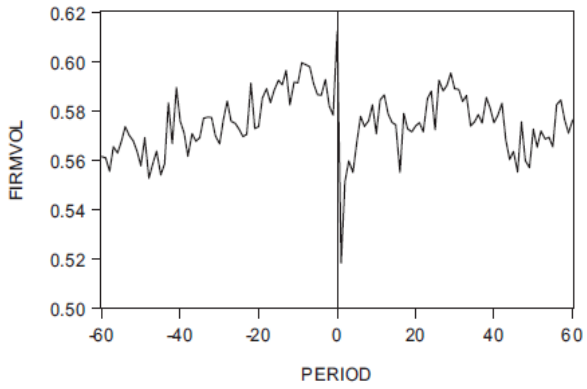

0.35
0.30
0.25
0.20
0.15
0.10
0.05
ABPCDIF
-5
-4
-3
-2
-1
0
1
2
3
4
5
YEAR

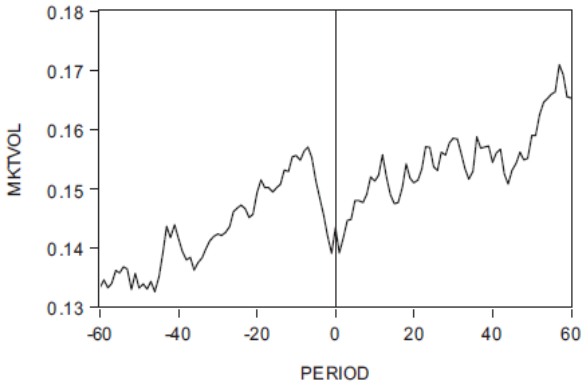
# 4. Linking heterogeneous beliefs to firm volatility around SEOs

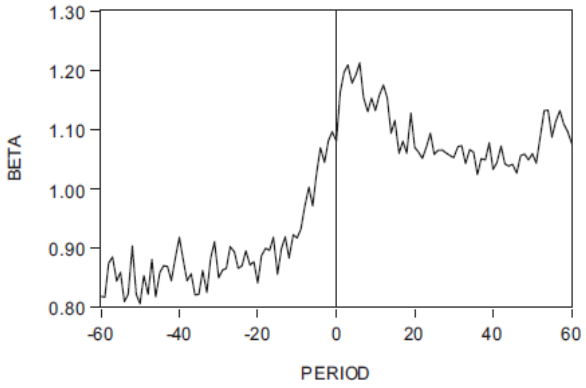
# *4.1. Dynamics of firm volatility and market volatility around SEOs*

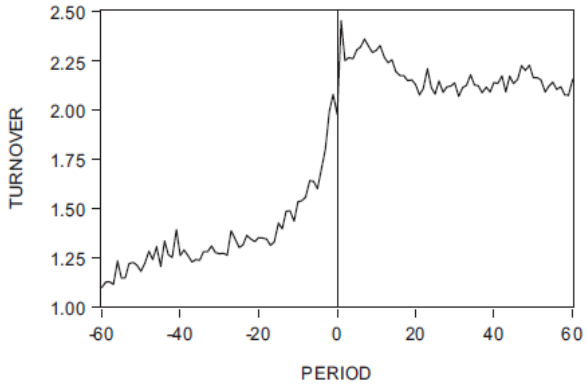


# *4.1. Dynamics of firm volatility and market volatility around SEOs*

Regressions of selected variables against event times

| | (1) Disp | (2) Ferror | (3) Firmvol | (4) Mktvol | (5) Beta | (6) Turnover | (7) Amihud |
|---|---|---|---|---|---|---|---|
| Constant: | 0.192*** | 0.557*** | 0.567*** | 0.140*** | 1.115*** | 2.181*** | 0.185*** |
| Base = [−1,+1] | (0.012) | (0.043) | (0.006) | (0.001) | (0.016) | (0.050) | (0.006) |
| $D_{[-60,-25]}$ | 0.067*** | 0.178*** | 0.002 | −0.002 | −0.258*** | −0.930*** | 0.286*** |
| | (0.016) | (0.066) | (0.007) | (0.002) | (0.018) | (0.046) | (0.016) |
| $D_{[-24,-13]}$ | 0.060*** | 0.114** | 0.017*** | 0.009*** | −0.229*** | −0.817*** | 0.234*** |
| | (0.019) | (0.054) | (0.006) | (0.001) | (0.016) | (0.042) | (0.011) |
| $D_{[-12,-2]}$ | 0.030** | −0.041 | 0.024*** | 0.012*** | −0.129*** | −0.543*** | 0.132*** |
| | (0.012) | (0.040) | (0.004) | (0.001) | (0.014) | (0.035) | (0.007) |
| $D_{[2,12]}$ | 0.005 | 0.092* | 0.004 | 0.008*** | 0.057*** | 0.115*** | −0.013*** |
| | (0.011) | (0.050) | (0.004) | (0.001) | (0.013) | (0.036) | (0.003) |
| $D_{[13,24]}$ | 0.064*** | 0.201** | 0.008* | 0.011*** | −0.028* | −0.017 | 0.019*** |
| | (0.015) | (0.084) | (0.005) | (0.001) | (0.015) | (0.042) | (0.005) |
| $D_{[25,60]}$ | 0.069*** | 0.118** | 0.010* | 0.018*** | −0.050*** | −0.051 | 0.060*** |
| | (0.013) | (0.051) | (0.006) | (0.001) | (0.016) | (0.045) | (0.008) |
| Nobs | 316,559 | 344,567 | 406,611 | 406,611 | 406,611 | 402,735 | 403,770 |
| *R*-squared | 0.000 | 0.000 | 0.000 | 0.006 | 0.006 | 0.022 | 0.026 |

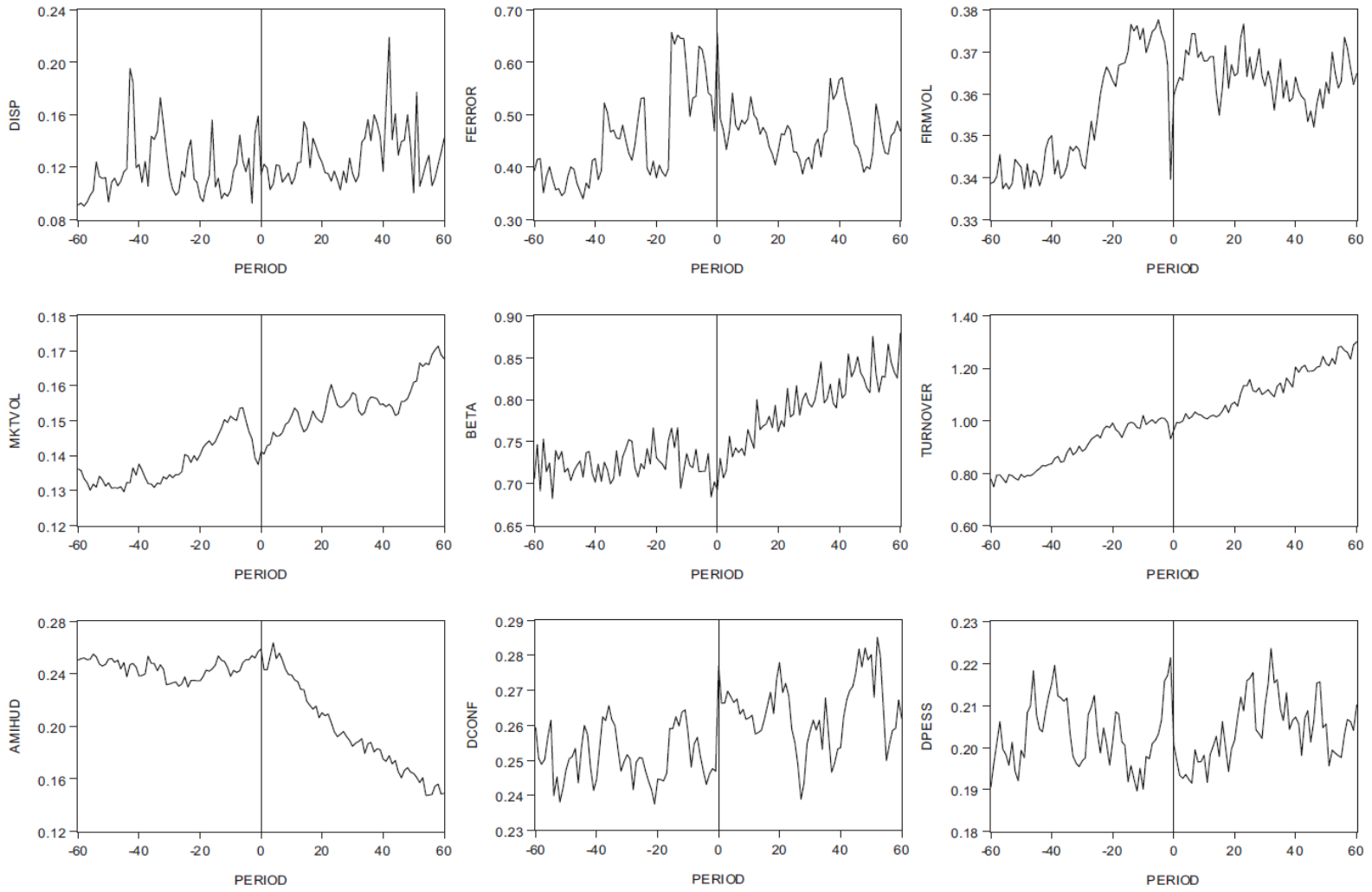
# 4.2. Multivariate analysis: regression results

$$\sigma_{i,j} = \alpha_0 + \alpha_1 HB_{i,j} + \alpha_2 \sigma_{m,j} + \alpha X_{i,t} + \varepsilon_{i,j}. \qquad (1)$$

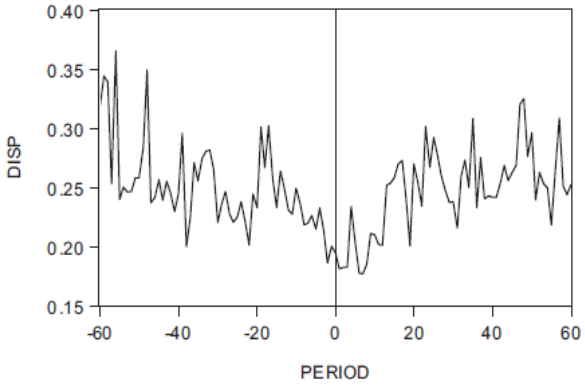
| | Panel A: Fama-MacBeth regressions | | | Panel B: Fixed-Effect regressions | | |
|---|---|---|---|---|---|---|
| | (1) Whole | (2) Pre | (3) Post | (4) Whole | (5) Pre | (6) Post |
| Disp | 0.024*** | 0.028*** | 0.023*** | 0.010*** | 0.006*** | 0.009*** |
| | (0.003) | (0.005) | (0.004) | (0.002) | (0.003) | (0.002) |
| Ferror | 0.003*** | 0.004*** | 0.002*** | 0.003*** | 0.002*** | 0.002*** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Mktvol | 0.540*** | 0.433*** | 0.557*** | 0.877*** | 0.833*** | 0.920*** |
| | (0.068) | (0.106) | (0.073) | (0.017) | (0.035) | (0.022) |
| Ln(Me) | 0.111*** | 0.097*** | 0.121*** | 0.048*** | 0.027*** | 0.037*** |
| | (0.012) | (0.012) | (0.012) | (0.004) | (0.007) | (0.005) |
| Ln(Turnover) | 0.214*** | 0.183*** | 0.232*** | 0.196*** | 0.161*** | 0.217*** |
| | (0.014) | (0.015) | (0.013) | (0.003) | (0.005) | (0.004) |
| Ln(Numest) | −0.002 | −0.002 | −0.001 | 0.008** | −0.001 | 0.009** |
| | (0.004) | (0.004) | (0.004) | (0.003) | (0.005) | (0.003) |
| Ln(Firmage) | −0.003* | −0.003 | −0.002 | −0.007* | −0.007 | 0.001 |
| | (0.002) | (0.002) | (0.002) | (0.004) | (0.006) | (0.005) |
| Beta | 0.046*** | 0.049*** | 0.047*** | 0.035*** | 0.033*** | 0.035*** |
| | (0.006) | (0.006) | (0.006) | (0.001) | (0.001) | (0.001) |
| Firmret | −0.081*** | −0.027 | −0.116*** | −0.007 | 0.037*** | −0.013* |
| | (0.010) | (0.017) | (0.009) | (0.006) | (0.009) | (0.007) |
| Ln(Amihud) | 0.314*** | 0.287*** | 0.333*** | 0.261*** | 0.225*** | 0.261*** |
| | (0.025) | (0.026) | (0.026) | (0.005) | (0.007) | (0.005) |
| Mtb | 0.010*** | 0.010*** | 0.010*** | 0.011*** | 0.008*** | 0.013*** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) |
| Bklev | 0.008 | 0.003 | 0.011 | −0.006 | −0.021 | −0.011 |
| | (0.011) | (0.013) | (0.010) | (0.010) | (0.016) | (0.011) |
| Constant | −0.392*** | −0.270*** | −0.488*** | 0.276*** | 0.452*** | 0.408*** |
| | (0.102) | (0.102) | (0.110) | (0.045) | (0.073) | (0.051) |
| Nobs | 297,424 | 105,799 | 191,625 | 297,424 | 105,799 | 191,625 |
| *R*-squared | 0.515 | 0.510 | 0.515 | 0.622 | 0.633 | 0.646 |

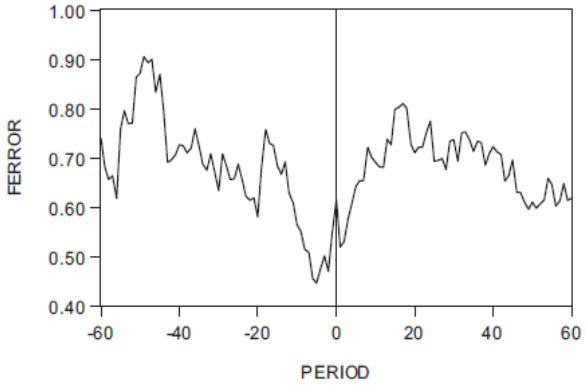
# *4.3. Placebo tests*

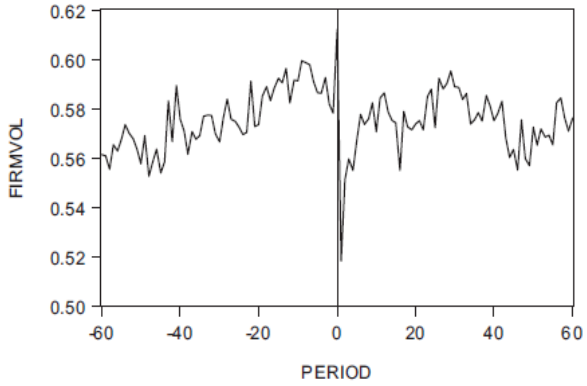
Placebo firms

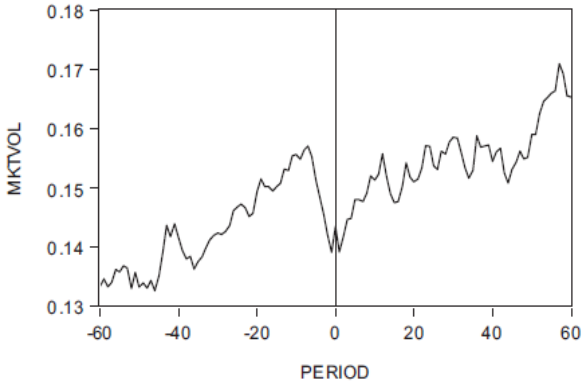


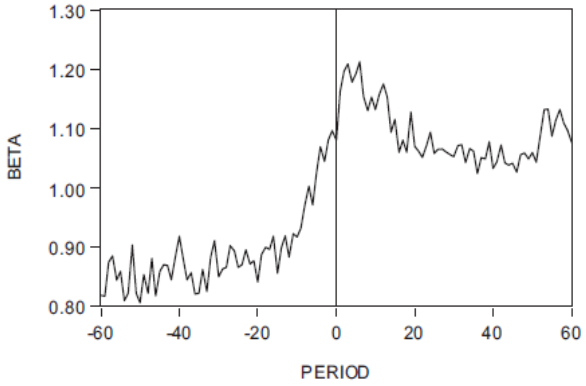
# SEO firms

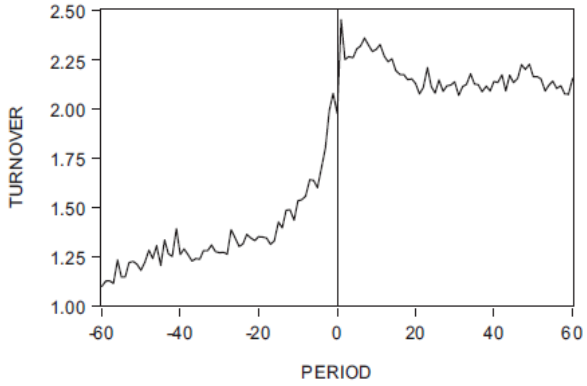

DISP
0.40
0.35
0.30
0.25
0.20
0.15
-60
-40
-20
0
20
40
60
PERIOD


FERROR
1.00
0.90
0.80
0.70
0.60
0.50
0.40
-60
-40
-20
0
20
40
60
PERIOD


FIRMVOL
0.62
0.60
0.58
0.56
0.54
0.52
0.50
-60
-40
-20
0
20
40
60
PERIOD

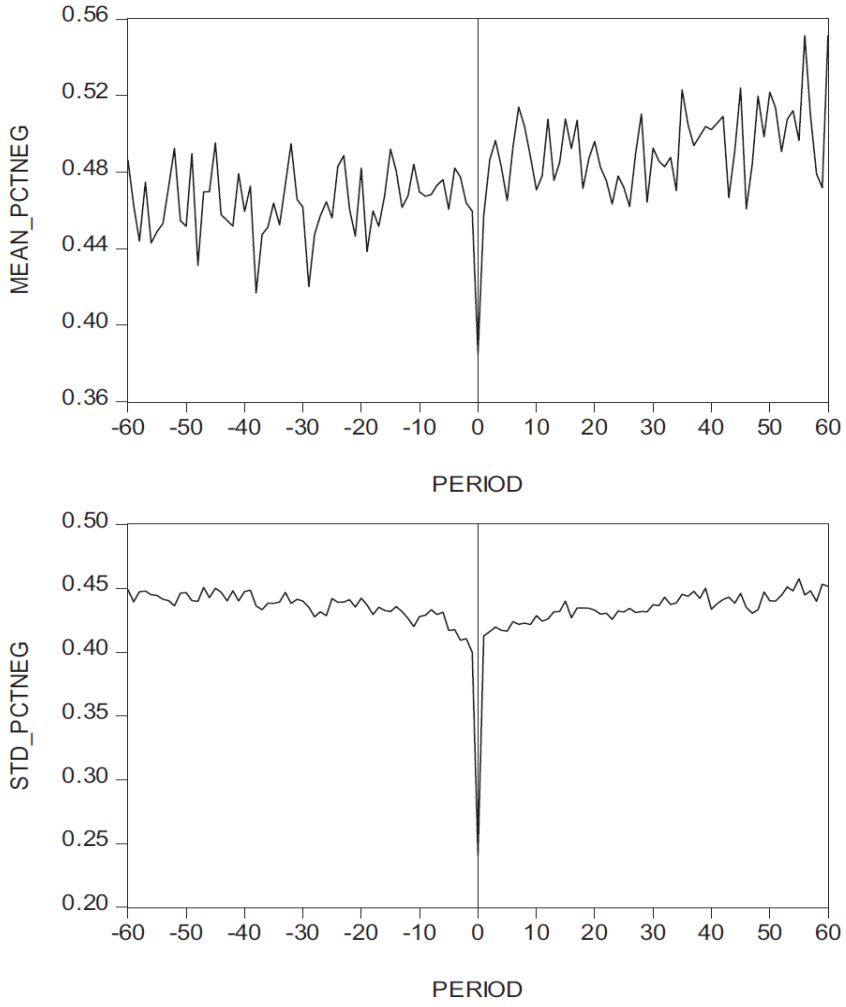

MKTVOL
0.18
0.17
0.16
0.15
0.14
0.13
-60
-40
-20
0
20
40
60
PERIOD


BETA
1.30
1.20
1.10
1.00
0.90
0.80
-60
-40
-20
0
20
40
60
PERIOD


TURNOVER
2.50
2.25
2.00
1.75
1.50
1.25
1.00
-60
-40
-20
0
20
40
60
PERIOD

# 5. Further evidence from institutional trading and short selling

# *5.1. Institutional trading*



## *5.2. Short selling*

Analyst forecast dispersion and stock return volatility across short-interest-based portfolios: Correlations

| *Panel A: Ranking based on pcshort* | | | |
|---|---|---|---|
| | Rank L (Low) | Rank M | Rank H (High) |
| Full sample (121 months) | 0.0427*** | 0.0420*** | 0.0221*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| | 54,341 | 66,577 | 66,190 |
| Pre-filing period (60 months) | 0.0282*** | 0.0309*** | 0.0241*** |
| | (<0.0001) | (<0.0001) | (0.0006) |
| | 22,911 | 20,932 | 20,153 |
| Period 0 (between filing and issue) | 0.0375 | 0.0548 | 0.0652 |
| | (0.3766) | (0.2226) | (0.1566) |
| | 559 | 497 | 473 |
| Post-issue period (60 months) | 0.0564*** | 0.0472*** | 0.0215*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| | 30,871 | 45,148 | 45,564 |

| *Panel B: Ranking based on Relative pcshort* | | |
|---|---|---|
| | Rank L (Lower) | Rank H (Higher) |
| Full sample (121 months) | 0.0344*** | 0.0275*** |
| | (<0.0001) | (<0.0001) |
| | 224,858 | 90,418 |
| Pre-filing period (60 months) | 0.0228*** | 0.0287*** |
| | (<0.0001) | (<0.0001) |
| | 87,340 | 30,550 |
| Period 0 (between filing and issue) | 0.0021 | 0.0622 |
| | (0.9215) | (0.1118) |
| | 2288 | 656 |
| Post-issue period (60 months) | 0.0428*** | 0.0274*** |
| | (<0.0001) | (<0.0001) |
| | 135,230 | 59,212 |

Analyst forecast dispersion and stock return volatility across short-interest-based portfolios: multivariate regression results.

| Ranking based on | Panel A: pcshort | | | Panel B: Relative pcshort | |
|---|---|---|---|---|---|
| | Rank L | Rank M | Rank H | Rank L | Rank H |
| Disp | 0.023*** | 0.011*** | 0.006*** | 0.010*** | 0.005*** |
| | (0.004) | (0.002) | (0.002) | (0.001) | (0.001) |
| Ferror | 0.004*** | 0.001*** | 0.002*** | 0.002*** | 0.001*** |
| | (0.001) | (0.000) | (0.001) | (0.000) | (0.000) |
| Mktvol | 0.987*** | 0.907*** | 0.868*** | 1.135*** | 0.884*** |
| | (0.055) | (0.047) | (0.043) | (0.039) | (0.040) |
| Ln(Me) | 0.107*** | 0.149*** | 0.145*** | 0.120*** | 0.137*** |
| | (0.005) | (0.008) | (0.012) | (0.004) | (0.010) |
| Ln(Turnover) | 0.205*** | 0.224*** | 0.247*** | 0.231*** | 0.224*** |
| | (0.006) | (0.010) | (0.014) | (0.008) | (0.012) |
| Ln(Numest) | 0.011*** | 0.008*** | 0.009** | −0.008*** | 0.006*** |
| | (0.004) | (0.002) | (0.003) | (0.003) | (0.002) |
| Ln(Firmage) | −0.001 | 0.002 | 0.006** | −0.010*** | 0.007*** |
| | (0.003) | (0.002) | (0.003) | (0.002) | (0.002) |
| Beta | 0.034*** | 0.029*** | 0.025*** | 0.037*** | 0.025*** |
| | (0.003) | (0.004) | (0.005) | (0.002) | (0.004) |
| Firmret | 0.045 | −0.007 | −0.024 | 0.037* | −0.031* |
| | (0.031) | (0.023) | (0.019) | (0.022) | (0.017) |
| Ln(Amihud) | 0.305*** | 0.370*** | 0.391*** | 0.333*** | 0.355*** |
| | (0.013) | (0.018) | (0.024) | (0.009) | (0.021) |
| Mtb | 0.016*** | 0.008*** | 0.006*** | 0.014*** | 0.008*** |
| | (0.002) | (0.002) | (0.001) | (0.001) | (0.001) |
| Bklev | 0.021*** | 0.013 | 0.045*** | 0.005 | 0.041*** |
| | (0.008) | (0.009) | (0.006) | (0.007) | (0.006) |
| Constant | −0.437*** | −0.799*** | −0.700*** | −0.494*** | −0.691*** |
| | (0.046) | (0.062) | (0.096) | (0.039) | (0.077) |
| Disp (Rank H) - Disp (Rank L) | | | −0.0171*** | | −0.0054*** |
| *p*-values of dependent *t*-test | | | (<0.0001) | | (<0.0001) |

# 6. Summary and conclusion

# Conclusions

- We find that heterogeneity in beliefs declines considerably around the SEO date, especially prior to the event.
- This decline likely reflects/accompanies a reduction in information asymmetry related to managerial involvement in information releases prior to the SEO event.
- Moreover, heterogeneity in beliefs, proxied by either analyst-based measures or trade-based measures, is a salient determinant of SEO firm volatility and has incremental explanatory power for the volatility patterns of SEO firms after controlling for various usual suspects. The results are robust to sample periods and estimation methods.
- Furthermore, for the subset of SEO firms that have short interest information available, the link between heterogeneous beliefs and firm volatility weakens as the short sale constraints tighten, shedding light on a potential causal relation from heterogeneous beliefs to firm volatility.

Future work could include investigating if and how heterogeneity in beliefs affects risk dynamics of other corporate activities.

THANKS !