

Multinationality and cash holdings: Evidence from Japan

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The Punchline

- Corporate cash holdings have been rising around the world, including in Japan.
- Firms hold cash for transactions, precautionary and agency motives.
- Does "multinationality" have an impact on precautionary cash holdings?
 - Overseas sales
 - Foreign ownership
 - Cultural heterogeneity between parent and overseas affiliates
- Cash holdings are positively related to overseas sales withinand between-firm, but negatively related to foreign ownership within-firm.
- Some cultural differences matter: power distance, uncertainty avoidance, long-term orientation.

The cash holdings of Japanese firms have risen



Tokyo Stock Exchange Prime (First) Section firms.

As has the cash to total assets ratio



Tokyo Stock Exchange Prime (First) Section firms.

Although there is substantial variation



Tokyo Stock Exchange Prime (First) Section firms.

Related literature, culture and cash holdings

- Culture (Guiso et al., 2006): "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation."
- Chang and Noorbakhsh (2009): U.S. firms' cash holdings positively related to home country uncertainty avoidance, masculinity and long-term orientation.
- Chen et al. (2015): Firms' cash holdings negatively associated with individualism, positively associated with uncertainty-avoidance through the precautionary motive.
- So and Zhang (2022): U.S. multinational firms' cash holdings positively associated with cultural heterogeneity between parent and subsidiaries.

Hypotheses

- H1: Cash holdings are positively associated with the ratio of **overseas to total sales**.
 - Cash flow, exchange rate, political and corporate risks. Financial constraints.
- H2: Cash holdings are positively associated with the degree of **foreign ownership**.
 - High liquidity stocks favoured by foreign investors have greater crash risk.
- H3: The cash holdings of Japanese multinational firms are positively associated with their **cultural heterogeneity**.
 - Management challenges, information asymmetry, financial constraints, corporate risks, potential agency costs.

Model

 $\begin{aligned} \mathsf{CASH}_{i,t} &= \alpha + \beta_1 \mathsf{OSNS}_{i,t} + \beta_2 \mathsf{FSHR}_{i,t} + \beta_{3,d} \mathsf{CH}_{d,i,t} \\ &+ \delta \mathsf{CONTROLS}_{i,t} + \gamma \mathsf{COUNTRY}_{i,t} + \phi \mathsf{INDUSTRY}_{k,t} + \epsilon_{i,t} \end{aligned}$

- Firm-level financial controls:
 - size, market-to-book, cash flow to total assets, cash flow volatility, net working capital to total assets, leverage to total assets, capital expenditure to total assets, R&D expenditure to total assets, acquisitions to total assets, payout to total assets, number of business segments.
- Country-level controls:
 - financial development (IMF FDI) and corporate taxation differential with Japan.
- Industry fixed effects.

Econometric approach

• Random effects within-between regression (REWB).

 $y_{i,t} = \alpha + \beta_W \left(x_{i,t} - \bar{x}_i \right) + \beta_B \bar{x}_i + \delta_B z_i + \mu_i + \epsilon_{i,t}$

- Researchers usually estimate pooled OLS or fixed effects.
- REWB is more general model than random or fixed effects.
- Important advantage is that REWB allows for the joint estimation of within-firm and between-firm effects.
- "REWB helps avoid the **RE versus FE false dichotomy** often discussed by scholars. Practitioners should consider estimating an REWB model to determine whether there are separate within and between effects to uncover." (Jordan and Philips, 2022)

Data

- Japanese firms listed on the Prime (First) Section of the Tokyo Stock exchange, excluding financial and utilities firms, Japan Post Holdings, firm-years with missing data.
- Unbalanced panel for January 2014 to December 2023.
- Overseas affiliate data obtained by machine reading firms' Annual Securities Reports (有価証券報告書, Yukashouken Houkokusho or Yuho) downloaded via the EDINET API.
- Cultural dimensions indices from Geert Hofstede's website.
- Firm-level financial data from Nikkei NEEDS.
- Financial development from the IMF, corporate tax rates from the Tax Foundation.

Machine reading the Yuho

EDINET提出書類 トロク自動車株式会社(D32144) 有個証券報告書

- Section 1(4) provides information on affiliates.
- EDINET API provides .csv files where the affiliate information is a text block.
- Record the countries where each firm has at least one subsidiary.
- Example, Toyota Motor (name, location, investment, business details, percentage of voting rights held, and other information).

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Hofstede's cultural dimensions

- Power distance (PDI)
 - Extent the less powerful members of organizations and institutions accept and expect that power is distributed unequally.
- Individualism collectivism (IND)
 - Extent to which people feel independent, as opposed to being interdependent as members of larger wholes.
- Masculinity femininity (MAS)
 - Extent to which the use of force in endorsed socially.
- Uncertainty avoidance (UAI)
 - Society's tolerance for uncertainty and ambiguity.
- Long-term orientation (LTO)
 - The world is in flux, preparing for the future is necessary versus the world is as it was created, the past provides a moral compass.
- Indulgence self restraint (LVR)
 - Its good to be free versus life is hard, importance of duty is normal.

Measuring cultural heterogeneity

• Euclidean cultural distance between country j and Japan:

$$CD_{d,j} = \sqrt{\frac{\left(I_{d,j} - I_{d,JPN}\right)^2}{V_d}}$$

• Average cultural heterogeneity:

$$CH_{s,d,i,t} = \frac{\sum_{j=1}^{J} SUB_{i,j,t} \times CD_{d,j}}{BR_{i,t}}, \quad s = \begin{cases} H & \text{for } I_{d,j} > I_{d,JPN} \\ L & \text{for } I_{d,j} < I_{d,JPN} \end{cases}$$

- Two measures of heterogeneity for each dimension for affiliate country dimension index higher (H) or lower (L) than Japan.
 - Cultural dimensions are distinct (a composite may not make sense).
 - Some cultural gaps may be less disruptive than others.
 - Positive or negative gaps may have different effects.

Hofstede's cultural dimensions



Main results

		Dependent varia	ible: LCASH			Dependent variable: CATA					
	(21))	(22))	(23	3)	(2	4)			
	Within	Between	Within	Between	Within	Between	Within	Between			
OSNS	0.135**	0.159**	0.140**	0.319***	0.016*	0.010	0.017*	0.045***			
FSHR	-0.168**	0.424***	-0.168 0.164		-0.022**	-0.022 ^{**} 0.062 ^{**}		0.016			
PDIL	0.071**	0.046	0.071 ** 0.028		0.018***	0.015	0.018***	0.012			
PDIH	-0.014	-0.054	-0.013	-0.037	0.000	-0.011	0.000	-0.008			
IDVL	0.077**	0.006	0.075 ** 0.124		0.011**	0.006	0.010**	0.026*			
IDVH	-0.083***	0.080	-0.084 *** 0.062		-0.012^{***}	0.012*** 0.009		0.008			
MASL	0.045	-0.135**	0.046 -0.138		0.000	-0.024**	0.000	-0.025^{**}			
MASH	-0.037	0.114	-0.038	0.101	-0.015	0.012	-0.015	0.014			
UAIL	0.043*	-0.161^{***}	0.042*	-0.190^{***}	0.009**	-0.019^{**}	0.009**	-0.025^{***}			
UAIH	-0.011	0.041	-0.013	0.090	-0.012	-0.037	-0.012	-0.015			
LTOL	0.053**	-0.018	0.052**	0.011	0.012***	0.012*** 0.004		0.005			
LTOH	0.044	0.229**	0.045	0.176**	0.004	0.027*	0.004	0.019			
IVRL	-0.025	0.046	-0.024	0.072	-0.009^{*}	0.018	-0.009^{*}	0.019			
IVRH	0.062**	0.024	0.063**	0.017	-0.003	-0.002	-0.003	-0.005			
Intercept		-0.394		-1.271^{***}		0.330***		0.244***			
Controls		Y		Y		Y		Y			
Country		Y		Y	Y			Y			
Industry		N		Y		N	Y				
Firms		939		939		939	939				
Obs.		7748		7748		7748		7748			
AIC		3099		3074 3665	-	-25806	-25747				
Mara D2		0 901		0 000	-	- 23409		- 20100			
iviarg. R ⁻		0.691		0.902		0.575		0.023			
Cond. R ⁼	0.974 0.974			0.974	0.910 0.90						

Separate and subsets of explanatory variables

	(1)		Dependent v	variable: LCASH (2)	(3)	1
	Within	Within Between		Between	Within	Between
OSNS	0.166 ^{***} (0.059)	0.454 ^{***} (0.080)			0.162 ^{***} (0.059)	0.441 ^{***} (0.081)
FSHR			-0.091 (0.062)	0.292 ^{**} (0.138)	-0.161 ^{**} (0.073)	0.155 (0.151)
Intercept		-2.149 ^{***} (0.283)	· · ·	-2.171 ^{****} (0.264)		-2.046 ^{***} (0.300)
Controls		Y		Y		Y
Country		Y		Y		Y
Industry		Y		Y		Y
Firms		940		1488		939
Obs.		7762		12265		7748
AIC		3000		6096		3007
BIC		3410		6533		3431
Marg. R ²		0.899		0.870		0.899
Cond. R ²		0.974		0.971		0.974

- OSNS and FSHR separately and together.
- Each cultural dimension separately (H and L) and together.

Inference summary

				Wi	thin				Between							
Variable		LCA	SH		CATA				LCASH				CATA			
	Sep.	Sub.	А	.11	Sep.	Sub.	А	.11	Sep.	Sub.	А	.11	Sep.	Sub.	А	11
Industry			Ν	Y			Ν	Y			Ν	Y			Ν	Y
OSNS	+	+	+	+	+	+	(+)	(+)	+	+	+	+	+	+		+
FSHR		-	-	-	-	(-)	-	(-)	+		+				+	
PDIL			+	+		+	+	+	+				+			
PDIH																
IDVL			+	+	(-)		+	+	(+)							(+)
IDVH	-	-	-	-		-	-	-	+							
MASL	+										-	-			-	-
MASH	+	+														
UAIL		+	(+)	(+)			+	+	-	-	-	-	-	-	-	-
UAIH									+							
LTOL	+		+	+	(+)		+	+								
LTOH									+	+	+	+	+	+	(+)	
IVRL	-	-			-	-	(-)	(-)	+	(+)						
IVRH	+	+	+	+					+				(+)			

- Firms hold **more** cash when they make a greater proportion of their sales overseas, both within- and between-firm.
- The proportion of foreign investors has a **negative** relationship with cash holdings within-firm.
- Cash holdings are:
 - positively related to cultural heterogeneity in PDIL, IDVL, UAIL and LTOL within-firm.
 - **positively** related to heterogeneity in IVRH (LCASH) within-firm.
 - **negatively** related to heterogeneity in IDVH and IVRL within-firm.
 - negatively related to heterogeneity in MASL and UAIL between-firm.
 - (**positively** related to heterogeneity in LTOH between-firm).

Kiyoung Chang and Abbas Noorbakhsh. "Does national culture affect international corporate cash holdings?" In: *Journal of Multinational Financial Management* 19.5 (Aug. 5, 2009), pp. 323–342 (cit. on p. 6).

Luigi Guiso, Paola Sapienza, and Luigi Zingales. "Does Culture Affect Economic Outcomes?" en. In: *Journal of Economic Perspectives* 20.2 (June 2006), pp. 23–48. URL: https://www.aeaweb.org/articles?id=10.1257/jep.20.2.23 (visited on 06/28/2024) (cit. on p. 6).

Soren Jordan and Andrew Q Philips. "Improving the Interpretation of Random Effects Regression Results". In: *Political Studies Review* 21.1 (Jan. 2022), pp. 210–220 (cit. on p. 9).

Jacky Yuk-chow So and John Fan Zhang. "The effect of cultural heterogeneity on cash holdings of multinational businesses". In: *Research in International Business and Finance* 61 (Apr. 15, 2022), p. 101660 (cit. on p. 6).

Appendix

Main results - control variables

		Dependent varia	ble: LCASH		Dependent variable: CATA					
	(21)	(22)	(23	;)	(24	(24)		
	Within	Between	Within	Between	Within	Between	Within	Between		
SIZE	1.091***	0.896***	1.089***	0.905***	0.021***	-0.014^{***}	0.021***	-0.012^{***}		
MTB	0.013***	0.089***	0.013***	0.053***	0.004***	0.019***	0.004***	0.012***		
CFTA	1.375***	1.908***	1.373*** 1.319**		0.266***	0.266*** 0.625***		0.451***		
CFV	-1.127^{***}	1.116	-1.126^{***}	-0.287	-0.271***	0.352***	-0.271***	0.105		
NWCTA	2.043***	1.454***	2.049***	1.713***	0.401***	0.320***	0.403***	0.358***		
CAPTA	-0.705***	-1.429^{*}	-0.703***	-1.018	-0.133***	-0.569***	-0.133^{***}	-0.537***		
LEVTA	0.341***	-0.831***	0.338***	-0.564***	0.088***	-0.048*	0.089***	-0.028		
RDTA	-0.171	-2.008**	-0.223	-0.505	-0.164^{*}	-0.586***	-0.176**	-0.296**		
AQTA	-0.235	-0.988*	-0.249	-0.030	-0.039	-0.054	-0.039	0.020		
POTA	-0.759***	0.775	-0.765***	0.794	-0.182***	0.213	-0.182***	0.233		
SEG	-0.083***	-0.043	-0.082***	-0.035	-0.017***	-0.009	-0.017^{***}	-0.010^{*}		
FDI	-0.085	-0.730***	-0.076	-0.546**	0.004	-0.114**	0.006	-0.089**		
TAX	0.799***	-2.985***	0.789***	-2.646***	0.097***	-0.294**	0.096***	-0.228		
Country		Y		Y		Y		Y		
Industry		N		Y		N		Y		
Firms		939		939	939		939			
Obs.		7748		7748		7748	7748			
AIC		3099		3074	-	-25806	-25747			
BIC 52		3490		3005	-	- 25409	-25156			
Marg. R ²		0.891		0.902			0.623			
Cond. R ²	0.974 0.974				0.910 0.909					