



EUROPEAN CENTRAL BANK

EUROSYSTEM

ECB-PUBLIC

**DIRECTORATE GENERAL INTERNATIONAL AND
EUROPEAN RELATIONS**

INTLINK DATABASE

CODE BOOK

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<INTLINK DATABASE>

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<DATABASE ON INTERNATIONAL LINKS>
ACRONYMS

BIS	Bank for International Settlements
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
CPIS	Coordinated Portfolio Investment Survey
DOTS	Direction of Trade Statistics
EA	Euro Area
ECB	European Central Bank
EWN	External Wealth of Nations
IFS	International Financial Statistics
IMF	International Monetary Fund
MEI	Main Economic Indicators
OECD	Organisation for Economic Cooperation and Development
PPP	Purchasing Power Parity
S&P	Standard & Poor's
WDI	World Development Indicators
WGI	Worldwide Governance Indicators

1. INTRODUCTION

The International Linkages Database (Intlink) brings together *bilateral* data covering the financial and the real sectors and a set of gravity variables. The data are constructed with annual frequency and include 15 EA countries, 11 (non-EA) European countries and 24 non-European countries for the period 1970-2013 (See Table 1).

Variables are grouped into three main categories: (1) financial variables, (2) gravity variables, and (3) other macroeconomic variables. Financial variables are divided into financial account variables and banking variables. Gravity variables are divided in two groups: (i) factors indicating the supply and demand trading countries; and (ii) factors representing the constraints imposed on a trade flow between countries.

Monetary values of financial and real variables are in US dollars. Data are collected from the Bank for International Settlements (BIS), the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII), the International Monetary Fund (IMF), the Organisation for Economic Cooperation and Development (OECD), the United Nations, the World Bank, and the External Wealth of Nations (EWN) database.

TABLE 1 – LIST OF COUNTRIES

EA COUNTRIES	OTHER EUROPEAN COUNTRIES	NON-EUROPEAN COUNTRIES
Austria (122)	Bulgaria (918)	Argentina (193)
Belgium (124)	Croatia (960)	Australia (213)
Estonia (939)	Czech Republic (935)	Brazil (223)
Finland (172)	Denmark (128)	Canada (156)
France (132)	Hungary (944)	China (924)
Germany (134)	Latvia (941)	Chile (228)
Greece (174)	Lithuania (946)	Hong Kong (532)
Ireland (178)	Poland (964)	India (534)
Italy (136)	Romania (968)	Indonesia (536)
Luxembourg (137)	Sweden (144)	Israel (436)
Netherlands (138)	United Kingdom (112)	Japan (158)
Portugal (182)		Malaysia (548)
Slovakia (936)		Mexico (273)
Slovenia (961)		Pakistan (564)
Spain (184)		Peru (293)
		Philippines (566)
		Russia (922)
		Saudi Arabia (456)
		South Africa (199)
		South Korea (542)
		Switzerland (146)
		Turkey (186)
		United States (111)
		Venezuela (299)

2. FINANCIAL VARIABLES

2.1 DIRECT INVESTMENT AND PORTFOLIO INVESTMENT

The source of data on inward and outward foreign direct investment (FDI) is the OECD “FDI flows by partner country” dataset. The dataset contains bilateral flows and stocks from 1981 to 2011 in USD millions. Data are missing for Argentina, Brazil, Bulgaria, China, Croatia, Hong Kong, India, Indonesia, Israel, Latvia, Lithuania, Malaysia, Pakistan, Peru, Philippines, Romania, Russia, Saudi Arabia, South Africa and Venezuela.

Data on portfolio investment holdings by partner are from the Coordinated Portfolio Investment Survey (CPIS) of the IMF. The CPIS covers year-end data for 1997 and from 2001 onwards. The breakdown by sector is available only for international investment position (IIP) assets, equity and debt securities and for a reduced group of countries, whereas no breakdown by sector is available for liabilities. Banks and other financial institutions are grouped under financial sector.

Data on (total) international investment position (portfolio investment, other investment and foreign-exchange reserves) are from the External Wealth of Nations database of Lane and Milesi-Ferretti (2011). The database contains data for the period 1970-2011.

TABLE 2 – FOREIGN DIRECT INVESTMENT AND PORTFOLIO INVESTMENT

VARIABLE NAME	DESCRIPTION	UNIT	SOURCE
Foreign Direct Investment			
<i>Outward</i>			
fdi_outward_flows	Total outward FDI of country <i>i</i> in country <i>j</i> (flows)	USD m ¹	OECD FDI
fdi_outward_flows_tot	Total outward FDI of country <i>i</i> (flows)	USD m	OECD FDI
fdi_outward_stocks	Total outward FDI of country <i>i</i> in country <i>j</i> (stock)	USD m	OECD FDI
fdi_outward_stocks_tot	Total outward FDI of country <i>i</i> (stock)	USD m	OECD FDI
<i>Inward</i>			
fdi_inward_flows	Total inward FDI of country <i>i</i> from country <i>j</i> (flows)	USD m	OECD FDI
fdi_inwards_flows_tot	Total inward FDI of country <i>i</i> (flows)	USD m	OECD FDI

¹ USD m = USD million

fdi_inward_stocks	Total inward FDI of country <i>i</i> from country <i>j</i> (stock)	USD m	OECD FDI
fdi_inwards_stocks_tot	Total inward FDI of country <i>i</i> (stock)	USD m	OECD FDI
IIP Portfolio Investment			
<i>Assets - equity</i>			
pt_assets_equity	IIP assets, portfolio investment, equity securities of country <i>i</i> in country <i>j</i>	USD m	IMF CPIS
<i>By sector</i>			
pt_assets_equity_monet	IIP assets, portfolio investment, equity securities of country <i>i</i> in country <i>j</i> , monetary authorities	USD m	IMF CPIS
pt_assets_equity_gov	IIP assets, portfolio investment, equity securities of country <i>i</i> in country <i>j</i> , government	USD m	IMF CPIS
pt_assets_equity_fin	IIP assets, portfolio investment, equity securities of country <i>i</i> in country <i>j</i> , financial sector	USD m	IMF CPIS
pt_assets_equity_non_fin	IIP assets, portfolio investment, equity securities of country <i>i</i> in country <i>j</i> , non-financial sector	USD m	IMF CPIS
<i>Total</i>			
pt_assets_equity_all	Total IIP assets, portfolio investment, equity securities of country <i>i</i> , all reporting countries	USD m	IMF CPIS
<i>Assets - debt</i>			
pt_assets_debt	IIP assets, portfolio investment, debt securities of country <i>i</i> in country <i>j</i>	USD m	IMF CPIS
<i>By sector</i>			
pt_assets_debt_gov	IIP assets, portfolio investment, debt securities of country <i>i</i> in country <i>j</i> , monetary authorities	USD m	IMF CPIS
pt_assets_debt_monet	IIP assets, portfolio investment, debt securities of country <i>i</i> in country <i>j</i> , government	USD m	IMF CPIS
pt_assets_debt_fin	IIP assets, portfolio investment, debt securities of country <i>i</i> in country <i>j</i> ,	USD m	IMF CPIS

	financial sector		
pt_assets_debt_non_fin	IIP assets, portfolio investment, debt securities of country <i>i</i> in country <i>j</i> , non-financial sector	USD m	IMF CPIS
Total			
pt_assets_debt_all	Total IIP assets, portfolio investment, debt securities of country <i>i</i> , all reporting countries	USD m	IMF CPIS
Liabilities			
pt_liab_equity	IIP liabilities, portfolio investment, equity securities of country <i>i</i> in country <i>j</i>	USD m	IMF CPIS
pt_liab_equity_all	Total IIP liabilities, portfolio investment, equity securities of country <i>i</i> , all reporting countries	USD m	IMF CPIS
pt_liab_debt	IIP liabilities, portfolio investment, debt securities of country <i>i</i> in country <i>j</i>	USD m	IMF CPIS
pt_liab_debt_all	Total IIP liabilities, portfolio investment, debt securities of country <i>i</i> , all reporting countries	USD m	IMF CPIS
IIP Portfolio Investment (Totals)			
iip	Total IIP of country <i>i</i>	USD m	EWN
iip_assets_tot	Total IIP assets of country <i>i</i>	USD m	EWN
iip_liab_tot	Total IIP liabilities of country <i>i</i>	USD m	EWN
pt_assets_equity_tot	Total IIP assets, portfolio investment, equity of country <i>i</i>	USD m	EWN
pt_liab_equity_tot	Total IIP liabilities, portfolio investment, equity of country <i>i</i>	USD m	EWN
assets_debt_tot	Total IIP assets, portfolio investment, and debt and other investment of country <i>i</i>	USD m	EWN
liab_debt_tot	Total IIP liabilities, portfolio investment, and debt and other investment of country <i>i</i>	USD m	EWN
fx_reserve_tot	Total foreign-exchange reserves minus gold of country <i>i</i>	USD m	EWN

BANKING

Data on international and foreign claims are from the BIS consolidated banking statistics dataset. Data are compiled both on an immediate risk basis (CBS/IR) and on an ultimate risk basis (CBS/UR) and cover the period 1983-2012.² Foreign claims are financial claims on non-residents of the reporting country. International claims are the sum of cross-border claims in any currency and local claims of foreign affiliates denominated in non-local currencies.

TABLE 3 – FOREIGN AND INTERNATIONAL CLAIMS

Claims on non-residents of the reporting country		
Cross-border claims booked by banking offices outside the counterparty country	Local claims booked by banking offices inside the counterparty country in foreign currency	Local claims booked by banking offices inside the counterparty country in local currency
(A)	(B)	(C)
Total foreign claims (A)+(B)+(C)		
Total international claims (A)+(B)		

Source: BIS 2013.

The breakdown by partner is available only for foreign banking claims, both on an immediate risk basis and an ultimate risk basis. The breakdown by sector is available for total foreign claims on an ultimate risk basis and for total international claims on an immediate risk basis. The breakdown by maturity is reported only for total international claims on an immediate risk basis. Data on foreign banking claims on an immediate risk basis by partner are missing for Argentina, Bulgaria, China, Croatia, Czech Republic, Estonia, Hong Kong, Hungary, India, Indonesia, Israel, Korea, Latvia, Lithuania, Luxembourg, Malaysia, Pakistan, Peru, Philippines, Poland, Romania, Russia, Saudi Arabia, Slovakia, Slovenia, South Africa and Venezuela. Data on foreign banking claims on an ultimate risk basis by partner are missing for the same countries (with the exception of India) and also for Brazil, Denmark and Mexico.

² Immediate risk basis: claims are allocated to the country of residence of the immediate counterparty; ultimate risk basis: claims are allocated to the country where the final risk lies. See *Guidelines for reporting the BIS international banking statistics*, Section C, BIS.

TABLE 4 – BANKING CLAIMS

VARIABLE NAME	DESCRIPTION	UNIT	SOURCE
<i>Foreign</i>			
foreign_claims_im	Foreign banking claims of country <i>i</i> on country <i>j</i> (immediate risk basis)	USD m	BIS
foreign_claims_ul	Foreign banking claims of country <i>i</i> on country <i>j</i> (ultimate risk basis)	USD m	BIS
<i>Total</i>			
tot_fclaims_im	Total foreign banking claims of country <i>i</i> (immediate risk basis)	USD m	BIS
tot_fclaims_ul	Total foreign banking claims of country <i>i</i> (ultimate risk basis)	USD m	BIS
<i>By sector</i>			
tot_fclaims_bank_ul	Total foreign banking claims of country <i>i</i> (ultimate risk basis), banks	USD m	BIS
tot_fclaims_pub_ul	Total foreign banking claims of country <i>i</i> (ultimate risk basis), public sector	USD m	BIS
tot_fclaims_priv_ul	Total foreign banking claims of country <i>i</i> (ultimate risk basis), private sector	USD m	BIS
<i>International</i>			
tot_iclaims_im	Total international banking claims of country <i>i</i> (immediate risk basis)	USD m	BIS
<i>By maturity</i>			
tot_iclaims_1year_im	Total international banking claims of country <i>i</i> (immediate risk basis), up to and including 1 year	USD m	BIS
tot_iclaims_2year_im	Total international banking claims of country <i>i</i> (immediate risk basis), 1 year to 2 years	USD m	BIS
tot_iclaims_over2_im	Total international banking claims of country <i>i</i> (immediate risk basis), over 2 years	USD m	BIS

By sector

tot_iclaims_bank_im	Total international banking claims of country <i>i</i> (immediate risk basis), banks	USD m	BIS
tot_iclaims_pub_im	Total international banking claims of country <i>i</i> (immediate risk basis), public sector	USD m	BIS
tot_iclaims_priv_im	Total international banking claims of country <i>i</i> (immediate risk basis), non-financial private sector	USD m	BIS

3. GRAVITY VARIABLES

3.1 FACTORS INDICATING SUPPLY AND DEMAND OF TRADING COUNTRIES

Data on aggregate exports and imports are from the Direction of Trade Statistics (DOTS) of the IMF. Data are available for 1970-2012. GDP (in USD and in local currency), GDP per capita (in USD and in local currency), population, surface area, consumption and gross capital formation are from the World Development Indicators of the World Bank, which cover the period 1970-2012. Total domestic demand is calculated by subtracting from GDP the foreign demand for domestic goods (exports) and by adding the domestic demand for foreign goods (imports).

TABLE 5 – GRAVITY VARIABLES

VARIABLE NAME	DESCRIPTION	UNIT	SOURCE
exports	Exports of country i to country j	USD m	IMF DOTS
exports_tot	Total exports of country i	USD m	IMF DOTS
imports	Imports of country i from country j	USD m	IMF DOTS
imports_tot	Total imports of country i	USD m	IMF DOTS
gdp_rep	GDP of (reporter) country i	USD m	World Bank WDI
gdp_par	GDP of (partner) country j	USD m	World Bank WDI
gdp_lc_rep	GDP of (reporter) country i	local curr m	World Bank WDI
gdp_lc_par	GDP per capita of (partner) country j	local curr m	World Bank WDI
gdppc_rep	GDP per capita of (reporter) country i	USD m	World Bank WDI
gdppc_par	GDP per capita of (partner) country j	USD m	World Bank WDI
gdppc_lc_rep	GDP per capita of (reporter) country i	local currency	World Bank WDI
gdppc_lc_par	GDP per capita of (partner) country j	local currency	World Bank WDI

population_rep	Population of (reporter) country <i>i</i>	thousands	World Bank WDI
population_par	Population of (partner) country <i>j</i>	thousands	World Bank WDI
surface_rep	Surface area of (reporter) country <i>i</i>	sq. km	World Bank WDI
surface_par	Surface area of (partner) country <i>j</i>	sq. km	World Bank WDI
cons_rep	Consumption expenditure of (reporter) country <i>i</i>	USD m	World Bank WDI
cons_par	Consumption expenditure of (partner) country <i>j</i>	USD m	World Bank WDI
gcf_rep	Gross capital (investment) formation of (reporter) country <i>i</i>	USD m	World Bank WDI
gcf_par	Gross capital (investment) formation of (partner) country <i>j</i>	USD m	World Bank WDI
demand_rep	Domestic demand of (reporter) country <i>i</i>	USD m	Authors' calculation

3.2 FACTORS REPRESENTING THE CONSTRAINTS IMPOSED ON A TRADE FLOW BETWEEN COUNTRIES

The distance variables are from the *dist_cepil* dataset of CEPII. Simple distances (*dist* and *distcap*) are calculated following the great circle formula, based on latitudes and longitudes of the most populated city of a country or of its official capital. Weighted distances (*distw* and *distwces*) are calculated using a generalised mean of city-to-city bilateral distances developed by Head and Mayer (2002), where the inter-city distances are weighted by the share of each city in the respective country's overall population (Mayer and Zignago (2011)). Language variables, colony variables, *contiguity* and *smctry* are also from the *dist_cepil* dataset of CEPII, whereas *landlocked* is from the *geo_cepil* dataset of CEPII.

Governance indicators (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption) are from the Worldwide Governance Indicators (WGI) dataset of the World Bank. The WGI dataset reports individual indicators from 1996 to 2011 for each dimension of governance. The six indicators are reported in their standard normal units, ranging from approximately -2.5 to 2.5, with values close to 2.5 corresponding to better outcomes.

Currency union, preferential trade agreements and customs union are calculated by the authors. We use the list of regional trade agreements in force compiled by the World Trade Organization's Regional Trade Agreements Information System (RTA-IS)³. We distinguish between preferential trade agreements covering both free trade agreements (FTAs) and customs unions (CUs), and preferential trade agreements covering only customs unions. Basic preferential trade agreements such as partial scope agreements (PSAs) are not included owing to the limited scope and depth of tariff reduction they involve.

TABLE 6 – GRAVITY VARIABLES

VARIABLE NAME	DESCRIPTION	UNIT	SOURCE
dist	Simple distance between the most populated cities		CEPII
distcap	Simple distance between capitals		CEPII
distw	Population-weighted distance		CEPII
distwces	Population-weighted distance, CES distances with theta=-1		CEPII

³ The list of RTAs is available at <http://rtais.wto.org/UI/PublicAllRTAList.aspx>

comlang_off	Set to 1 if countries share a common official language	CEPII
comlang_ethno	Dummy set to value 1 if a language is spoken by at least 9% of the population in both countries	CEPII
contiguity	Dummy set to value 1 if countries <i>i</i> and <i>j</i> are contiguous	CEPII
landlocked_rep	Dummy set to value 1 if (reporter) country <i>i</i> is landlocked, and 0 if not	CEPII
landlocked_par	Dummy set to value 1 if (partner) country <i>j</i> is landlocked, and 0 if not	CEPII
colony	Dummy set to value 1 if pairs have ever had a colonial link	CEPII
comcol	Dummy set to value 1 for pairs which have had a common coloniser in the period since 1945	CEPII
col45	Dummy set to value 1 for pairs which have had a colonial relationship in the period since 1945	CEPII
curcol	Dummy set to value 1 for pairs currently in a colonial relationship	CEPII
smctry	Dummy set to value 1 if countries were or are under the same state	CEPII
currency	Dummy set to value 1 if country <i>i</i> and country <i>j</i> share the same currency	Authors' calculation
pta	Dummy set to value 1 if country <i>i</i> and country <i>j</i> are members of the same preferential trade agreement (free trade agreements and customs unions)	Authors' calculation
customs_union	Dummy set to value 1 if country <i>i</i> and country <i>j</i> belong to the same customs union	Authors' calculation

voice_accountability	Voice and accountability	point estimate	World Bank WDI
political_stability	Political stability and absence of violence/terrorism	point estimate	World Bank WDI
gov_effectiveness	Government effectiveness	point estimate	World Bank WDI
regulatory_quality	Regulatory quality	point estimate	World Bank WDI
rule_law	Rule of law	point estimate	World Bank WDI
control_corrup	Control of corruption	point estimate	World Bank WDI

4. OTHER VARIABLES

Purchasing power parities (PPPs) and S&P Global Equity Indices are from the World Development Indicators (WDI) of the World Bank. PPPs are available for the period 1980-2012 and S&P Global Equity Indices from 1990 onwards.

The ten-year government bond yield data are from the Main Economic Indicators (MEI) database of the OECD. These data are missing for Argentina, Brazil, Bulgaria, China, Croatia, Estonia, Hong Kong, India, Indonesia, Latvia, Lithuania, Malaysia, Pakistan, Peru, Philippines, Romania, Saudi Arabia, and Venezuela. For almost half of the remaining countries, the ten-year government bond yield data are available only from 1990 onwards. The short-term interest rates are from the Economic Outlook of the OECD. Data are missing for Argentina, Brazil, Bulgaria, China, Croatia, Hong Kong, Latvia, Lithuania, Malaysia, Pakistan, Peru, Philippines, Romania, Russia, Saudi Arabia, South Africa, and Venezuela. For half of the remaining countries, the short-term interest rates are available from 1980 onwards.

Figures for GDP based on PPP (share of world total) are from the World Economic Outlook (WEO) of the IMF. Data are available for 1980-2012. Finally, the Consumer Price Index, exchange rates at the end of the period and average exchange rates are from the International Financial Statistics (IFS) database of the IMF. The Consumer Price Index is available for 1970-2012. Exchange rates at the end of the period and average exchange rates are not available for Bulgaria, China, Croatia, Czech Republic, Estonia, Hong Kong, India, Indonesia, Latvia, Lithuania, Malaysia, Pakistan, Philippines, Poland, Romania, Russia, Saudi Arabia, Slovakia or Slovenia.

TABLE 7 – OTHER VARIABLES

VARIABLE NAME	DESCRIPTION	UNIT	SOURCE
ppp	PPP conversion factor for GDP of country <i>i</i>	LCU per intern. \$ ⁴	World Bank WDI
sp_equity_index	S&P Global Equity Indices of country <i>i</i>		World Bank WDI
gov_bond_yield_10year	Ten-year government bond yield of country <i>i</i>		OECD MEI
interest_rate_short	Short-term interest rate of country <i>i</i>		OECD Outlook

⁴ Local currency unit per international \$

share_world_total	GDP based on PPP share of world total (%)	IMF WEO
consumer_price_index	Consumer Price Index of country <i>i</i> (2000=100)	IMF IFS
exchange_rates_end	Exchange rates of country <i>i</i> , US dollars per unit of national currency, end of period	IMF IFS
exchange_rates_av	Exchange rates of country <i>i</i> , US dollars per unit of national currency, average	IMF IFS

5. REFERENCES

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