

# Insider trading and gender

**B. Espen Eckbo**

Tuck School of Business, Dartmouth College

**Bernt Arne Ødegaard**

University of Stavanger (UiS)

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Introduction

Why gender and inside?

Performance  
differences?

Short-term (event) reaction

Norway's forced  
board  
gender-balancing

Long term performance

Risk aversion and  
gender - the crisis

Conclusion

References

# (Legal) trading by corporate insiders

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## Primary Insider trades

Trades by executives or directors in own company stock.

## Source of trading profit

Trades reflect knowledge/understanding/experience of

- ▶ Own company
- ▶ Industry in which company operates

## This investigation

Norway: All reported inside trades 1986–2016.  
Split by gender.

Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References

# Fraction females among primary insider trades

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## Introduction

Why gender and inside?

## Performance differences?

Short-term (event) reaction

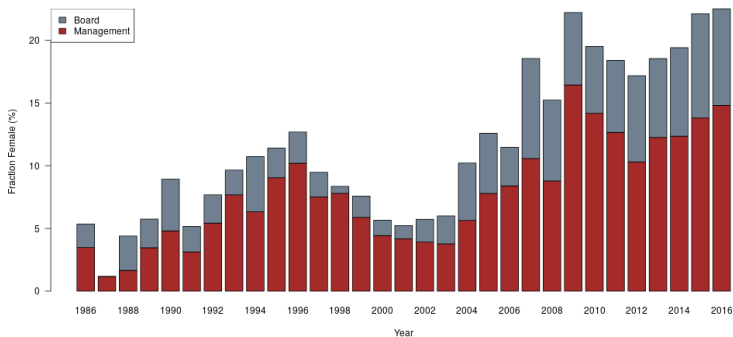
## Norway's forced board gender-balancing

Long term performance

## Risk aversion and gender - the crisis

## Conclusion

## References



## Introduction

Why gender and inside?

## Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

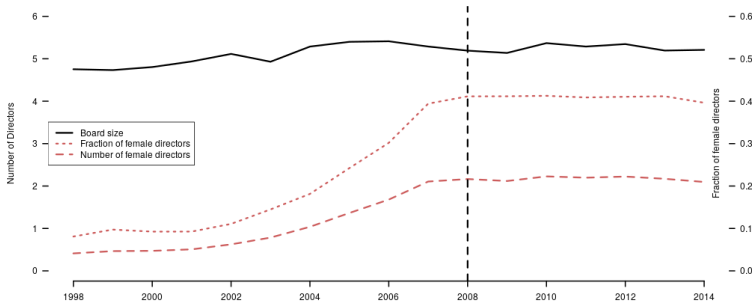
## Conclusion

## References

## Sources of gender differences?

- ▶ *Network* of insiders (e.g. board memberships) determine information (Inci, Narayanan, and Seyhun, 2017)
  - ▶ When females few, trades reflect less inside information
- ▶ Norway: Shock to gender-specific network  
Board reform – Enforce a 40% minimum female representation on boards of all OSE listed companies. (Eckbo, Nygaard, and Thorburn, 2021)

## Fraction females on board



Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

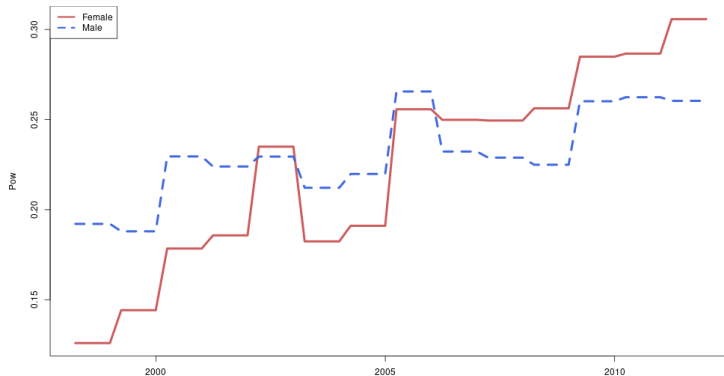
References

# Norway's forced board gender-balancing

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## Board Network

Measure of quality of *network* among board members.



Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References

## Introduction

Why gender and inside?

## Performance differences?

Short-term (event) reaction

## Norway's forced board gender-balancing

Long term performance

## Risk aversion and gender - the crisis

## Conclusion

## References

## Measure gender differences in

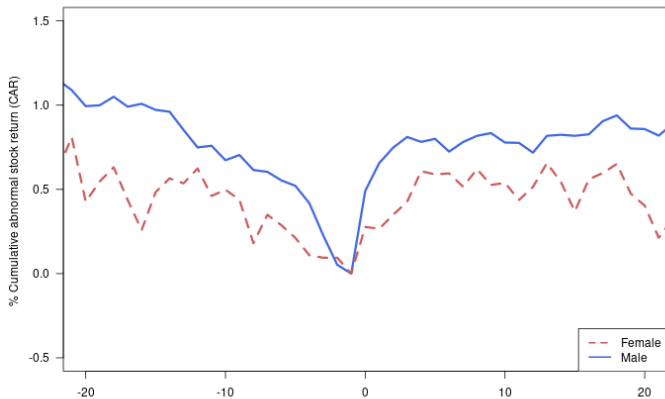
- ▶ Short term market *reaction* when insiders trade.
- ▶ Long term *performance* measuring the actual gains implied in insider's trading.

# Gender differences in short term market reaction

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## Stock price reaction to announced insider trades reflect

- ▶ Timing by insiders (insider knowledge)
- ▶ Market's evaluation of the fact that an insider traded.



Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References



## Method: Event study

Market reaction (CAR): Dummy  $D$  in

$$r_{it}^e = a_i + b_i r_{mt}^e + \Gamma D_{it}^{event} + \varepsilon_{it}$$

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Event windows:  $(-1, 1)$   $(-1, 5)$   $(-1, 25)$   $(-1, 50)$

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### A: Female Insiders

CAR	<b>0.012***</b> (0.001)	<b>0.014***</b> (0.001)	0.007 (0.0004)	0.005 (0.0003)
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### B: Male Insiders

CAR	<b>0.015***</b> (0.001)	<b>0.014**</b> (0.001)	-0.001 (0.001)	-0.016 (0.0004)
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## Event Study Results

Market reaction to female lower than male trades.

Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References

## Consequences of influx of female directors

Event Study of insider trades: Is the market reaction to female trades larger as the female network increases?

Event windows:	(-1, 1)	(-1, 5)	(-1, 25)	(-1, 50)
<b>A: Female Insiders 1997-2007</b>				
CAR	<b>0.0039</b> (0.002)	-0.0008 (0.001)	-0.0150 (0.001)	-0.0151 (0.0005)
<b>B: Male Insiders 1997-2007</b>				
CAR	<b>0.0163***</b> (0.001)	0.0148*** (0.001)	0.0117 (0.0003)	0.0104 (0.0003)
<b>C: Female Insiders 2008-2016</b>				
CAR	<b>0.0154***</b> (0.002)	0.0212*** (0.001)	0.0172 (0.001)	0.0161 (0.0004)
<b>D: Male Insiders 2008-2016</b>				
CAR	<b>0.0167**</b> (0.002)	0.0083 (0.002)	-0.0141 (0.001)	-0.0429 (0.001)

Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References

## Construct portfolio incorporating information in insider trades

Match aggregate portfolio of insiders

- Ownership weights

$$\omega_{it}^{ow} \equiv (s_{it}/S_{it}) / \sum_{i=1}^{N_t} (s_{it}/S_{it})$$

( $s$ : insiders  $\neq$  shares,  $S$  shares outstanding)

- Value weights

$$\omega_{it}^{vw} \equiv h_{it} / \sum_{i=1}^{N_t} h_{it}$$

(insider holding  $h = p \cdot s$ , where  $p$  is stock price)

→ Monthly series of portfolio weights.

Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References

## Performance evaluation

- ▶ Returns-based evaluation → “Alpha”

$$\alpha_{pt}^{4f} \equiv r_{pt}^e - [\hat{\beta}_p^m RMRF_t + \hat{b}_p^2 SMB_t + \hat{b}_p^3 HML_t + \hat{b}_p^3 MOM_t]$$

- ▶ Holdings-based evaluation
  - ▶ Do changes in (inside) portfolio predict performance?

$$HM = \frac{1}{T-2} \sum_{t=2}^T \frac{1}{N_t} \left( \sum_{t=1}^{N_t} Cov(\Delta w_{it}, (r_{i,t+\tau} - E[r_{i,t+\tau}])) \right)$$

## Results of long term performance comparison

Point estimate: Females do (slightly) better.

Statistically: No significant performance differences

Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References

## Introduction

Why gender and inside?

## Performance differences?

Short-term (event) reaction

## Norway's forced board gender-balancing

Long term performance

## Risk aversion and gender - the crisis

## Conclusion

## References

## Gender differences in risk aversion?

### In general

- ▶ Females more risk-averse than males (experimental studies) (Croson and Gneezy, 2009; Eckel and Grossman, 2008; Sapienza, Zingales, and Maestripieri, 2009)

### However, female *executives/directors* not a random sample:

- ▶ Female executives and directors are, if anything, *less* risk averse than their male counterparts. (Adams and Funk, 2012)

## Insider reactions to '08 fall in equity values

1. → buy stocks to rebalance portfolios.
2. → higher potential for inside view to differ from consensus view (increase inside holdings if positive view).

## Risk aversion's influence on this decision

More risk averse:

1. → Less equity in optimal portfolio
2. → Less willing to lower diversification to concentrate holdings in own company stocks.

## Prediction

More risk averse individuals will buy less equity following the fall in stock values.

Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

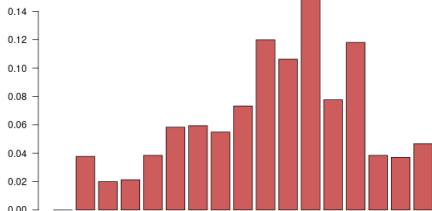
Risk aversion and gender - the crisis

Conclusion

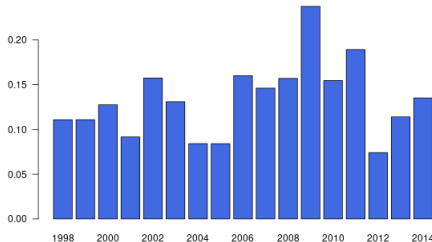
References

## Probability of a trade among directors

**Females**



**Males**



Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References

## Gender based performance differences?

- No significant long term differences
- Positive short term market reaction higher for male trades.

## Board reform: influx of female directors

- Market reacts *more positively* to inside trades by females after board reform.

## Financial crisis and risk aversion

- Female insiders increase equity buying during crisis.
- Not consistent with female executives/directors being more risk averse than their male colleagues.

Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References



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Introduction

Why gender and inside?

Performance differences?

Short-term (event) reaction

Norway's forced board gender-balancing

Long term performance

Risk aversion and gender - the crisis

Conclusion

References