Do board gender quotas reduce firm value?

B. Espen Eckbo, Knut Nygaard and Karin S. Thorburn

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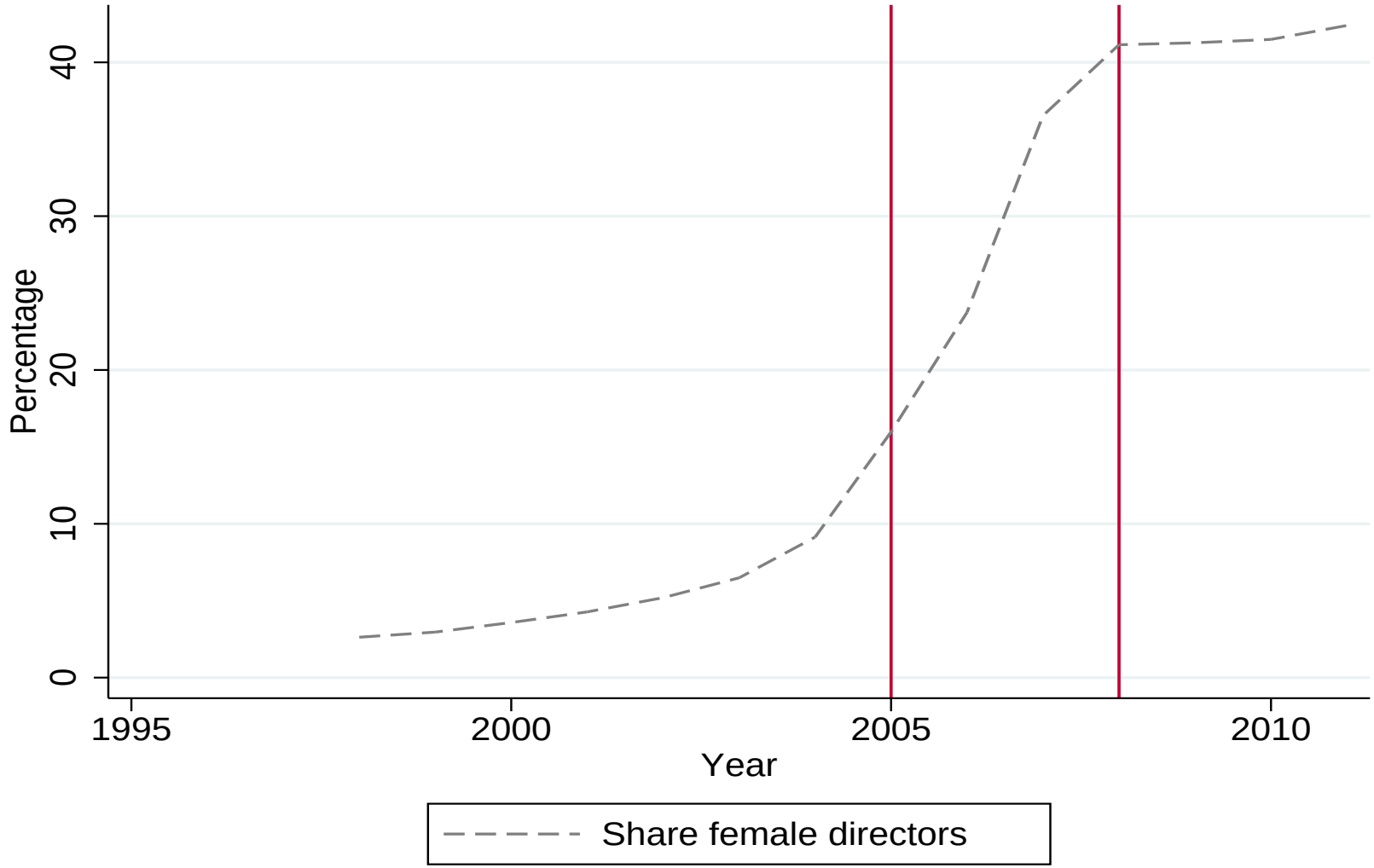
Female directors and stock market returns as of September 23, 2014

Why does it matter? Look at the outperformance within the MSCI ACWI index (companies >$10bn mkt cap)

Norway's board gender quota law

- At least 40% of (shareholder-elected) directors must be from each gender
- Applies to all Norwegian registered ASA ("Allmennaksjeselskap", Public limited liability companies).
- Mandated December 9, 2005
  - Forced liquidation if non-compliance
  - From January 1, 2006 new ASA had to comply at registration.
  - Previously registered firms to comply by January 1, 2008.
- All firms were in compliance by April 2008

Big (25%) percentage increase in share of female directors



But only a single female replacing a male director

Hypotheses concerning the value effect of the quota law

If board structure is value neutral—no value change

- Testing difficult due to the endogenous nature of observed board composition
- It helps that the gender quota law an exogenous event ("natural experiment")

If board structure is not value neutral:

- Restricting free organizational form—firm value $\Downarrow$
- Qualified female directors in short supply—firm value $\Downarrow$
- Breaking up "old boys" network—firm value $\Uparrow$

What to expect?

- *Governance research in general: board structure irrelevant*
- *Quota law replaced only a single male director on average*

Ahern and Dittmar (QJE, 2012)—massive value destruction!

"The forced addition of new female directors on boards led to value losses of upwards of 20% for the firms with [no previous female members]...[The] value losses are persistent across time."

BUT:

- How did the female rookie manage to destroy so much value?
- She must have moved not only the rest of the board but also the 30% (average) blockholder!
- And moved these interested parties in a value-destroying direction to boot!
- Was the rookie female director really that powerful?

What we do:

(1) We improve on the event study analysis:

- On their main event date, we find negative announcement returns to *both* foreign and domestic OSE-listed firms
- On the arguably most important event date—which AD excludes—there is no significant valuation effect

(2) We improve on the panel (IV) analysis of Tobin's Q:

- We show that the change in Tobin's Q that they attribute to quota law occurred in 2008/2009, i.e.
  - ..long after all uncertainty about the law was resolved
  - ..and almost certainly driven by financial crisis

(3) We document the rising female director network power

(4) We examine the rate of conversions from ASA to AS

Sample of ASA and AS companies, 1998-2011

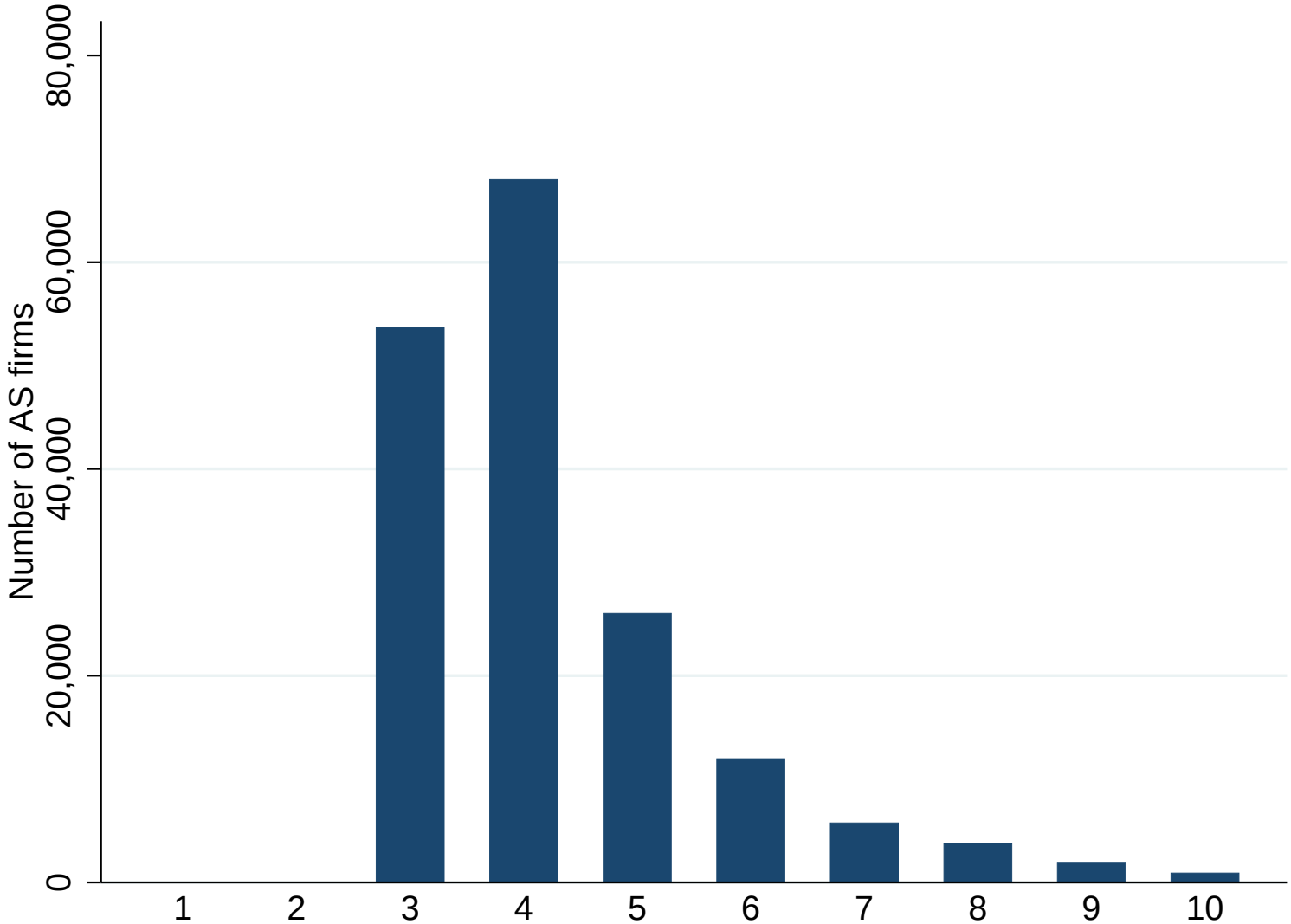
If a firm reports both company and consolidated accounts, we use the consolidated accounts.

Ultimate firms are stand-alone or consolidated companies (excluding subsidiaries)

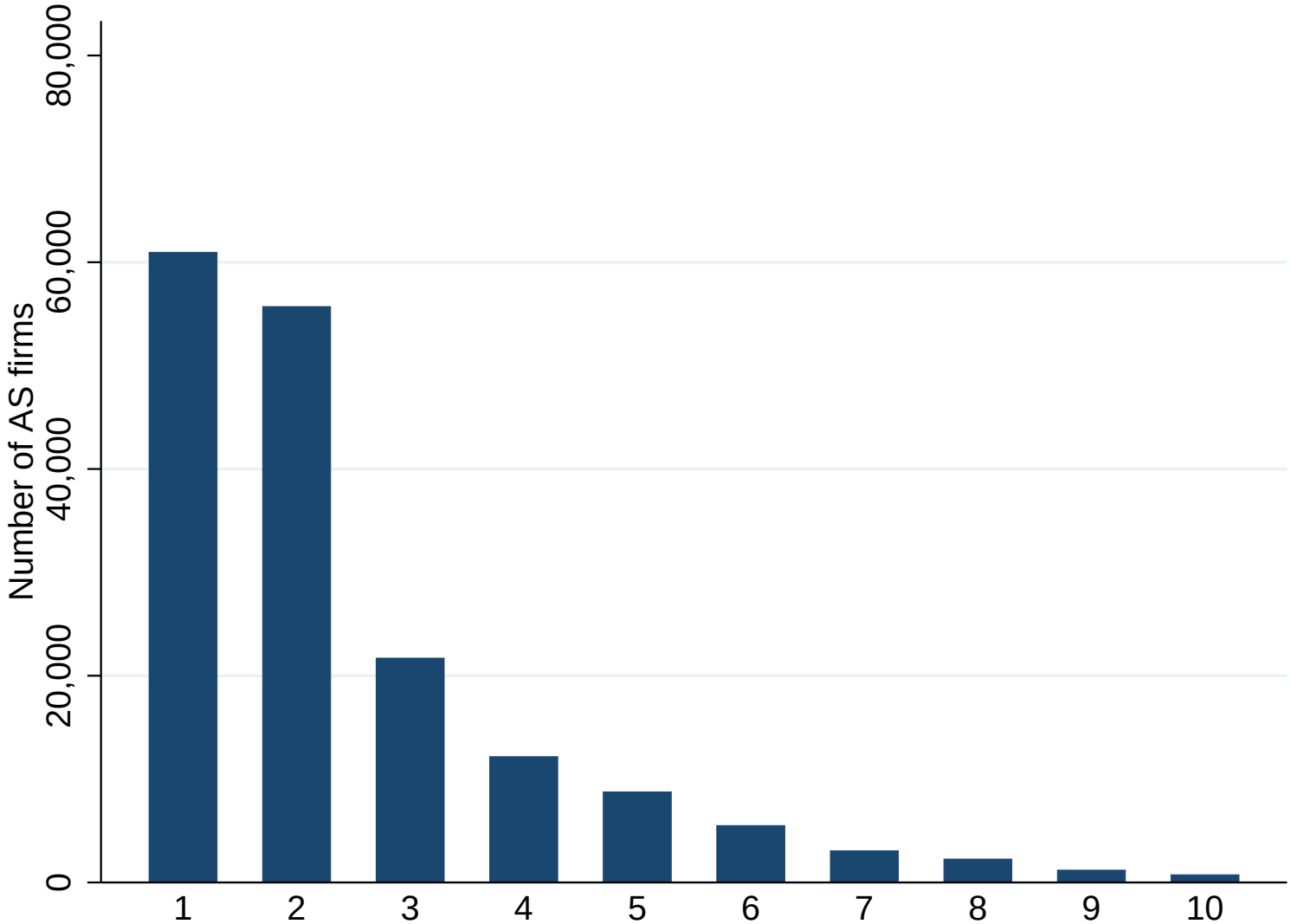
Annual average number of firms (N):

Total population (no filter)	Population of ultimate firms	Ultimate firms without missing revenue data	Ultimate firms after all data checks	Large AS (top 10^{th} revenue percentile)
Public limited liability companies (ASA)				
487	395	374	373	
Private limited liability companies (AS)				
174129	133172	124422	122874	12289

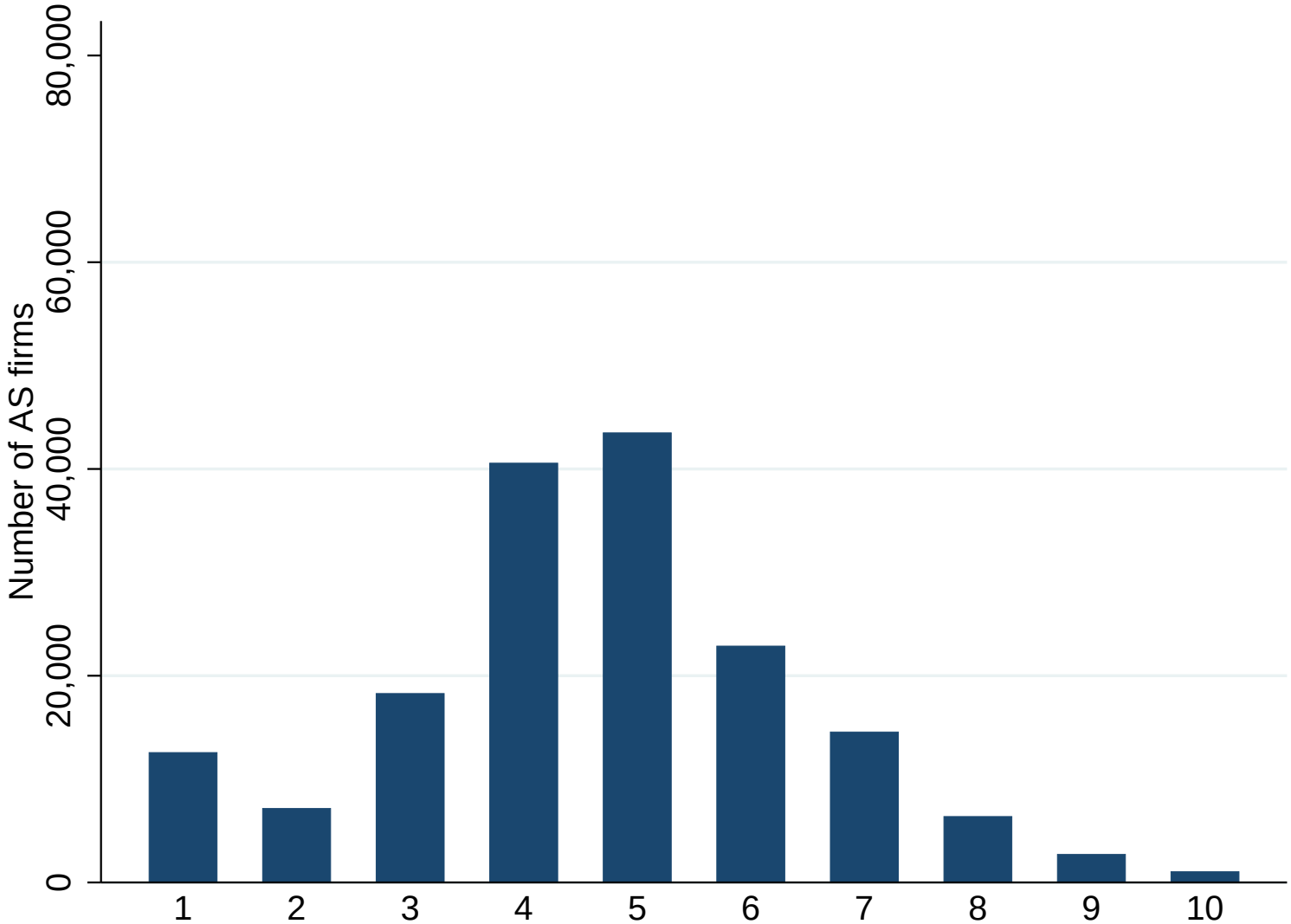
Size frequency of large AS with ASA revenue breakpoints



Size frequency of large AS with ASA asset breakpoints



Size frequency of large AS with ASA employee breakpoints



Key quota event dates

Oct 15, 1999: First public hearing. Proposal for 25% gender quota

July 2, 2001: Second public hearing. Proposal for 40% quota

Feb 22, 2002: Gabrielsen supports gender quota in VG. The support is withdrawn in DN the next day

June 13, 2003: The government puts forward a proposal for a 40% board gender quota

Nov 27, 2003: Parliament passes the law, which will be mandated only if firms fail to comply by July 1, 2005

Dec 9, 2005: Government mandates the quota law to become part of Norwegian corporate law, which has liquidation as sanction for non-compliance

February 22, 2002: Minister of Trade & Industry supports a quota

Verdens Gang: the largest Norwegian tabloid newspaper:

February 23, 2002: Minister of Trade & Industry retracts quota support

Dagens Næringsliv: the largest Norwegian business daily newspaper:

Dagens Næringsliv. 23./24. februar 2002

Gabrielsen ikke lenger for kvotering

ARNE GRANDE
og ÅSNE HAUGLI
Oslo

Det blir knallhard kamp i regjeringen om statsråd Laila Dåvøys (KrF) kvoteringsforslag. Høyre støtter ingen av dem.

Næringsminister Ansgar Gabrielsen (H) går tilbake på uttalelser i VG igår, der han gikk kraftfullt inn for kjønnskvotering i private aksjeselskap, og det raskt.

I VG var Gabrielsen møkk lei mannsdominansen «Gutteklubben Grei» skaper i aksjeselskapenes styrer, og sa folk ville bli overrasket over hvilke radikale virkemidler han er villig til å ta i bruk.

Høyres Leif Frode Onarheim trodde ikke riktig hva han så, men om det mot formodning var riktig, ventet han opprør i Høyres gruppe.

– Jeg synes dette var litt pussig. Men i politikken er det jo så mye som skjer... ler Onarheim.

Det gjorde det altså ikke, denne gangen. For nå er Gabrielsen vesentlig spakere enn igår:

Gabrielsen vil gi «gutteklubben» to år på seg til å få frem flere kvinner frivillig, ellers «utelukker» han ikke kvotering.

– Men per i dag vil jeg ikke gå inn for dette, sier Gabrielsen.

Både Gabrielsen og Onarheim er imidlertid for kvotering i statlig eide selskap, der næringsministeren er generalforsamling.

arne.grande@dn.no
asne.haugli@dn.no

$$r_t^e = \alpha + \sum_{k=1}^{7} AR_k d_{k,t} + \beta_1 W_{t+1}^e + \beta_2 W_t^e + \beta_3 W_{t-1}^e + \varepsilon_t$$

	AR for firms in portfolio return r_t^e		
Event day	Domestic on OSE	Foreign on OSE	Long Domestic Short Foreign
15-Oct-1999	-0.006	-0.003	-0.003
	(0.006)	(0.008)	(0.002)
2-Jul-2001	-0.001	-0.001	0.001
	(0.003)	(0.002)	(0.004)
22-Feb-2002	-0.006***	-0.005***	-0.001
	(0.001)	(0.002)	(0.001)
8-Mar-2002	0.006	0.007	-0.001
	(0.005)	(0.007)	(0.005)
13-Jun-2003	-0.004	-0.003	-0.001
	(0.003)	(0.003)	(0.002)
27-Nov-2003	0.003	0.004	-0.001
	(0.003)	(0.003)	(0.004)
9-Dec-2005	0.003	0.004	-0.001
	(0.003)	(0.003)	(0.002)
Average no. of firms	147.6	21.4	

$...+\beta_4 HML_t + \beta_5 SMB_t + \beta_6 MOM_t + \varepsilon_t$

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AD: ASA firms only. $CAR(-2,+2) = R_{i,t} - R_{I,t}$, I =US firms

	All firms	No female directors	Female directors > 0	Difference
A: % five-day CAR reported by AD. Event date is February 22, 2002				
Mean	-2.573***	-3.547***	-0.024	-3.523***
	(0.001)	(0.001)	(0.977)	(0.008)
Observations	94	68	26	
B: Our estimates, AD sample and abnormal return definition (5 day CAR)				
Mean	-2.817***	-3.714***	-0.592	-3.122**
	(0.000)	(0.000)	(0.585)	(0.034)
Observations	94	67	27	
Mean, excl. $\|car\| > 20\%$	-2.035***	-2.643***	-0.592	-2.051
	(0.002)	(0.001)	(0.585)	(0.127)
Observations	91	64	27	
C: Our estimates, AD sample and abnormal return definition (3 day CAR)				
Mean	-2.445***	-3.087***	-0.775	-2.312
	(0.003)	(0.004)	(0.426)	(0.103)
Observations	90	65	25	
Mean, excl. $\|car\| > 20\%$	-1.593**	-1.923**	-0.775	-1.147
	(0.013)	(0.019)	(0.426)	(0.361)
Observations	87	62	25	

Cross-sectional regressions with AR as dep. variable

	22-feb-2002	09-dec-2005	Cumulative
Shortfall female dir.	-0.0001	0.0000	0.0000
	(0.0002)	(0.0001)	(0.0002)
Board size	(0.0019	-0.0011	-0.0005
	(0.0029)	(0.0012)	(0.0023)
Ownership conc.	0.0081	0.0012	-0.0352**
	(0.0082)	(0.0143)	(0.0174)
Constant	-0.0038	-0.0344***	-0.0811***
	(0.0194)	(0.0096)	(0.0273)
Sector fixed effects	Yes	Yes	Yes
R^2	0.07	0.14	0.25
Number of firms	131	108	100

Percent female directors and Tobin's Q (IV procedure)

First stage regressions:

Percent female dir. $=$
*f(year dummies, year dummies*perc. female dir. in years, firm fixed effects)*

Second stage:

	2005	2006	2007	2008	2009
	(1)	(2)	(3)	(4)	(5)
IV regressions: dependent variable = Tobin's Q					
Percent female dir.	1.050	0.360	-1.318	-1.596**	-1.424**
	(1.905)	(1.309)	(0.835)	(0.668)	(0.606)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
N	308	392	471	541	603

Director network power and Tobin's Q

Bohren and Ström (1020) study director network power:

- They Investigate non-financial Norwegian listed firms 1989-2002

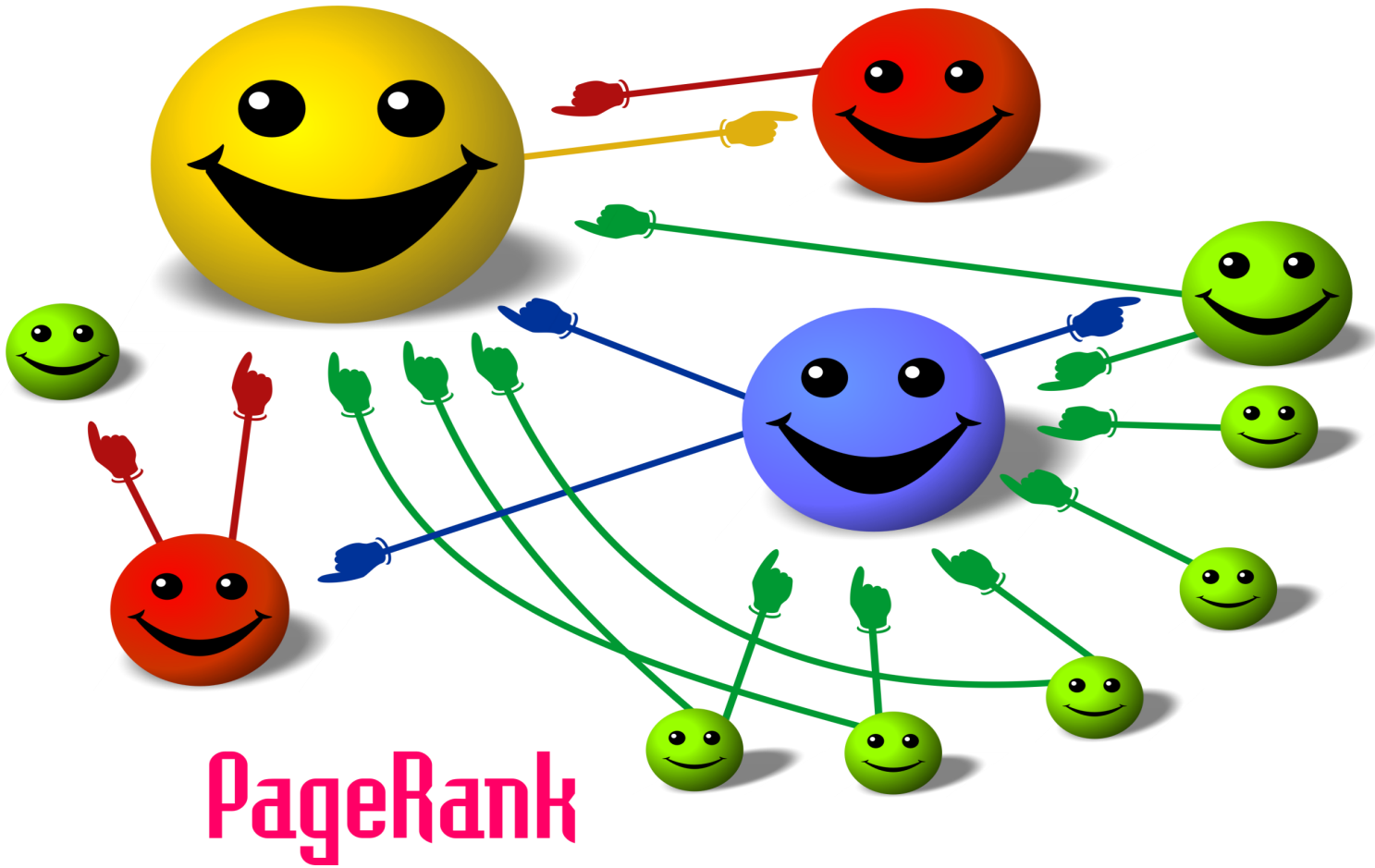
They find:

- Higher Tobin Q for firms with high network centrality
- Lower Tobin Q for firms with higher proportion of female directors representing owners.

Director power measured using PageRank (also used by Google)

PageRank = a modified eigenvector centrality measure

- Two directors are connected if they sit on the same board
- Director power increases with the number of connections
- PageRank gives greater weight to more direct (adjacent) connections



Rising female director network power

Our network power measurement:

- (1) Construct annual network of all directors and CEOs (ASA/Large AS)
  - 2011: total network has 37,248 individuals holding 53,169 directorships/CEO positions
- (2) Compute annually updated PageRank for each individual
- (3) Standardize the score to between 0 and 1 (divide each individual's centrality score by the maximum score that year

Some findings:

(1) *Average female director power below male director power in each year*

(2) *Female power increasing over the sample period, approaching male power*

- 1998, ASA: average male power 61% higher than average female power
- 2011, ASA: average male power 4% higher than average female power
- There is a less marked increase in female power relative to male power in AS (the initial gap is smaller compared to ASA boards)

Additional findings on male versus female director power

- 1998 ASAs with at least one female director: in 17%, average female power exceeds male power.
- This percentage increased to 40% in 2011
- The percentage of firms with at least one female director that holds 5 or more directorships ("golden skirts") also increased
- The percentage of firms with at least one male director that holds 5 or more directorships ("golden shirts") also increased
- A similar pattern is evident for Large AS, though on a smaller scale

Did the quota law prompt ASA firms to convert to AS?

- (1) Only ASA are subject to the quota law
- (2) Stricter corporate governance and reporting requirements for ASA

Bohren and Staubo (2013):

- The total number of ASA firms drops between 2001 and 2009
  - Slight increase in the number of listed firms
  - Decline in the number of non-listed ASAs

- Firms switching from ASA to AS are relatively small, young and profitable, with concentrated ownership and few, if any, women on the board

If we see conversions, is it due to (1) or (2) (or both)?

Number of non-financial firms converting from ASA to AS

A converting firm is ASA in one year and AS in the next

- We exclude bankruptcies/acquisitions

Year	Listed (1)	Non-listed (2)	All (3)
2000	2	9	11
2001	2	5	7
2002	6	3	9
2003	0	7	7
2004	0	10	10
2005	8	14	22
2006	3	14	17
2007	2	3	5
2008	2	3	5
2009	2	0	2
Sum	27	68	95

Determinants of conversion decisions

- Probit model where dependent variable is 1 if converting
- Each converting firm is matched to the five closest non-converting ASA firms in same year
  - Propensity score matching on: revenue, book value of total assets, sector and listing status
- Main findings:
  - Zero correlation between conversion decision and the share of female directors
  - Firms with more powerful boards and more concentrated ownership are more likely to convert

In progress: Did converting ASA firms fail to raise capital?

Conversion decision probit estimation

	(1)	(2)	(3)	(4)
Female dir.	-0.494	-0.714	-0.972	-1.488
	(0.373)	(0.482)	(0.723)	(0.931)
Listed		-0.048	-0.139	-0.168
		(0.202)	(0.215)	(0.306)
Female dir.*Listed		0.552	0.202	0.149
		(0.815)	(0.894)	(1.088)
Board power			2.920***	3.048***
			(0.976)	(1.166)
Female dir. power			2.392*	3.081**
			(1.409)	(1.529)
Female dir.*Female dir. power			-4.241	-5.320
			(5.127)	(5.869)
Ownership concentration				0.876***
				(0.297)
Firm controls + year + sector				Yes
Pseudo R^2	0.003	0.005	0.038	0.099
Log-likelihood	-234.364	-234.116	-225.480	-197.633
Observations	483	483	479	430

Conclusions

- (1) A robust event study fails to produce statistically significant valuation effects of the quota law
- (2) A robust Tobin's Q (IV) test fails to associate changes in Tobin's Q with the change in the percent female directors caused by the quota law
- (3) The quota law has caused a near-conversion of male and female director female power
- (4) The probability of converting from ASA to AS is increasing in:
  - Ownership concentration
  - Board network power
  - **Female network power**

$\Rightarrow$ **No evidence the quota law has reduced firm value**