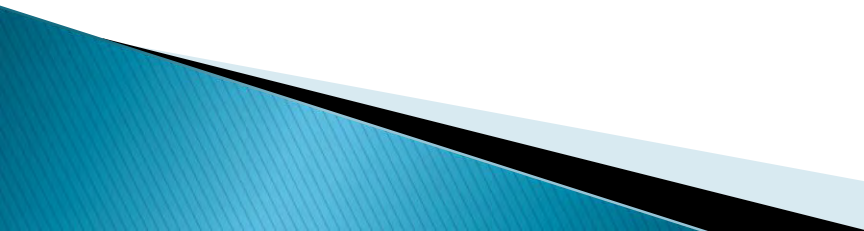


The Impact of Culture and Political Risk in Non-Life Insurance

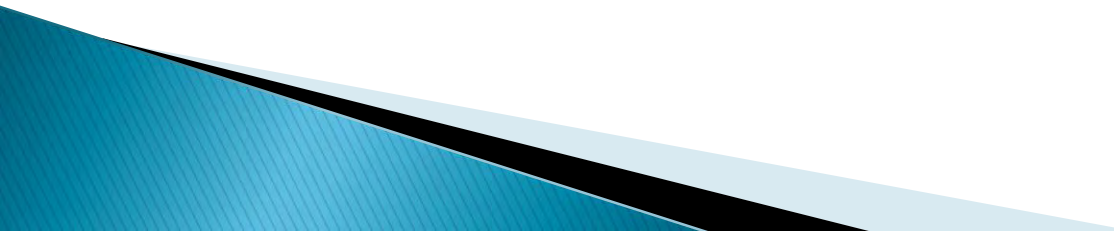
Jean Lemaire
Sojung Park



In Life Insurance

- ▶ A large body of insurance research looks for factors that explain variation in demand across countries
 - ▶ Dependent variable:
 - Insurance Density (\$US spent annually on life insurance per capita)
 - Insurance Penetration (total life premium volume divided by GDP)
 - Easily obtained annually through Swiss Re's *Sigma*
- 

Significant Variables (Life)

- ▶ GPD per capita
 - ▶ Inflation (real, anticipated, feared)
 - ▶ Development of banking sector
 - ▶ Institutional indicators (investors' protection, contract enforcement, political stability)
 - ▶ Islam
- 

Borderline Variables (Life)

- ▶ Education
- ▶ Dependency ratio
- ▶ Urbanization
- ▶ Size of social security system
- ▶ Life expectancy
- ▶ Market structure

These studies assume policyholders make rational economic decisions – but is it reasonable to expect rationality and competence with complex and abstract policies?

Cultural Variables

- ▶ Chui and Kwok (2008, 2009) demonstrate that the inclusion of cultural variables in econometric analysis greatly improves predictive ability of regression models.
- ▶ Adjusted R^2 increases from 0.70 to 0.83

Culture

= collective mental programming

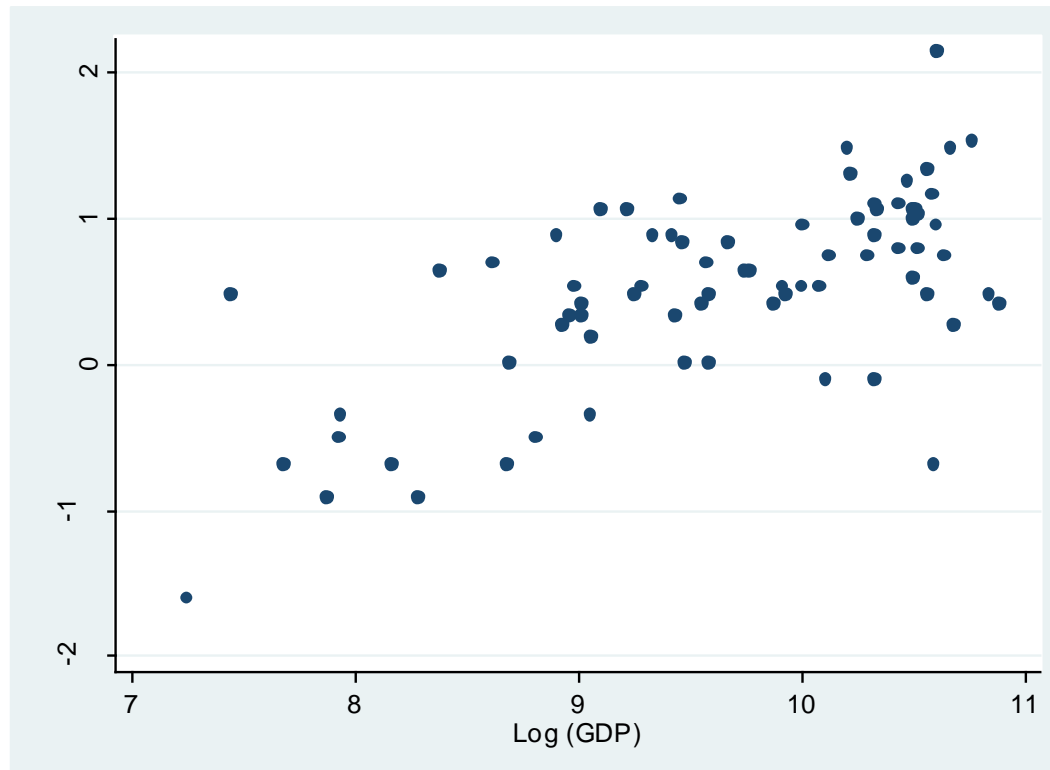
= part of our conditioning that we share with other members of our nation, region, or group, but not with members of other groups

→ Goal of Present Study:

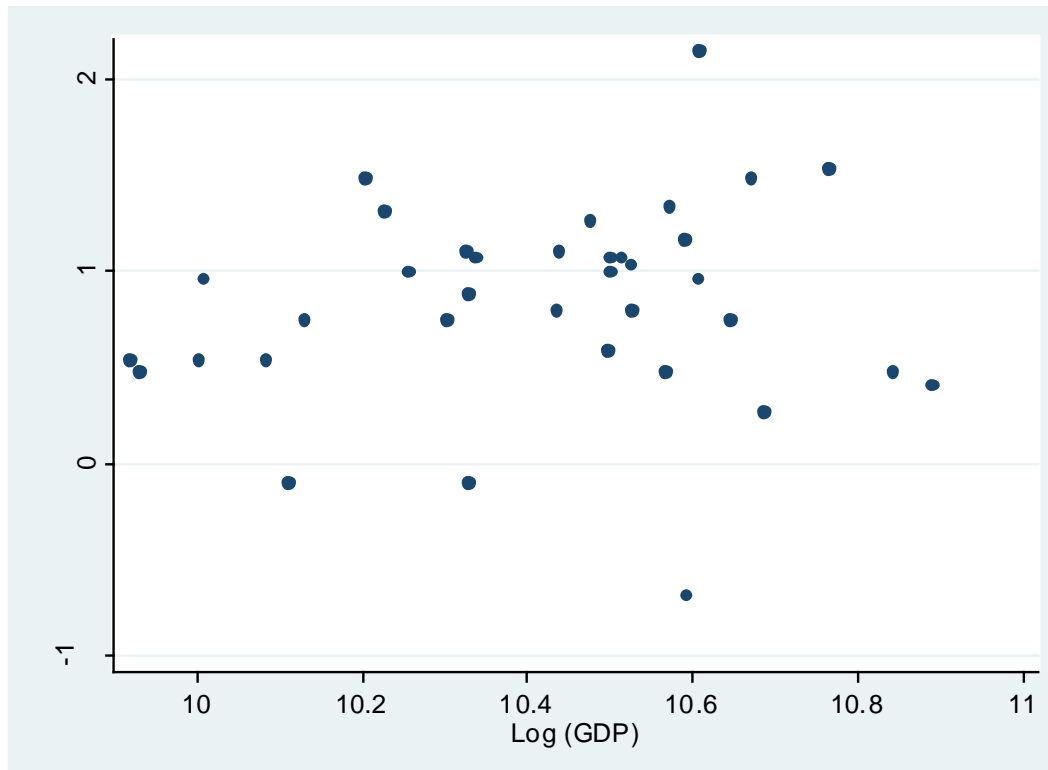
Build a model to explain non-life insurance variability, including cultural and political variables

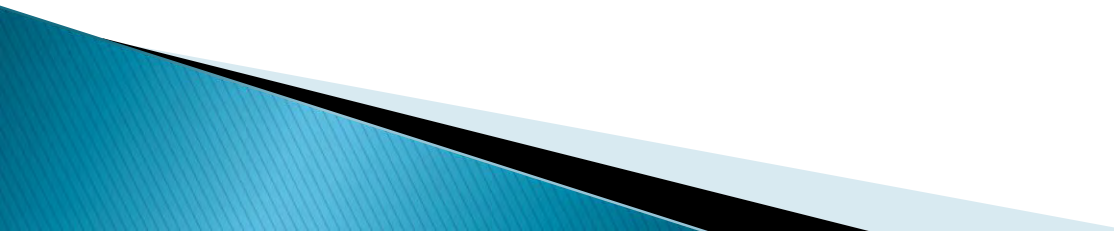
- ▶ Very little research, maybe because of a belief that non-life insurance development is linked to GDP and little else
- ▶ Beenstock *et al* (1988) prove relationship between non-life density and GDP per capita, with elasticity > 1 . Weak relationship once countries become rich.

Log(GDP) and Log(Penetration) All countries

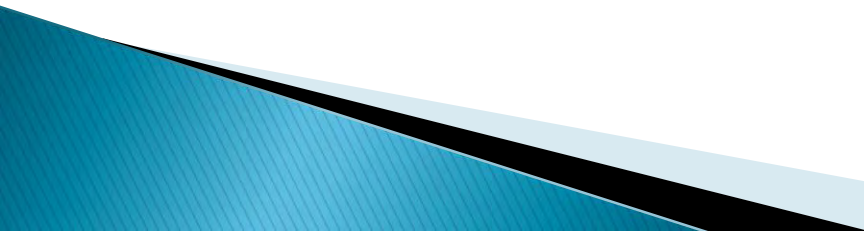


Log(GDP) and Log(Penetration) Affluent countries

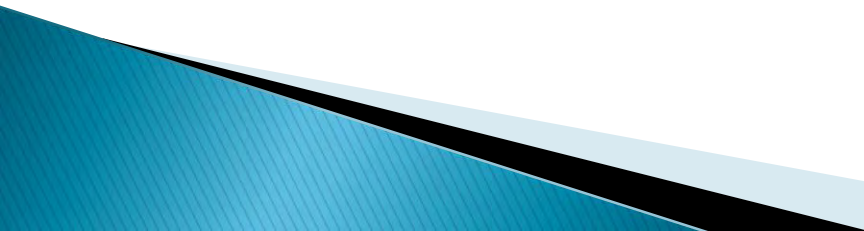


- ▶ Outreville (1990) adds level of financial development
 - ▶ Browne *et al* (2000) add
 - foreign firms market share
 - legal system (Common v. Civil Law)
- 

This Study:

- ▶ Unbalanced panel data, 82 countries with total population 5.67 billion, 1999–2008
 - ▶ Dependent variable:
 - DEN: Insurance density (\$US premium per capita)
 - PEN: Insurance penetration (premium as a % of GDP) corrected for Purchasing Power Parity
 - DEN compares non-life purchases around the world without adjusting for income
 - PEN measures insurance demand relative to the economy size, with wealth effect removed
 - →PEN better here, as it measures allocation of income to insurance
- 

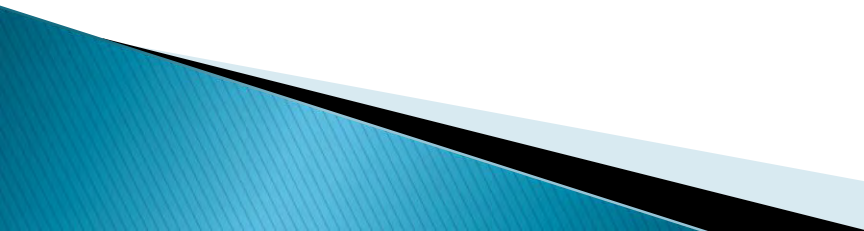
Explanatory Variables: Economic and Institutional

- ▶ GDP: GDP per capita, at Purchasing Power Parity
 - ▶ URBAN: Urbanization. % of population living in urban areas
 - ▶ EDUC: Education: % of population enrolled in third-level education
 - ▶ HERFINDAHL: Market Concentration: Sum of squared market shares of 10 largest insurers
 - ▶ COMMON: Legal system: Common or Civil Law
- 

PRISK: Political Risk Index

- ▶ Government stability
 - ▶ Socioeconomic conditions
 - ▶ Investment profile
 - ▶ Internal conflict
 - ▶ External conflict
 - ▶ Corruption
 - ▶ Military interference in politics
 - ▶ Religious tensions
 - ▶ Law and order
 - ▶ Ethnic tensions
 - ▶ Democratic accountability
 - ▶ Bureaucratic quality
- 

PRISK: Political Risk Index

- ▶ Twelve highly correlated measures
 - ▶ → Applied Principal Components Analysis to summarize data
 - ▶ Used first Principal Component in all regressions
 - ▶ First PC has very high eigenvalue of 5.49, explains 46% of total variance
- 

Cultural Variables

- ▶ BUDD, CHRT, MUSLIM: Religious variables: % of population with Buddhist, Christian or Islamic beliefs.
- ▶ HOFSTEDE Cultural Variables:
 - 1. PDI: Power Distance. Degree of inequality among people with the population considers as normal
High PDI: China, Mexico, India, Arab World
Low PDI: Israel, New Zealand, Ireland, Scandinavia
 - 2. IDV: Individualism. Degree to which people prefer to act as individuals rather than as a group
High IDV: US, UK, Australia, Netherlands
Low PDI: China, Korea, Thailand, Central America

Other cultural variables

- 3. MAS: Masculinity. Evaluates whether gender differences impact roles in social activities
 - High-femininity: Sweden, Korea, Uruguay, Portugal
 - High-masculinity: Japan, Switzerland, Austria, Venezuela
- 4. UAI: Uncertainty Avoidance. Scores tolerance for uncertainty; measures preference for structure
 - Uncertainty avoiding: Japan, Russia, Belgium, Greece, Spain
 - Uncertainty seeking: Singapore, Sweden Hong Kong, UK

Hypothesized Relationships

- ▶ Income per capita: Positive
- ▶ Urbanization: Positive
- ▶ Education: Positive
- ▶ Market Concentration: Negative
- ▶ Common Law: Positive
- ▶ Political Risk: Positive
- ▶ Buddhist, Christian, Islamic Beliefs: Negative
- ▶ Power Distance: Negative
- ▶ Individualism: Positive
- ▶ Masculinity: Ambiguous
- ▶ Uncertainty Avoidance: Positive

Model

$$\text{Ins}_{it} = \alpha + \beta_1 X_{it, \text{Econ}} + \beta_2 Y_{i, \text{Inst}} \\ + \beta_3 \text{PRISK} + \beta_4 Z_{i, \text{Cult}} + \gamma D_{\text{Year}} + \epsilon_{it}$$

Advantages of panel data analysis:

- * Uses cross-sectional and time series
- * Increases number of observations
- * Make inference about a country based on other countries
- * More accurate predictions

Main Results

Variable	(1)	(2)	(3)	(4)	(5)
Log GDP	0.1157***				
URBAN	0.0020				
EDUC	0.0050				
Log HERF	-.1389***				
COMMON	0.1785***				
PRISK	0.1212***				
Adj. R ²	0.534				

Main Results

Variable	(1)	(2)	(3)	(4)	(5)
Log GDP	0.1157***	0.1301***			
URBAN	0.0020	0.0027**			
EDUC	0.0050	0.0001			
Log HERF	-.1389***	-.1244***			
COMMON	0.1785***	0.1679***			
PRISK	0.1212***	0.0917***			
MUSLIM		-.0049***			
Adj. R ²	0.534	0.583			

Main Results

Variable	(1)	(2)	(3)	(4)	(5)
Log GDP	0.1157***		0.0218		
URBAN	0.0020		0.0037***		
EDUC	0.0050		-.0031		
Log HERF	-.1389***		-.1577***		
COMMON	0.1785***		0.2105***		
PRISK	0.1212***		0.1130***		
PDI			-.0069***		
IDV			0.0023***		
MAS			0.0020***		
UAI			0.0056***		
Adj. R ²	0.534		0.594		

Main Results

Variable	(1)	(2)	(3)	(4)	(5)
Log GDP	0.1157***			0.0536	
URBAN	0.0020			0.0038***	
EDUC	0.0050			-.0070**	
Log HERF	-.1389***			-.1405***	
COMMON	0.1785***			0.1816***	
PRISK	0.1212***			0.0743***	
MUSLIM				-.0046***	
PDI				-.0054***	
IDV				0.0042***	
MAS				0.0013*	
UAI				0.0048***	
Adj. R ²	0.534	0.583	0.594	0.635	

Main Results

Variable	(1)	(2)	(3)	(4)	(5)
Log GDP	0.1157***			0.0536	0.2063***
URBAN	0.0020			0.0038***	
EDUC	0.0050			-.0070**	
Log HERF	-.1389***			-.1405***	-.1372***
COMMON	0.1785***			0.1816***	0.1202***
PRISK	0.1212***			0.0743***	
MUSLIM				-.0046***	-.0051***
PDI				-.0054***	-.0046***
IDV				0.0042***	0.0037***
MAS				0.0013*	0.0003
UAI				0.0048***	0.0037***
Adj. R ²	0.534	0.583	0.594	0.635	0.612

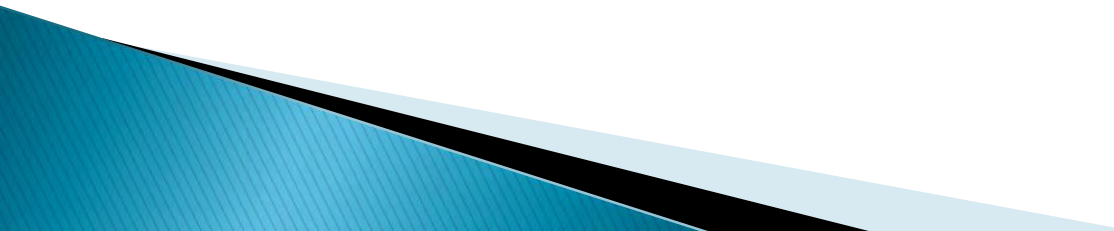
Countries with GDP < \$20,000

Variable	(1)	(2)	(3)	(4)
Log GDP	0.3167***	0.2754***	0.2642***	0.2422***
URBAN	0.0058***	0.0063***	0.0062***	0.0065***
EDUC	-0.0023	-0.0078*	-0.0022	-0.0074
Log HERF	-0.1404***	-0.1403***	-0.1738***	-0.1688***
COMMON	0.3963***	0.3522***	0.3730***	0.3189***
PRISK	0.1082***	0.0990***	0.1208***	0.1032***
MUSLIM		-0.0027***		-0.0026***
PDI			-0.0056***	-0.0047***
IDV			-0.0024*	-0.0007
MAS			0.0019	0.0006
UAI			0.0004	-0.0000
Adjusted R ²	0.548	0.567	0.559	0.575

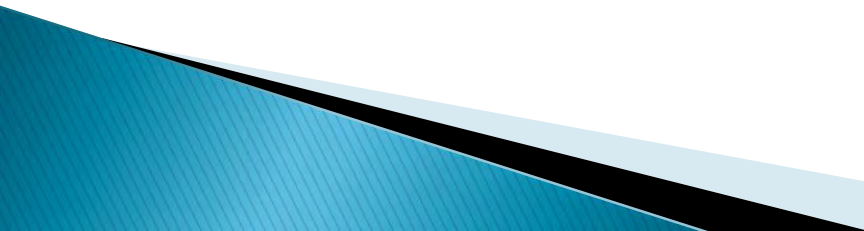
Countries with GDP > \$20,000

Variable	(1)	(2)	(3)	(4)
Log GDP	-0.3726***	-0.1516***	-0.2967***	-0.1648**
URBAN	-0.0033	-0.0023	0.0007	0.0011
EDUC	0.0265***	0.0224***	0.0043	0.0037
Log HERF	-0.1515***	-0.0940***	-0.1699***	-0.1248***
COMMON	-0.0289	-0.0120	-0.0366	-0.0286
PRISK	0.1543***	0.0884***	0.0612***	0.0275*
MUSLIM		-0.0070***		-0.0048***
PDI			-0.0083***	-0.0066***
IDV			0.0080***	0.0081***
MAS			0.0010	0.0013*
UAI			0.0037***	0.0033***
Adj R ²	0.456	0.512	0.638	0.661

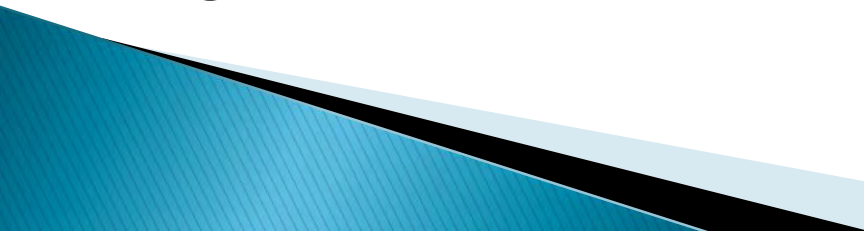
Robustness tests

- ▶ Fama–MacBeath
 - ▶ Cluster option
 - ▶ Robust regression
 - ▶ Random effect panel regression
 - ▶ Density as dependent variable
 - ▶ Non–parametric bootstrap
 - ▶ Blocking
- 

Conclusions

- ▶ Very strong results, variables significant at 1% level, despite biases against finding meaningful relations
 - ▶ For rich countries, regression coefficients for cultural variables average 0.8%. For every 10–point change in a cultural variable, Hofstede, log (penetration) increases by 8%
 - ▶ National and regional cultures do matter for management. Culture only evolves very slowly. National differences are here to stay.
- 

Conclusions

- ▶ Culture should be incorporated in the decision process of multinational insurers wishing to enter a new market.
 - ▶ Increasing income, low political risk, a favorable business environment matter.
 - ▶ But so does culture. Countries scoring low on Power Distance, and high on Individualism and Uncertainty Avoidance, have a higher growth potential.
 - ▶ Within heterogeneous countries (China), market segmentation strategies should aim at sub-groups that exhibit the best cultural scores
- 

Culture matters
especially –and maybe
surprisingly–
in richer countries

