

Ownership Concentration and Firm Risk: Evidence from the US

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Ownership structure

- In the US:
 - 67% of public firms have more than one blockholder;
 - 20% have only one blockholder;
 - 13% are widely heldwhere a blockholder is defined as a shareholder with more than a 5% stake.
- In the EU
 - 34% have at least two investors with a stake above 10%
 - 12% have more than two investors with a stake above 10%

What is the impact of the presence of mid-sized blockholders on firm risk and in general on firm policies?

Theory: Shleifer and Vishny (1986)

- When ownership is dispersed, no shareholder has the incentive to monitor the manager.
- So value maximization is not achieved.
- A shareholder with a large stake has the incentive to monitor.
- Hence solution to the free rider problem.

Theory: Admati, Pleiandered and Zechner (1994)

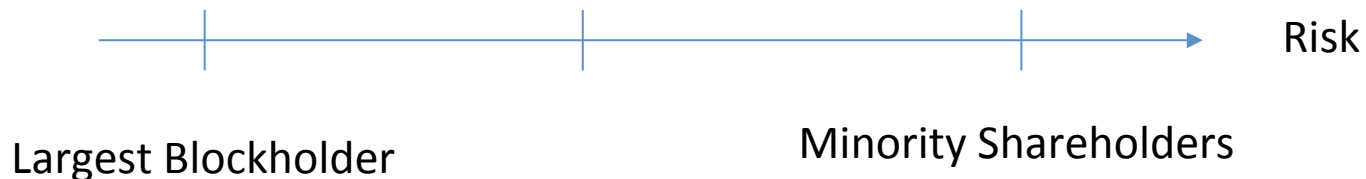
- Holding a large stake comes at the cost of being poorly diversified for the large shareholder.
- Hence the large shareholder chooses lower risk/return projects.
- Empirically: The larger the stake of the largest blockholder is, the lower the risk of the firm.

Empirical studies

- John et al (2008):
 - The stake of the largest shareholder negatively affects firm risk.
 - They deal with problems of reverse causality by using as instrumental variable the industry average stake of the largest blockholder.
- Faccio et al (2011)
 - The more diversified the largest shareholder is, the larger is firm risk.
 - The diversification is measured as the logarithm of the number of firms in which the largest blockholder is present.
 - They deal with the problems of reverse causality using as instrumental variable the industry average diversification of the largest blockholder.

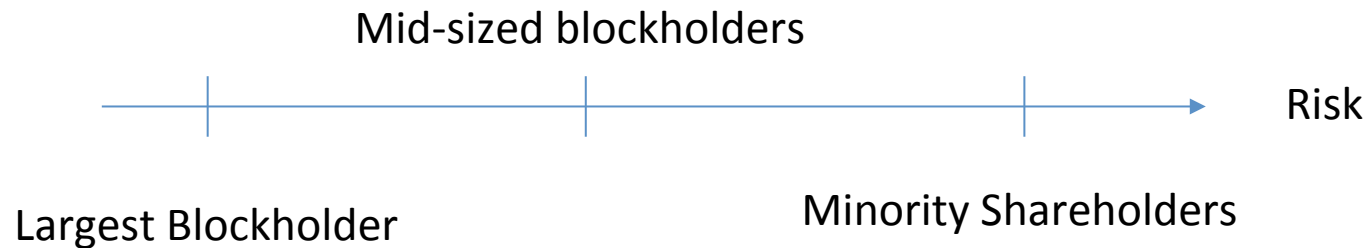
Theory: Dhillon and Rossetto (2015)

- When a large blockholder exists, there is a conflict of interest between the large shareholder and the minority shareholders.
- The large shareholder is not perfectly diversified. Hence he prefers low risk/return investments.
- Minority shareholders are well diversified. Hence they prefer high risk/return investments.



Theory: Dhillon and Rossetto (2015)

- Mid-sized blockholders can arise to mitigate this conflict of interest.



- Mid-sized blockholders are pivotal in firm's risk decisions.
- Empirical implications: the larger the number of blockholders the larger the risk of the firm.

Who determines firm risk?

- Does firm risk depend on the stake of the largest blockholder?
- Does firm risk depend on the number of blockholders?
- Does firm risk depend on ownership structure and distribution of voting rights?

Related literature

Empirical literature:

- Laeven and Levine (2008) and Konjin, Kraeussl and Lucas (2011) look at the relationship between ownership structure and firm performance.
- Carlin and Mayer (2003) find that when there is a second blockholder firms are riskier.

Theoretical papers which explain the role of mid-sized blockholders:

- Monitoring and exit threat by blockholders increase firm performance (Edmans and Manso (2011)).
- Expropriating role of blockholders: Zwiebel (1995) and Bennedsen and Wolfenson (2000).

Data

- Ownership data: Dlogotz et al
 - yearly data on the percentage of voting rights of every investor that holds a stake of at least 5% of 1913 US listed firms over a period of six years (1996--2001);
 - this database has been cleaned from mistakes and biases, that publicly available databases often suffer from.
- Accounting data: Compustat;
- Stock data: CRSP.
- We exclude firms which operate in regulated sectors, e.g. financial, media and utility sector.
- For most of our analysis we only consider firms with at least one blockholder.
- Total sample of 4855 firm-years.

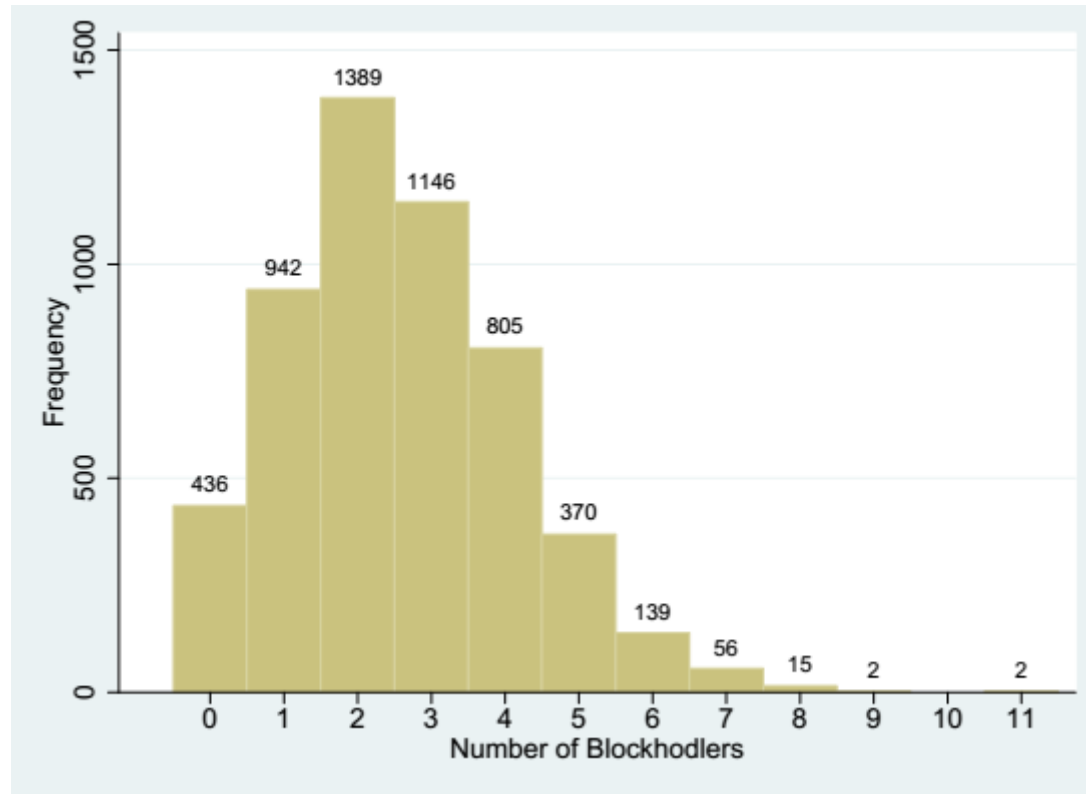
Variables

- Firm risk: standard deviation of daily stock returns.
- Share of the largest blockholder.
- Logarithm of the number of blockholders.

Control variables:

Age, Size, Sales Growth, Tangibility, ESOP, D Insider.

Number of Blockholders



Variables	One blockholder	N blockholders	Widely held	Test for difference N blockholder vs one blockholder	Test for difference one blockholder vs widely held	Test for difference N blockholder vs widely held
Volatility	0.0311 (0.027)	0.0320 (0.029)	0.0291 (0.023)	0.1256 (0.002)	0.0294 (0.000)	0.0001 (0.000)
Age	3.6959 (3.761)	3.5484 (3.555)	4.0090 (4.263)	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)
Size	7.6606 (7.560)	6.9016 (6.859)	8.8372 (9.1614)	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)
Sales Growth	0.1201 (0.081)	0.1186 (0.070)	0.0885 (0.061)	0.9206 (0.322)	0.2032 (0.021)	0.0960 (0.065)
Tangibility	0.3059 (0.250)	0.3119 (0.262)	0.3202 (0.271)	0.4016 (0.311)	0.2263 (0.031)	0.4500 (0.091)

Does firm risk depend on the stake of the largest blockholder?

$$\text{Volatility}_{i,t} = \alpha_0 + \alpha_1 \text{Share 1}_{i,t} + \sum_{n=2}^N \alpha_n x_{n,i,t} + \varepsilon_{i,t}$$

VARIABLES	Whole Sample	
	OLS1 Volatility	OLS2 Volatility
Share 1	-0.0001*** (0.000)	-0.0001*** (0.000)
lnage	-0.0060*** (0.000)	-0.0055*** (0.000)
size	-0.0018*** (0.000)	-0.0019*** (0.000)
Sales Growth		0.0019*** (0.001)
Tangibility		-0.0113*** (0.001)
D_insider		-0.0007 (0.001)
ESOP		-0.0039*** (0.001)
Constant	0.0672*** (0.002)	0.0697*** (0.002)
Year Fix Effect	Yes	Yes
Sector Fix effect	Yes	Yes
Observations	4,855	4,826
Adjusted R-squared	0.198	0.233

The whole sample

- For the whole sample the estimation tells us that there is a negative relationship between share of the largest blockholder and volatility.
- These results are compatible with the results of John et al (2008).
- Control variables behave as in previous studies.

VARIABLES	Whole Sample		Firms with Multiple Blockholders		Firms with 1 Blockholder	
	OLS1 Volatility	OLS2 Volatility	OLS3 Volatility	OLS4 Volatility	OLS5 Volatility	OLS6 Volatility
Share 1	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001* (0.000)	-0.0001* (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)
Inage	-0.0060*** (0.000)	-0.0055*** (0.000)	-0.0057*** (0.000)	-0.0052*** (0.000)	-0.0072*** (0.001)	-0.0068*** (0.001)
size	-0.0018*** (0.000)	-0.0019*** (0.000)	-0.0019*** (0.000)	-0.0020*** (0.000)	-0.0016*** (0.000)	-0.0017*** (0.000)
Sales Growth		0.0019*** (0.001)		0.0023*** (0.001)		0.0011 (0.001)
Tangibility		-0.0113*** (0.001)		-0.0114*** (0.001)		-0.0105*** (0.003)
D_insider		-0.0007 (0.001)		-0.0005 (0.001)		-0.0018 (0.002)
ESOP		-0.0039*** (0.001)		-0.0033*** (0.001)		-0.0072*** (0.002)
Constant	0.0672*** (0.002)	0.0697*** (0.002)	0.0666*** (0.002)	0.0692*** (0.002)	0.0721*** (0.004)	0.0744*** (0.004)
Year Fix Effect	Yes	Yes	Yes	Yes	Yes	Yes
Sector Fix effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,855	4,826	3,913	3,886	942	940
Adjusted R-squared	0.198	0.233	0.191	0.225	0.236	0.271

Reverse Causality

As in John et al (2008) to deal with reverse causality problems we carry out a 2SLS where the instrumental variable is the sector average share of the largest blockholder.

In the 2SLS estimation, the coefficient of the stake of the largest blockholder is significant only at the 5% confidence level.

VARIABLES	Whole Sample		Firms with Multiple Blockholders		Firms with 1 Blockholder	
	IV1 Volatility	IV2 Volatility	IV3 Volatility	IV4 Volatility	IV5 Volatility	IV6 Volatility
Share 1	-0.0012** (0.001)	-0.0012** (0.001)	-0.0010 (0.001)	-0.0012 (0.001)	-0.0012** (0.001)	-0.0011** (0.000)
Inage	-0.0071*** (0.001)	-0.0064*** (0.001)	-0.0065*** (0.001)	-0.0059*** (0.001)	-0.0093*** (0.002)	-0.0085*** (0.002)
size	-0.0023*** (0.000)	-0.0024*** (0.000)	-0.0024*** (0.000)	-0.0025*** (0.000)	-0.0021*** (0.001)	-0.0020*** (0.001)
Sales Growth		0.0028*** (0.001)		0.0026*** (0.001)		0.0033** (0.002)
Tangibility		-0.0103*** (0.002)		-0.0115*** (0.002)		-0.0053 (0.005)
D_insider		0.0017 (0.002)		0.0016 (0.002)		0.0013 (0.003)
ESOP		-0.0043*** (0.001)		-0.0036*** (0.001)		-0.0085*** (0.002)
Constant	0.0902*** (0.011)	0.0918*** (0.012)	0.0864*** (0.016)	0.0907*** (0.019)	0.0981*** (0.014)	0.0945*** (0.012)
Observations	4,855	4,826	3,913	3,886	942	940
<u>First-stage regressions</u>						
IV: Average Share 1	0.25687*** (0.055)	0.23754*** (0.056)	0.15257*** (0.054)	.1302943*** 0.019	0.82423*** (0.204)	0.85225*** (0.212)
Partial R ² of excluded instruments	0.0049	0.0042	0.0023	0.0017	0.0218	0.0235
F-statistic of excluded instruments (p-value)	11.23875 (0.007)	10.02511 (0.0042)	3.49973 (0.0616)	2.52416 (0.1124)	17.27144 (0.0012)	17.33599 (0.0010)
Stock and Yogo's test	23.885***	20.5138***	8.9157	6.55963	22.9483***	22.4458***
Hausman test (p-values)	0.000	0.000	0.0516	0.0453	0.000	0.000

Splitting the sample

- When splitting the sample between firms with one and multiple blockholders:
 - The size of the first blockholder negatively affects risk only when no other blockholders are present.
 - When firms have multiple blockholders, this relationship is no longer significant.
- We reach different conclusions from John et al (2008) and from Faccio et al (2013).
- It is important to distinguish between firms with one and multiple blockholders.

Does firm risk depend on the number of blockholders?

$$Volatility_{i,t} = \alpha_0 + \alpha_1 \ln N_{Block_{i,t}} + \sum_{n=2}^N \alpha_n x_{n,i,t} + \varepsilon_{i,t}$$

- As before we deal with reverse causality using the sector average number of blockholders.

VARIABLES	IV1 Volatility	IV2 Volatility
Ln N Block	0.0164*** (0.004)	0.0178*** (0.004)
Inage	-0.0053*** (0.000)	-0.0047*** (0.000)
Size	-0.0002 (0.000)	-0.0002 (0.000)
Sales Growth		0.0015** (0.001)
Tangibility		-0.0118*** (0.002)
D_insider		-0.0024** (0.001)
ESOP		-0.0060*** (0.001)
Constant	0.0378*** (0.007)	0.0392*** (0.008)
Observations	4,855	4,826

First-stage regressions

IV: Average Larg. share	0.4046579*** (0.04359)	0.3995802*** (0.0438843)
Partial R ² of excluded instruments	0.0264	0.0259
F-statistic of excluded instruments (p-value)	50.4376 (0.0000)	78.0367 (0.0000)
Stock and Yogo's test	80.8622***	78.0367***
Hausman test (p-values)	0.0000	0.0000

Number of Blockholders and Volatility

- The 2SLS results indicate that firms with more blockholders take more risk.
- These results are economically relevant:
 - When a firm has one blockholder, the addition of a second one leads to an increase of 1.2% in stock price volatility.
 - The average firm with one blockholder has a volatility of 3.1%.
 - Hence the addition of a 2nd blockholder increases firm's volatility to 4.3%.

Voting Power

- If firm decisions over risk is the result of the tension between the largest and the mid-sized blockholders the relative voting power among these actors should help explain differences in firm risk.
- We express this tension by the ratio of the stake of mid-sized blockholders over the largest one:

$$\sum_{n=2}^N \alpha_n / \alpha_1$$

VARIABLES	IV9 Volatility	IV10 Volatility
VOT2,3..N/VOT1	0.0057*** (0.002)	0.0071*** (0.002)
lnage	-0.0055*** (0.000)	-0.0049*** (0.000)
size	-0.0013*** (0.000)	-0.0013*** (0.000)
Growth_sales		0.0024*** (0.001)
tangibility		-0.0113*** (0.001)
d_insider		-0.0009 (0.001)
esop		-0.0037*** (0.001)
Constant	0.0532*** (0.004)	0.0530*** (0.004)
Observations	3,913	3,886

First-stage regressions		
IV: Average share	0.53620*** (0.0017)	.54156*** (0.0483983)
Partial R2 of excluded instruments	0.0393	0.0396
F-statistic of excluded instruments (p-value)	72.4622 (0.000)	74.0681 (0.000)
Stock and Yogo's test	159.775***	159.887***
Hausman test (p-values)	0.0000	0.0000

Herfindahl Index

The Herfindahl index is a measure of dispersion

$$Herfindahl_{i,t} = \frac{\sum_{i=1}^n \alpha_{i,t}^2}{(\sum_{i=1}^n \alpha_{i,t})^2}$$

We assume that each share not held by blockholders is held by a different investor.

This allows us to include widely held firms in the sample.

The disadvantage of the Herfindahl index is that it might not distinguish between firms with one blockholder and firms with multiple blockholders.

	IV1	IV2
VARIABLES	volatility	volatility
Herfindhal	-0.0255***	-0.0285***
	(0.010)	(0.010)
lnage	-0.0059***	-0.0053***
	(0.000)	(0.000)
size	-0.0009**	-0.0009**
	(0.000)	(0.000)
Sales Growth		0.0013**
		(0.001)
tangibility		-0.0120***
		(0.001)
d_insider		-0.0018**
		(0.001)
esop		-0.0054***
		(0.001)
d_widely	-0.0115*	-0.0141**
	(0.006)	(0.006)
Constant	0.0725***	0.0765***
	(0.003)	(0.003)
Observations	5,302	5,273

First-stage regressions		
IV: Average Larg. share	0.3126***	0.3150***
	(0.0439)	(0.0441)
Partial R2 of excluded instruments	0.0289	0.0291
F-statistic of excluded instruments (p-value)	32.4913	32.7044
	(0.000)	(0.000)
Stock and Yogo's test	47.7238***	48.2422***
Hausman test (p-values)	0.0003	0.0000

Conclusion

- We looked if and how ownership structure affects firm risk.
- Volatility is affected by the share of the largest blockholder only when he/she is the only one.
- The number of blockholders affect positively share price volatility.
- Voting power of mid sized blockholders affects positively share price volatility.
- Mid-sized blockholders play an active role in firm's policy.
- Maybe they affect not only firm risk.