



School of Business  
Upper Montclair, New Jersey 07043

**Optimal Choices for Risk Management:  
The Economic Value of Institutional Reform  
In Globalizing Economies**

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Phillip LeBel, Ph.D.  
Professor of Economics  
Department of Economics and Finance  
[Lebelp@mail.montclair.edu](mailto:Lebelp@mail.montclair.edu)  
<http://alpha.montclair.edu/~lebelp/plebel.html>

### **Abstract**

Increasing interdependence in the global economy entails increasing levels of risk in economic decisions. For economies engaged in global economic integration, success depends to no small degree on the effective management of risk through institutional innovation. In this paper, we apply panel regression analysis to a sample of 103 countries for the 1980-2002 period to examine the determinants of aggregate country risk, and in turn, to estimate the economic value of changes in those determinants on a country's rate of economic growth. We provide estimates for the economic value of improving a society's degree of property rights, judicial independence, civil liberties, and political rights on the underlying rate of growth. Our findings are consistent with overall studies on corruption, economic freedom, and democracy and provide a concrete basis for assigning weights to the value of economic reform.

JEL codes: 120, 423, 441, 443

## **Introduction**

Increasing interdependence through globalization provides both a challenge and an opportunity. For developing and emerging market economies, globalization offers the prospect of increases in real per capita income through expanded international trade and investment. At the same time, successful integration in the global economy also poses increased levels of risk. These risks reflect changes in political, economic, financial, and environmental conditions. For many developing and emerging market economies, institutional innovation that can manage these risks is often neglected in the process of reform, with the result that the benefits of globalization are either weakened or negated, thus leading some to call for a return to a more autarkic model of development. In our view, a retreat to autarky is likely to increase even further the gaps in per capita income that now exist. Economic reform is thus essential, but the institutional choices that need to be addressed must first and foremost take into consideration the impact of risk. In this paper, we provide a model for the economic assessment of risk, and from which we provide estimates of the economic value of institutional reform.

## **Risk Management Innovations**

Risk exists in the presence of incomplete markets. To the extent that markets are incomplete, risk thus shows up in four broad institutional settings: financial and economic markets, political institutions, as well as in environmental quality. Economists have long recognized the importance of risk and have sought to develop ways to measure it and to develop tools for its management. Much of the progress in this area that has taken place is in financial risk management, particularly at the micro level (Bernstein, 1996). While financial contracts generally have had various default options, including the provision of insurance for losses, innovations in the field of finance have helped to make this task much more precise. These innovations include portfolio theory tools (Markowitz, 1952), along with the development of derivative contracts. The latter include in particular the option pricing models of Black and Scholes (1973), and Merton (1973).

At the macro level, risk management tools include measures that address interest rate stability, inflation, and balance of payments dynamics, including the pricing of sovereign debt instruments and country insurance contracts (Cordella and Yeyati, 2004; Canales-Kriljenko and Habermeier, 2004; Das, Quintyn, and Chenard, 2004; Lee, 2004; Schinasi, 2004; Shiller, 2003). However, while tools for pricing risk exist at the micro and macro levels for financial assets, they do not operate in all markets and do not cover all forms of risk, especially in developing and emerging country markets. The result is that the problem of incomplete markets is far from resolved.

Globalization is the process of opening up both domestic product and factor markets. The case for its role in raising per capita incomes is the standard principle of comparative advantage first stated by David Ricardo (1817), and since restated in any number of studies (Bhagwati, 2004; Easterly, 2002, 2001; Tokarick, 2004). What makes globalization problematic is that when factor market mobility exists and where risk is present, it is not obvious that expanded globalization will raise per capita incomes at rates that are expected. This has raised critiques of standard models of globalization (Stiglitz,

2002; Samuelson 2004; Mattoo and Subramanian, 2004). In turn, this debate has also turned on the relative importance of international aid versus private capital market flows, particularly to developing and emerging country markets (Sachs, 2004; Hansen and Tarp, 2001; Guillaumont and Chauvet, 2001; Burnside and Dollar, 2000

The literature on growth and globalization has been further expanded to address the role of democracy, particularly its effects on controlling for corruption (Huther and Shah, 2000; Jones, et.al. 2000; Knack, 2000). Barro (1999, 1998, 1996) finds that while democracy can be important, it is not as critical as other determinants such as an efficient pricing regime. This finding has been questioned for some areas (Boko, 2002). It leaves open the question of whether it is a necessary pre-condition for economic development or whether other variables such as the level of economic freedom are more important<sup>1</sup>.

In our view, much of the debate on globalization through international aid and democracy misses the important role that institutions play in the management of risk (Arestis and Basu, 2003; Obstfeld, 1994; Shaw, 1973, McKinnon, 1973). In placing emphasis on the measurement of risk and the choice of tools for its management, globalization can make important contributions to economic growth and development. However, for globalization to succeed, institutional innovation for effective governance is a necessary pre-requisite. This is particularly true for developing and newly emerging market economies (Loukoianova and Unigovskaya, 2004). In this context, the role of institutional economics (Williamson, 2000, 1996) is central even though governance has only recently become a focus of globalization mechanisms (Gradstein, 2003; Kaufmann et. al. 2002, 1999a, 1999b; North, 1990; Olsen, 1982).

Risk generally is measured in terms of some level of volatility of an asset. While the standard deviation of the volatility provides an absolute measure, relative risk is usually measured in terms of the coefficient of variation. Yet if markets are substantially incomplete, capturing the underlying level of risk will be imperfect at best. In the presence of such incomplete markets, risk has a negative effect on the level of income. To the extent that it does, then, there is a value to estimating the determinants of risk, and which may well be reflected in the level of transparency and credibility of institutions that frame the contractual environment.

### **An Institutional Model of Risk**

Given the importance of risk to economic growth, and given the absence of suitable risk instruments that can capture its various dimensions, we pose the question of whether one can utilize a risk proxy to explain differential levels of per capita income. In turn, with such a proxy, we also examine the determinants of risk so that one can assess the effects of changes in the institutional environment on the level of per capita income. We do so in this section, and from which we provide a measure of the value of institutional reform.

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<sup>1</sup> The question acquired a broader framework with Fareed Zakaria's 1997, essay, "The Rise of Illiberal Democracy," *Foreign Affairs*, 76:6 (November-December), 22-43, and restated more recently in *The Future of Freedom* (New York: W.W. Norton, 2004).

At the macroeconomic level, some efforts have been undertaken to general indices of macroeconomic stability (IMF, 2004; Gasha and Morales, 2004; Worrell, 2004; Gilson, 2004). Many of the indices have been developed to determine the level of financial instability of an economy, particularly in response to such episodes as the East Asia financial crisis of 1997, and prior episodes in Central and Latin America, notably Mexico in 1984, and Argentina in 1982. Yet differences across countries have made it difficult to apply some of the indices as effective predictors of future financial crises.

It is not just the heterogeneity of past episodes that make it difficult to model risk. It also is that most of the indicators have been limited largely to financial instability rather than take into consideration other sources of risk in an economy. To address this problem, we therefore have turned to an alternative indicator of risk, namely, the aggregate country risk index as reported by the Country Risk Group in the World Bank's World Development Reports. This index is not generally a traded asset and serves as a proxy to alternative measures of risk, including sovereign credit ratings. It consists of assessments of political, financial, economic, and environmental risk, and is designed to reflect an aggregate level of risk rather than an industry or asset-specific measure.

To illustrate the importance of risk, we use panel regression estimates for a sample of 103 countries for 1980-2002 in two simple initial models. Panel regression models take the following general form:

$$(1) Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}, \text{ for } i = 1, 2, \dots, N, \text{ and } t = 1, 2, \dots, T, \text{ where:}$$

$N$  is the number of cross-section units and  $T$  is the number of time periods.

Because there are aggregation problems within panels, we do not use a pooled regression model and rely instead either on an ordinary panel regression estimate, or on a fixed effects model<sup>2</sup>. In a fixed effects model, dummy variables enable the intercept term to vary over time and over cross-section units. For a fixed effects model, we write:

$$(2) Y_{it} = \alpha + \beta X_{it} + \gamma_2 W_{2t} + \gamma_3 W_{3t} + \dots + \gamma_n W_{nt} + \delta_2 Z_{i2} + \delta_3 Z_{i3} + \dots + \delta_T Z_{iT} + \varepsilon_{it}, \text{ where:}$$

$$W_{it} = \begin{cases} 1 & \text{for the } i\text{th individual, } i = 2, \dots, N \\ 0 & \text{otherwise} \end{cases}$$

$$Z_{it} = \begin{cases} 1 & \text{for the } i\text{th time period, } i = 2, \dots, N \\ 0 & \text{otherwise} \end{cases}$$

First, for a given panel, we write the level of per capita GDP as a function of two key variables, namely, a country's rate of national saving and its level of trade dependency:

$$(1) \text{PPRPCGDP} = f(\text{GNSGDP}, \text{TRDEP}),$$

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<sup>2</sup> Our reason for relying on the fixed rather than the random effects or pooled estimate model is that for developed countries there is no international aid ratio.

In turn, we then factor in the ICRG aggregate country risk index to determine the importance of risk in explaining the level of per capita GDP:

$$(2). \text{PPRPGDP} = f(\text{GNSGDP}, \text{TRDEP}, \text{RCCRISK})$$

Results for these two initial equations are given in tables 1 and 2 for a global sample, and sub-samples for Africa, Asia, East Europe, West Europe, the Middle East and North Africa, and Central and Latin America. As can be seen, when risk is taken explicitly into account, it works adversely on the level of per capita real GDP. Given the significance of risk, we choose to include the ICRG index as a determinant of real per capita income. However, we also are interested in the determinants of risk, which we further develop in two separate sub-models, and then incorporate the estimated level of risk on a sample's rate of national savings and its level of trade dependency. This framework will permit us to examine the economic value of institutions that determine a given level of risk through the estimated effects on the level of per capita income that operate on a country's rate of national saving and its level of trade dependency.

Table 1

PPRPGDP	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
C	5773.6840	471.3547	2289.3310	3384.6140	11925.0700	3208.7640	4352.1520
GNSGDP	5.6279	55.6112	27.3139	126.8943	220.4064	44.2231	7.6255
	(3.5294)	(17.2381)	(4.1156)	(11.3665)	(4.7581)	(4.4849)	(3.2407)
TRDEP	19.6851	6.3335	36.3898	20.3131	38.9697	1.1199	5.9010
	(10.0882)	(5.4097)	(16.6977)	(7.3372)	(6.8167)	(0.3330)	(4.4318)
Adj. R-Squared	0.9656	0.5738	0.8983	0.6891	0.8254	0.7428	0.9793
F-statistic	640.4054	464.7979	188.9702	280.2423	9222.6464	398.2049	1024.92
Granger 2-lag test							
GNSGDP	9.7873	21.3251	9.5331	0.0593	4.0557	3.1841	5.0353
Pr	0.0000	0.0000	0.0001	0.9425	0.0181	0.0431	0.0070
TRDEP	33.7893	26.0789	1.8583	10.7656	15.6435	5.1298	1.3387
Pr	0.0000	0.0000	0.1579	0.0000	0.0000	0.0066	0.2635

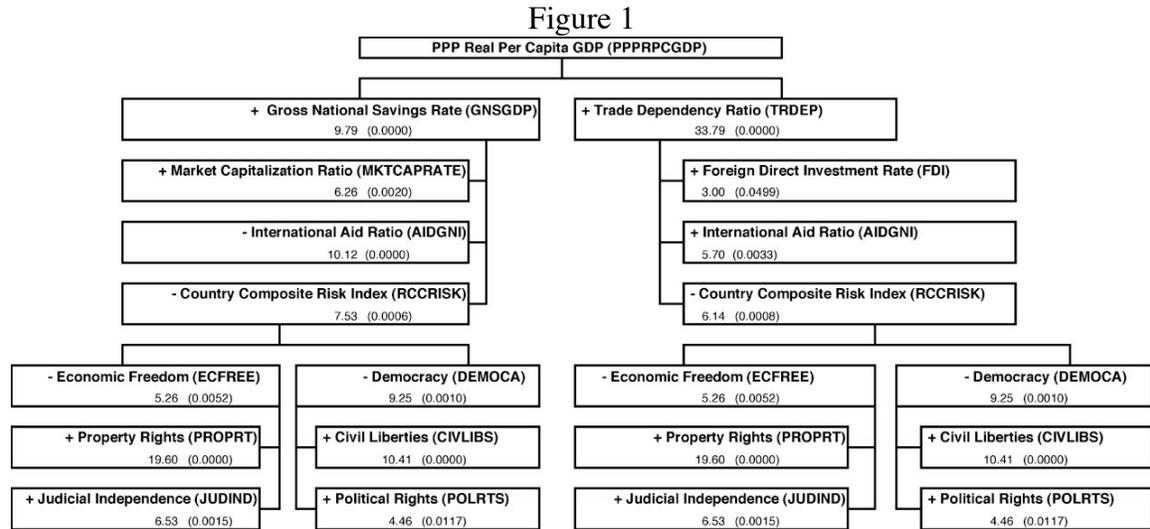
Table 2

PPRPGDP	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
C	6403.1290	1834.5860	2968.1430	7995.5250	20109.7900	7874.4400	5401.2360
GNSGDP	3.0954	53.2853	21.0913	114.6346	160.7002	16.5584	3.7217
	(1.1594)	(15.7805)	(2.7260)	(9.9965)	(4.2103)	(2.8287)	(1.1997)
TRDEP	18.4644	6.0435	34.8320	8.0662	33.7641	3.0873	0.4981
	(9.0286)	(4.6299)	(16.3602)	(2.6080)	(7.1136)	(0.9866)	(0.3296)
RCCRISK	-13.5974	-28.7966	-11.4117	-99.9562	-387.9944	-98.4798	-16.6096
	(12.4976)	(8.5593)	(3.6748)	(7.8227)	(18.0232)	(10.9969)	(10.0316)
Adj. R-Squared	0.9632	0.5534	0.9142	0.7456	0.8547	0.7689	0.9769
F-statistic	591.1167	285.5705	212.8083	247.1279	765.4428	37.60475	870.6361
Granger 2-lag test							
GNSGDP	9.7873	21.3251	9.5331	0.0593	4.0557	3.1841	5.0353
Pr	0.0000	0.0000	0.0001	0.9425	0.0181	0.0431	0.0070
TRDEP	33.7893	26.0789	1.8583	10.7656	15.6435	5.1298	1.3388
Pr	0.0000	0.0000	0.1579	0.0000	0.0000	0.0066	0.2635
RCCRISK	3.4225	8.7110	7.8114	3.8554	1.6913	0.1265	10.8720
Pr	0.0328	0.0002	0.0005	0.0226	0.1858	0.8813	0.0000

Using Granger causality tests, we construct a hierarchical model of the determinants of growth. Instead of savings and trade dependency alone, we look at separate determinants for these two variables. In this model, we find that savings depends on a country's rate of market capitalization, the level of international aid, as well as on the level of aggregate country risk. In turn, we find that the level of trade dependency depends on the foreign direct investment ratio, as well as on the level of international aid and aggregate country risk. In turn, we find that a country's level of aggregate country risk is a function of the underlying level of economic freedom and democracy, and that

these determinants depend in turn on the level of property rights, judicial independence, civil liberties, and political rights. Property rights, judicial independence, civil liberties, and political rights thus become the institutional variables that drive the level of aggregate country risk.

Figure 1 illustrates the structure of the model, and includes the directional sign that each determinant has on the respective variable. It also lists the Granger 2-lag causality F statistic for the global sample of countries. Granger causality tests and their nulls are reported in the individual sub-model tables.



For each variable the Granger 2-lag F-null test is shown, along with the corresponding probability level in parentheses. The sign adjacent to each variable indicates the expected direction of influence for each variable.

From the structure of Table 1, we can now write a set of nested panel regression equations as:

- (3).  $ECFREE = f(\text{PROPRT}, \text{JUDIND})$
- (4).  $DEMOCA = f(\text{CIVLIBS}, \text{POLRTS})$
- (5).  $RCCRISK = f(\text{ECFREE}^*, \text{DEMOCA}^*)$
- (6).  $GNSGDP = f(\text{MKTCAPRATE}, \text{AIDGNI}, \text{RCCRISK}^*)$
- (7).  $TRDEP = f(\text{FDIGDP}, \text{AIDGNI}, \text{RCCRISK}^*)$
- (8).  $PPRPCGDP = f(\text{GNSGDP}^*, \text{TRDEP}^*),$

where asterisks denote estimated values of variables that are then used in the hierarchical model.

What the model leaves open is the relative separate effects of international aid on a country's national saving rate and its level of trade dependency. In some cases, international aid may work adversely on a country's saving rate while increasing its level of trade dependency, effects which we would like to estimate separately to determine the net effects.

Data sources for the variables used in these regressions are listed in Appendix 1. In general, data on PPPRPCGDP, GNSGDP, TRDEP, MKTCAPRATE, FDIGDP, and AIDGNI derive from the World Bank sources. Economic freedom is based on the Freedom House estimates<sup>3</sup>. Our democracy index does not rely on the frequency and/or accuracy of elections, but instead is based on a composite of two indices, civil liberties and political rights, that are compiled and reported by Freedom House. Our definition of democracy is thus a synthetic index that we define as the product of these two sub-indices.

Results of the panel regression estimates for equations 3 through 8 are given in the following tables.

Table 3

DEMOCA	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
C	-14.7759	-8.6486	-15.1165	-8.6752	-41.9925	-6.4293	-21.5076
CIVLIBS	4.8145	2.4347	4.9891	1.7528	6.9999	2.2042	5.6048
	(62.0770)	(29.7386)	(28.3810)	(9.3322)	(41524.2600)	(107.2016)	(50.9047)
POLRTS	3.7724	4.0716	3.2460	5.5547	5.9989	3.1759	3.9673
	(61.5396)	(60.6153)	(26.1196)	(41.1315)	(3607.3620)	(120.1225)	(47.6880)
Adj. R-Squared	0.9814	0.9660	0.9821	0.9877	1.0000	0.9984	0.9888
F-statistic	62308.94	9777.094	8172.627	10085.83	104000000	86872.22	17198.48
Granger 2-lag test							
CIVLIBS	10.4132	4.5844	4.2917	4.1662	3.2166	0.0055	1.3497
Pr	0.0000	0.0106	0.0146	0.0167	0.0413	0.9946	0.2607
POLRTS	4.4605	1.4610	1.0376	1.8908	2.8779	4.9370	9.4579
Pr	0.0117	0.2328	0.3557	0.1533	0.0576	0.0079	0.0001

Table 4

ECFREE	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
C	0.2131	0.3839	1.6556	0.4844	1.4838	-0.5001	1.3392
PROPRT	0.5239	0.3612	0.0689	0.1941	0.1916	0.7378	0.2351
	(88.5494)	(23.7811)	(2.0321)	(5.8043)	(2.0388)	(2992.8550)	(15.2679)
JUDIND	0.0114	0.0433	0.0075	0.1864	0.0485	0.0096	0.0140
	(3.6604)	(5.0350)	(0.6603)	(6.9164)	(4.3503)	(26.8235)	(2.0253)
Adj. R-Squared	0.9940	0.9070	0.6957	0.9090	0.9986	1.0000	0.9763
F-statistic	196128.2	3361.421	341.6415	1258.97	6747.893	44984575	8036.637
Granger 2-lag test							
PROPRT	19.6025	3.7657	9.9859	0.4972	6.7653	0.8917	3.5643
Pr	0.0000	0.0237	0.0000	0.6089	0.0013	0.4113	0.0293
JUDIND	6.5283	0.1752	2.6212	0.7933	1.6128	0.1026	2.8387
Pr	0.0015	0.8393	0.0746	0.4536	0.2008	0.9025	0.0598

<sup>3</sup> The Index of Economic Freedom is based on an unweighted average of 10 factors, based on a compilation of 50 independent variables. The ten factors are: Trade policy, taxation, government intervention, monetary policy, capital flows and foreign investment, banking, wage and price controls, property rights, regulation, and blackmarket conditions. We use the direct property rights indicator and the judicial independence independent variable in this analysis.

Table 5

RCCRISK	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
C	<b>71.1234</b>	<b>63.1218</b>	<b>179.1100</b>	<b>53.2491</b>	<b>68.7392</b>	<b>47.8372</b>	<b>74.0592</b>
ECFREE*	<b>-15.5668</b>	<b>-8.7776</b>	<b>-74.1102</b>	<b>-9.7693</b>	<b>-12.0128</b>	<b>-6.0976</b>	<b>-12.3417</b>
	(45.2652)	(7.1406)	(16.9932)	(21.6962)	(51.8279)	(10.2397)	(3.2317)
DEMOCA*	<b>-0.1992</b>	<b>-0.3226</b>	<b>-0.0529</b>	<b>-0.1169</b>	<b>-0.3975</b>	<b>0.4223</b>	<b>-0.2324</b>
	(15.9724)	(10.7414)	(2.8673)	(18.5001)	(29.8371)	(4.6837)	(7.4849)
Adj. R-Squared	0.8474	0.8619	0.9540	0.9954	0.9888	0.9377	0.9470
F-statistic	6577.887	2150.546	442.6509	27040.94	15447.45	173.3827	1785.1245
Granger 2-lag test							
ECFREE	9.6882	1.3535	1.1914	3.1867	2.2151	1.9688	3.6263
Pr	0.0000	0.2591	0.3054	0.0432	0.1107	0.1418	0.0276
DEMOCA	8.7296	1.1429	0.1702	5.5335	0.6524	1.8033	1.7265
Pr	0.0002	0.3196	0.8436	0.0045	0.5214	0.1669	0.1794

Table 6

GNSGDP	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
C	<b>17.6765</b>	<b>25.8906</b>	<b>27.6272</b>	<b>28.9924</b>	<b>22.6831</b>	<b>21.4470</b>	<b>27.6595</b>
MKTCAPRATE	<b>0.0319</b>	<b>0.0443</b>	<b>0.0491</b>	<b>0.0834</b>	<b>0.0243</b>	<b>0.1195</b>	<b>0.0205</b>
	(4.9370)	(5.1973)	(5.3975)	(5.9646)	(6.7806)	(1.9669)	(1.2802)
AIDGNI	<b>-0.0619</b>	<b>-0.2378</b>	<b>-1.0126</b>	<b>-1.0957</b>		<b>0.5270</b>	<b>-0.5035</b>
	(1.9019)	(7.9411)	(8.4427)	(14.4232)		(2.0683)	(8.3397)
RCCRISK*	<b>-0.0443</b>	<b>-0.2590</b>	<b>-0.0564</b>	<b>-0.2164</b>	<b>-0.0770</b>	<b>-0.1240</b>	<b>-0.2578</b>
	(5.9102)	(5.4944)	(7.3261)	(5.0141)	(2.5914)	(2.0773)	(3.2347)
Adj. R-Squared	0.9207	0.5150	0.7667	0.9925	0.9399	0.8395	0.6484
F-statistic	261.5727	244.8666	302.1753	11082.35	3048.806	40.94597	240.7221
Granger 2-lag test							
MKTCAPRATE	6.2582	0.1267	0.8396	0.8132	0.6793	0.3686	1.3163
Pr	0.0020	0.8810	0.4330	0.4447	0.5076	0.6921	0.2694
AIDGNI	10.1182	2.9757	0.6028	14.4842		1.2987	7.3970
Pr	0.0000	0.0517	0.5481	0.0000		0.2747	0.0007
RCCRISK*	7.5267	0.5686	0.1144	2.9187	0.3924	2.5406	4.5795
Pr	0.0006	0.5666	0.8919	0.0560	0.6758	0.0809	0.0109

Table 7

TRDEP	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
C	<b>93.4835</b>	<b>62.1355</b>	<b>62.1322</b>	<b>149.6690</b>	<b>155.7017</b>	<b>69.6753</b>	<b>137.4104</b>
AIDGNI	<b>0.5997</b>	<b>0.1115</b>	<b>0.8344</b>	<b>-0.2136</b>		<b>0.9556</b>	<b>1.3901</b>
	(9.3314)	(1.7710)	(2.7682)	(3.9195)		(2.7645)	(59.2363)
FDIGDP	<b>1.1728</b>	<b>2.8952</b>	<b>9.5301</b>	<b>5.3908</b>	<b>0.3136</b>	<b>2.0989</b>	<b>0.4594</b>
	(3.4115)	(7.1901)	(15.1042)	(21.5471)	(13.6097)	(4.1408)	(8.9224)
RCCRISK*	<b>-0.8385</b>	<b>-0.2187</b>	<b>-0.5017</b>	<b>-2.4600</b>	<b>-4.4360</b>	<b>-0.2517</b>	<b>-2.1307</b>
	(5.1283)	(1.9360)	(19.7154)	(17.8955)	(144.0787)	(4.1422)	(45.2431)
Adj. R-Squared	0.8618	0.7311	0.7631	0.9858	0.9909	0.9638	0.9959
F-statistic	1979.993	753.9477	296.3336	5842.221	21243.27	524.3222	31949.55
Granger 2-lag test							
AIDGNI	5.7457	0.2989	1.9006	7.6113		0.2977	0.4335
Pr	0.0033	0.7417	0.1517	0.0006		0.7428	0.6486
FDIGDP	3.0024	0.0578	3.4810	2.8114	0.5179	3.0686	0.8649
Pr	0.0499	0.9438	0.0322	0.0622	0.5962	0.0483	0.4220
RCCRISK	6.1354	2.2126	1.8546	6.3325	0.6155	1.1604	0.2653
Pr	0.0022	0.1103	0.1585	0.0021	0.5410	0.3151	0.7671

### Estimates of the Economic Value of Institutions

From our nested panel regressions, we now turn to our estimates of the economic value of institutions. In our model, property rights and judicial independence determine the level of economic freedom, while in turn, civil liberties and political rights determine the level of democracy. We derive estimates of changes in these institutional variables through the nested effects that these variables have on a country's level of aggregate country risk, and in turn, on its rate of saving and trade dependency, and then on the level of PPP per capita GDP.

Our estimates proceed in several steps. First is to determine the difference in PPP per capita income from a 1 point increase in the corresponding index of an institutional variable. We then use the real rate of interest to derive the present value of a one point

increase in each institutional variable. Finally, we estimate the relative change in per capita income through both a one-year change in per capita income and on the present value of per capita income. For purposes of comparisons we use change in the estimated value of real per capita GDP for 2002. Results of all four estimates are summarized below.

Table 8  
The Economic Value of a One Point Increase in Each Institutional Variable

	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
PROPRT	\$145.64	\$50.22	\$107.27	\$144.69	\$437.03	\$26.04	\$47.94
JUDIND	\$3.16	\$6.03	\$11.76	\$138.93	\$110.55	\$0.34	\$2.86
CIVLIBS	\$18.72	\$12.45	\$7.59	\$15.18	\$528.29	-\$5.35	\$21.50
POLRTS	\$14.67	\$20.82	\$4.94	\$48.11	\$452.75	-\$7.71	\$15.22
AIDGNI	-\$0.35	-\$13.23	-\$27.66	-\$139.04	\$0.00	\$23.30	-\$3.84

Table 9  
Present Value of a One Point Increase in Each Institutional Variable

	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
PROPRT	\$1,578.40	\$428.26	\$1,684.85	\$3,094.75	\$11,948.48	\$454.22	\$252.09
JUDIND	\$34.23	\$51.39	\$184.65	\$2,971.57	\$3,022.47	\$5.88	\$15.04
CIVLIBS	\$202.86	\$106.18	\$119.22	\$324.69	\$14,443.48	-\$93.32	\$113.06
POLRTS	\$158.95	\$177.56	\$77.56	\$1,029.00	\$12,378.15	-\$134.46	\$80.03
AIDGNI	-\$3.77	-\$112.78	-\$434.42	-\$2,973.79	\$0.00	\$406.48	-\$20.19

Table 10  
Relative Value of a One Point Increase in Each Institutional Variable

	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
PROPRT	2.05%	3.50%	2.33%	1.93%	2.20%	0.65%	1.00%
JUDIND	0.04%	0.42%	0.26%	1.85%	0.56%	0.01%	0.06%
CIVLIBS	0.26%	0.87%	0.17%	0.20%	2.66%	-0.13%	0.45%
POLRTS	0.21%	1.45%	0.11%	0.64%	2.28%	-0.19%	0.32%
AIDGNI	0.00%	-0.92%	-0.60%	-1.85%	0.00%	0.58%	-0.08%

Table 11  
Relative Value of a One Point Change in the Present Value in Each Institutional Variable

	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
PROPRT	22.19%	29.83%	36.64%	41.24%	60.20%	11.30%	5.27%
JUDIND	0.48%	3.58%	4.02%	39.60%	15.23%	0.15%	0.31%
CIVLIBS	2.85%	7.40%	2.59%	4.33%	72.77%	-2.32%	2.36%
POLRTS	2.23%	12.37%	1.69%	13.71%	62.36%	-3.35%	1.67%
AIDGNI	-0.05%	-7.86%	-9.45%	-39.63%	0.00%	10.11%	-0.42%

### Policy Implications

Our estimates provide a framework within which to determine the economic value of institutions. Policy reforms that strengthen a country's level of property rights and judicial independence can increase its level of per capita through a corresponding reduction in the level of aggregate country risk. This is also true for expanding the level of democracy via increases in civil rights and political liberties. However, the impacts vary across regions and suggest that there is a hierarchy to a sequence of proposed reforms.

From our estimates, we note that for our global sample, strengthening property rights has a greater positive effect on the level of per capita income than does an increase in civil liberties and political rights. This is not to suggest that a democratic political system is inconsistent with a globalization model built on expanding levels of per capita income.

Rather it reflects debates about illiberal democracy in which an expansion of democracy per se may not be as effective in raising per capita incomes as strengthening the underlying institutions that more directly affect the underlying level of risk. It is not a brief for postponing democratic incentives but simply puts a metric value on the relative contributions of economic freedom and democracy in shaping which will produce a greater effect on risk, and thus a country's level of per capita income.

Strengthening a country's property rights, judicial independence, civil liberties and political rights does not work evenly across our sample of countries. We find that property rights dominate other institutional variables in determining a country's level of aggregate country risk. As to international aid, we find mixed effects by sample and by type of influence. With the exception of Middle East and North African countries, international aid generally reduces a country's rate of national saving. This is not surprising, given that international aid can create moral hazard by reducing incentives for national saving. However, as general as this finding is, it does not distinguish among forms of aid, notably whether aid consists of loans or grants, or by source of funding, such as bilateral or multilateral funding. Our primary purpose is to recognize that where aid is concerned, it may often be driven as much by political as economic considerations, and thus tends to be less effective than it could, a finding consistent with the general literature.

In terms of trade dependency, international aid generally works to strengthen trade dependency, which would be consistent with raising levels of per capita income. Again, we find the opposite result in the case of our Middle East and North Africa sample. Taken together, then, the net effect of international aid is that it tends to reduce a country's rate of saving while increasing its trade dependency, but the net effect is generally negative except in the sample of Middle East and North African countries where it shows a positive effect. The general implication is that international aid can have a positive effect on a country's level of per capita GDP, but as long as political criteria outweigh economic ones, it may be less effective than efforts to strengthen institutions that reduce the level of aggregate country risk.

By adding the separate effects of the determinants of economic freedom and democracy we find that with the exceptions of Africa, West Europe, and Central and Latin American countries, economic freedom adds more to a country's level of per capita income than does an increase in democracy. We also note that we undertook separate panel regressions on the effect of international aid on democracy and economic freedom and found that it has a small positive effect on democracy but a generally negative effect on economic freedom, suggesting that political criteria are more important than economic ones in determining international aid levels.

Table 12  
Net Effects of an Increase in Economic Freedom and Democracy  
on Per Capita GDP

	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
Economic Freedom	\$148.80	\$56.25	\$119.03	\$283.63	\$547.58	\$26.38	\$50.80
Democracy	\$33.39	\$33.28	\$12.53	\$63.29	\$981.04	-\$13.06	\$36.72
AIDGNI	-\$0.35	-\$13.23	-\$27.66	-\$139.04	\$0.00	\$23.30	-\$3.84

The effect of economic freedom is derived from the sum of the separate increases of a one point change in property rights and judicial independence. The democracy effect is derived from the separate one point increase effects in civil liberties and political rights. The international aid ratio is included for purposes of comparison.

Table 13  
Present Value of Net Effects of an Increase in Economic Freedom and Democracy  
on Per Capita GDP

	Global	Africa	Asia	E.Europe	W.Europe	MENAf	CLAm
Economic Freedom	\$1,612.63	\$479.65	\$1,869.50	\$6,066.31	\$14,970.95	\$460.10	\$267.13
Democracy	\$361.81	\$283.74	\$196.78	\$1,353.69	\$26,821.63	-\$227.79	\$193.09
AIDGNI	-\$3.77	-\$112.78	-\$434.42	-\$2,973.79	\$0.00	\$406.48	-\$20.19

## Conclusion

We have provided evidence of the role of risk in determining a country's level of per capita income. Measures to expand international trade and investment will produce positive effects on per capita income if countries also embrace institutional reforms that strengthen property rights, judicial independence, in concert with an expansion of democracy. International aid, which often has been driven by political criteria, has historically produced generally negative effects on per capita income. If international aid is to serve as a tool for successful globalization, it needs to be crafted in ways that strengthen risk management institutions.

Secondly, we find that economic freedom carries stronger weight in raising per capita incomes than the level of democracy. This is not to say that measures to promote an expansion of democracy have no positive effects, but that economic reforms that strengthen property rights and judicial independence will produce stronger effects on per capita income. This finding is consistent with ongoing studies regarding the level of governance as a precondition for expanding per capita income (Kaufmann and Kraay, 2004).

**Table A1**  
**Descriptive Statistics**  
**(global sample)**

	PPPRPCGDP	GNSGDP	TRDEP	MKTCAPRATE	FDIGDP	AIDGNI	RCCRISK
Mean	7168.35	18.28	65.62	24.23	2.19	5.53	37.00
Standard Error	155.42	0.21	0.74	0.84	0.08	0.19	0.31
Median	4417.55	18.99	57.66	8.32	0.98	2.02	37.50
Standard Deviation	7564.76	10.24	35.99	40.70	3.94	8.20	15.12
Kurtosis	2.57	1.53	4.17	21.57	47.73	16.36	-0.74
Skewness	1.59	-0.24	1.61	3.67	5.56	3.19	0.07
Jarque-Bera	1646.86	250.84	2736.45	51012.44	236096.50	24407.04	56.45
(Prob.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Range	53762.19	87.33	279.14	548.54	62.48	87.65	73.00
Minimum	438.61	-32.06	6.32	0.00	-6.87	-0.57	4.00
Maximum	54200.81	55.27	285.46	548.54	55.61	87.08	77.00
Count	2369.00	2369.00	2369.00	2369.00	2369.00	1909.00	2369.00

	ECFREE	DEMOCA	PROPRT	JUDIND	CIVLIBS	POLRTS	REALINRATE
Mean							
Standard Error	1.94	21.60	3.21	5.06	4.15	4.27	6.19
Median	0.01	0.23	0.02	0.04	0.04	0.05	0.63
Standard Deviation	1.92	16.00	3.00	4.73	4.00	4.00	5.72
Kurtosis	0.67	17.17	1.05	1.88	1.89	2.22	30.62
Skewness	-0.21	1.63	-0.64	-0.28	-1.18	-1.53	231.46
Jarque-Bera	-0.21	0.37	0.20	0.68	0.01	-0.10	11.36
(Prob.)	22.04	240.69	57.05	188.37	137.37	233.72	5316890.00
Range	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Minimum	3.35	48.00	4.00	8.65	6.00	6.00	887.94
Maximum	0.05	1.00	1.00	1.15	1.00	1.00	-98.15
Count	3.40	49.00	5.00	9.80	7.00	7.00	789.80
	2369.00	2369.00	2369.00	2369.00	2369.00	2369.00	2369.00

**Table A2**  
**Variable Definitions and Sources**

<b>Variable</b>	<b>Definition</b>	<b>Source:</b>
PPPRPCGDP	Purchasing Power Parity Real Per Capita GDP	World Development Indicators, the World Bank
GNSGDP	Gross National Saving Rate	World Development Indicators, the World Bank
TRDEP	Trade Dependency	World Development Indicators, the World Bank
MKTCAPRATE	Market Capitalization Ratio	World Development Indicators, the World Bank
FDIGDP	Foreign Direct Investment to GDP Ratio	World Development Indicators, the World Bank
AIDGNI	International Aid to Gross National Income Ratio	World Development Indicators, the World Bank
RCCRISK	Revised Country Composite Risk Index*	International Country Risk Group, as reported in World Development Indicators
ECFREE	Index of Economic Freedom	Index of Economic Freedom
DEMOCA	Derived Democracy Index**	Freedom House
PROPRT	Index of Property Rights	Index of Economic Freedom
JUDIND	Index of Judicial Independence	Index of Economics Freedom
CIVLIBS	Index of Civil Liberties	Freedom House
POLRTS	Index of Political Rights	Freedom House
REALINRATE	Real Interest Rate	World Development Indicators, the World Bank

\*For consistency, the scale is inverted in the present model  
\*\*Based on the product of the civil liberties and political rights indices

Table A3  
Panel Sample of Countries

Global	Africa	Asia	E.Europe	W.Europe	MEN.Africa	C.L.America
Africa	Benin	Bangladesh	Albania	Austria	Iran	Belize
Asia	Botswana	China	Bulgaria	Belgium	Lebanon	Costa Rica
E.Europe	Burkina Faso	India	Czech Republic	Denmark	Oman	El Salvador
W.Europe	C. Af. Republic	Indonesia	Estonia	Finland	Qatar	Guatemala
MEN.Africa	Cameroon	Japan	Hungary	France	Syria	Honduras
C.L.America	chad	Korea,Rep.	Latvia	Germany	Turkey	Nicaragua
United States	Congo D.R.	Malaysia	Lthuania	Greece	Yemen Rep.	Panama
Canada	Congo R.	Pakistan	Poland	Ireland	Egypt	Argentina
Mexico	Côte d'Ivoire	Philippines	Romania	Italy	Libya	Bolivia
	Ethiopia	Singapore	Slovakia	Luxembourg	Tunisia	Brazil
	Gabon	Sri Lanka	Russian Fed.	Netherlands	Algeria	Chile
	Ghana	Thailand		Norway	Morocco	Columbia
	Guinea	Vietnam		Portugal		Ecuador
	Kenya			Spain		Paraguay
	Madagascar			Sweden		Peru
	Malawi			Switzerland		Uruguay
	Mali			U.Kingdom		Venezuela
	Mauritania					
	Mauritius					
	Mozambique					
	Niger					
	Nigeria					
	Senegal					
	South Africa					
	Sudan					
	Tanzania					
	Togo					
	Uganda					
	Zambia					
	Zimbabwe					
103	30	13	11	17	12	17

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