

Stock Market Development and Internationalization

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Economic Geography and European Finance
European Science Foundation Exploratory Workshop
17-18 September 2004, Jesus College, Oxford

Structure of the Presentation

1. Trends in Stock Markets
2. Role of Fundamentals
3. Role of Reforms
4. Future of Stock Markets

Background Material:

- Claessens, S., D. Klingebiel, and S. Schmukler, 2004. Stock Market Development and Internationalization: Do Economic Fundamentals Spur Both Similarly?
- World Bank, 2004. Whither Latin American Capital Markets?

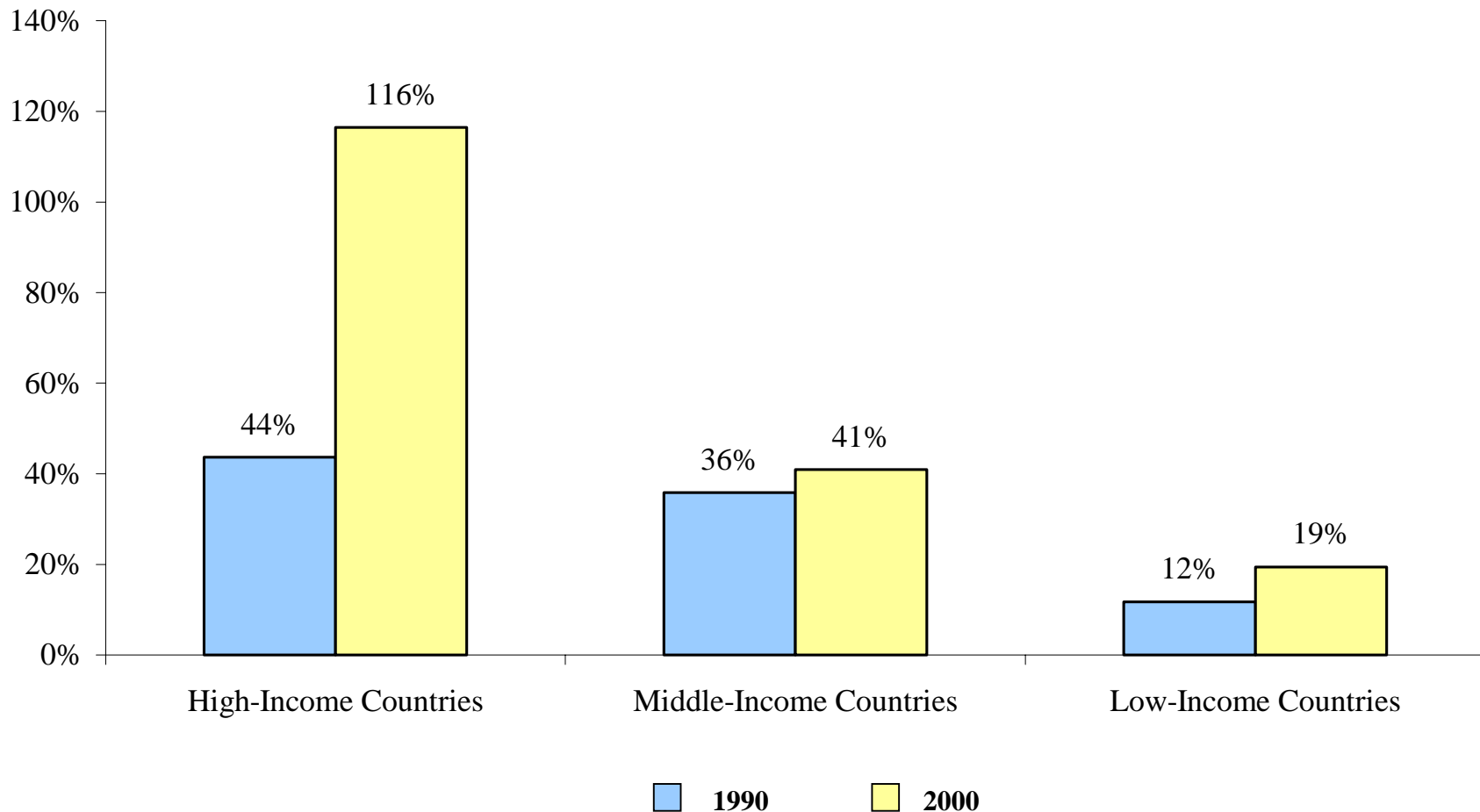
Structure of the Presentation

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1. Trends in Stock Markets

Domestic Stock Market Development

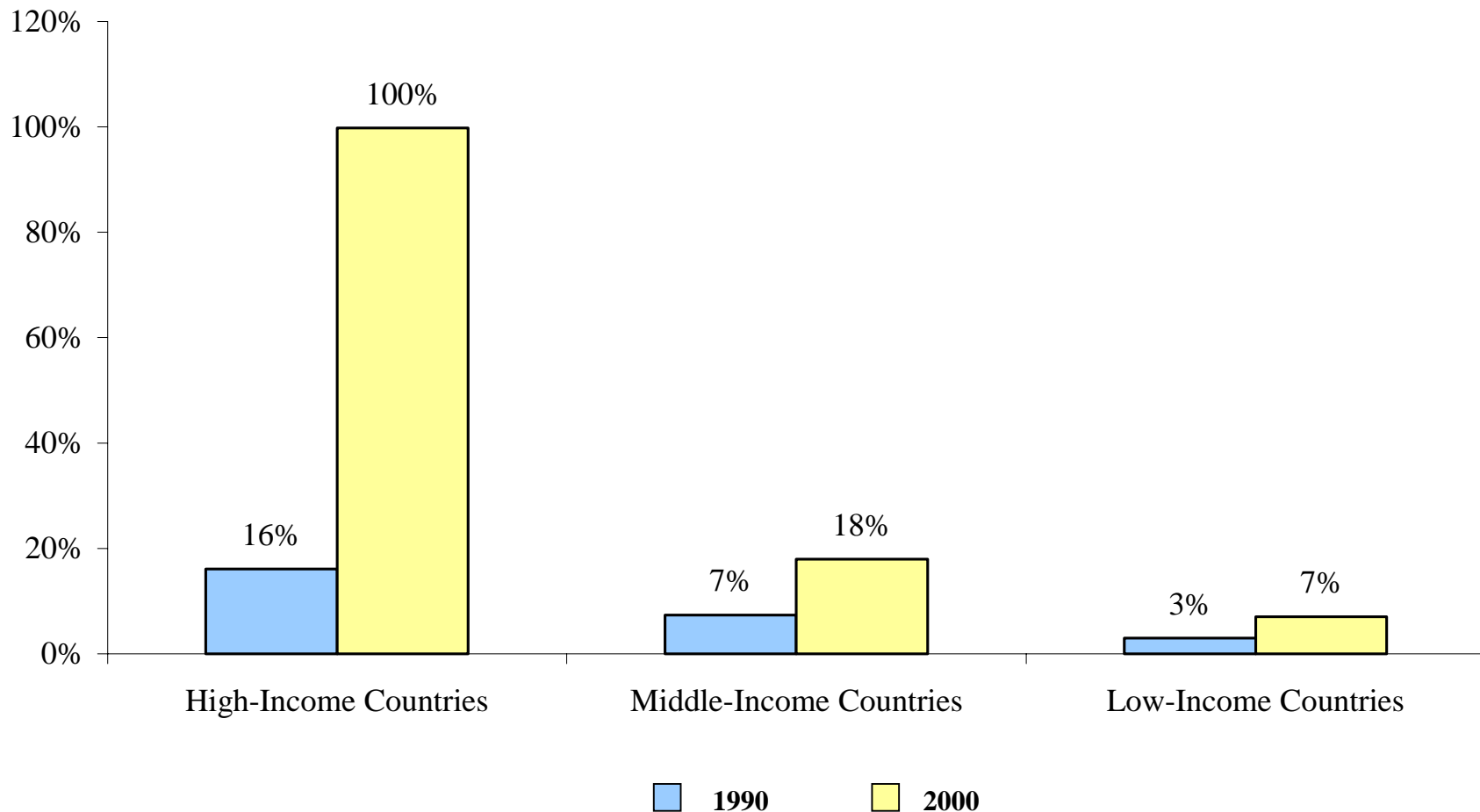
Stock Market Capitalization / GDP



1. Trends in Stock Markets

Domestic Stock Market Development

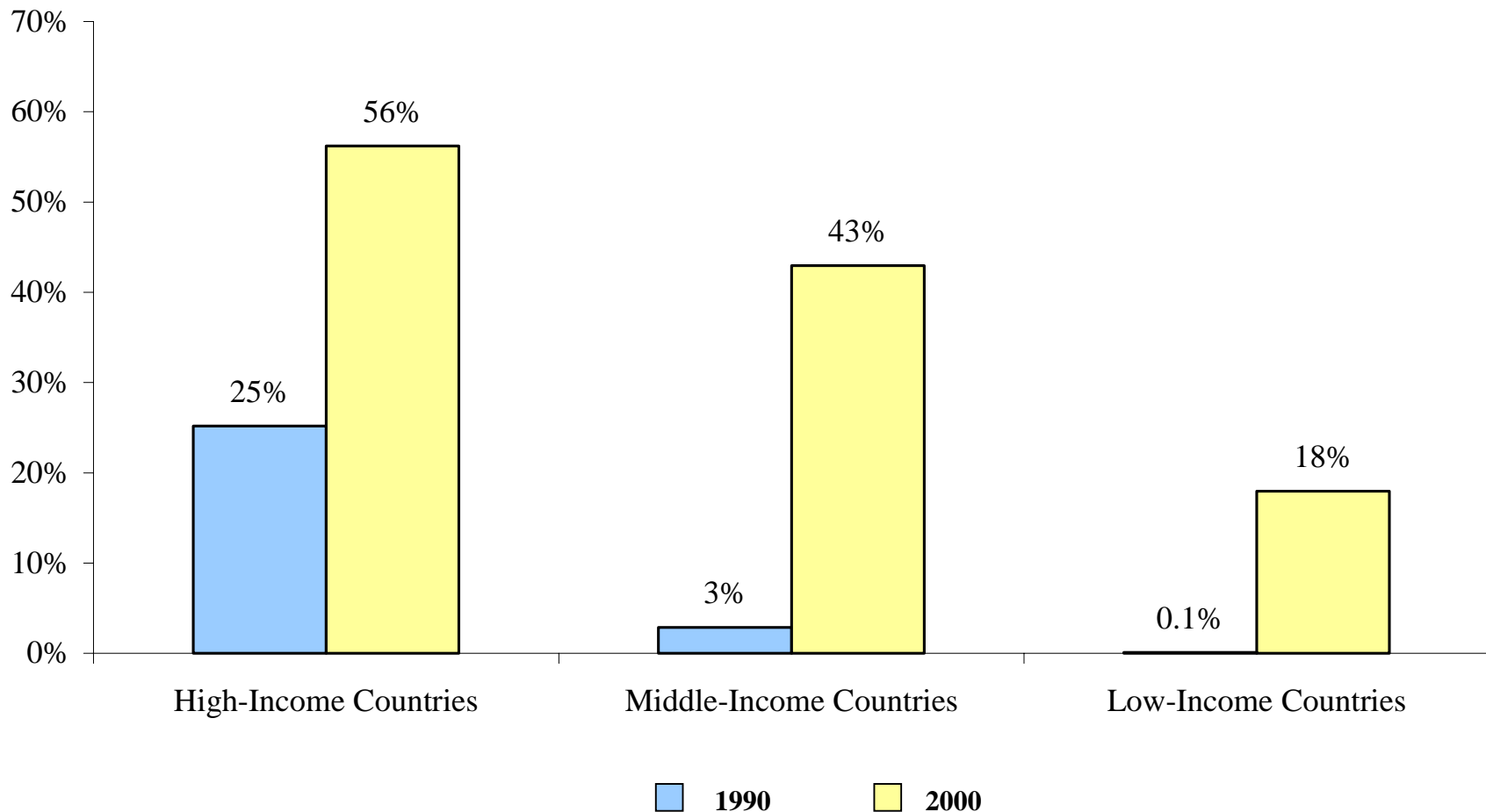
Value Traded Domestically / GDP



1. Trends in Stock Markets

Internationalization of Stock Markets

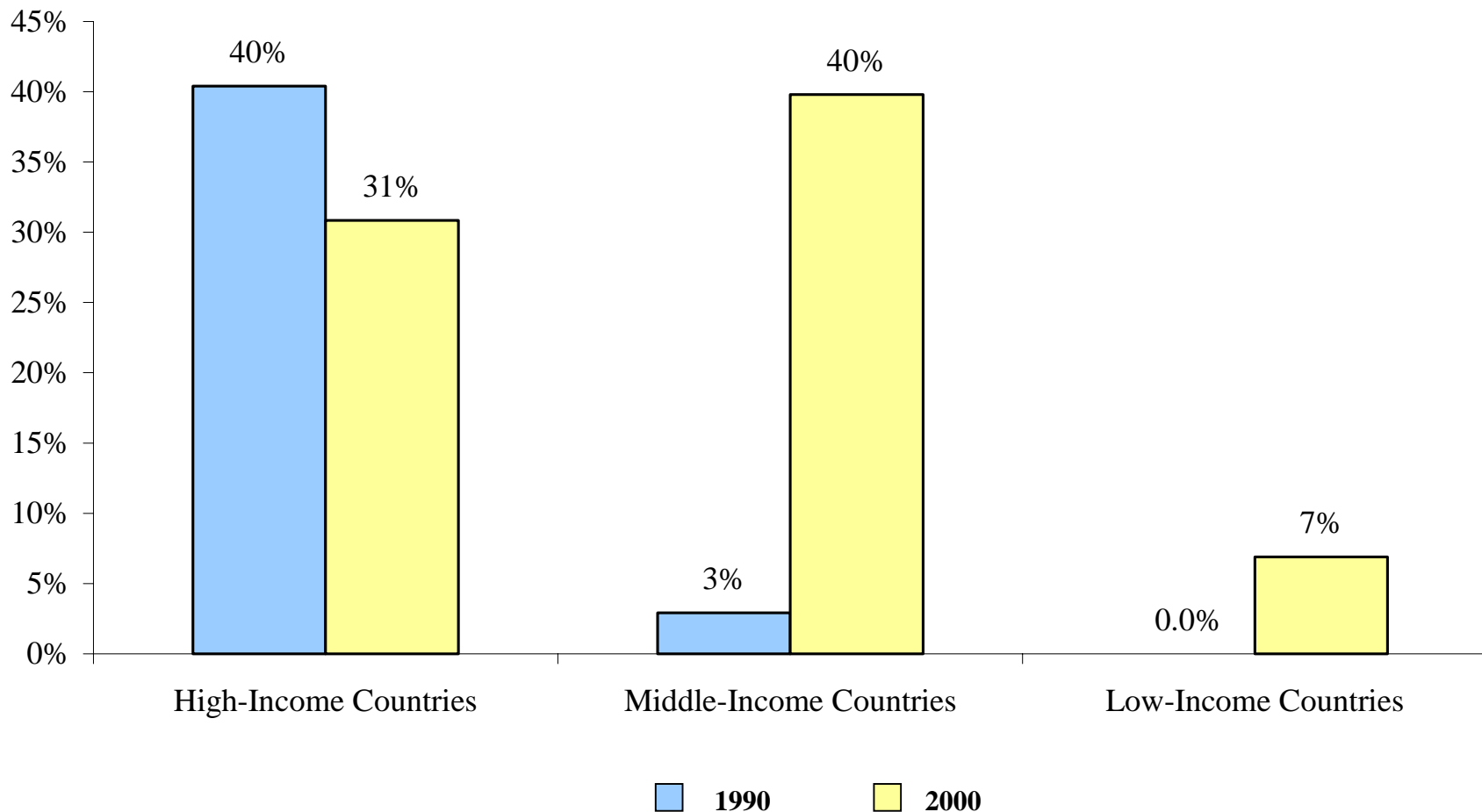
Market Capitalization of International Firms / Total Market Capitalization



1. Trends in Stock Markets

Internationalization of Stock Markets

Value Traded Abroad / Value Traded Domestically



Structure of the Presentation

1. Trends in Stock Markets
2. Role of Fundamentals
3. Role of Reforms
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2. Role of Fundamentals

- ✦ Two possible views on how economic fundamentals influence domestic stock market development and internationalization
 - Better fundamentals spur more developed domestic stock markets and reduce the use of international markets
 - Firms want to escape a poor domestic environment (Karolyi 2004)
 - Related to the “bonding” argument (Coffee 1999; Reese and Weisbach 2002; Doidge, Karolyi, and Stulz 2004)
 - Better fundamentals increase the attractiveness of assets to foreign investors and lead to more use of international markets
 - Macroeconomic and institutional factors determine the willingness of international investors to supply financing to firms
 - Firms from good institutional environments will be granted access to international markets

2. Role of Fundamentals

Methodology and Data

- ✦ Panel regressions to analyze the impact of fundamentals on stock market development and internationalization
- ✦ Dependent variables: measures of domestic and international stock market activity and ratios of international activity to domestic activity
 - Market capitalization, value traded, and new equity capital raised
- ✦ Independent variables: measures of institutional development, macroeconomic stability, financial openness, international demand

2. Role of Fundamentals

Methodology and Data

- ✦ Data on domestic and international activity from 1975 to 2000 for 82 countries
- ✦ Firms are classified as international if they issue depositary receipts, cross-list, or raise capital through private placements abroad

2. Role of Fundamentals

Methodology and Data - Sources

+ Domestic activity

- Market capitalization and value traded: Standard and Poor's (ex IFC) Emerging Markets Database
- New equity capital raised: World Federation of Exchanges

+ International activity

- International firms: Bank of New York, Euromoney, LSE, Nasdaq, NYSE
- Market capitalization: Worldscope and Bloomberg (firm-level)
- Value Traded: Bank of New York (firm-level)
- New equity capital raised: Bank of New York, Euromoney (firm-level)

2. Role of Fundamentals

Methodology and Data – List of Countries

Low-Income Countries		Middle-Income Countries	High-Income Countries	
Armenia	Lithuania	Argentina	Australia	Norway
Azerbaijan	Macedonia	Botswana	Austria	Portugal
Bangladesh	Moldova	Brazil	Belgium	Singapore
Bulgaria	Morocco	Chile	Britain	Slovenia
China	Nigeria	Croatia	Canada	Spain
Colombia	Pakistan	Czech Republic	Denmark	Sweden
Cote D'Ivoire	Peru	Estonia	Finland	Switzerland
Ecuador	Philippines	Hungary	France	Taiwan
Egypt	Romania	Korea	Germany	United States
Ghana	Russia	Malaysia	Greece	
India	Sri Lanka	Mauritius	Hong Kong	
Indonesia	Thailand	Mexico	Ireland	
Iran	Tunisia	Poland	Israel	
Jamaica	Ukraine	Saudi Arabia	Italy	
Jordan	Uzbekistan	Slovak Republic	Japan	
Kazakhstan	Zimbabwe	South Africa	Luxembourg	
Kenya		Trinidad & Tobago	Malta	
Kyrgyz Republic		Turkey	Netherlands	
Latvia		Venezuela	New Zealand	

2. Role of Fundamentals

Regression Results

- ✦ Better fundamentals foster domestic stock market development
- ✦ Internationalization is affected in the same direction and by the same factors that drive the development of domestic stock markets
- ✦ Fundamentals accelerate internationalization; better fundamentals increase international activity relative to domestic activity

2. Role of Fundamentals

Domestic Stock Market Regressions

Dependent Variable: Market Capitalization / GDP					
Log of GDP per capita	0.213 ***	0.144 ***	0.163 ***	0.100 ***	0.170 ***
Law and Order	0.014	0.026 *	0.012	0.037 **	0.010
Shareholders Rights				0.110 **	
Log (1 + Inflation)	-0.017				
Government Deficit / GDP		-2.625 ***	-1.770 ***	-2.144 ***	-1.608 ***
Capital Account Liberalization	0.098 ***	0.051			
Total Equity Flows / GDP			3.845 ***	2.354 ***	
Stock Market Liberalization					0.082 ***
No. of Observations	1007	843	802	401	661
No. of Countries	77	73	71	58	49
R-squared	0.205	0.229	0.270	0.265	0.148

Least square regressions estimated using random effects models for a panel of 82 countries between 1975 and 2000. A constant is estimated but not reported.

*, **, *** mean significant at 10, 5, and 1 percent, respectively

2. Role of Fundamentals

Domestic Stock Market Regressions

Dependent Variable: Value Traded Domestically / GDP					
Log of GDP per capita	0.215 ***	0.115 ***	0.101 ***	0.069 ***	0.095 ***
Law and Order	-0.018	0.000	-0.005	0.016	-0.004
Shareholders Rights				0.029	
Log (1 + Inflation)	0.016				
Government Deficit / GDP		-1.425 ***	-1.243 ***	-1.618 ***	-1.207 ***
Capital Account Liberalization	0.049 *	0.004			
Total Equity Flows / GDP			2.851 ***	1.814 ***	
Stock Market Liberalization					0.028
No. of Observations	999	838	797	399	657
No. of Countries	77	73	71	58	49
R-squared	0.150	0.175	0.233	0.239	0.162

Least square regressions estimated using random effects models for a panel of 82 countries between 1975 and 2000. A constant is estimated but not reported.

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2. Role of Fundamentals

Stock Market Internationalization Regressions

Dependent Variable: Market Capitalization of International Firms / GDP					
Log of GDP per capita	0.123 ***	0.084 ***	0.083 ***	0.068 ***	0.061 ***
Law and Order	0.029 *	0.043 ***	0.042 ***	0.030 **	0.033 ***
Shareholders Rights				-0.005	
Log (1 + Inflation)	-0.126 **				
Government Deficit / GDP		-0.932 ***	-0.687 ***	-0.656 **	-0.642 ***
Capital Account Liberalization	0.067 **	0.043			
Total Equity Flows / GDP			3.531 ***	3.253 ***	
Stock Market Liberalization					0.183 ***
No. of Observations	706	557	536	365	419
No. of Countries	71	66	64	53	45
No. of Uncensored Obs.	541	441	423	312	320
No. of Left-Censored Obs.	165	116	113	53	99

Tobit regressions estimated using random effects models for a panel of 82 countries between 1975 and 2000. A constant is estimated but not reported.

*, **, *** mean significant at 10, 5, and 1 percent, respectively

2. Role of Fundamentals

Stock Market Internationalization Regressions

Dependent Variable: Value Traded Abroad / GDP					
Log of GDP per capita	0.062 ***	0.032 ***	0.022 ***	0.034 ***	0.047 ***
Law and Order	0.001	0.004	-0.001	0.001	0.001
Shareholders Rights				-0.001	
Log (1 + Inflation)	-0.048 ***				
Government Deficit / GDP		-0.185 ***	-0.047	-0.126 **	-0.007
Capital Account Liberalization	0.017	0.008			
Total Equity Flows / GDP			0.640 ***	0.943 ***	
Stock Market Liberalization					0.050 ***
No. of Observations	772	611	574	380	445
No. of Countries	75	70	67	54	45
No. of Uncensored Obs.	357	287	276	215	224
No. of Left-Censored Obs.	415	324	298	165	221

Tobit regressions estimated using random effects models for a panel of 82 countries between 1975 and 2000. A constant is estimated but not reported.

*, **, *** mean significant at 10, 5, and 1 percent, respectively

2. Role of Fundamentals

Stock Market Internationalization Regressions

Dependent Variable: Market Capitalization of International Firms / Total Market Capitalization

Log of GDP per capita	0.084 ***	0.145 ***	0.136 ***	0.107 ***	0.170 ***
Law and Order	0.032 ***	0.039 ***	0.051 ***	0.029 ***	0.030 ***
Shareholders Rights				0.000	
Log (1 + Inflation)	-0.214 ***				
Government Deficit / GDP		-0.724 ***	-0.223	0.204	0.139
Capital Account Liberalization	0.075 ***	0.062 ***			
Total Equity Flows / GDP			3.217 ***	3.335 ***	
Stock Market Liberalization					0.216 ***
No. of Observations	682	528	516	354	403
No. of Countries	71	65	64	53	45
No. of Uncensored Obs.	535	433	417	307	314
No. of Left-Censored Obs.	147	95	99	47	89

Tobit regressions estimated using random effects models for a panel of 82 countries between 1975 and 2000. A constant is estimated but not reported.

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2. Role of Fundamentals

Stock Market Internationalization Regressions

Dependent Variable: Value Traded Abroad / Value Traded Domestically					
Log of GDP per capita	0.308 ***	0.426 ***	0.346 ***	0.208 ***	0.686 ***
Law and Order	0.052	0.095	0.107 ***	0.093 ***	0.015
Shareholders Rights				0.003	
Log (1 + Inflation)	-0.447 ***				
Government Deficit / GDP		-0.831	1.778 **	1.802 ***	2.002 ***
Capital Account Liberalization	0.155	0.264 **			
Total Equity Flows / GDP			5.382 ***	6.716 ***	
Stock Market Liberalization					0.275 **
No. of Observations	720	567	541	372	422
No. of Countries	73	67	65	55	44
No. of Uncensored Obs.	345	282	269	211	219
No. of Left-Censored Obs.	375	285	272	161	203

Tobit regressions estimated using random effects models for a panel of 82 countries between 1975 and 2000. A constant is estimated but not reported.

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Structure of the Presentation

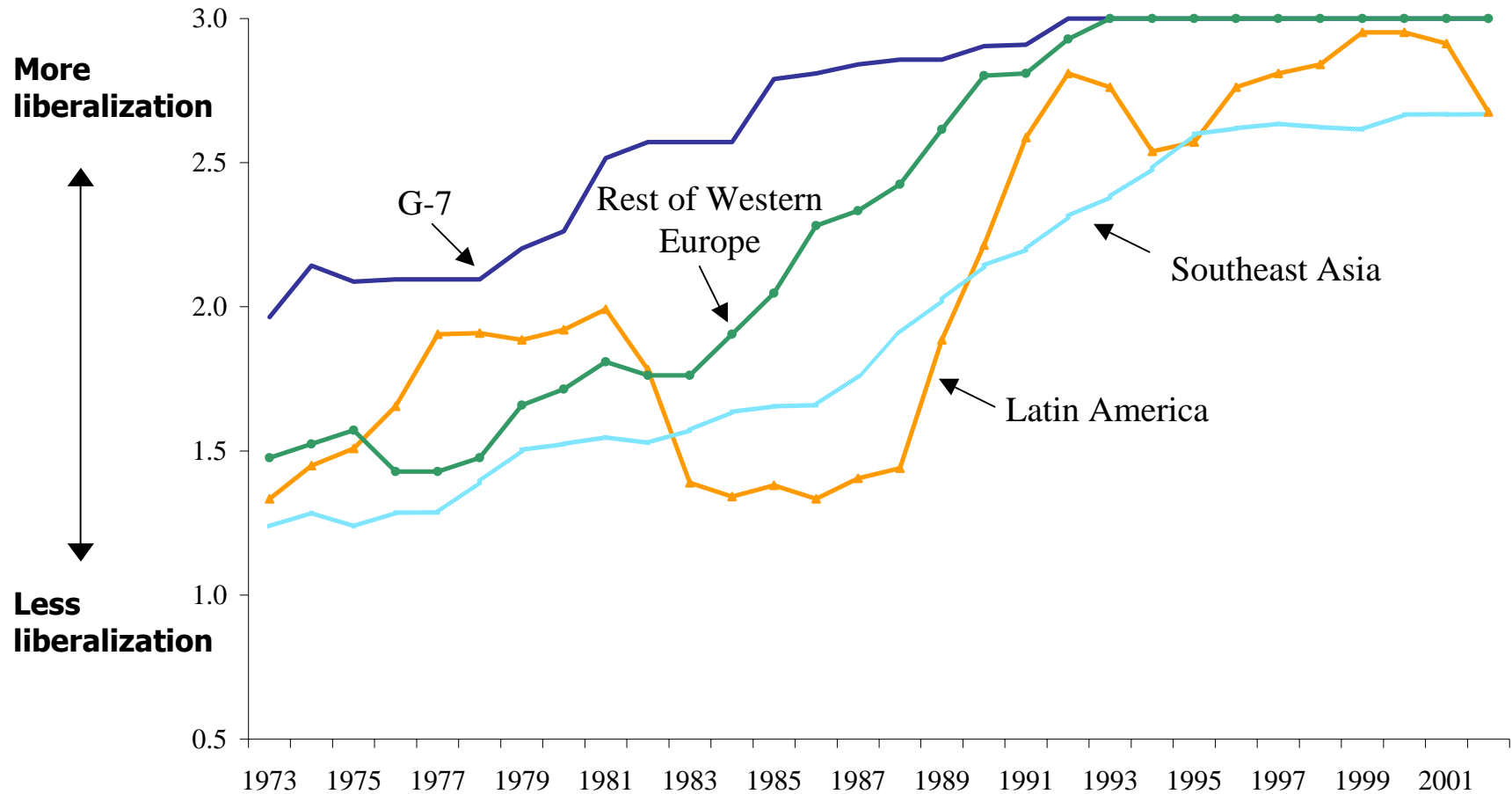
1. Trends in Stock Markets
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3. Role of Reforms

- ✦ Over the last two decades many countries undertook extensive reforms to foster stock market development
- ✦ Analyzing the impact of these reforms will help to shed light on whether they have had the expected positive impact on stock markets
- ✦ This analysis is complementary to the analysis of economic fundamentals and helps to address potential limitations of panel data regressions
 - Panel data results might be driven by cross-country differences and not by the evolution of variables over time
 - Macroeconomic and institutional factors within a country might not change over time and what is relevant for policymakers is what they can do in each country (they cannot modify initial conditions)

3. Role of Reforms

Financial Liberalization

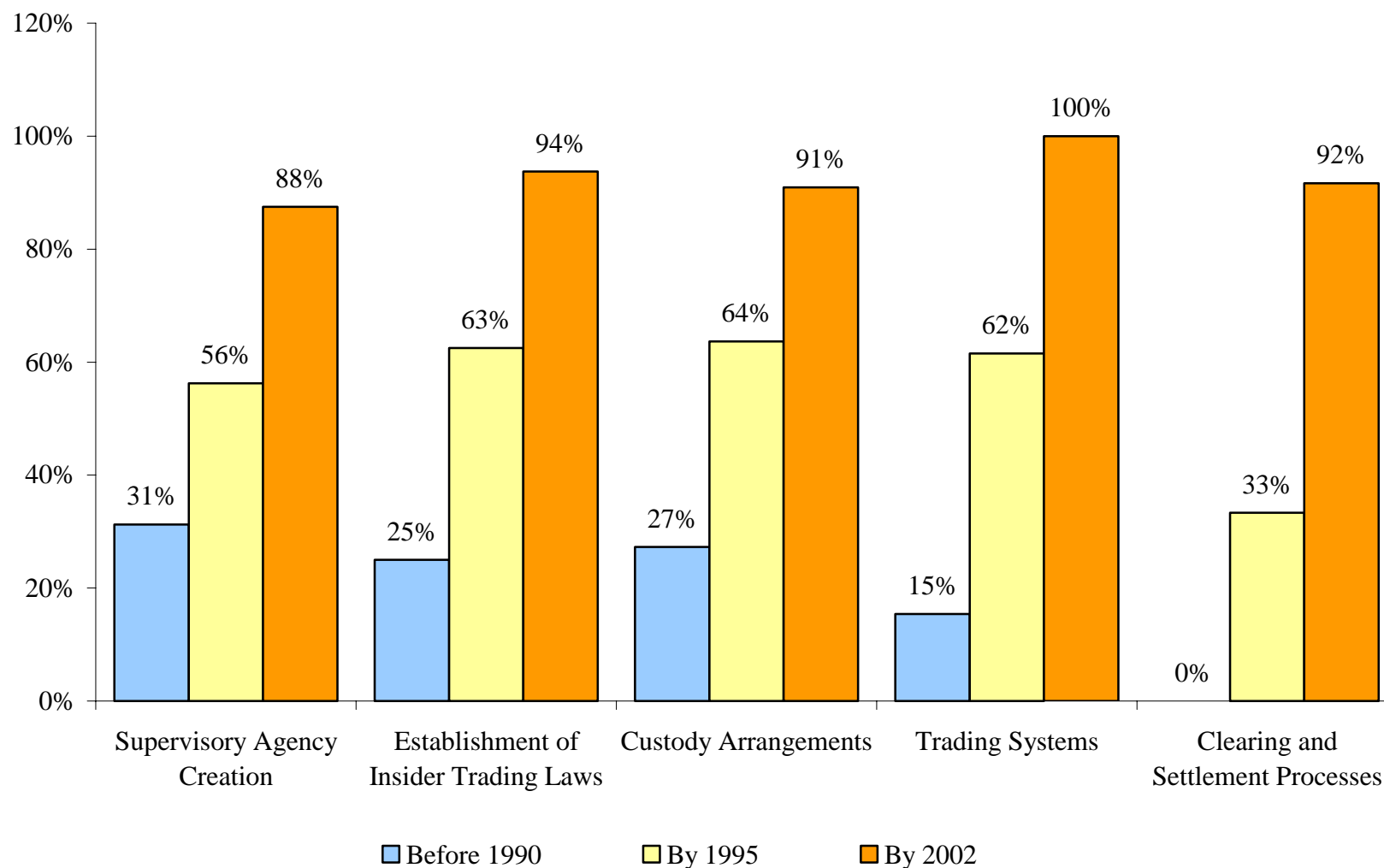


The liberalization index is calculated as the simple average of three indices (liberalization of the capital account, domestic financial sector, and stock market) that range between 1 and 3, where 1 means no liberalization and 3 means full liberalization. These data are then aggregated as the simple average between countries of each region.

3. Role of Reforms

Capital Markets Regulation and Infrastructure

Percentage of Latin American Countries Having Implemented Reforms

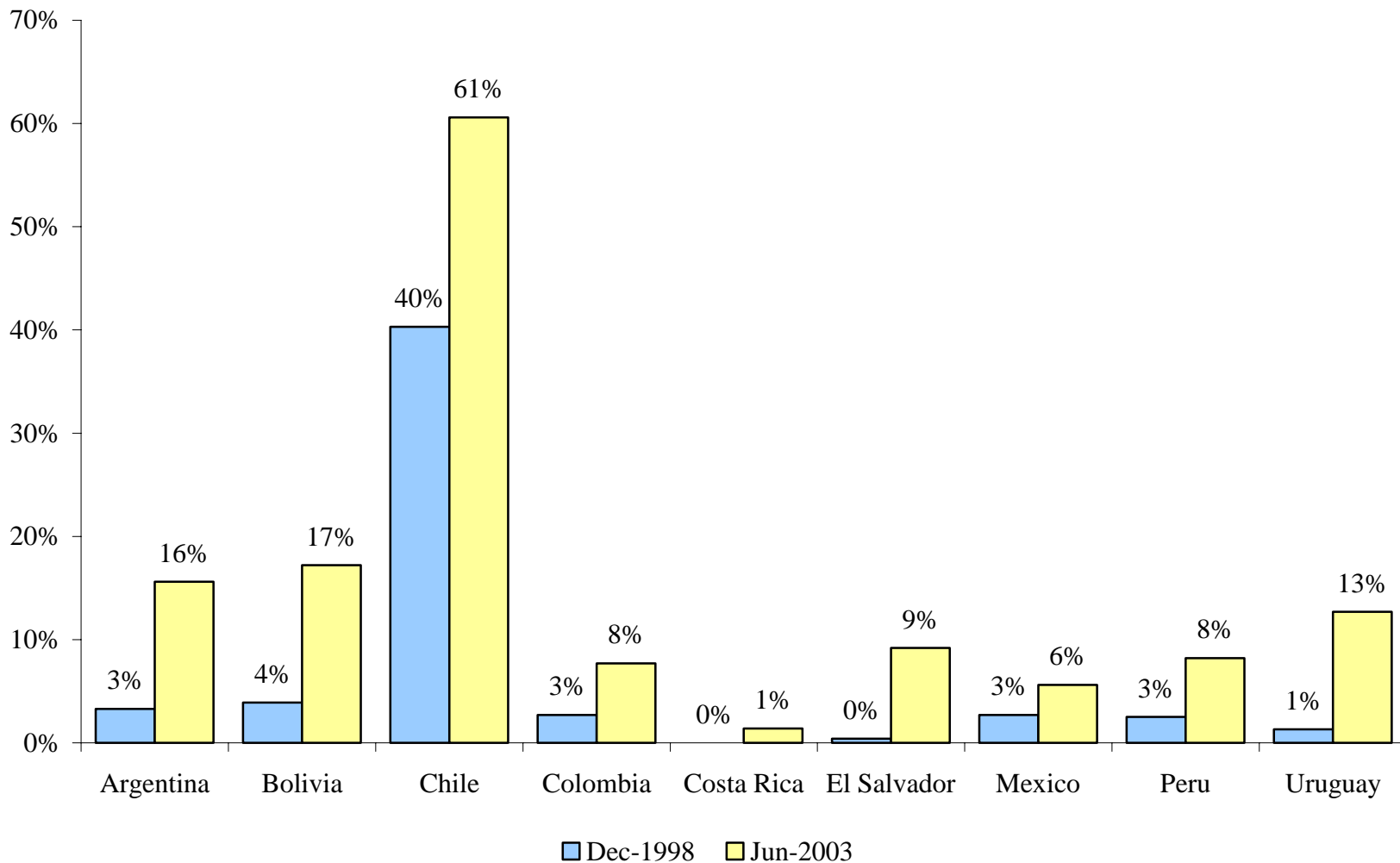


3. Role of Reforms

Pension System Reform

Assets Held by Mandatory Pension Funds in Latin America

Percentage of GDP

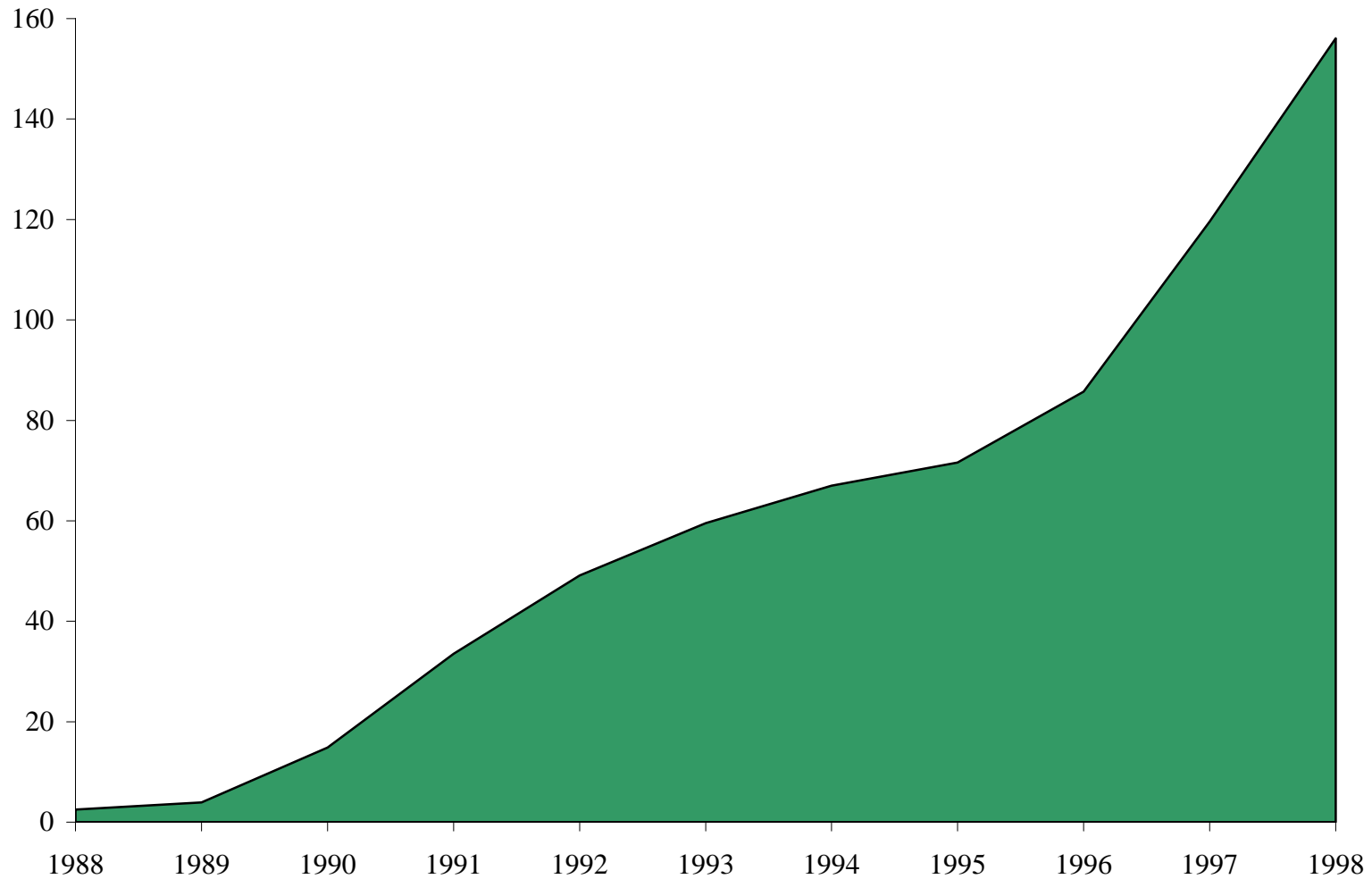


3. Role of Reforms

Privatization

Cumulative Amount Raised by Privatizations in Latin America

Billion U.S. dollars



3. Role of Reforms

Methodology and Data

- ✦ Time series regressions to analyze the impact of reforms on stock market development and internationalization
- ✦ Dependent variables: measures of domestic and international stock market activity and ratios of international activity to domestic activity (same as section 2)
- ✦ Independent variables: reform dummies
 - Financial liberalization, market infrastructure reform, institutional reform, enforcement of insider trading laws, pension reform, privatization

3. Role of Reforms

Methodology and Data – Reform Definitions

- ✚ Financial liberalization: dummy equal to 1 if the country is has undertaken capital account liberalization or stock market liberalization
- ✚ Infrastructure reform: dummy equal to 1 if the country has undertaken reforms in at least two of these categories: (i) custody of securities (ii) trading environment, and (iii) clearing and settlement processes
- ✚ Institutional reform: dummy equal to 1 if the value of the law and order index or the corruption index surpasses the sample median of the index
- ✚ Enforcement of insider trading laws: dummy equal to 1 if insider trading laws are established and enforced in the country
- ✚ Pension reform: dummy equal to 1 if the country has introduced a pension system reform, moving towards a privately managed defined contribution system
- ✚ Privatization: Dummy equal to 1 if the country has started a process of privatization of state-owned companies

3. Role of Reforms

Methodology and Data – Sources

- ✦ Financial liberalization: IMF Annual Report on Exchange Arrangements and Exchange Restrictions; Bekaert, Harvey, and Lundbald (2003); and Kaminsky and Schmukler (2003)
- ✦ Infrastructure reform: Local data and The Handbook of World Stock, Derivative, and Commodity Exchanges
- ✦ Institutional reform: Political Risk Services International Country Risk Guide
- ✦ Enforcement of insider trading laws: Bhattacharya and Daouk (2002)
- ✦ Pension reform: International Center for Pension Reform; Federación Internacional de Administradoras de Fondos de Pensiones (FIAP); Palacios and Pallares-Millares (2000); and Gill, Packard, and Yermo (2002)
- ✦ Privatization: World Bank Privatization Database; OECD 2002 Financial Market Trends; and Perotti and van Oijen (2001)

3. Role of Reforms

Regression Results

- ✦ Reforms foster domestic stock market development
- ✦ Reforms also have a positive impact on the participation in international equity markets
- ✦ Reforms accelerate internationalization, leading to a higher share of international activity relative to domestic activity

3. Role of Reforms

Domestic Stock Market Regressions

Dependent Variable: Market Capitalization / GDP						
Financial liberalization	0.244 ***					
Infrastructure reform		0.427 ***				
Institutional reform			0.233 ***			
Enforcement of insider trading laws				0.469 ***		
Pension reform					0.440 ***	
Privatization						0.285 ***
Constant	0.166 ***	0.199 ***	0.307 ***	0.246 ***	0.330 ***	0.127 ***
No. of Observations	1,108	605	568	816	368	904
No. of Countries	49	23	33	33	17	39
R-squared	0.23	0.26	0.11	0.28	0.20	0.26

Least square regressions estimated using fixed effects models for countries implementing reforms between 1975 and 2002.

*, **, *** mean significant at 10, 5, and 1 percent, respectively

3. Role of Reforms

Domestic Stock Market Regressions

Dependent Variable: Value Traded Domestically / GDP						
Financial liberalization	0.171 ***					
Infrastructure reform		0.371 ***				
Institutional reform			0.196 ***			
Enforcement of insider trading laws				0.455 ***		
Pension reform					0.288 ***	
Privatization						0.178 ***
Constant	0.065 ***	0.055 **	0.075 ***	0.090 ***	0.147 ***	0.013
No. of Observations	1,154	625	582	844	372	904
No. of Countries	52	23	34	34	17	39
R-squared	0.06	0.17	0.11	0.22	0.13	0.15

Least square regressions estimated using fixed effects models for countries implementing reforms between 1975 and 2002.

*, **, *** mean significant at 10, 5, and 1 percent, respectively

3. Role of Reforms

Stock Market Internationalization Regressions

Dependent Variable: Market Capitalization of International Firms / GDP						
Financial liberalization	0.066 ***					
Infrastructure reform		0.132 ***				
Institutional reform			0.101 ***			
Enforcement of insider trading laws				0.269 ***		
Pension reform					0.127 ***	
Privatization						0.086 ***
Constant	0.017 **	0.073 **	0.016	0.083 ***	0.145 ***	0.001
No. of Observations	296	153	255	319	115	368
No. of Countries	27	13	23	28	10	33
R-squared	0.13	0.06	0.22	0.19	0.09	0.05

Least square regressions estimated using fixed effects models for countries implementing reforms between 1975 and 2002.

*, **, *** mean significant at 10, 5, and 1 percent, respectively

3. Role of Reforms

Stock Market Internationalization Regressions

Dependent Variable: Value Traded Abroad / GDP						
Financial liberalization	0.009 ***					
Infrastructure reform		0.042 **				
Institutional reform			0.011 ***			
Enforcement of insider trading laws				0.027 ***		
Pension reform					0.013 ***	
Privatization						0.016 **
Constant	0.002	0.006	0.002	0.010	0.011 ***	0.000
No. of Observations	426	156	303	332	130	487
No. of Countries	38	13	26	28	11	42
R-squared	0.05	0.03	0.08	0.02	0.08	0.01

Least square regressions estimated using fixed effects models for countries implementing reforms between 1975 and 2000.

*, **, *** mean significant at 10, 5, and 1 percent, respectively

3. Role of Reforms

Stock Market Internationalization Regressions

Dependent Variable: Market Capitalization of International Firms / Total Market Capitalization

Financial liberalization	0.130 ***					
Infrastructure reform		0.236 ***				
Institutional reform			0.175 ***			
Enforcement of insider trading laws				0.219 ***		
Pension reform					0.244 ***	
Privatization						0.171 ***
Constant	0.052 ***	0.132 ***	0.075 ***	0.196 ***	0.229 ***	0.059 ***
No. of Observations	268	153	220	304	109	247
No. of Countries	25	13	20	27	10	22
R-squared	0.18	0.38	0.34	0.42	0.38	0.26

Least square regressions estimated using fixed effects models for countries implementing reforms between 1975 and 2000.

*, **, *** mean significant at 10, 5, and 1 percent, respectively

3. Role of Reforms

Stock Market Internationalization Regressions

Dependent Variable: Value Traded Abroad / Value Traded Domestically						
Financial liberalization	0.077 ***					
Infrastructure reform		0.415 ***				
Institutional reform			0.154 ***			
Enforcement of insider trading laws				0.155 ***		
Pension reform					0.361 ***	
Privatization						0.089 *
Constant	0.035	0.026	0.036	0.055 **	0.089	0.053
No. of Observations	341	156	260	313	114	311
No. of Countries	32	13	23	27	11	28
R-squared	0.02	0.15	0.05	0.06	0.13	0.01

Least square regressions estimated using fixed effects models for countries implementing reforms between 1975 and 2000.

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Structure of the Presentation

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4. Future of Stock Markets

- ✦ Domestic stock market development and internationalization are driven by common factors
 - Internationalization might be a natural part of the overall process of economic and institutional development
 - Migration abroad might hurt liquidity for firms that remain in the domestic market (Levine and Schmukler 2003), making it more difficult to sustain fully-fledged local exchanges

4. Future of Stock Markets

- ✦ The same evidence examined from different perspectives can lead to different diagnoses and policy recommendations
- ✦ Three possible views
 - Be patient and redouble the effort
 - Get the sequence right
 - Revisit basic issues and revise expectations

4. Future of Stock Markets

- ✦ Need to step back and revisit basic issues
 - Reforms spur both domestic securities markets development and internationalization
 - Resistance to reform might not yield in the absence of outside competition
 - Implicit premise that developed capital markets are the adequate benchmark for developing countries

4. Future of Stock Markets

Basic Issues

+ Financial Globalization

- Undue emphasis on domestic capital markets is not consistent with financial globalization

+ Liquidity

- Liquidity is a positive function of market size and economies of scale and network and agglomeration effects

+ Risk Diversification

- Local capital markets in many developing countries have added very little to risk diversification and the scope for diversification might be curbed by the economics of the risk diversification process

4. Future of Stock Markets

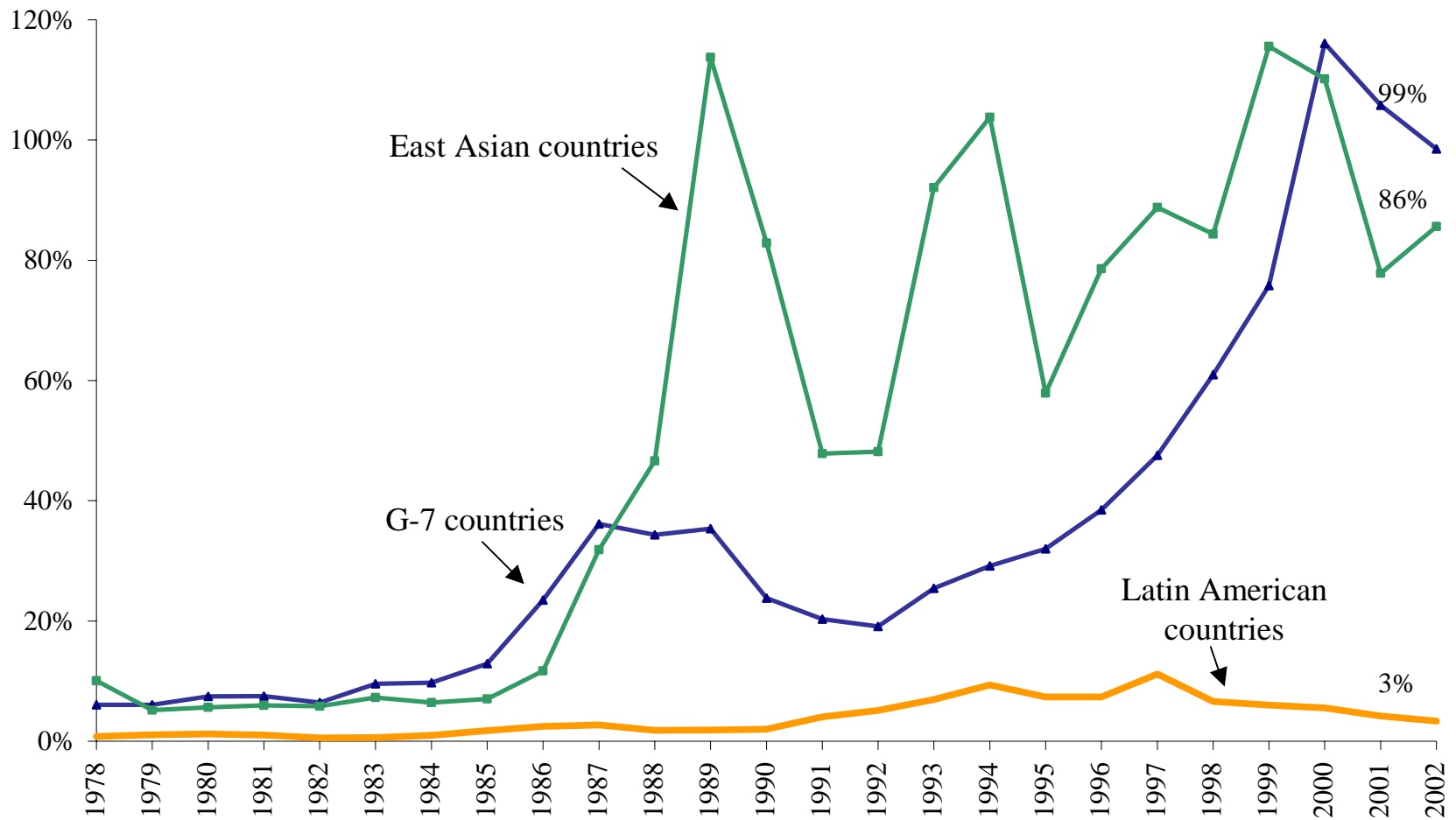
- ✦ Reform expectations need to be reshaped to accommodate the implications of financial globalization
 - What matters is access to finance, regardless of where or by whom provided
 - However, international financial integration does not eliminate the need for local markets
- ✦ More analysis is needed to develop a “light” version of securities markets for small countries
- ✦ Further research is needed to understand regional differences in stock market development and internationalization

4. Future of Stock Markets

Regional Patterns

Stock Market Value Traded

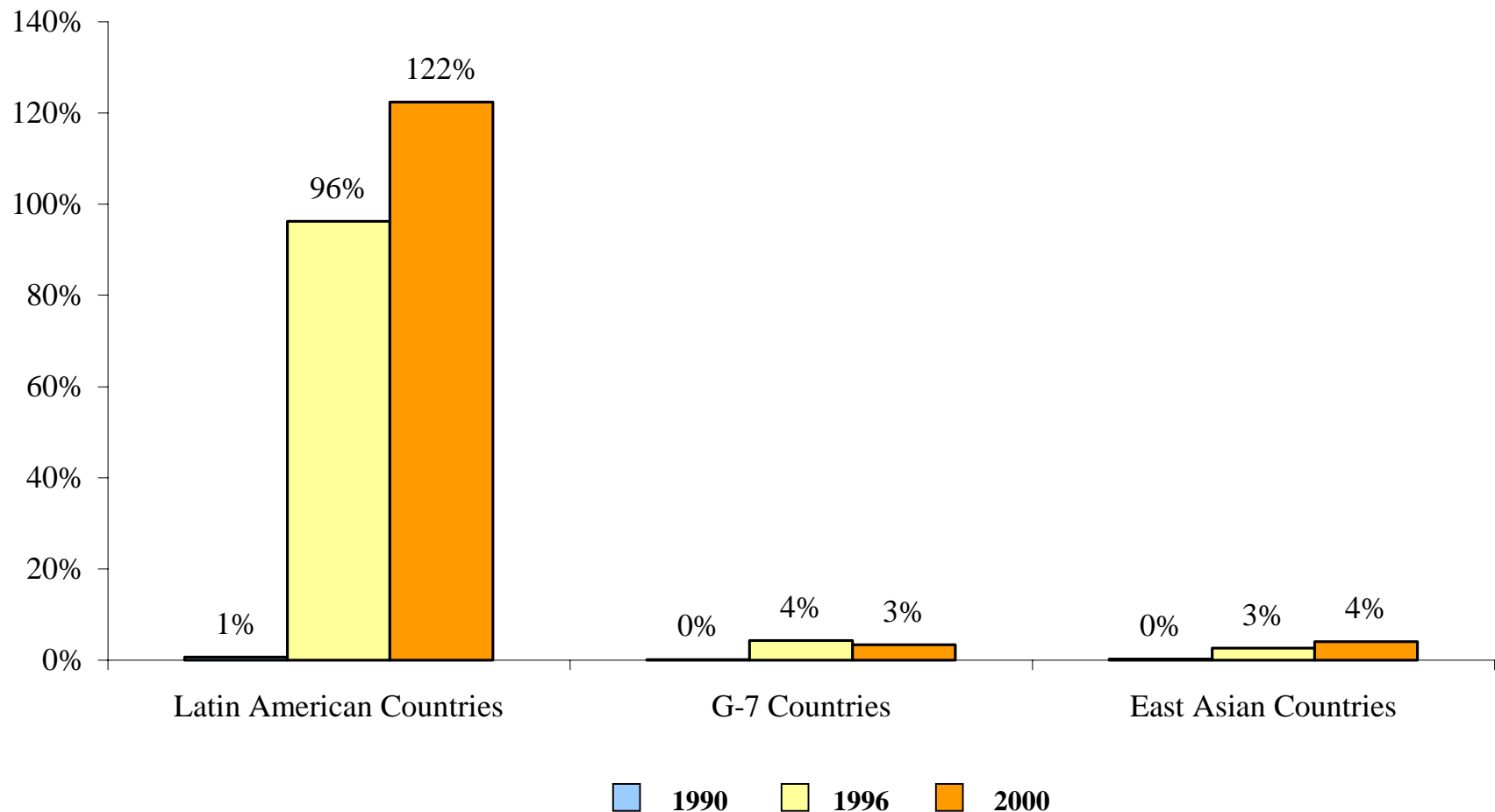
Percentage of GDP



4. Future of Stock Markets

Regional Patterns

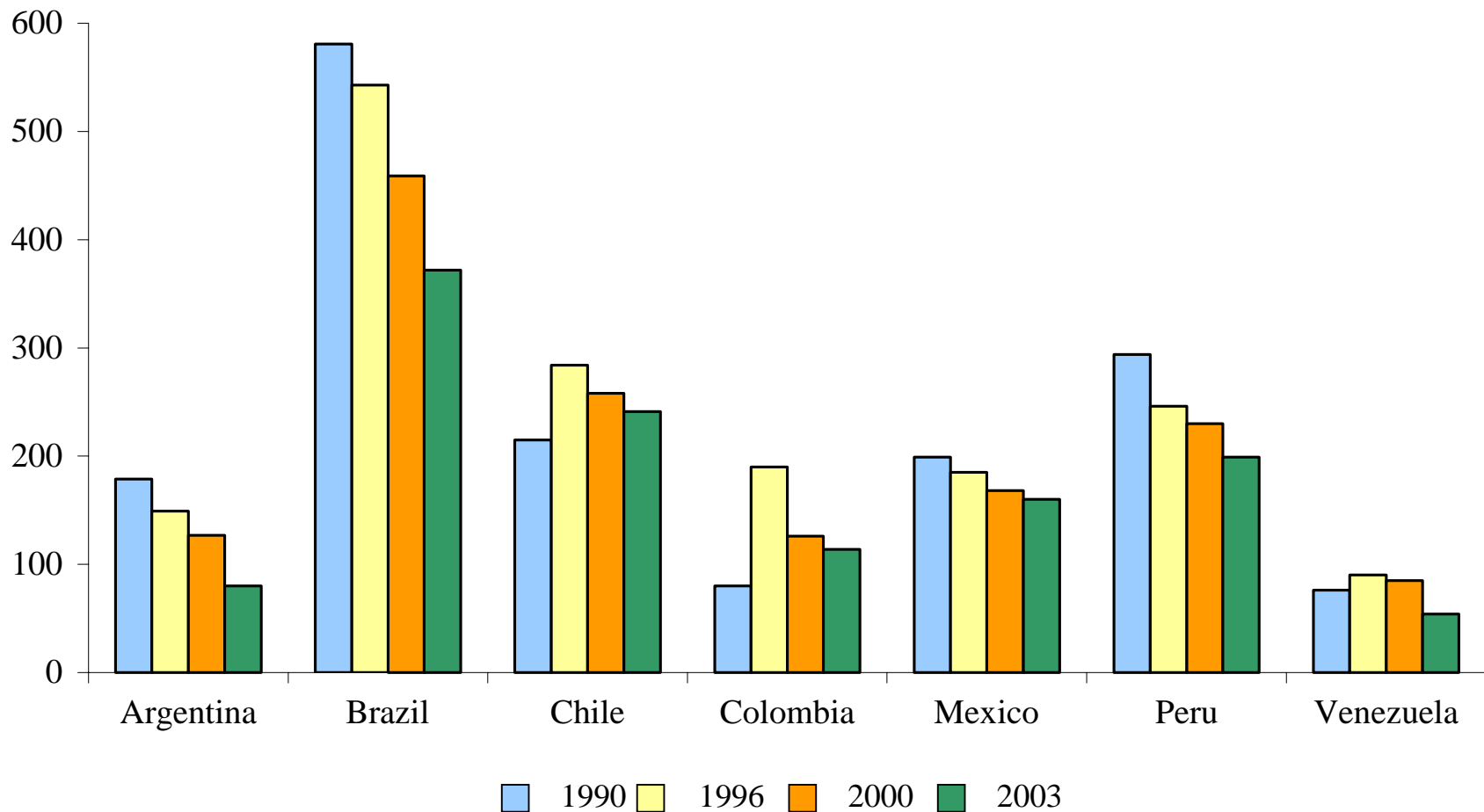
Value Traded Abroad / Value Traded Domestically



4. Future of Stock Markets

Regional Patterns

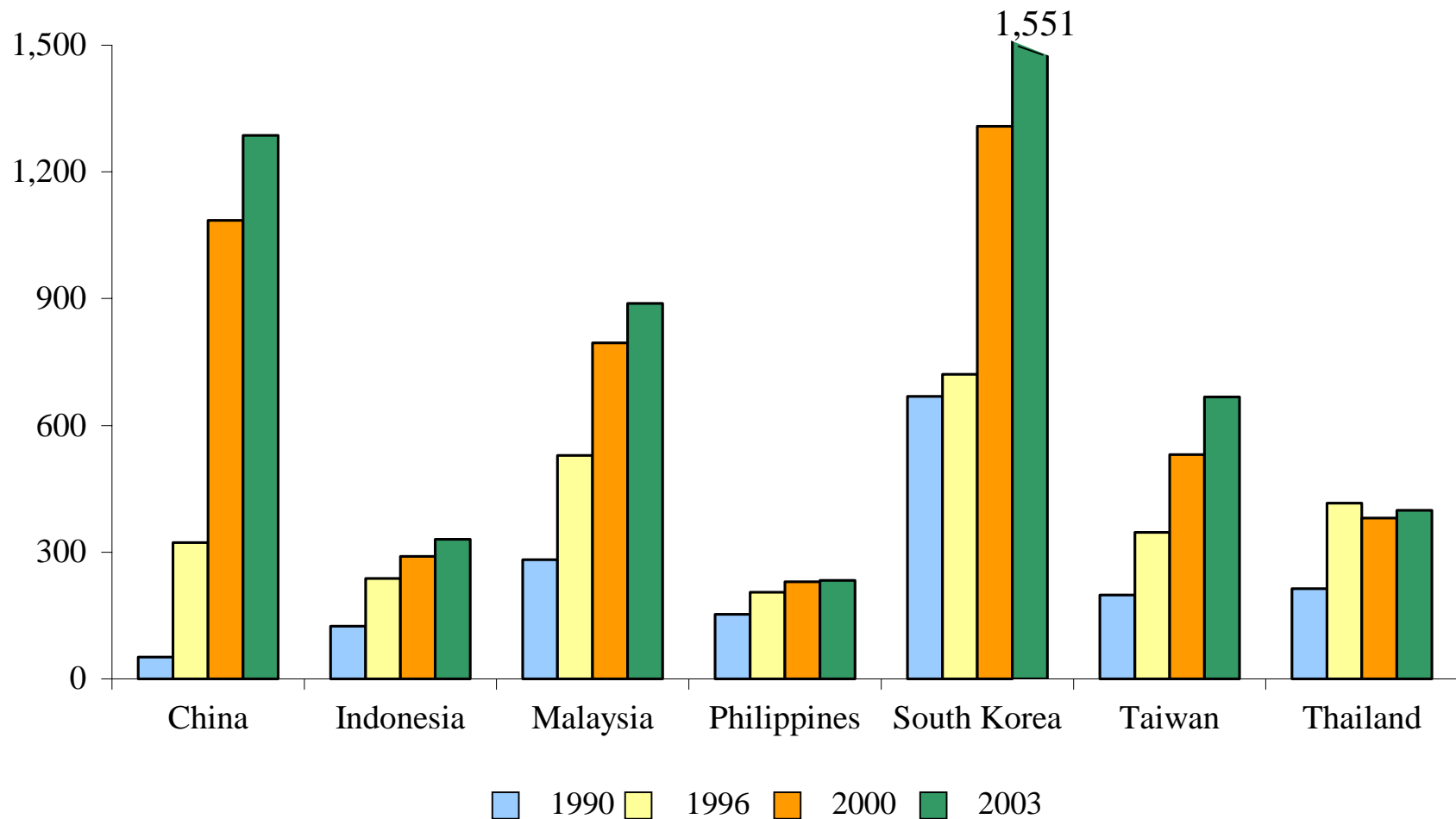
Number of Firms Listed in Domestic Stock Exchanges in Latin America



4. Future of Stock Markets

Regional Patterns

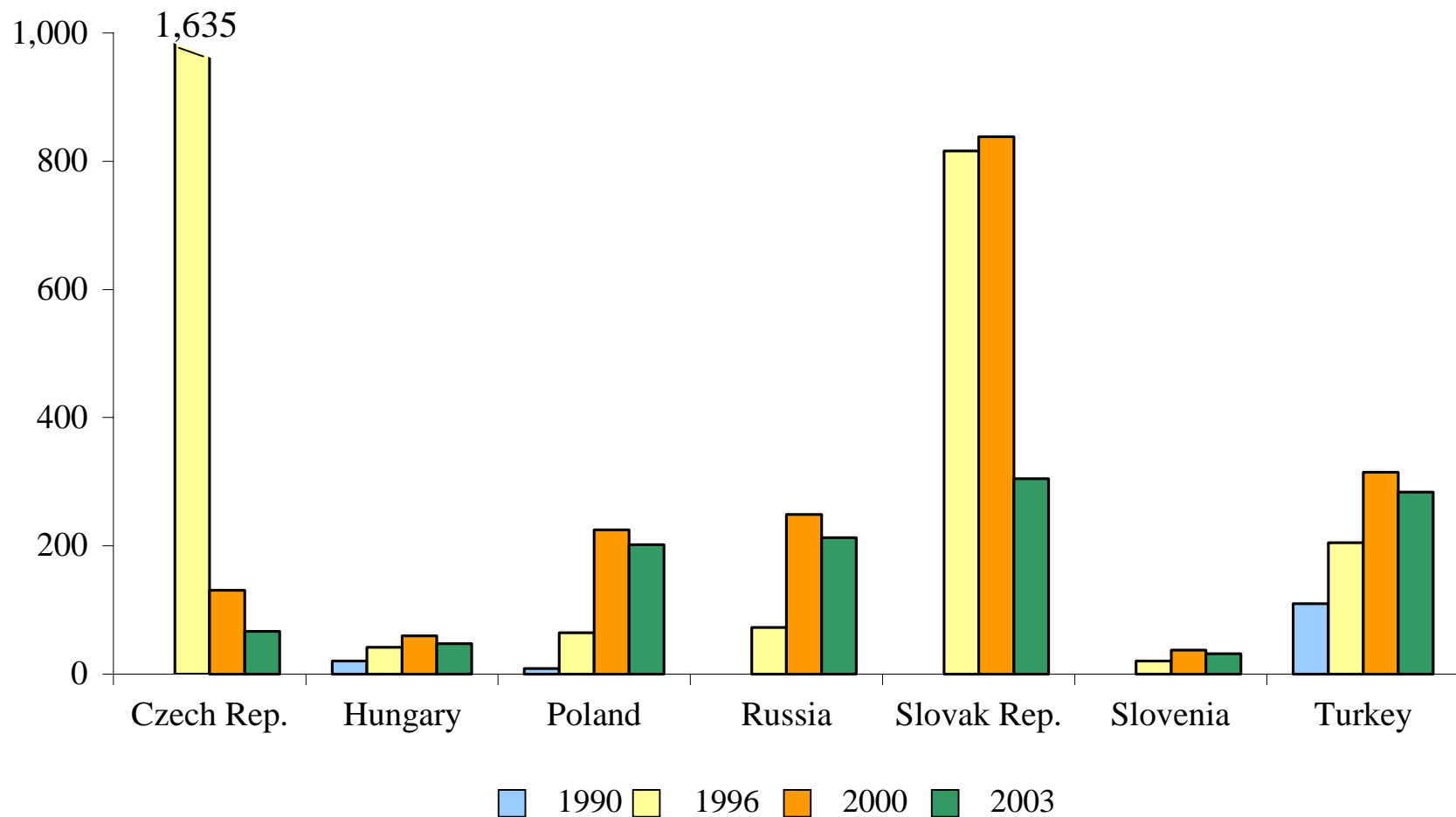
Number of Firms Listed in Domestic Stock Exchanges in South East Asia



4. Future of Stock Markets

Regional Patterns

Number of Firms Listed in Domestic Stock Exchanges in Eastern Europe



THE END