

Board gender-balancing and insider trading performance

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Introduction

Why gender and insider trades?

Norway's forced board gender-balancing

Hypothesis 1: insider performance

Hypothesis H2: market reaction to insider trades

Is network important for CAR?

Hypothesis H3: insider trades and risk aversion

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(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 (self) reported inside trades 1997–2016.

Investigate gender differences.

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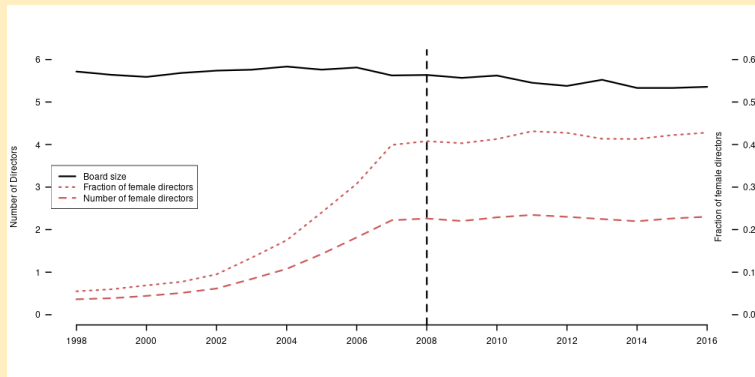
Sources of gender differences

- ▶ *Network* of insiders determine information
 - ▶ When females few, trades reflect less inside information
- ▶ Norway: Huge 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)

Norway's forced board gender-balancing

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Fraction and number of females on boards. Firms listed on the Oslo Stock Exchange



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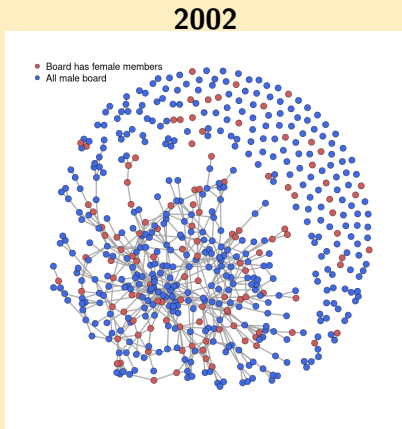
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Evolving connectedness of board networks



Blue: All male boards;

Red: Boards with at least one female director

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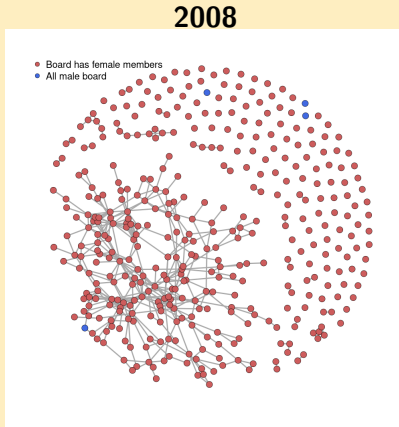
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Data: Insider trades in Norwegian Listed Companies - 1997-2016

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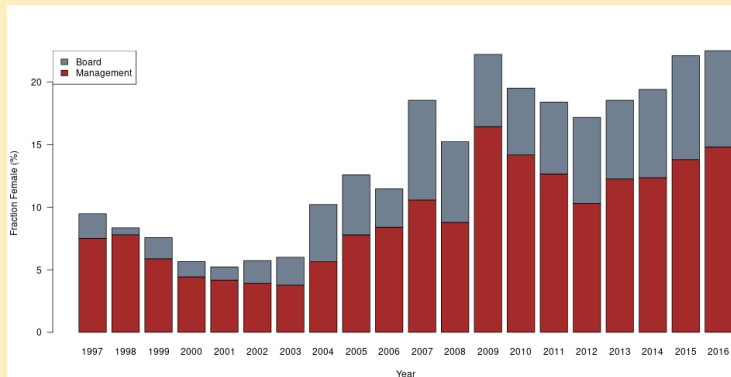
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Fraction females among primary insider trades



Hypotesis 1 (insider performance)

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The increase in the female director network caused by Norway's mandatory board gender-balancing enhances the value of female primary-insider information, which in turn translates into improved holdings-based insider performance.

Hypothesis 1 (insider performance)

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Measure gender differences in

- ▶ Long term *performance* measuring the actual gains implied in insider's trading.

Construct portfolio matching insider trades

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

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

s : insiders # shares

S shares outstanding

p stock price

$h = p \cdot s$ insider holding

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Performance evaluation

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

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

- ▶ Returns-based evaluation → Alpha (four factor)

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

Results of long term performance comparison

Point estimate: Females do (slightly) better.

Statistically: No significant performance differences

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Hypothesis 2 (market reaction)

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The increase in the female director network caused by Norway's mandatory board gender-balancing enhances the value of female primary-insider information, which in turn translates into a greater market reaction to the public announcements of female insider purchases.

Hypothesis 2 (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.

Method

Market reaction (CAR): Coefficient Γ in

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

Hypothesis 2 (market reaction)

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Estimation results

Event windows:	(-1, 1)	(-1, 5)	(-1, 25)	(-1, 50)
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A: Female Insiders 1997–2007

CAR	0.0039	-0.0008	-0.0150	-0.0151
	(0.002)	(0.001)	(0.001)	(0.0005)

B: Male Insiders 1997–2007

CAR	0.0163***	0.0148***	0.0117	0.0104
	(0.001)	(0.001)	(0.0003)	(0.0003)

C: Female Insiders 2008–2016

CAR	0.0154***	0.0212***	0.0172	0.0161
	(0.002)	(0.001)	(0.001)	(0.0004)

D: Male Insiders 2008–2016

CAR	0.0167**	0.0083	-0.0141	-0.0429
	(0.002)	(0.002)	(0.001)	(0.001)

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Director's insider trades - is board network important for market reaction?

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Determinants of CAR when directors trade

	Cumulative abnormal return (τ_1, τ_2)			
	CAR(-1, 1) (1)	CAR(-1, 5) (2)	CAR(-1, 20) (3)	CAR(-1, 50) (4)
Constant	0.072*** (0.014)	0.157*** (0.026)	0.257*** (0.042)	0.516*** (0.074)
MktCap	-0.004*** (0.001)	-0.007*** (0.001)	-0.012*** (0.002)	-0.023*** (0.003)
TradeSize	-0.0002 (0.001)	-0.001 (0.001)	-0.0004 (0.002)	-0.002 (0.003)
Network Centrality	2.147*** (0.482)	1.614* (0.886)	3.144** (1.462)	0.276 (2.565)
Observations	2,679	2,679	2,679	2,679
Adjusted R ²	0.015	0.013	0.016	0.018

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Hypothesis 3 (insider risk aversion):

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Since Norway's mandatory board gender-balancing placed male and female directors on an equal informational footing, these insiders agree on the extent to which the price decline caused by the financial crisis undervalues the firm's shares. Therefore, observed gender-based differences in the intensity of crisis-induced insider purchases (bets against the market) represent direct evidence of differences in risk aversion.

Hypothesis 3 (insider risk aversion):

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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)

Hypothesis 3 (insider risk aversion):

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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.

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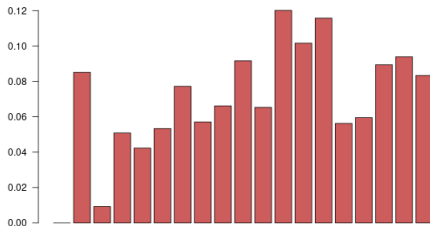
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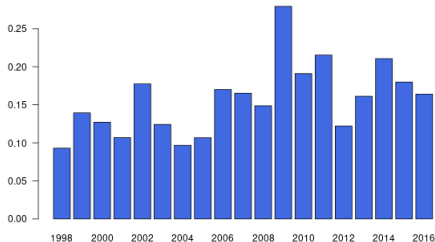
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Probability of a trade among directors

Females



Males



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Gender based performance differences?

- No evidence that primary insiders “buy low or sell high”, whether male or female.

Board reform: Influx of female directors

- Market reacts *more positively* to trades by female directors after board reform.

Financial crisis and risk aversion

- Female directors increase equity buying during crisis.
- Fails to support the notion that female directors are more risk averse than their male colleagues.

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