



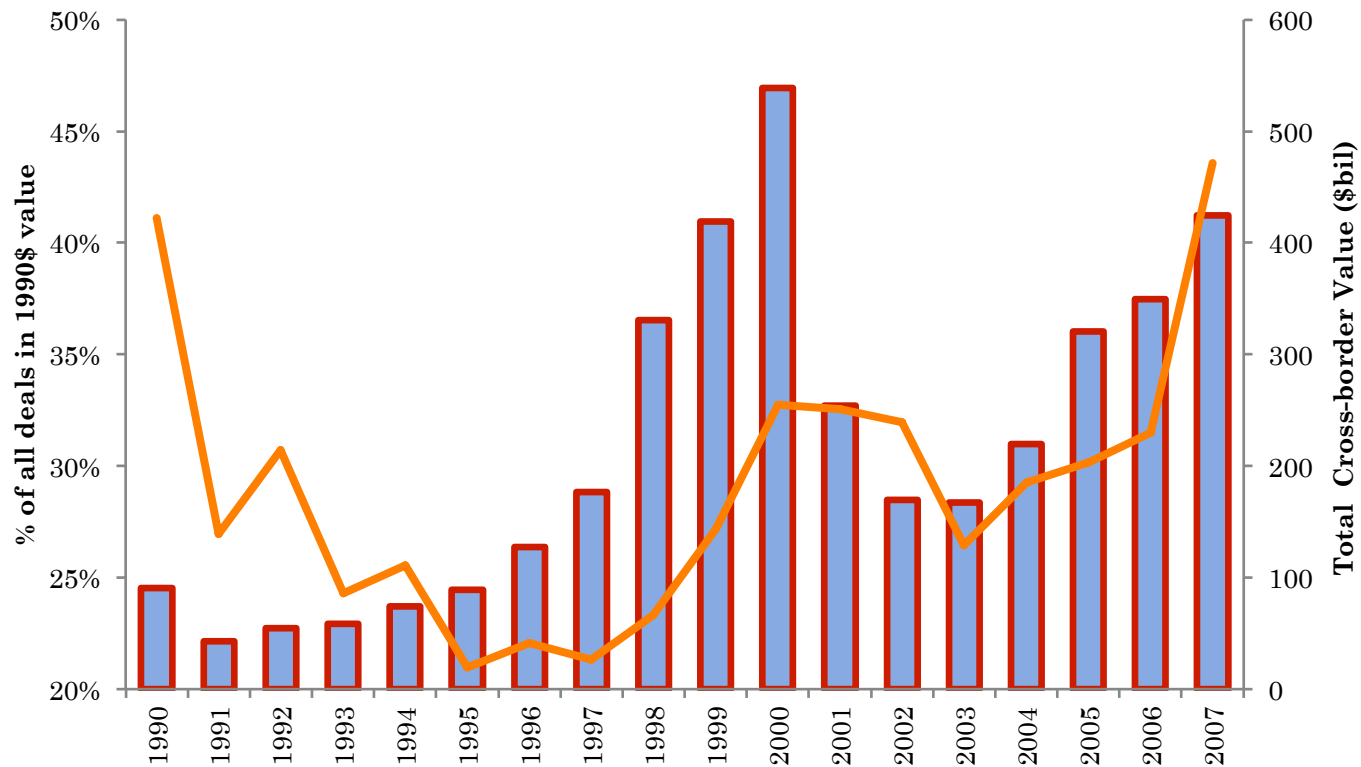
# **DETERMINANTS OF CROSS- BORDER MERGERS AND ACQUISITIONS**

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# MOTIVATION I

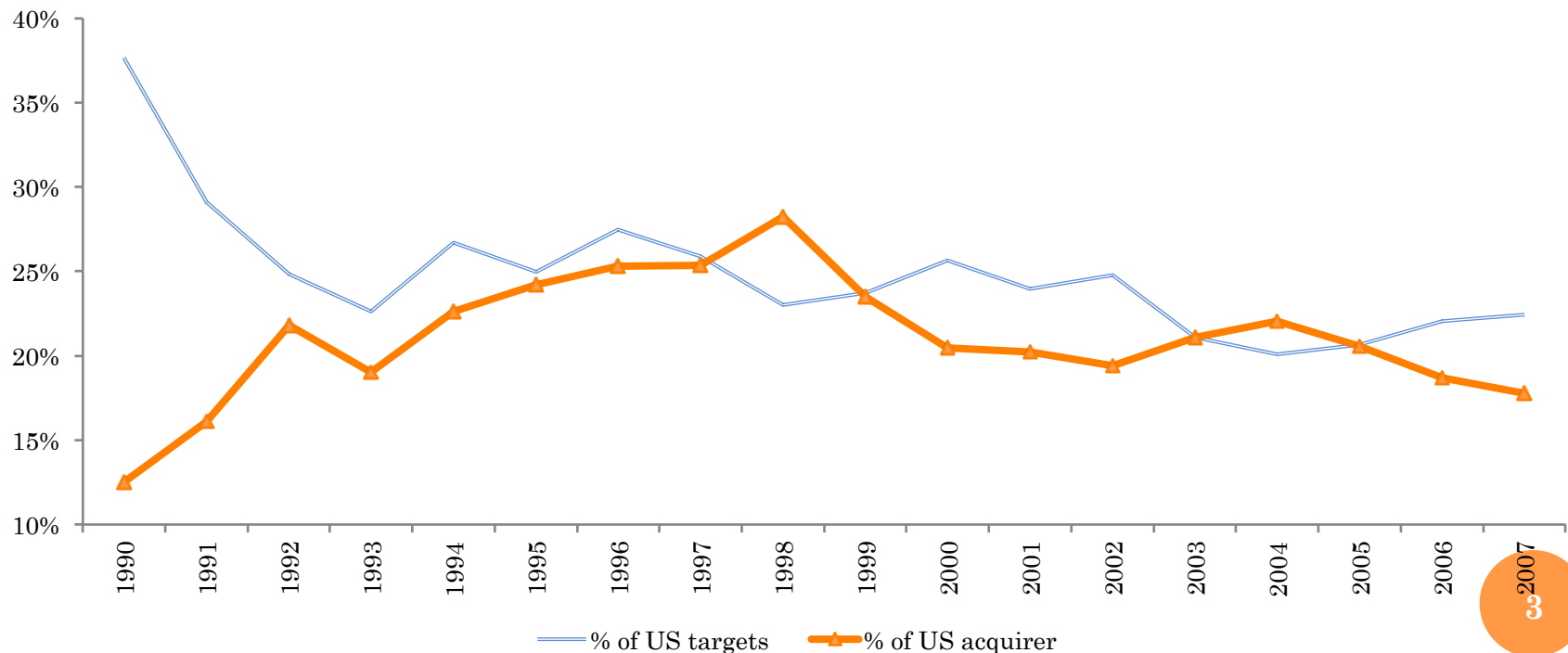
- One-third of worldwide mergers are cross-border, yet the vast majority of the academic literature studies domestic mergers.



# MOTIVATION II

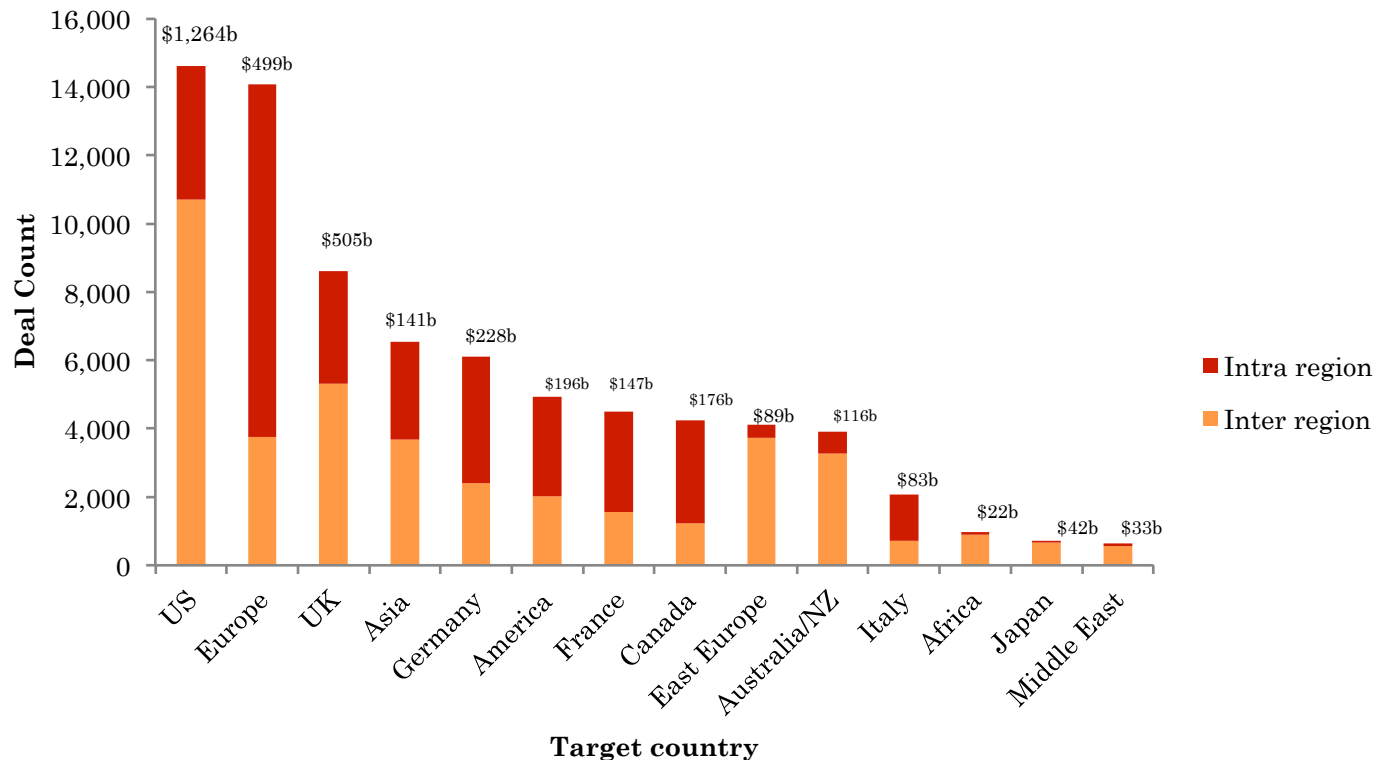
- What little has been written about cross-border mergers has focused on the United States.

➤ Between 1990 and 2007, 80% (65% in dollar terms) of completed deals targeted a non-US firm, while 75% (82% in dollar terms) did not involve a U.S. firm as an acquirer.



# MOTIVATION III

- Previous studies about cross-border mergers have focused on public firms.
  - 96% (67%) of the deals (\$ value) involve a private target, 26% (15%) involve private acquirer, and 97% (70%) have either private acquirers or targets.



## WHAT WE DO...

- We analyze a comprehensive sample of 56,978 cross-border mergers between 1990 and 2007 and conduct exploratory analysis on the determinants of cross-border mergers
  - Cross-sectional patterns.
  - Exploit valuation difference being an important factor in determining acquisition patterns.

# OUTLINE

- Factors that could affect cross-border mergers
- Data
- Method/Results
- Conclusion

# FACTORS THAT POTENTIALLY AFFECT CROSS-BORDER MERGER LIKELIHOODS

- Absent market frictions, borders would be irrelevant.
- Market frictions that make borders relevant:
  - Culture differences (such as language and religion) increase the contracting costs associated with merging two firms.
  - Geographic distance can increase the cost of combining two firms (similar to the international trade literature).
  - Corporate governance considerations can motivate firms from poor legal protection countries to merge with those from countries with better law.
  - Economic development differences between countries can result in profitable opportunities for acquirers from wealthy countries.

# EXPLANATIONS FOR WHY CROSS-BORDER MERGERS RELATE TO VALUATION

- Valuation can be a key factor in international mergers.
- Rational Explanation
  - Cost of capital decreases for firms with appreciating currency (Froot and Stein (1991))
  - Generally, projects in the country with depreciating currency become more profitable for foreign firms.
- Behavioral Explanation
  - Overvaluation hypothesis (Shleifer and Vishny (2003))



# VALUATION AND INTERNATIONAL M&A— SOUTH KOREAN CASE

- From 1997 to 1998, the number of U.S. firms acquiring South Korean targets more than doubled.
  - Country-level market-to-book ratio of South Korea was 0.6 and that of U.S. was 2.6.
  - South Korean Won depreciated 33% relative to the U.S. \$ in the past 12 month.
  - U.S. stock market outperforms the South Korean market (in local currency term) by 70% in the past 12 month.

# DATA: M&A DEALS

- Collect reports of majority control acquisition ( $\geq 50\%$  ownership) announced and completed between 1990 to 2007 from Thomson Financial's Security Data Corporation (SDC) Mergers and Acquisition (M&A) database.
- After applying a few common filters, we have a sample of 187,841 deals with the total transaction value of \$7.54 trillion. 56,978 of which are cross-border with total transaction value of \$2.21 trillion.
- Data items: target and acquirer names, announcement/completion date, public status, industry, country of domicile, deal value (where available), fraction owned after transaction, method of payment.

# DATA: COUNTRY/FIRM VARIABLES

## ○ Country-level

- Valuation: real exchange rate returns, real market returns, value weighted market-to-book ratio
- Governance: accounting disclosure, anti-self dealing index
- Culture: language, religion
- Geography: great circle distance between capital cities
- Tax: corporate income tax rates
- Trade: maximum of bilateral import and export
- Development: GDP per capita, GDP growth

## ○ Firm-level

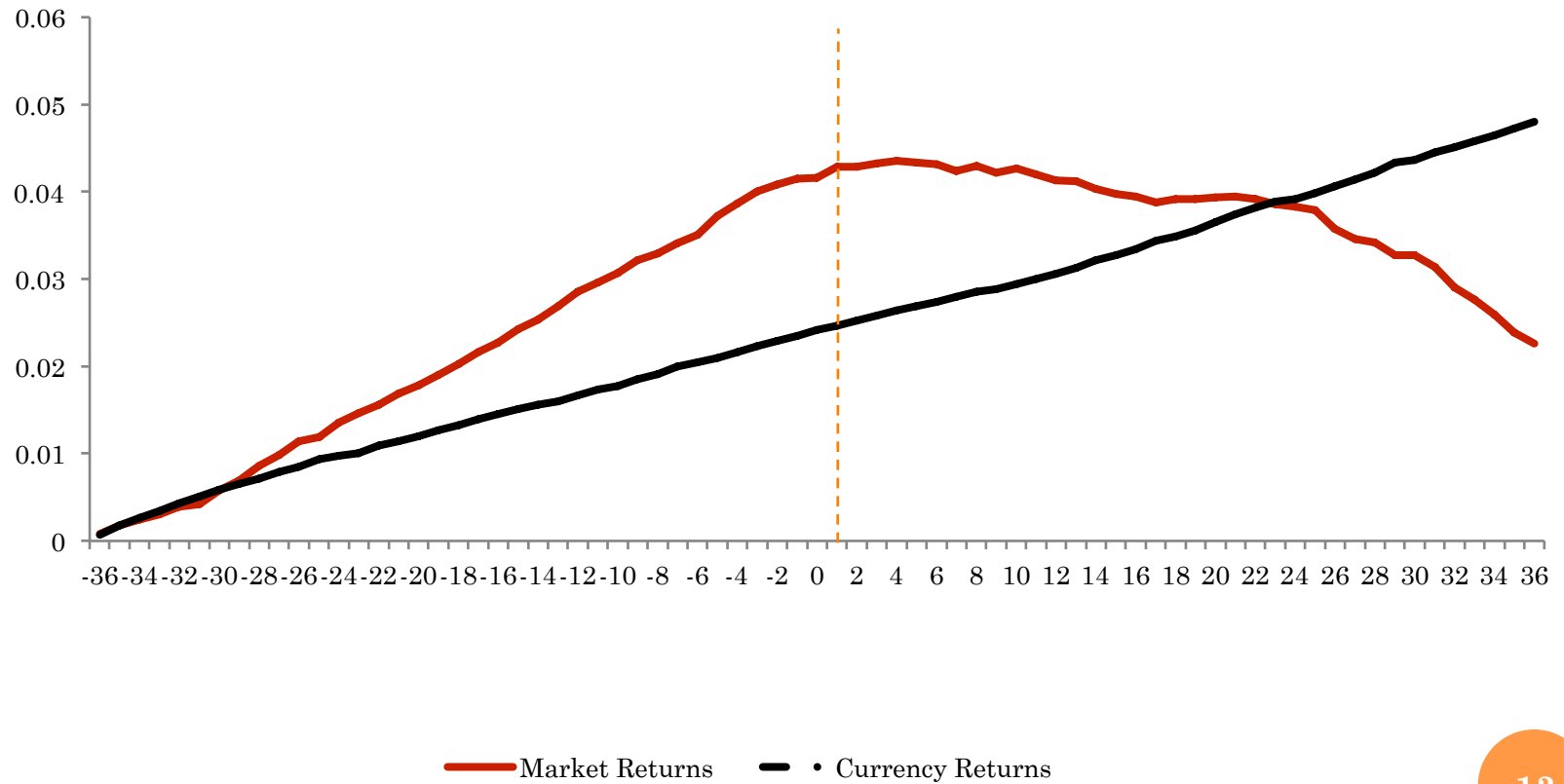
- Valuation measures: real stock returns, market-to-book
- Controls: size, leverage, cash, sales, ROE.

**TABLE 3 SUMMARY STATISTICS ON VALUATION DIFFERENCES**

	<b>(-12m, -1m)</b>	<b>(-24m, -1m)</b>	<b>(-36m, -1m)</b>
Currency Returns	1.12%	2.13%	3.43%
Market Returns	0.3%	0.92%	2.12%
Firm Returns	10.38%	19.34%	23.36%

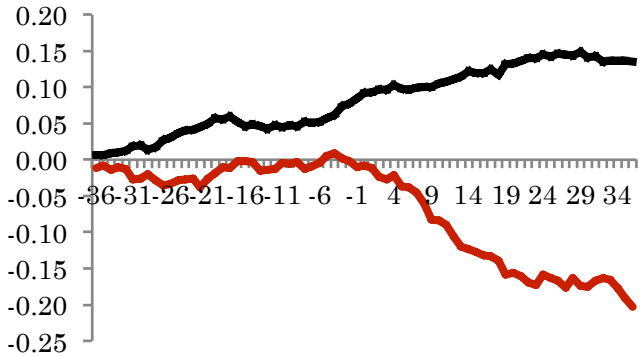
<b>Acquirer-Target</b>	<b>Year-end prior to announcement</b>
Market VW Market-to-book	9.93%
Firm Market-to-book	28.95%

# FIGURE 2: COUNTRY-LEVEL GEOMETRIC RETURN DIFFERENCES (ACQUIRER – TARGET)



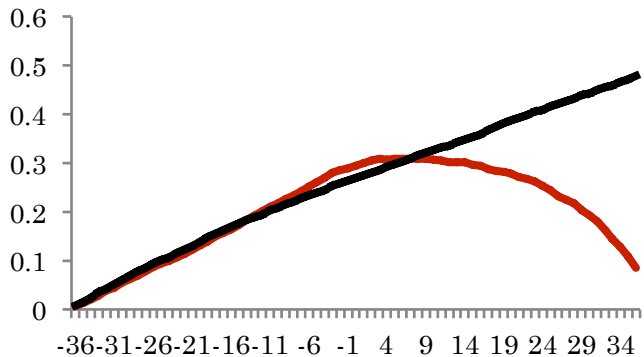
# FIGURE 2: VALUATION DIFFERENCE ACROSS SUB-SAMPLES

**Developing Target, Developing Acquirer (311)**



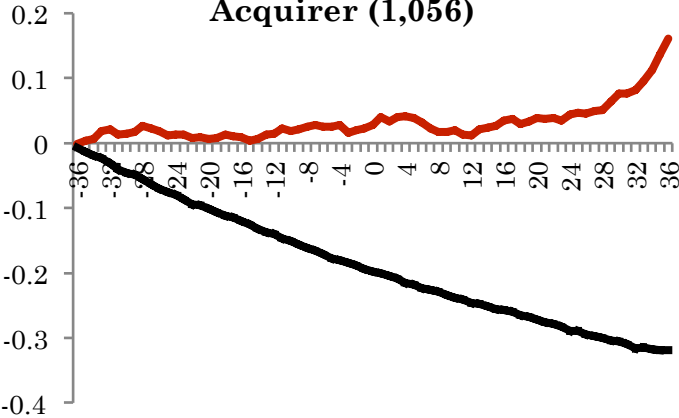
— Market Returns — Currency Returns

**Developing Target, Developed Acquirer (3,853)**



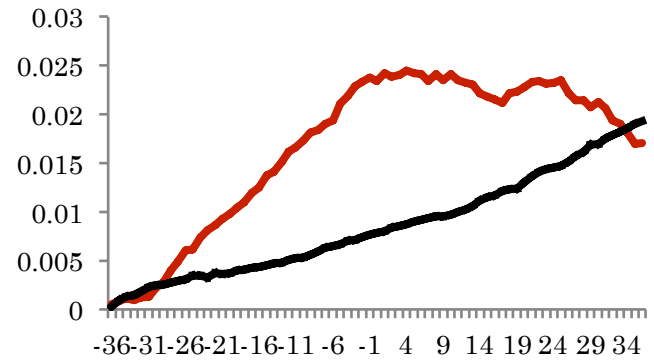
— Market Returns — Currency Returns

**Developed Target, Developing Acquirer (1,056)**



— Market Returns — Currency Returns

**Developed Target, Developed Acquirer (46,268)**



— Market Returns — Currency Returns

# METHOD: COUNTRY-LEVEL DETERMINANTS OF CROSS-BORDER MERGERS

$$\frac{\text{\# of cross - border deals}_{i,j}}{\text{\# of domestic deals}_i + \text{\# of cross - border deals}_{i,j}} = \alpha + \beta_1 (\text{Valuation})_{j-i} + \beta_2 (\text{Governance})_{j-i} + \beta_3 \text{Culture} \\ + \beta_4 \text{Distance} + \beta_5 (\text{Tax})_{j-i} + \beta_6 (\text{Development})_{j-i} + \beta_7 \text{Trade} + \sum \beta_c \text{Country}_j + \varepsilon_{i,j}$$

# of cross-border deals (i, j) is the number of acquisitions by firms in country j of firms in country i.

# of domestic deals (i) is the total number of domestic acquisitions in country i (target).

# RESULT 1: CROSS-SECTIONAL DETERMINANTS OF CROSS-BORDER MERGERS (TABLE 2)

	All Target-All Acquirer						
	(1)	(2)	(3)	(4)	(5)	(6)	
Average (Currency R12) <sub>j-i</sub>	0.168*** (6.14)					0.156*** (5.05)	1
Average (Market R12) <sub>j-i</sub>	-0.150** (-2.30)					-0.123* (-1.65)	
Average (Market MTB) <sub>j-i</sub>		0.026*** (4.95)					2
(Disclosure Quality) <sub>j-i</sub>			0.015*** (6.09)			0.013*** (5.06)	
(Legal) <sub>j-i</sub>			-0.015 (-0.18)			-0.198** (-2.22)	3
Same Language				0.015 (1.35)		0.012 (1.07)	
Same Religion				-0.008* (-1.83)		0.000 (0.12)	
Geographic Proximity				0.005*** (6.12)		0.004*** (4.83)	4
(Income Tax) <sub>j-i</sub>					0.001** (2.26)		
Max (Import, Export)	0.364*** (4.38)	0.353*** (4.35)	0.305*** (4.28)	0.276*** (3.28)	0.327*** (3.50)	0.257*** (3.25)	5
(log GDP per capita) <sub>j-i</sub>	0.004 (1.59)	0.004 (1.59)	0.004** (2.13)	0.006** (2.45)	0.036*** (3.38)	-0.003 (-1.20)	
Observations	1036	1023	893	1036	319	893	
R-squared	0.46	0.46	0.56	0.46	0.62	0.60	



# RESULT 2: PANEL ANALYSIS (TABLE 4)

	All		Private Target-Private Acquirer		Private Target-Public Acquirer		Public Target-Private Acquirer		Public Target-Public Acquirer	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(Currency R12) <sub>j-i</sub>	0.031*** (3.38)		0.029*** (2.70)		0.033*** (3.28)		0.005 (0.41)		0.025* (1.68)	
(Market R12) <sub>j-i</sub>	0.011*** (3.40)		0.009** (2.32)		0.017*** (4.33)		-0.005 (-1.02)		0.005 (0.85)	
(Market MTB) <sub>j-i</sub>		0.004*** (4.01)		0.004*** (3.45)		0.004*** (2.73)		0.004** (2.36)		0.003 (1.16)
N. of Observations	14857	14715	14340	14193	14332	14177	7234	7166	8042	7939
R-squared	0.50	0.51	0.34	0.34	0.55	0.55	0.30	0.30	0.35	0.35

All regressions control for trade, economic development, country-pair and year fixed effects.

	One-standard-deviation change	% Increase in # of cross-border acquisitions
(Currency R12) <sub>j-i</sub>	17%	11.4%
(Market R12) <sub>j-i</sub>	27%	6.4%
(Market MTB) <sub>j-i</sub>	0.72	6.4%

## RESULT 2: PANEL ANALYSIS (TABLE 5)

### IS THE RELATION BETWEEN VALUATION AND MERGER PROPENSITY STRONG IN SUB-GROUPS?

	GDP (acquirer) > GDP (target)	Below- median Distance	Below- median Capital Account Openness
Currency	+	+	
Market Returns	+		+
VW MTB	+		+

## RESULT 2: PANEL ANALYSIS (TABLE 6) ROBUSTNESS CHECKS

- Minority (5-50%) vs majority ownership (>50%)
  - Valuation difference is significant for both groups.
- Stock, cash, mixed or unknown method of payment
  - Valuation difference is significant only for the sample of deals with unknown method of payment.
- \$ value vs # count of the deals
  - Valuation difference is insignificant when examining \$ value.
  - 70% of private targets have missing deal values.
- The relation between valuation and merger propensity is robust to the following specifications:
  - Including failed deals in the sample;
  - Excluding country pairs with pegged exchange rate;
  - Using adapted “Gravity” model following Rose (2000);
  - Including exchange rate volatility and interest rates as controls.

# WHY MARKET RETURNS/CURRENCY MATTER?

- Rational Explanation
  - Relative wealth effects (Froot and Stein (1991))
- Behavioral Explanation
  - Overvaluation hypothesis (Shleifer and Vishny (2003))
- Baker, Foley and Wurgler (2009) propose tests of these two effects by decomposing market-to-book ratio using future 12-month returns to:
  1. Predicted component, proxy for mispricing.
  2. Residual component , proxy for fundamental.

# RESULT 2: PANEL ANALYSIS (TABLE 7)

## INTERPRETING THE RELATION BETWEEN VALUATION AND MERGER PROPENSITIES

	All		Private Target-Private Acquirer		Private Target-Public Acquirer		Public Target-Private Acquirer		Public Target-Public Acquirer	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(Currency FR12) <sub>j-i</sub>	0.017*** (2.91)		0.015** (2.29)		0.011 (1.18)		0.012 (1.00)		0.012 (0.81)	
(Market FR12) <sub>j-i</sub>	-0.001 (-0.40)		0.001 (0.42)		-0.006 (-1.12)		-0.013** (-2.14)		0.004 (0.57)	
(Fitted MTB) <sub>j-i</sub>		0.001 (0.48)		0.006* (1.89)		-0.006 (-1.16)		0.006 (0.87)		-0.003 (-0.43)
(Residual MTB) <sub>j-i</sub>		0.005*** (4.90)		0.004*** (3.59)		0.006*** (3.90)		0.004** (2.13)		0.006** (2.10)
N. of Observations	14300	12590	13729	12110	13707	12143	6817	6112	7820	6999
R-squared	0.49	0.52	0.33	0.34	0.54	0.55	0.32	0.31	0.35	0.38

All regressions control for trade, economic development, country-pair and year fixed effects.

# RESULT 3: DEAL-LEVEL ANALYSIS (TABLE 8)

## INTERPRETING THE RELATION BETWEEN VALUATION AND MERGER PROPENSITIES

<b>Dep=1 if a deal is cross-border</b>	Firm Returns	Decompose Firm Returns to Market and Currency Valuation	Decompose Firm Returns to Industry and Currency Valuation
	(2)	(4)	(6)
(Firm USR12) <sub>j-i</sub>	0.030*** (2.80)		
(Market R12) <sub>j-i</sub>		0.188 (1.22)	
(Firm USR12-Market R12-Currency R12) <sub>j-i</sub>		0.028*** (2.60)	
(Currency R12) <sub>j-i</sub>		0.449 (1.46)	0.349 (1.27)
(Industry R12) <sub>j-i</sub>			0.106*** (3.52)
(Firm USR12-Industry R12-Currency R12) <sub>j-i</sub>			0.016 (1.19)
N. of Observations	1530	1529	1479
R-squared	0.379	0.381	0.395

All regressions control for firm size, industry-relatedness, country and year fixed effects.

# CONCLUSION

- One third of worldwide mergers combine firms from two different countries.
- In a sample of 56,978 cross-border mergers that occurred between 1990 and 2007, 97% involved a private firm as either acquirer or target, while 55% involved no U.S. firm.
- Acquirers are likely from countries nearby, have higher economic development and better accounting quality.
- Valuation difference plays an important role in driving cross-border mergers.
  - Highly valued firms tend to purchase lower-valued firms because of a wealth effect due to a lower cost of capital.