

# Guilty By Association: Information, Transparency, and the Contagion of Financial Crises

Michaël Aklın

New York University

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## **What drives financial crisis contagion?**

- Crises spread across countries
- Economic ties fail to explain many contagion episodes
- Information-based contagion theory

**How does governmental opacity affect a country's vulnerability to the contagion of financial crises?**

# Contagion

- Economists:
  - ▶ Trade relations (Eichengreen et al. 1996)
  - ▶ Financial relations (Kaminsky and Reinhart 2000)
- But: crises are *political* phenomena
- Political economy:
  - ▶ Interdependence (Keohane and Nye 1977)
  - ▶ Diffusion (Simmons and colleagues)
  - ▶ (Non-strategic) Information (Calvo and Mendoza 2000, Keister 2009)

# Theory

- *Investors* observe:
  - ▶ What the government tells them
  - ▶ Events (crashes, defaults, etc.)
- *Governments*:
  - ▶ Need to attract capital
  - ▶ Can manipulate data by being opaque
- *Intuition*:
  - ▶ Similar countries will pool their opacity levels
  - ▶ If the fundamentals are revealed in *A*, investors can update about *B*.

**Contagion is more likely to occur to countries that have levels of opacity that are similar to that of the country where the crisis started**

# Research Design

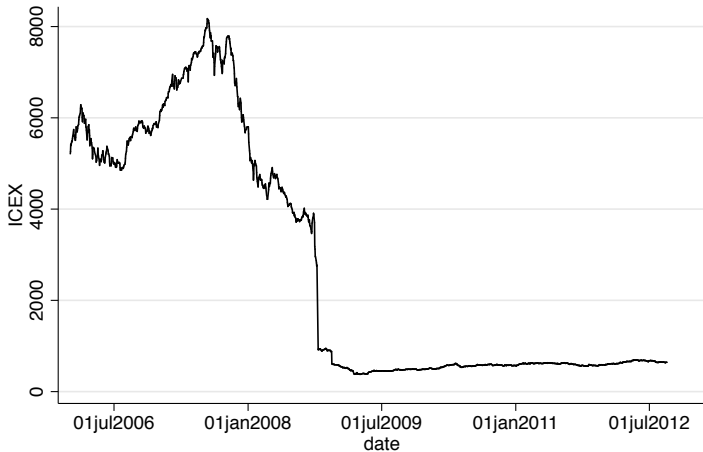
- Three empirical tests: debt, currency, and stock market crisis
- 2008 Icelandic stock/banking crisis (Sept 2008- Jan 2009)
- Icelandic shock as an ideal case
- ECM on the contagion of stock market shocks
- New data on statistical offices

# Measuring Resemblance

- Data on European statistical offices
- Measuring transparency:
  - ▶ Simple index
  - ▶ Factor analysis
  - ▶ Item response model
- Measuring resemblance:  
 $1/(\text{Transparency}_i - \text{Transparency}_{\text{ISL}})$

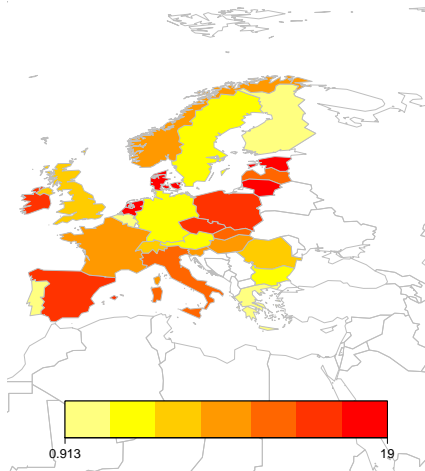
$$\begin{aligned} \Delta \text{ Stock Market} = & \beta \Delta (\text{Resemblance} \cdot \text{ICEX}) + \chi \Delta \text{ ICEX} \\ & + \lambda \Delta \mathbf{X} + \gamma \mathbf{X} + \tau \text{ Stock Market}_{t-1} + \phi_i + \psi \text{ Time} \end{aligned} \quad (1)$$

### ICEX - 2006-2012



Icelandic Stock Exchange Index (ICEX), 2006-2012.

## Resemblance to Iceland

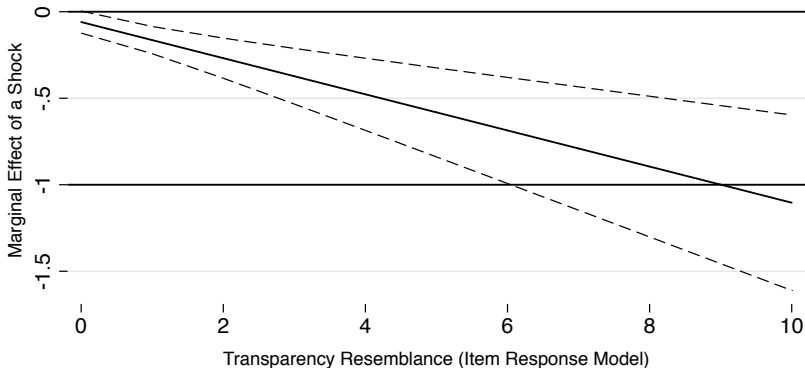




# Results

## Marginal Effect of a Negative Icelandic Shock on Stock Markets as Resemblance Increases

Dependent Variable: Stock Market Index (First Diff.)



— Marginal Effect of a Unit Decrease of the ICEX  
- - - 95% Confidence Interval

Marginal effect of an decrease by 1 unit of the ICEX (Iceland Stock Exchange Index), for various levels of (transparency) resemblance between two countries.

# Conclusion

- Informational theory of contagion
- Governments are strategic actors who choose opacity for their own benefits
- The effect of transparency is relative
- You don't want to be in competition with another country

# Item Response Resemblance

Table 1: Summary Statistics - Stock Market Contagion

	count	mean	sd	min	max
$\Delta$ Stock Index	32463	-0.01	1.35	-13.38	11.67
Stock Index (t-1)	32463	91.95	31.12	12.84	263.51
$\Delta$ Resemblance * ICEX	32463	-0.05	8.12	-169.62	131.70
$\Delta$ ICEX	32463	-0.02	0.89	-10.00	5.36
Resemblance * ICEX (t-1)	32463	393.55	509.45	11.72	2977.23
ICEX (t-1)	32463	51.41	50.57	7.27	156.82
$\Delta$ T-Bill (4w)	30923	-0.01	0.09	-1.07	0.95
T-Bill (4w) (t-1)	31305	1.56	1.99	-0.01	5.18
$\Delta$ T-Bill (13w)	30948	-0.01	0.06	-0.81	0.74
T-Bill (13w) (t-1)	31330	1.60	1.99	0.00	5.05
$\Delta$ T-Bill (52w)	19944	-0.00	0.04	-0.26	0.50
T-Bill (52w) (t-1)	20226	0.48	0.55	0.07	2.58

# Item Response Resemblance

Table 3: The Contagion of Stock Market Shocks from Iceland

	(1)	(2)	(3)	(4)	(5)
$\Delta$ Resemblance * ICEX	0.096*** (0.023)	0.096*** (0.023)	0.095*** (0.022)	0.104*** (0.026)	0.109*** (0.031)
$\Delta$ ICEX	0.022 (0.027)	0.025 (0.027)	0.132*** (0.029)	0.060* (0.033)	-0.131*** (0.035)
Controls	No	No	Yes	Yes	Yes
FE	No	Yes	Yes	Yes	Yes
Notes	RE			Sep24-Feb2	Oct14-Feb2
Observations	19332	19332	18361	1507	1282
$R^2$		0.394	0.401	0.451	0.458
$\hat{\sigma}$	0.954	0.952	0.949	1.541	1.446

# Factor Resemblance

Table 2: The Contagion of Stock Market Shocks from Iceland

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta$ Resemblance * ICEX	0.060*** (0.011)	0.050*** (0.010)	0.048*** (0.011)	0.048*** (0.011)	0.072*** (0.010)	0.043* (0.022)
$\Delta$ ICEX	0.002 (0.034)	0.014 (0.034)	0.188*** (0.037)	0.188*** (0.037)	0.053 (0.041)	-0.290*** (0.056)
FE	No	Yes	Yes	Yes	Yes	Yes
Note	RE		Clustered s.e.		Sep. 24-Feb 2	Oct. 14-Feb 2
Observations	19332	19332	18361	18361	1507	1282
$R^2$		0.015	0.031	0.031	0.115	0.115
$\hat{\sigma}$	1.216	1.214	1.207	1.207	1.957	1.847

# Factor Resemblance

Table 3: Placebo Test

	(1)	(2)	(3)
$\Delta$ Resemblance * ICEX	-0.008** (0.004)	-0.008** (0.003)	-0.010** (0.004)
$\Delta$ ICEX	0.048*** (0.013)	0.046*** (0.012)	0.056*** (0.014)
Note	RE	FE	FE
Observations	1929	1929	1855
$R^2$		0.038	0.053
$\hat{\sigma}$	1.108	1.099	1.082