Strategic Risk Management and ESG

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"ESG and Sustainability in Emerging Market: Shaping Thailand's Future"
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Possible definitions of risk

- **Debt ratio**
- **Positioning of technology** (Maksimovic and Zechner, 1991; MacKay and Phillips, 2005; Nettayanun, 2014)
- **Positioning of ESG**

- Stock proportion in the portfolio (Nettayanun, 2014)
- Derivative usage, measure by delta (Tufano, 1996)

Intuition behind the model

B/M   Debt ratio ←------ Positioning of ESG

Main variables
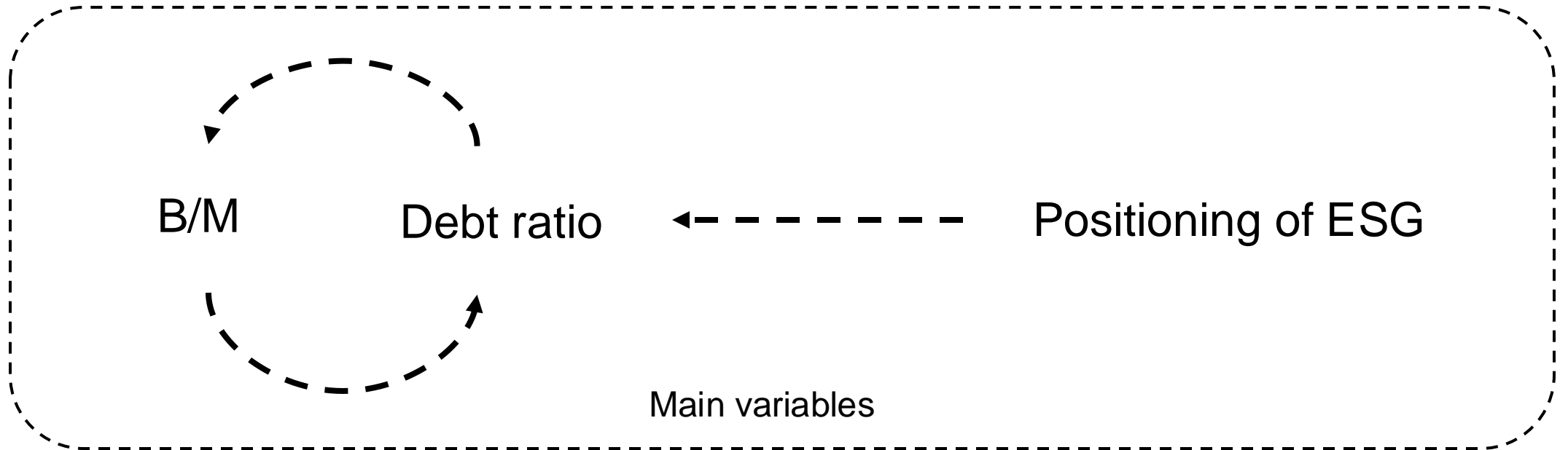
We follow MacKay and Phillips (2005), Nettayanun (2014), and Dionne, Chun, and Triki (2019). We also need to address i) panel data ii) endogeneity iii) system of equations.

$$BM_{i,t} = \beta_0 + \beta_1 * debtratio_{i,t} + B_1\, Controlled1_{i,t} + \epsilon_{i,t}$$

$$debtratio_{i,t} = \gamma_0 + \gamma_1 * BM_{i,t} + \gamma_2 * pESG_{i,t} + \gamma_3 * pE_{i,t} + \gamma_4 * pS_{i,t} + \gamma_5 * pG_{i,t} + B_2\, Controlled2_{i,t} + v_{i,t}$$
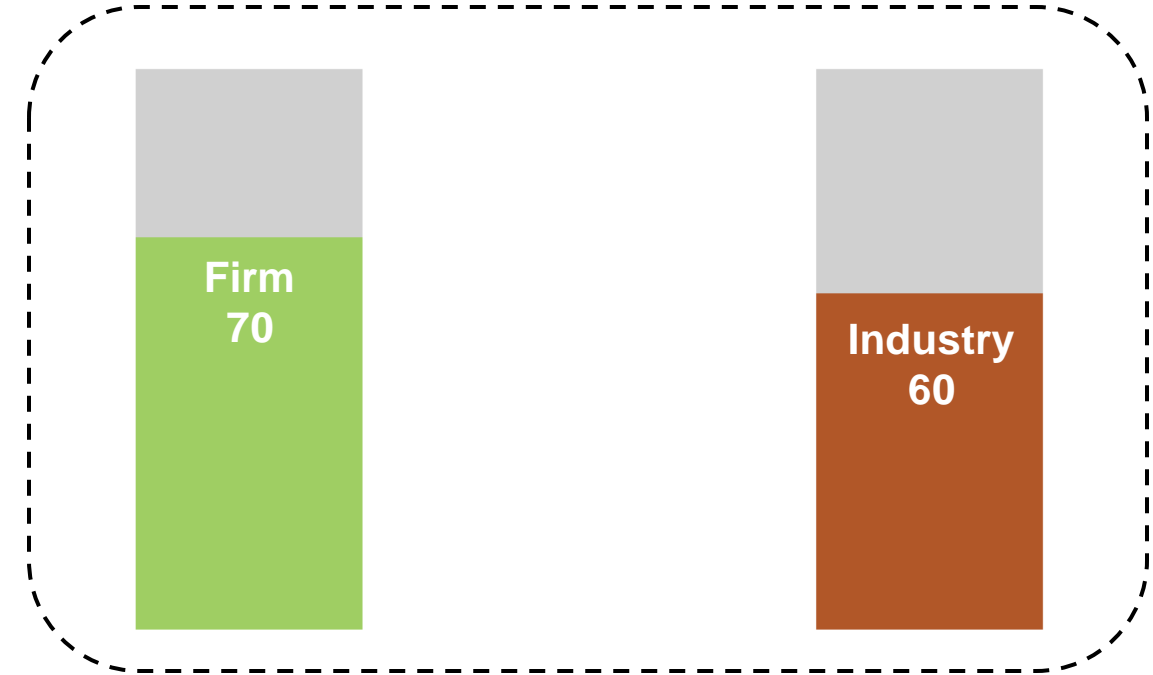
Positioning variables

$$pScore_{ik} = \frac{|Score_{itk} - Median\ Score_{tk}|}{|Max\ Score_{tk} - Min\ Score_{tk}|}$$

The definition is similar to Maksimovic and Zechner (1991), MacKay and Phillips (2005) and Nettayanun (2014). It captures the distance of a firm's ESG scores from its peers in its industry k.
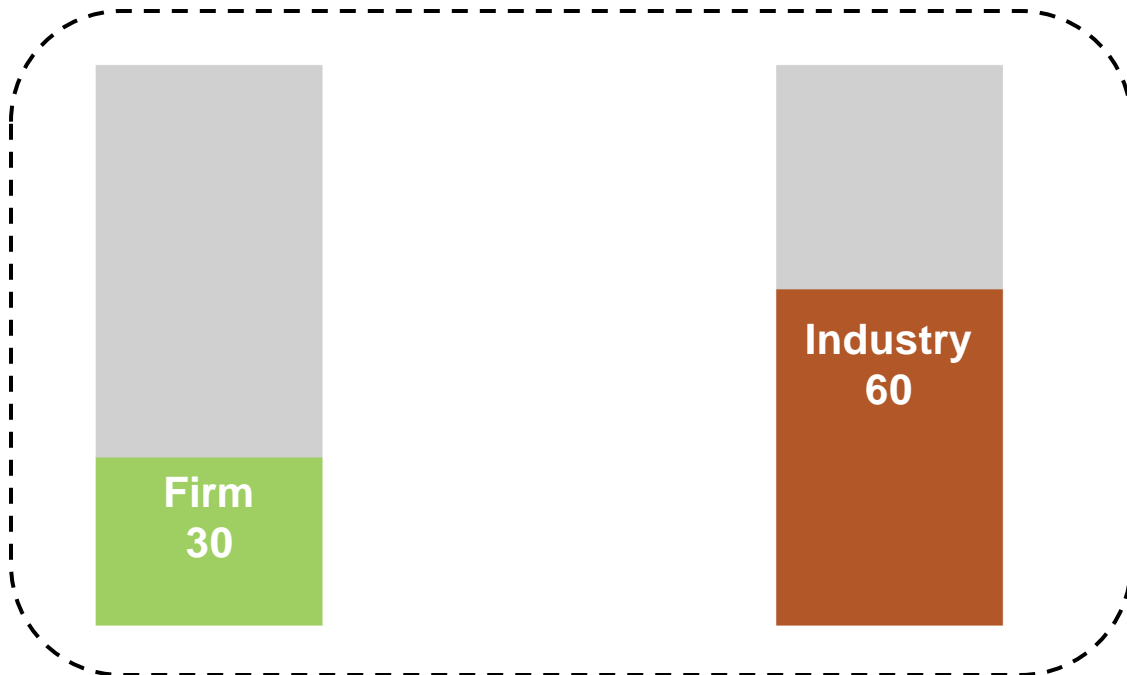
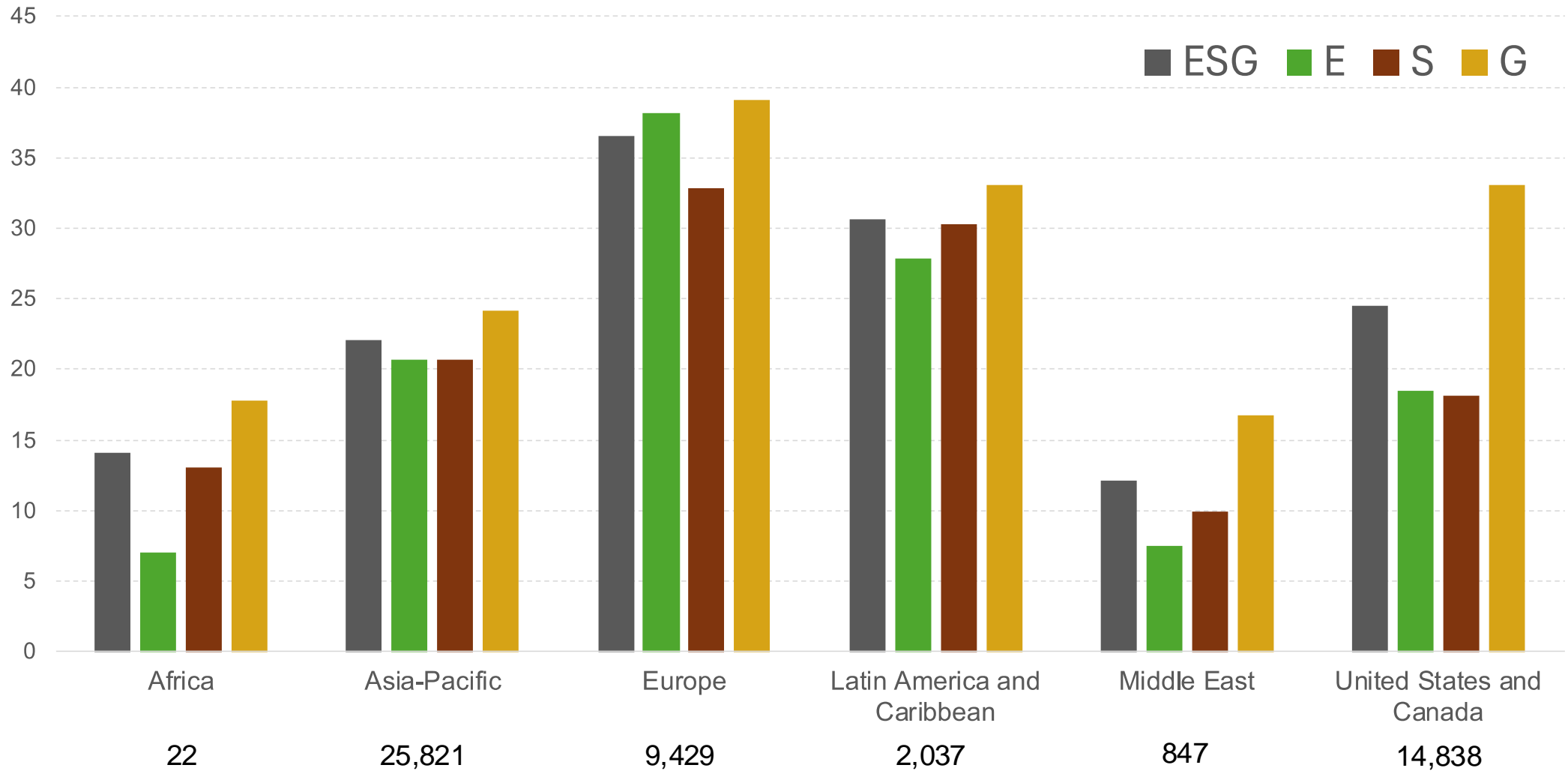

Example I: A firm's score is far away from the median.

Example II: A firm's score is closer to the median.

ESG Comparisons among global regions in the world

Note: Global region definitions are from S&P Capital IQ.

How do ESG positionings affect debt ratio?

Table 8: 3SLS Regression

	All Regions		Asia-Pacific		Europe		Latin America and Caribbean		Middle East		United States and Canada	
	ΔBM (1)	Δdebtratio (2)	ΔBM (3)	Δdebtratio (4)	ΔBM (5)	Δdebtratio (6)	ΔBM (7)	Δdebtratio (8)	ΔBM (9)	Δdebtratio (10)	ΔBM (11)	Δdebtratio (12)
Δdebtratio	-0.262		0.200		-0.098		0.004		-3.173*		-3.107***	
	(0.179)		(0.158)		(0.193)		(0.007)		(1.767)		(1.145)	
ΔpESG		0.005		0.003		-0.002		0.003		0.003		-0.004
		(0.003)		(0.003)		(0.010)		(0.028)		(0.015)		(0.007)
ΔpE		0.000		0.004*		0.002		-0.030		-0.003		0.002
		(0.002)		(0.002)		(0.007)		(0.027)		(0.011)		(0.004)
ΔpS		-0.002		-0.004*		-0.009		0.007		0.001		0.005
		(0.003)		(0.003)		(0.010)		(0.015)		(0.011)		(0.006)
ΔpG		-0.002		-0.004		0.004		0.008		0.026		-0.001
		(0.002)		(0.002)		(0.008)		(0.018)		(0.019)		(0.004)

Note: Global region definitions are from S&P Capital IQ.