

# Family-Controlled Firms and Informed Trading: Evidence from Short Sales

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## The Nature of the (Family) Firm

- **“Nexus of Contracts” to Coordinate Resources (Coase, 1937)**
  - Importance of residual claimant (Alchian and Demsetz, 1972)
  - Fama and Jensen (1983)
    - Separate management decisions from ownership
    - Provides better investment decisions
  - Family owners straddle management and ownership – inefficient as limits talent
- **The Modern Firm**
  - Atomistic shareholders differing preferences but like high stock price
  - They have diversified portfolios and only price systematic risk
  - Founder should exit the firm to reduce idiosyncratic risk from holding one stock
  - Family stay to extract private benefit but high discount rate should lead to their exit
  - Historical view - family firms not in US but in Asia, Europe, & LA

# The Myth of the Atomistic Firm in the US

- **Family Firms - Prominent & Pervasive Organization Structure**
  - Approximately 1/3 of Fortune 500 (Shleifer and Vishny, 1986)
  - About 1/2 of S&P 1500 or Russell 3000 (Chen et al. 2008; Anderson et al. 2009)
  - Family stakes: 25% ownership and 75 years old (Ali et al. 2008)
  
- **What Is So Special About Family Firms?**
  - Undiversified portfolio with concentrated wealth (70%) in a single firm (Anderson and Reeb, 2003a, 2003b)
  - Legacy/Utility function/Horizon
  - Risk Effects are Mixed (Faccio et al. 2009)
  - Dual nature: Monitor and extract rents

# Informed Trading and Short Sales

- **Informed Trading**

- The use of material, non-public information
- Large literature in equity markets (Kyle's  $\lambda$ , Bid-Ask Spreads, PIN)

- **Short Sales**

- Profiting from downward stock price movements
- Primary justifications:
  - Hedge long position (Sharpe, 1991)
  - Speculate on firm performance (Hogan, 2009)
  - Enhance negative information flow into stock prices (Asquith et al. 2005)
- Prominent: 20% of US stock market trading volume

- **Short Sales by Informed or Inside Traders**

- Price discovery Improves efficiency (Easterbrook, 1981)
- Deters market participation (SEC View)

# Informed Trading and Short Sales

- **Informational Content of Short Sales**

- Early evidence

- Anticipate adverse performance (Diamond and Verrecchia, 1987)
    - Short sales → lower future stock returns (Seneca, 1967)

- Recent evidence

- Heavily-shortened NASDAQ firms → abnormal returns (Desai et al. 2002)
    - Daily short sales predict returns (Diether et al. 2009)
    - Short sales peak before negative earnings shocks (Christophe et al. 2004)
    - Hedge funds use non-public info in short sales (Massoud et al. 2010)

- **We examine the relation between family ownership and informed trading via short sales**

# Informed Trading in Family Firms

- **Family Control - Facilitates Informed Trading**
  - Allows them to maintain control stake
  - Large & powerful: monitor with private information (James, 2006)
  - Families firms opaque: allowing trade on private information (Demsetz, 1986)
  - Family members often not employees of the firm
  - Disgruntled employees and family members
  
- **Family Control - Limits Informed Trading**
  - Families aggressively opine against short sellers
    - Public Campaigns against: Overstock.com – Patrick Byrne (founder); MicroStrategy – Michael Saylor (founder)
  - Long-term investors with substantial concentrated wealth
    - Protect and preserve their reputations (Ford, Campbell Soup, ...)
    - Exploiting shorts myopic
    - Less willing to risk firm and family welfare
  - Families can withhold their stakes from “broker borrowing”

# Informed Trading and the Law: A Brief

- **No Legislative Definition of “Insider Trading”:** Series of Court Cases Defines
    - SEC vs. Texas Gulf Sulphur (1966)
      - Misleading press announcement & Breach of fiduciary responsibility
    - US vs. O’Hagan (1997)
      - Misappropriation of corporate information
    - SEC vs. Dirks (1984)
      - “Tippees” liable if reason to believe a breach of fiduciary trust
      - If other reasons exist to disclose info – not a breach
      - Constructive insiders
    - SEC vs. Cuban (10/2009)
      - Legal to trade on private info if no fiduciary breach of trust
  - SEC Act (1934) uses a 10% threshold for reporting – Courts Adopted
  - Trades based on material, non-public information that is obtained through breach of trust/fiduciary responsibility is illegal
  - Legal to trade on private information if no breach
- 
- **SEC and market regulators discourage**
    - Series of Federal Law to limit insider trading
    - Officers/directors illegal to short the firm
    - Market oversight, trading rules, and Reg FD, etc.
    - Penalties for insider trading (1984/1988)

## **Research Focus: Does Family Presence Affect the Information Content in Short Sales?**

- **Do short sales better forecast future, negative earnings surprises in family firms versus non-family firms?**
- **Does short selling better predict future stock returns in family or non-family firms?**
- **Does the degree of family influence affect these relations?**
- **Does the presence of other large shareholders influence the relation between family presence and short sales?**



## Sample Construction and Data

- **Sample**

- Start with 2,000 largest industrial publicly-traded firms in US
- Manually collect family ownership from multiple sources
- Merge with SEC REG SHO data on daily short sales from January 2005 – July 2007
- 1,571 firms and 10,193/833,984 Firm-Quarter/Firm-Day Observations

- **Family-Controlled Firms**

- Definition: founder or founder's heirs hold  $\geq 5\%$  of the firm's shares
- Degree of family control
  - Active vs. passive management – CEO type
  - Family board presence
  - Family cash-flow rights
  - Dual-class shares structures
- 36.3% of Sample
- Average Daily Short Interest 23.2%
- Family Stakes – on average 25.3%

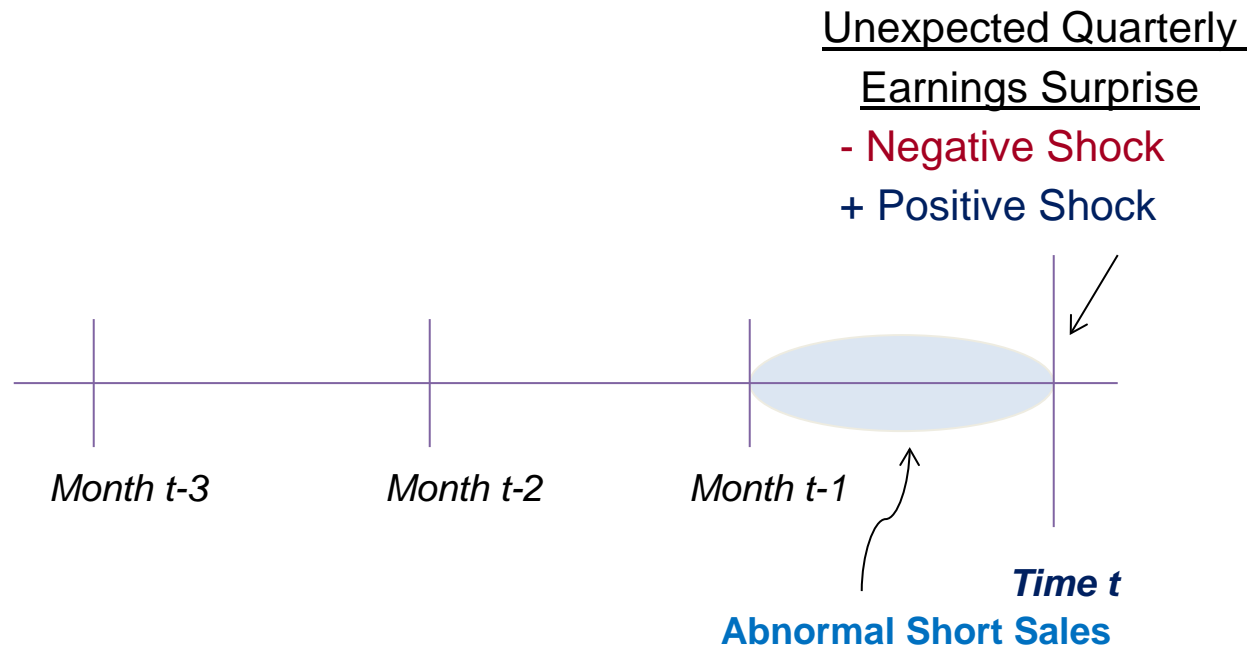
- **Issues with Family Ownership**

- Difficult to detect – biased downward
- Uncertain of true level but confident in measuring presence

# Research Design

- **Examine Abnormal Short Sales Prior to Quarterly Earnings Announcement**
  - Informed trading if
    - spike before negative shock
    - remain flat/low positive shock
  - Compare family and non-family firms
- **Examine Return Predictability**
  - Do short sales today predict stock returns in the future
  - If predict future stock returns – then informed trading
  - Compare family and non-family firms

# Structure of Abnormal Short Sales Tests

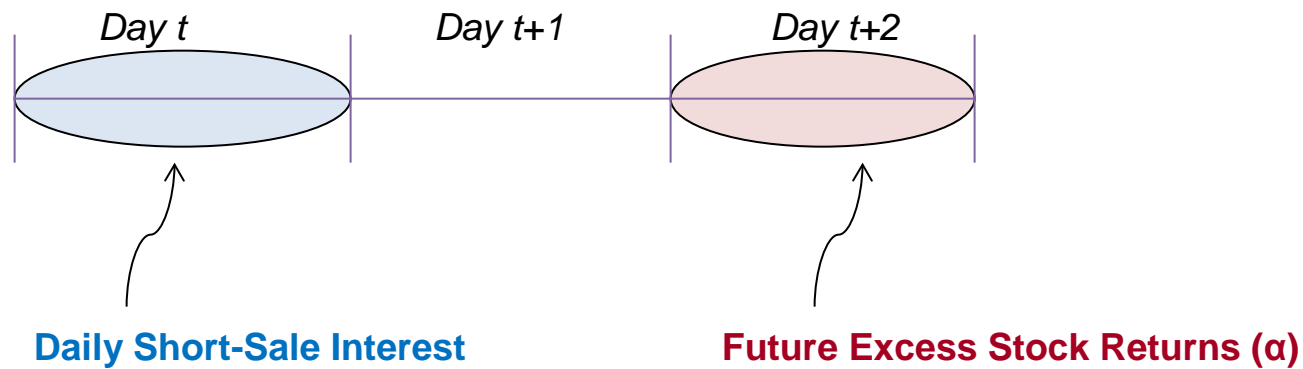


Unexpected Quarterly Earnings Surprise ( $\epsilon_{i,t}$ ):  $EPS_{i,q} = \alpha + \beta_1 EPS_{i,q-1} + \beta_2 EPS_{i,q-4} + \beta_3 EPS_{i,q-8} + \epsilon_{i,t}$

Abnormal Short Sales: [Avg. daily short sales of 30-calendar days prior to quarterly earnings announcement divided by Avg. daily short sales for year outside of announcement window] – 1

**Examine Abnormal Short Sales Prior to Negative/Positive Quarterly Earnings Surprises**  
*Contrast between Family vs. Non-Family Firms*

## Structure of Return Predictability Tests



**Examine Whether Daily Short Sale Interest Predicts Future Excess Stock Returns**  
*Contrast between Family vs. Non-Family Firms*

**Table II Descriptive Statistics**

	<i>Family Firm</i>	<i>Diffuse Shareholder Firm</i>	<i>t-test p-value</i>
Abnormal Short Sales (%)	-4.37	-4.52	0.480
Prior to Positive Earnings Shock	-6.03	-2.22	0.124
Prior to Negative Earnings Shock	2.31	-5.88	0.001
Unexpected Earnings	-0.004	-0.009	0.211
Positive Unexpected Earnings	0.127	0.129	0.555
Negative Unexpected Earnings	-0.136	-0.129	0.266
Firm size	7.17	7.80	0.000
Book-to-Market	0.97	0.92	0.012
Leverage	0.18	0.19	0.000
Bid-Ask Spread	0.04	0.05	0.000
NYSE (%)	72.66	78.52	0.000
Stock Return Volatility	0.19	0.18	0.000
Trading Volume	12.93	13.66	0.000
Institutional Ownership	0.71	0.78	0.000
Performance <sub><i>t-1</i></sub>	0.06	0.06	0.082
	<i>Family Firm</i>	<i>Diffuse Shareholder Firm</i>	<i>t-test p-value</i>
$r_{i,t+2}$	-0.014	-0.016	0.057
Short <sub><i>i,t</i></sub>	0.232	0.227	0.007
$r_{(-5,-1),t}$	-0.002	-0.001	0.087
Rank( $r_{(-5,-1),t}$ )	0.501	0.498	0.002
Risk <sub><i>i,t</i></sub>	0.028	0.028	0.024
Turnover <sub><i>(-5,-1),t</i></sub>	9.712	10.236	0.000

## Table III Unexpected Earnings, Organizational Structure, and Abnormal Short Sales

### Panel A - Unexpected Quarterly Earnings, Family Presence, and Short Sales

Dependent Variable: Abnormal Short Sales					
	Negative Shocks		Positive Shocks		All Shocks
Intercept	-0.080 (-0.92)	-0.107 (-0.93)	0.112 (1.10)	0.122 (1.00)	0.124 (1.61)
Family Firm	<b>0.026***</b> <b>(2.69)</b>	<b>0.019**</b> <b>(2.45)</b>	<b>-0.025*</b> <b>(-1.90)</b>	<b>-0.021*</b> <b>(-1.83)</b>	<b>0.016*</b> <b>(1.90)</b>
Negative Unexpected Earnings	0.020* (1.78)	0.019* (1.69)	-	-	0.021* (1.84)
Family Firm * Negative Unexpected Earnings	-	<b>0.109**</b> <b>(2.39)</b>	-	-	<b>0.095**</b> <b>(1.99)</b>
Positive Unexpected Earnings	-	-	-0.014 (-1.60)	-0.013 (-1.52)	-0.011 (-0.84)
Family Firm * Positive Unexpected Earnings	-	-	-	<b>-0.008*</b> <b>(-1.91)</b>	-0.017 (-0.93)
Controls, industry & quarter dummy	Yes	Yes	Yes	Yes	Yes
Observations	4,702	4,702	5,491	5,491	10,193
Adjusted-R <sup>2</sup>	0.32	0.32	0.24	0.24	0.30

## Panel B: Unexpected Quarterly Earnings, Family Characteristics, and Short Sales

Dependent Variable: Abnormal Short Sales				
	Negative Shocks Only			
Intercept	-0.081 (-1.09)	-0.092 (-1.03)	-0.088 (-0.97)	-0.099 (-1.05)
Unexpected Earnings	0.012* (1.71)	0.011 (1.57)	0.012* (1.80)	0.012* (1.70)
Family Firm	<b>0.009**</b> <b>(2.35)</b>	<b>0.013*</b> <b>(1.90)</b>	<b>0.015**</b> <b>(2.21)</b>	<b>0.016**</b> <b>(2.30)</b>
Family Firm * Unexpected Earnings	<b>0.052**</b> <b>(2.23)</b>	<b>0.067**</b> <b>(2.16)</b>	<b>0.070**</b> <b>(2.17)</b>	<b>0.084**</b> <b>(2.29)</b>
Founder CEO	<b>0.010*</b> <b>(1.91)</b>	-	-	-
Founder CEO * Unexpected Earnings	<b>0.049*</b> <b>(1.88)</b>	-	-	-
Descendant CEO	<b>0.031*</b> <b>(1.88)</b>	-	-	-
Descendant CEO * Unexpected Earnings	<b>0.114**</b> <b>(2.09)</b>	-	-	-
Family Holds >=2 Board Seats	-	<b>0.022**</b> <b>(2.21)</b>	-	-
Family Holds >=2 Board Seats * Unexpected Earnings	-	<b>0.074**</b> <b>(2.30)</b>	-	-
Family Cash-Flow Rights<20%	-	-	<b>0.017**</b> <b>(2.52)</b>	-
Family Cash-Flow Rights<20% * Unexpected Earnings	-	-	<b>0.061**</b> <b>(2.19)</b>	-
(Family Votes> Family Cash Flow)	-	-	-	<b>0.051**</b> <b>(2.35)</b>
(Family Votes> Family Cash Flow)* Unexpected Earnings	-	-	-	<b>0.222**</b> <b>(2.37)</b>
Same Controls as in Panel A	Yes	Yes	Yes	Yes
Observations	4,702	4,702	4,702	4,702
Adjusted-R <sup>2</sup>	0.32	0.32	0.32	0.32

## Panel C: Unexpected Quarterly Earnings, Family Presence, Blockholders, and Short Sales

Dependent Variable: Abnormal Short Sales				
	Negative Shocks Only			
	Family firms versus Diffusely-held Nonfamily firms	Family firms versus Block-held Nonfamily firms	Family Firms versus All Nonfamily firms	Family Firms versus All Nonfamily firms
Intercept	-0.133* (-1.87)	-0.118 (-1.30)	-0.098 (-1.21)	-0.100 (-1.19)
Unexpected Earnings	0.011* (1.92)	0.010 (1.55)	0.008 (1.50)	0.008 (1.53)
Family Firm	<b>0.023**</b> <b>(2.32)</b>	<b>0.021*</b> <b>(1.94)</b>	<b>0.022**</b> <b>(2.19)</b>	<b>0.020**</b> <b>(1.99)</b>
Family Firm * Unexpected Earnings	<b>0.128***</b> <b>(2.70)</b>	<b>0.100**</b> <b>(2.48)</b>	<b>0.095***</b> <b>(2.62)</b>	<b>0.090**</b> <b>(2.55)</b>
Other Blockholder	-	-	0.012 (1.33)	-
Other Blockholder * Unexpected Earnings	-	-	0.015 (0.77)	-
Hedge Fund/Private Equity	-	-	-	0.013 (1.22)
Hedge Fund/Private Equity * Unexpected Earnings	-	-	-	0.010 (0.69)
Mutual/Pension/Insurance	-	-	-	-0.001 (-0.88)
Mutual/Pension/Insurance * Unexpected Earnings	-	-	-	0.012 (0.90)
Same Controls as in Panel A	Yes	Yes	Yes	Yes
Observations	2,091	4,451	4,702	4,702
Adjusted-R <sup>2</sup>	0.36	0.30	0.32	0.32



**Table IV Short Sales and Future Stock Returns**

	Full Sample				Matched Sample			
	Family Firms (n = 301,720)		Nonfamily Firms (n = 523,264)		Family Firms (n = 223,278)		Nonfamily Firms (n = 218,277)	
	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor
Low	0.037 (1.68)	0.033 (1.70)	0.017 (1.93)	0.017 (1.93)	0.031 (3.33)	0.033 (2.56)	0.014 (2.98)	0.015 (2.54)
2	0.030 (0.32)	0.029 (0.31)	0.024 (0.80)	0.023 (0.80)	0.027 (1.55)	0.031 (1.44)	0.039 (0.51)	0.038 (0.55)
3	0.021 (0.88)	0.020 (0.86)	0.044 (0.33)	0.044 (0.82)	0.025 (1.30)	0.027 (1.29)	0.002 (0.86)	0.002 (0.91)
4	0.023 (1.41)	0.023 (1.33)	0.022 (1.62)	0.023 (1.57)	0.022 (1.53)	0.021 (1.40)	0.011 (0.94)	0.011 (1.01)
High	0.009 (2.18)	0.009 (2.15)	0.023 (2.66)	0.023 (2.73)	0.018 (2.35)	0.016 (2.70)	0.014 (2.23)	0.013 (2.23)
Low- High	<b>0.028</b> <b>(2.89)</b>	<b>0.024</b> <b>(2.57)</b>	<b>-0.006</b> <b>(2.78)</b>	<b>-0.006</b> <b>(2.70)</b>	<b>0.013</b> <b>(5.44)</b>	<b>0.017</b> <b>(4.01)</b>	<b>0.0003</b> <b>(4.46)</b>	<b>0.001</b> <b>(3.35)</b>

**Table V Short Sales and Future Stock Returns Categorized by Family Characteristics**

	Founder CEO (n = 117,332)		Descendant CEO (n = 60,328)		Professional CEO (n = 124,060)		Family Holds <2 Board Seats (n = 152,672)		Family Holds >= 2 Board Seats (n = 149,048)	
	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor
Low	0.024 (2.81)	0.024 (2.80)	0.028 (2.45)	0.029 (2.34)	0.026 (2.65)	0.020 (2.64)	0.008 (3.77)	0.008 (3.75)	0.012 (5.37)	0.012 (5.37)
2	0.021 (1.90)	0.020 (1.72)	0.025 (1.92)	0.025 (1.77)	0.019 (2.31)	0.015 (2.29)	0.005 (2.55)	0.005 (2.56)	0.006 (3.33)	0.006 (3.30)
3	0.016 (1.44)	0.015 (1.03)	0.022 (1.67)	0.021 (1.80)	0.030 (4.44)	0.031 (4.44)	-0.002 (0.56)	-0.002 (0.56)	-0.002 (1.01)	-0.002 (1.02)
4	0.010 (0.86)	0.010 (0.87)	0.015 (0.90)	0.015 (1.02)	0.033 (4.32)	0.029 (4.33)	-0.003 (1.99)	-0.003 (2.00)	-0.005 (2.41)	-0.005 (2.43)
High	0.003 (2.87)	0.004 (2.55)	0.002 (2.66)	0.002 (2.55)	0.027 (3.87)	0.028 (3.88)	-0.010 (3.01)	-0.009 (3.00)	-0.015 (5.92)	-0.015 (5.95)
Low- High	<b>0.021</b> <b>(3.67)</b>	<b>0.020</b> <b>(3.57)</b>	<b>0.026</b> <b>(3.45)</b>	<b>0.027</b> <b>(3.33)</b>	<b>-0.001</b> <b>(4.34)</b>	<b>-0.008</b> <b>(4.56)</b>	<b>0.018</b> <b>(3.93)</b>	<b>0.017</b> <b>(3.89)</b>	<b>0.027</b> <b>(6.26)</b>	<b>0.027</b> <b>(6.33)</b>
	Family Cash-Flow Rights < 20% (n = 154,082)		Family Cash-Flow Rights >=20% (n = 147,638)		Single Class (n = 241,175)		Dual Class (n = 60,545)			
	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor	$\alpha_3$ factor	$\alpha_4$ factor
Low	0.013 (3.33)	0.013 (3.30)	0.008 (3.01)	0.008 (3.00)	0.007 (2.08)	0.007 (2.10)	0.015 (4.22)	0.015 (4.21)		
2	0.005 (2.42)	0.004 (2.44)	0.005 (2.00)	0.005 (2.03)	0.008 (0.41)	0.008 (0.42)	0.009 (3.28)	0.008 (3.30)		
3	-0.001 (0.99)	-0.002 (0.97)	0.000 (0.77)	-0.000 (0.78)	-0.012 (0.60)	-0.011 (0.65)	-0.006 (1.05)	-0.006 (1.10)		
4	-0.003 (2.01)	-0.003 (2.00)	-0.002 (1.92)	-0.002 (1.90)	-0.005 (2.45)	-0.005 (2.49)	-0.009 (2.87)	-0.009 (2.89)		
High	-0.007 (3.55)	-0.007 (3.54)	-0.005 (2.65)	-0.005 (2.66)	-0.007 (3.18)	-0.006 (3.17)	-0.019 (4.59)	-0.018 (4.59)		
Low- High	<b>0.020</b> <b>(3.92)</b>	<b>0.020</b> <b>(3.85)</b>	<b>0.013</b> <b>(3.66)</b>	<b>0.013</b> <b>(3.67)</b>	<b>0.014</b> <b>(3.77)</b>	<b>0.013</b> <b>(3.72)</b>	<b>0.034</b> <b>(6.01)</b>	<b>0.033</b> <b>(6.11)</b>		

**Table VI Regressions of Future Stock Returns on Current Short Sales**

	Dependent variable = $r_{i,t+2}$			
	Full Sample		Matched Sample	
	Family	Nonfamily	Family	Nonfamily
Intercept	0.048*** (2.94)	0.103*** (5.61)	0.023*** (2.60)	0.111** (2.14)
Short $_{i,t}$	<b>-0.288**</b> <b>(-2.04)</b>	<b>-0.106</b> <b>(-0.45)</b>	<b>-0.292***</b> <b>(-2.67)</b>	<b>-0.115</b> <b>(-1.22)</b>
( $r_{-5,-1}$ ) $_{i,t}$	-0.392*** (-4.56)	-0.338** (-2.30)	-0.339*** (-4.50)	-0.392** (-2.33)
Rank( $r_{-5,-1}$ ) $_{i,t}$	0.055** (2.62)	0.037 (1.45)	0.054** (2.20)	0.037 (1.31)
Risk $_{i,t}$	-0.597** (-2.50)	-0.863*** (-3.46)	-0.595** (-2.55)	-0.860*** (-3.39)
(Turnover $_{-5,-1}$ ) $_{i,t}$	-0.000 (-0.73)	-0.001* (-1.86)	-0.000 (-0.71)	-0.001 (-1.86)
<i>Observations</i>	310,720	523,264	223,278	218,277
<i>Average Adjusted-R<sup>2</sup></i>	0.027	0.027	0.028	0.027

# Conclusions

- **Summary of Findings**

- Family-controlled firms experience over 17 times greater abnormal short sales preceding negative earnings shocks than diffuse shareholder firms
- Short sales in family firms are over six times more sensitive to the magnitude of future negative earnings shocks than short sales in nonfamily firms
- Short sales are only useful in forecasting future stock returns in family-controlled firms – no general effect in diffuse shareholder firms
- These results are most pronounced when families have greater control, actively manage the firm, or have lower cashflow rights

We interpret the evidence to indicate substantively greater informed trading in family-controlled firms relative to diffuse shareholder firms

- **Policy Implications**

- Regulations designed to limit trading by those with access to material, non-public information appear ill-suited for family-controlled firms
- Regulators may want to consider requiring real-time or current data on short sale activity