INVESTMENT INSTITUTE

Natural resources, sovereign wealth funds and economic diversification

Malan Rietveld

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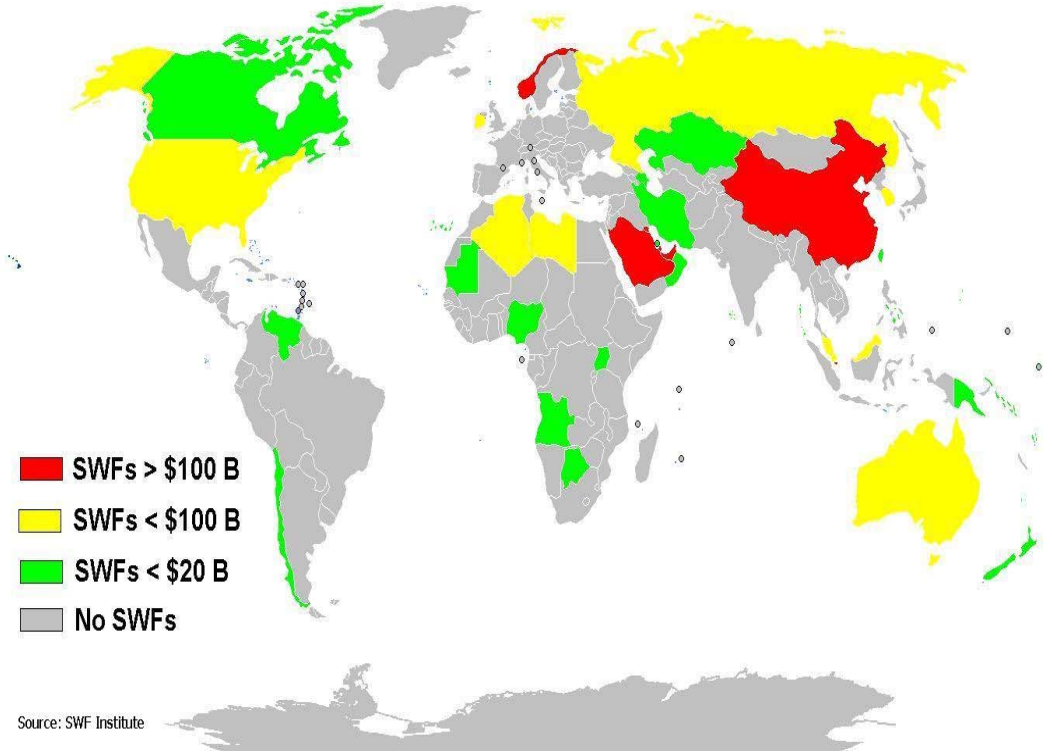
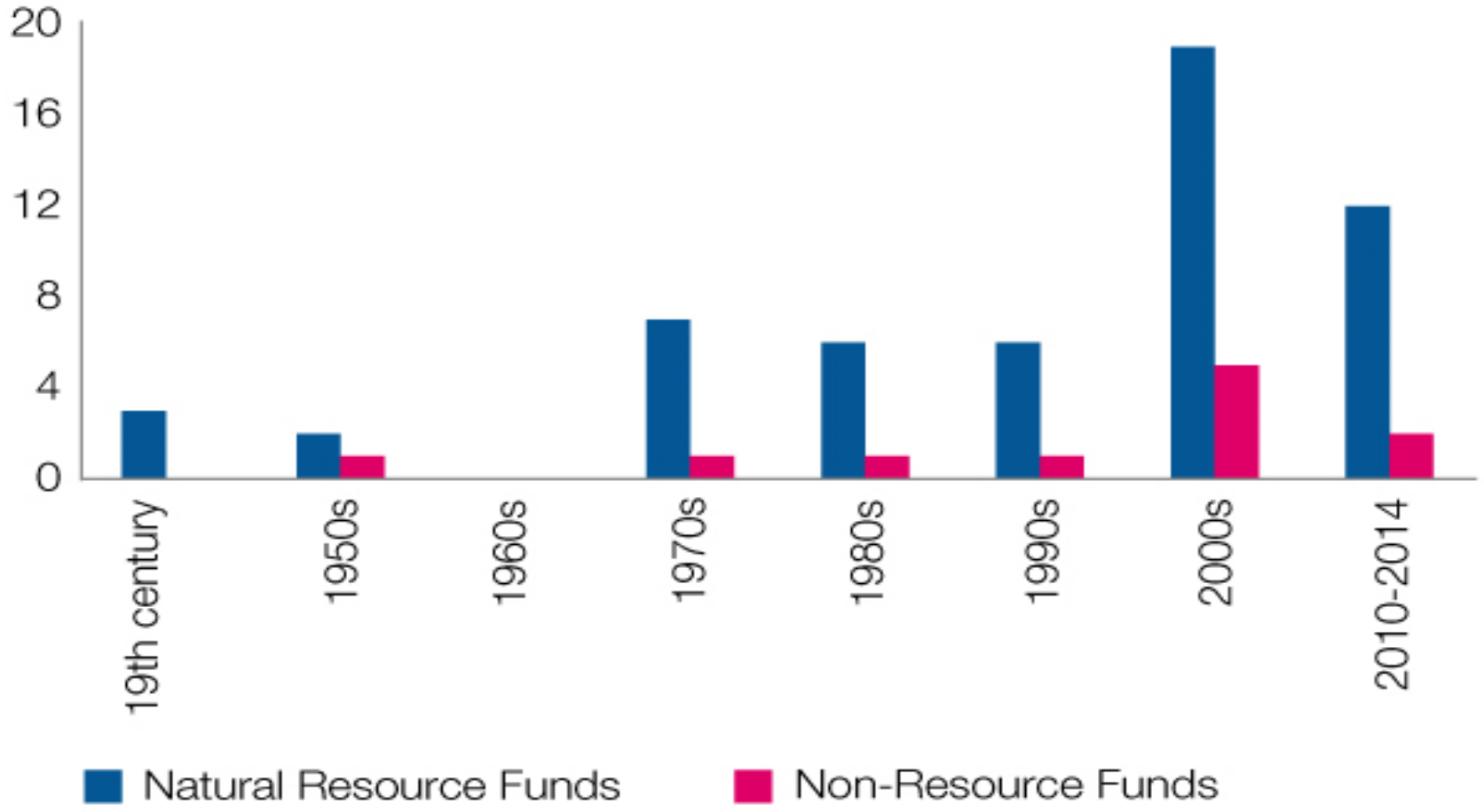
Investec
Asset Management

The growth of new SWFs

- A number of very established, large funds
  - Proliferation of new funds since 2000
- Aggregate assets-under-management of $4-6 trillion
- Massive economic diversity amongst countries with SWFs
  - Richest countries: Norway, Canada, US states
  - Poorest countries: East Timor, Papua New Guinea



The growth of new SWFs



Project background

HARVARD UNIVERSITY JOHN F. KENNEDY SCHOOL OF GOVERNMENT

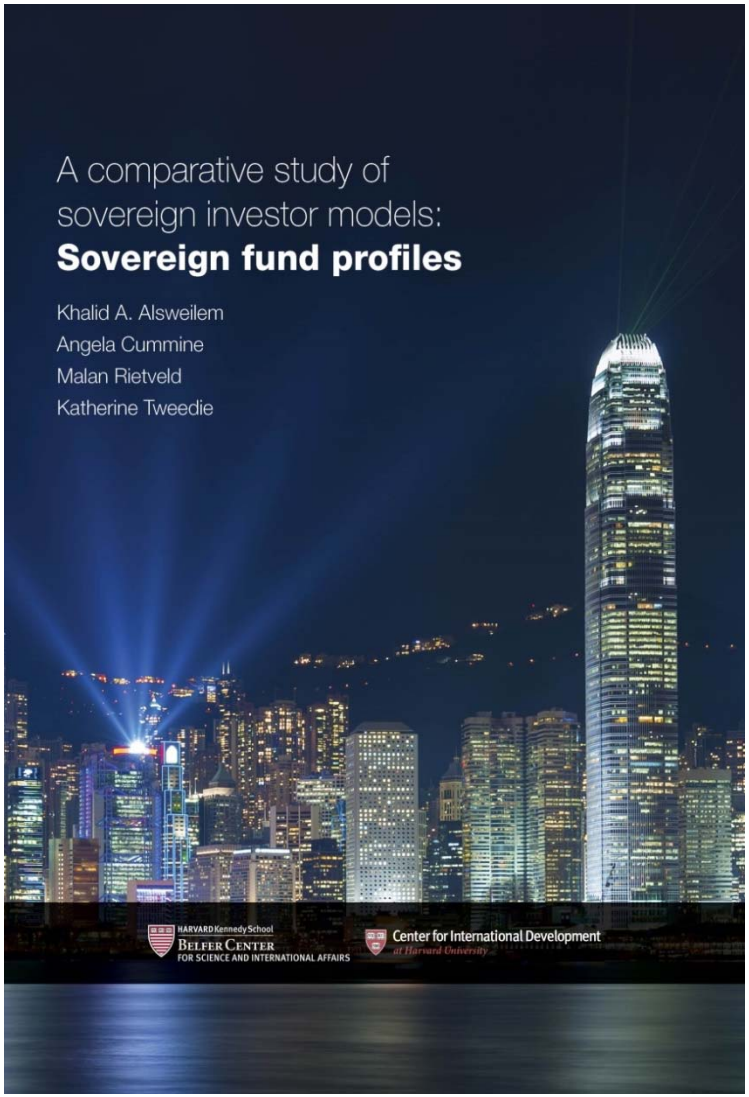
Who

- Research partnership between two centres at Harvard's Kennedy School of Government and the Investec Investment Institute
  - Center for International Development: led **by Prof. Ricardo Hausmann**
  - Dr. **Khalid Alsweilem**: Fellow at Belfer Center and former Director-General for Investments, Saudi Arabian Monetary Agency

How

- Macroeconomic model: developed with Harvard team for resource-based SWFs
- Case studies of governance of 15 leading sovereign funds
- Interviews and peer reviews with global SWF experts and practitioners

Report #1: Case studies



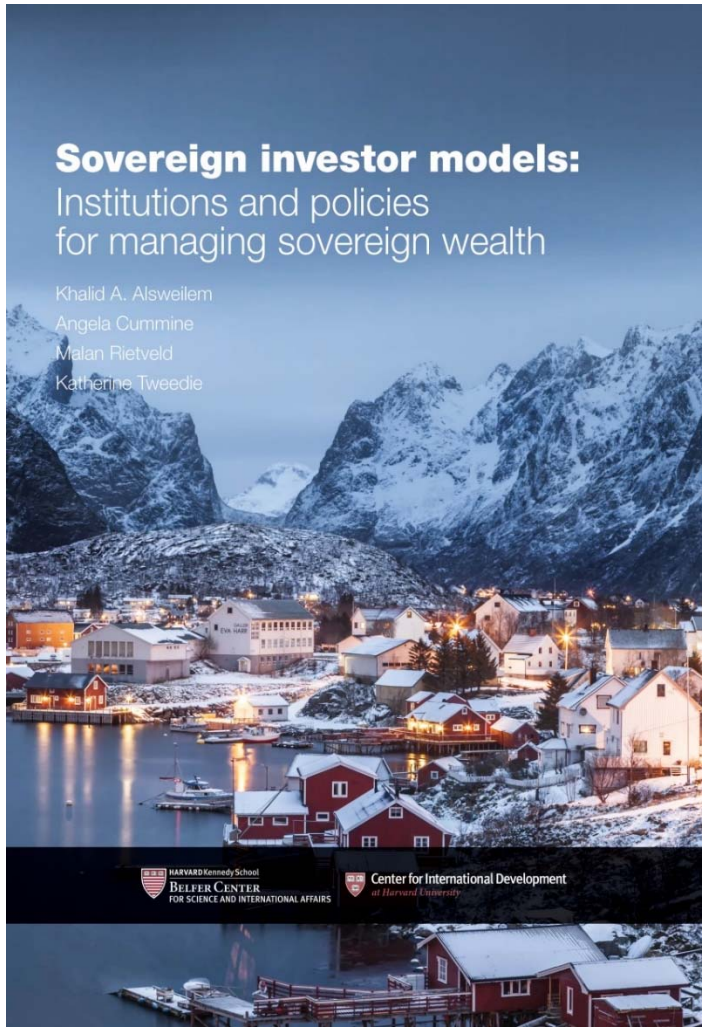
In-depth profiles of 15 sovereign investors

- Economic and political context
- Official mandate(s)
- Source of funding (savings rule)
- Liabilities (spending rule)
- Governance structure
- Investment style

Funds studied

- Norway
- Chile (stabilisation and saving funds)
- Abu Dhabi
- Kuwait
- Kazakhstan
- Botswana
- South Africa
- South Korea
- Hong Kong
- China (CIC & SAFE)
- Singapore (GIC & Temasek)
- Saudi Arabia

Report #2: Sovereign Investor Models



Defining sovereign investor universe

- Classic SWFs: stabilisation, savings and income (and sovereign development) funds
- Central banks
- Public-pension reserve funds
- Development banks and funds

Savings rules for resource-based SWFs

- Rule of thumb measures: suboptimal
- Better to have an integrated, rule-based framework

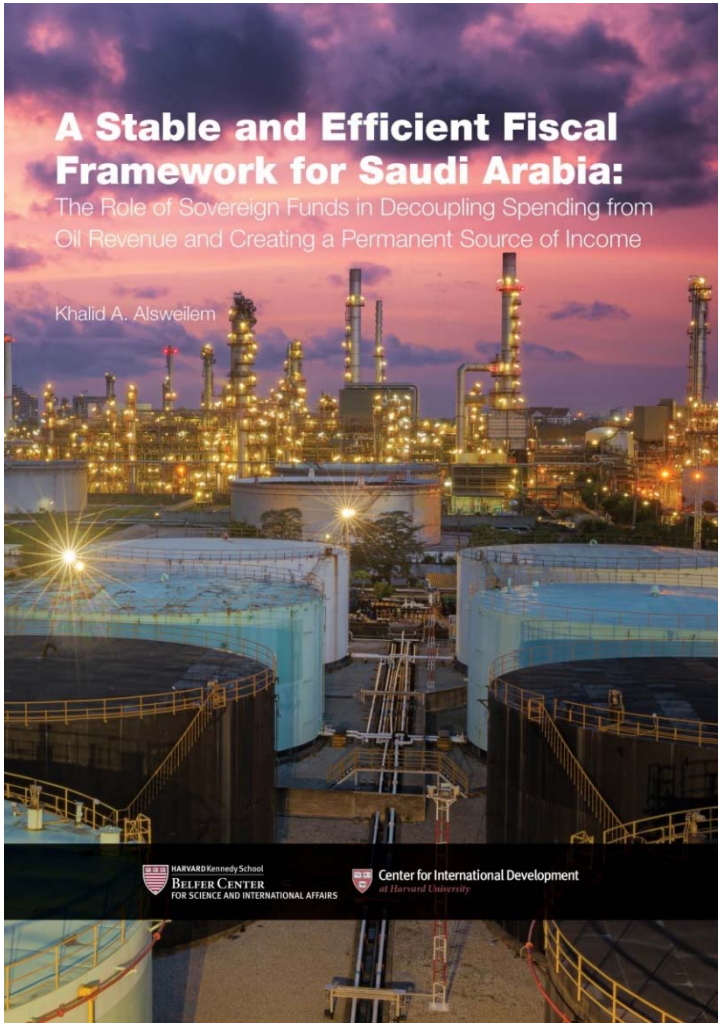
Model

- Rule-based framework for savings, spending and stabilisation

Governance and implementation

- Rules for resource-based SWFs
- The role and structure of the board
- Institutional positioning: arm's length independence, the central bank model, etc.

Report #3: Saudi report



Background

- World's largest oil producer
- Decades of (cheaply to extract) oil reserves
- $850bn in reserves

What on earth could go wrong?

- Oil dependence: high and rising
- Oil-driven volatility in revenue, debt and capital spending
- Reserves at risk as breakeven oil price rises
- Uncertain long-term oil-revenue trends
- Rising long-term spending pressure

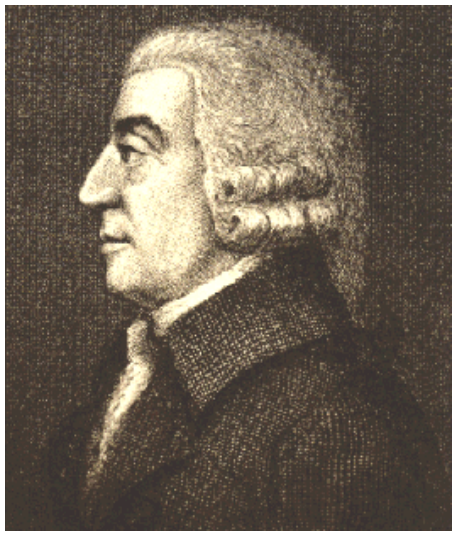
Asset accumulation was *ad hoc*

- Spending and saving decisions not anchored by a rule-based framework

Functions & Policy Frameworks for SWFs

Common functions of resource-based SWFs

The most disadvantageous lottery in the world – **Adam Smith**



Macroeconomic and fiscal stabilization

- Key objective is decoupling macroeconomics from commodities

Saving

- Offsetting a depleting asset/income source
- Unmanageably large windfall
- Creating a source of income

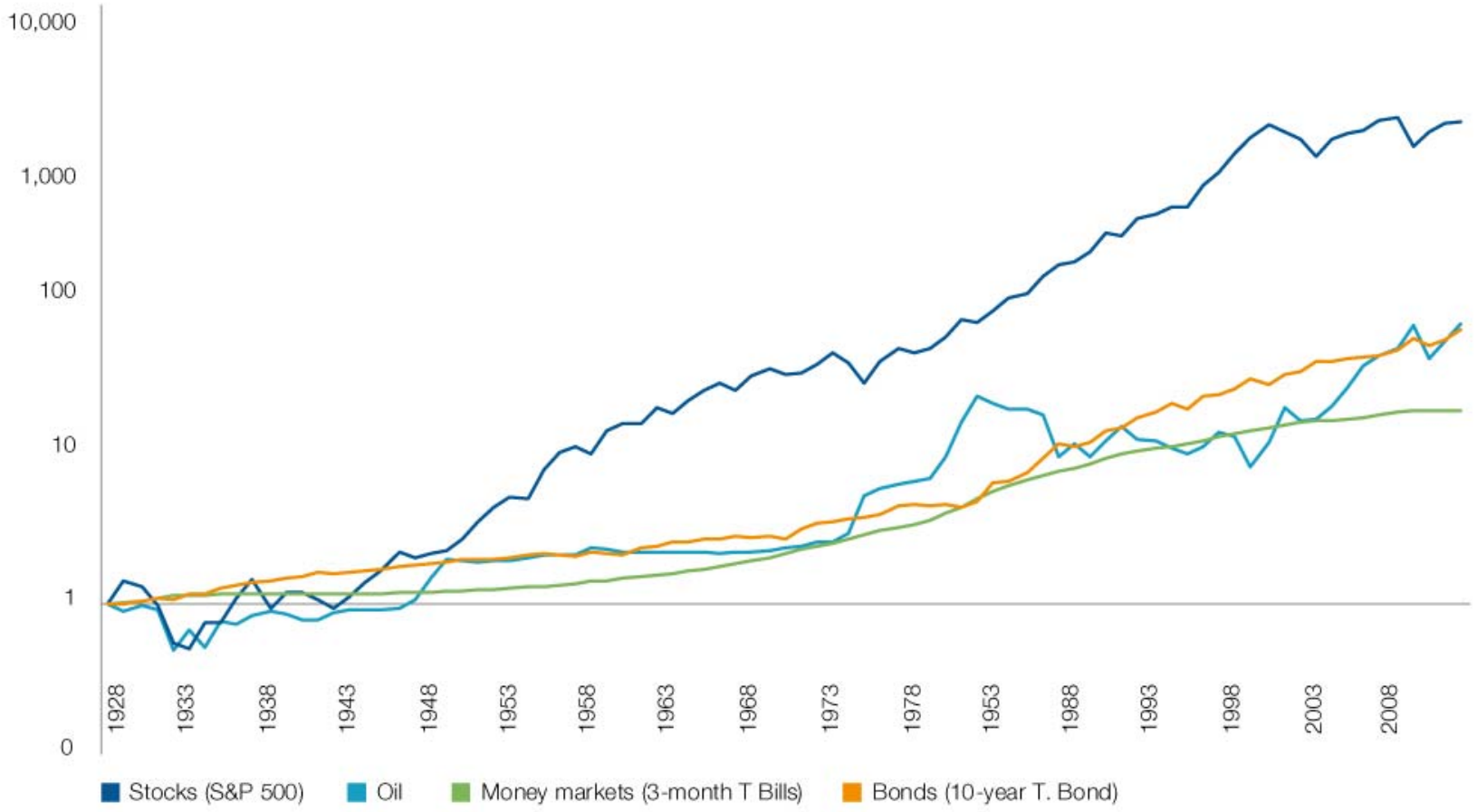
Preventing Dutch disease

- Sectoral misallocation of resources
- Real-exchange rate appreciation
- Lose of non-resource export competitiveness

"Sovereign risk management" and revenue diversification

- From a sovereign portfolio perspective, financial assets bring:
  - Diversification, risk-reduction and return benefits

The Norwegian case for saving: "oil to equities"



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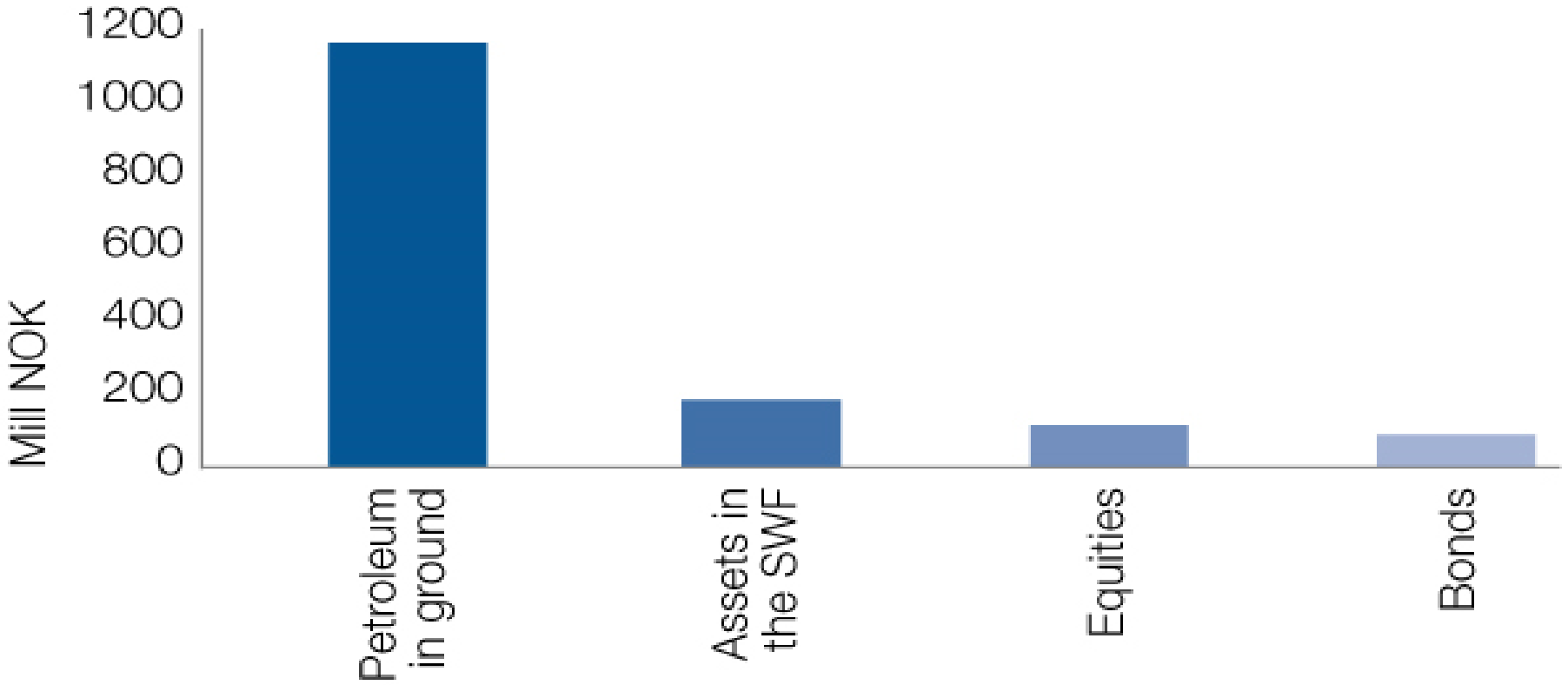


Policy levers for a rule-based SWF

Saving rule: how much to transfer to SWF, and when?

- Transfer to SWF in general
- And potentially between stabilization fund (liquid assets) and savings/investment fund (risk assets)

Spending rule: how much to transfer *from* SWF, and when?

- Depends to fund's purpose(s):
  - Short-term stabilization;
  - Long-term "endowment" income; and/or
  - Locked-up savings for the future

Investment policy

- Active vs passive
- In-house vs outsourced
- Public vs private markets
- Asset allocation: risk-bearing capacity, investment beliefs
- Cost-aware implementation strategy
- Developmental or purely financial investment objectives

Existing approaches to saving rules

Largely rule-of-thumb measures

- Fixed percentage (20%)
- Deviation from moving average (revenue or price)
- Reference-price ($75) or range ($50 - $70)

Rule-of-thumb measures useful as benchmarks, but have problems

- Specific problems (procyclicality, *ex ante* identification of reference price)
- General problem: these are “accumulation rules”, but not fit-for-purpose for downturns

Sustainable financing of non-resource deficit

- Based on Permanent Income Hypothesis
  - IMF and Norway
- Cannot work in resource-dependent countries
  - Possibly inappropriate for poor countries that want to spend a great share of resource revenues on infrastructure

A fiscal rule for revenue allocation with resource-based SWFs

Based on CID and Ricardo Hausmann's work for resource-rich governments

- Colombia, Albania and Kazakhstan
- Interest from large Middle East funds and Alaska

Model quantifies critical policy choices around the use volatile and finite resource revenues

- Finding a balance between three major objectives:
  - spending, stabilization and saving

Model is very flexible to different contexts and country needs

- Different revenue scenarios, assumptions and shocks
- Different assumed SWF returns and volatilities
- Spending rates
- Inter-temporal dynamics: spending now versus the future

Intuitive overview

Assume that spending is not based on (volatile) annual resource revenues

- Spending and revenue are “decoupled”
- Key departure: SWF funding not post-budget – rather, resource revenues flow first to the SWF, then to the budget

Rather, spending is anchored on:

- a fixed percentage of previous year,
- a transfer from Stabilization and
- A Saving/Income Fund

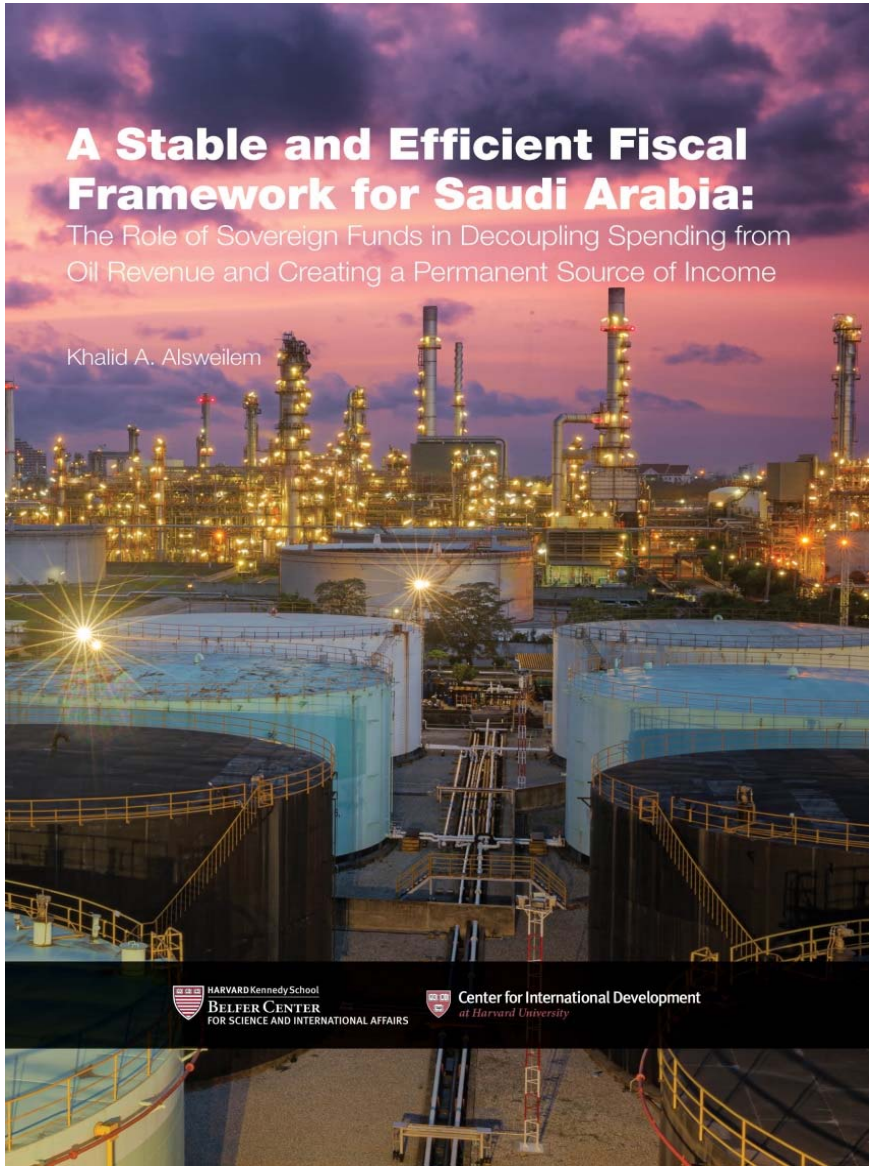
This is captured in a simple spending rule

$$T_t = \alpha TS_{t-1} + \beta S_{t-1} + \delta E_{t-1}$$

Flexibility with respect to different assumptions and policy needs

- Different revenue scenarios, assumptions and shocks
- Different assumed SWF returns and volatilities
- Dynamics: spending now versus the future (via parameter choices)

Perspectives & Lessons From Saudi Arabia

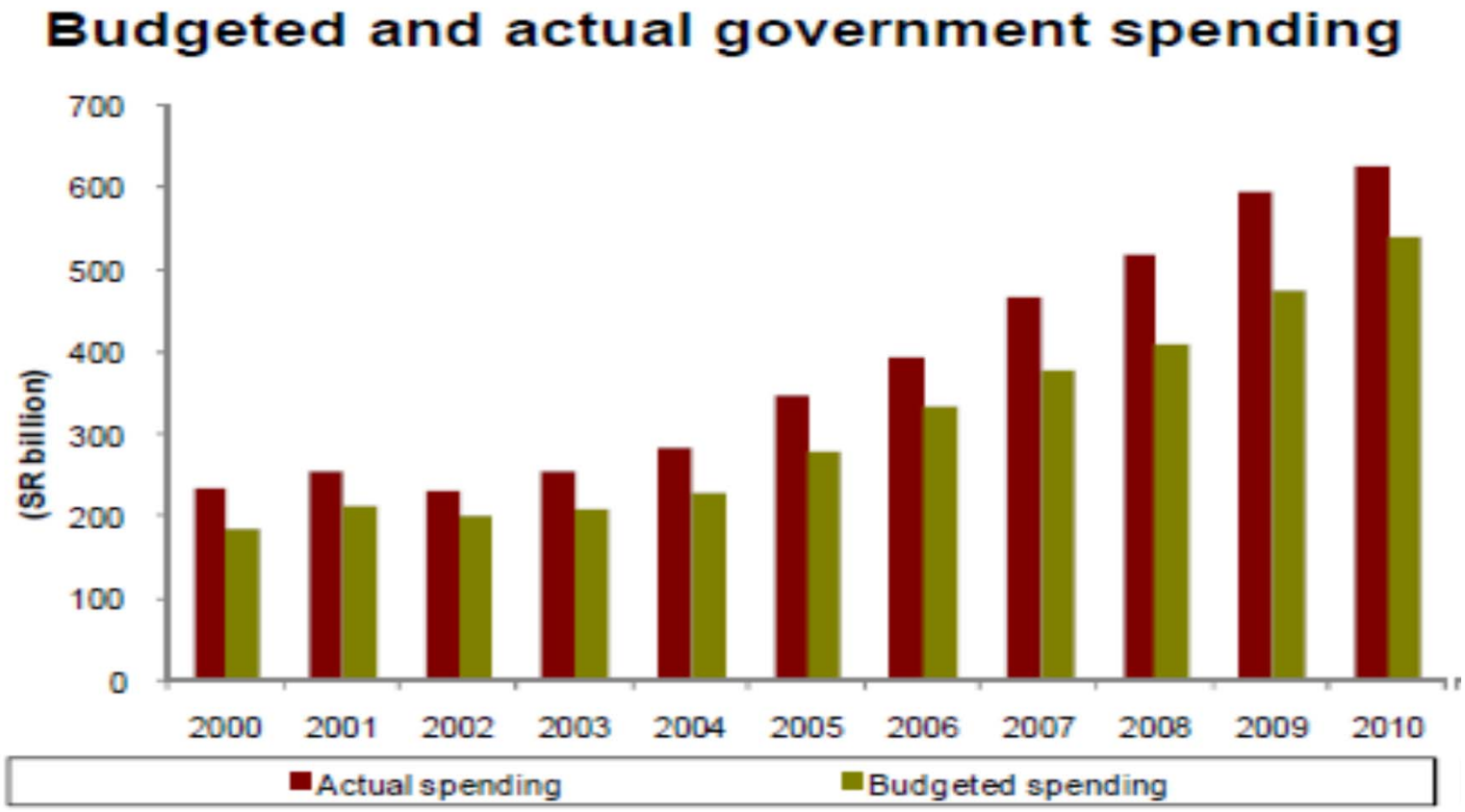


Saudi Arabia's problems

COUNTRY	ESTIMATED OIL PRICE REQUIRED TO BALANCE 2015 BUDGET
Norway	$40
Kuwait	$54
Abu Dhabi	$55
Russia	$105
Saudi Arabia	$106
Nigeria	$122
Iran	$131
Algeria	$131
Venezuela	$160

Sources: International Monetary Fund (2014b), except for Nigeria, Russia and Venezuela (Deutsche Bank, 2014) and Norway (Fitch Ratings, 2014).

Saudi Arabia's problems



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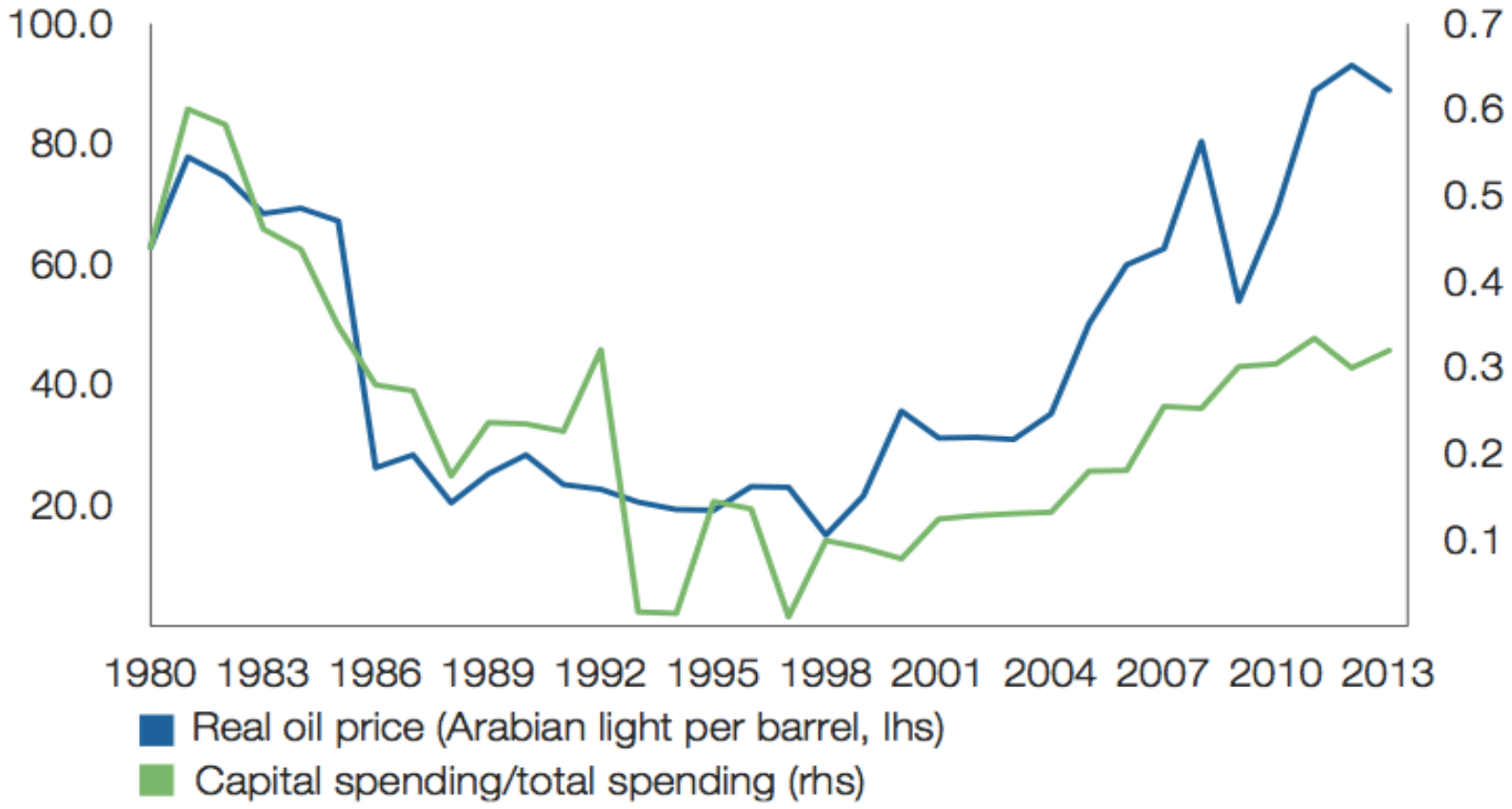

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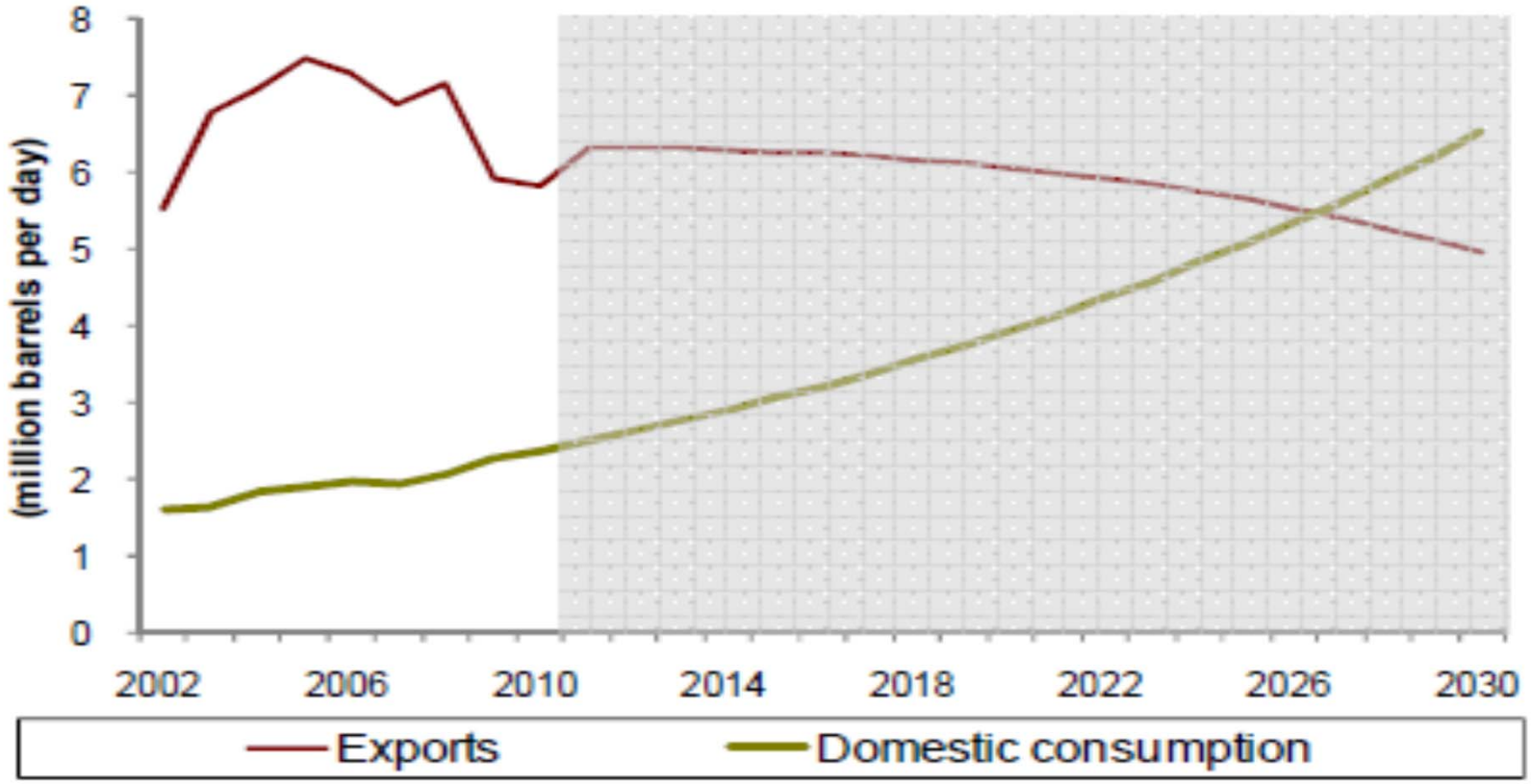
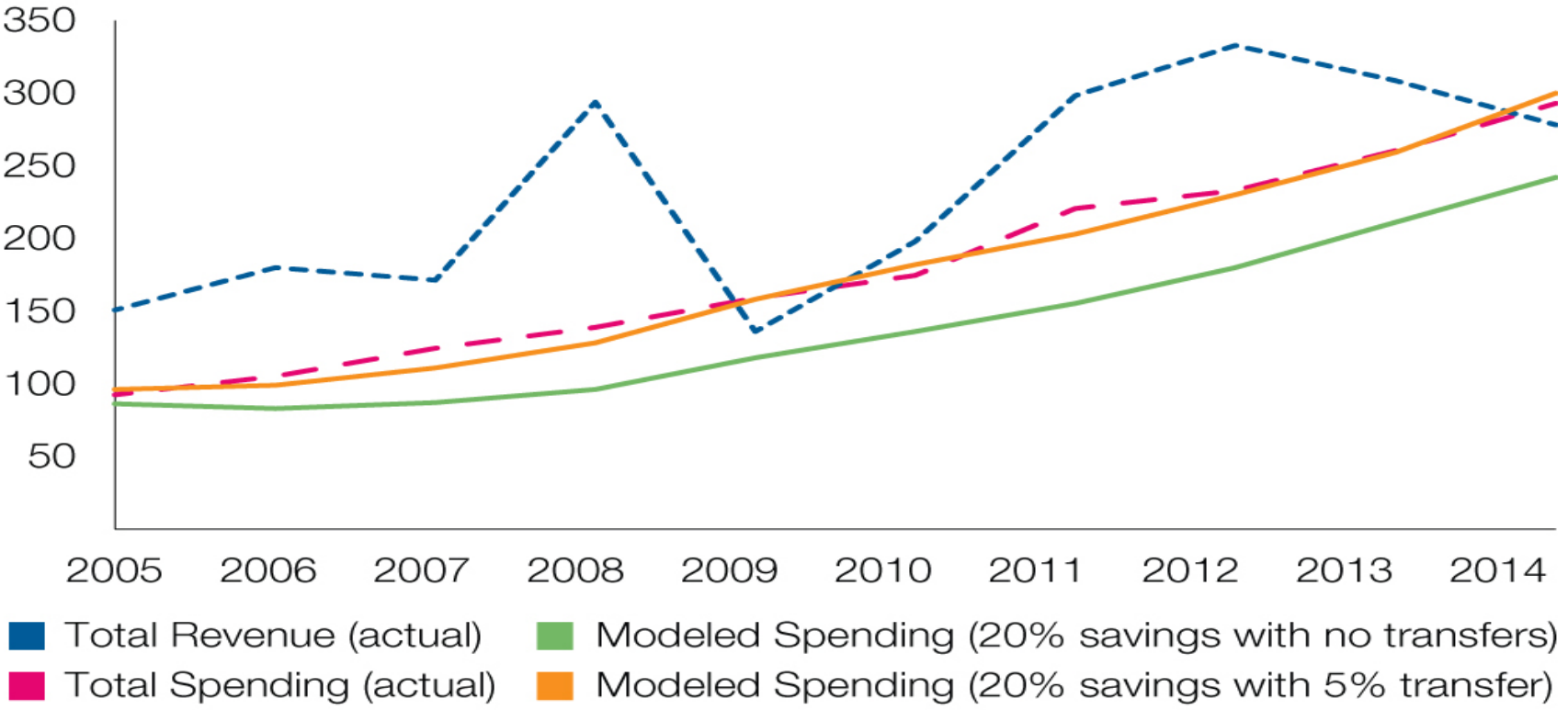


Application: Saudi Arabia

Modelling various scenarios

- Counterfactual based on earlier reforms
- Implementing reforms in 2015
- The cost of delayed reforms



Policy recommendations: Saudi Arabia

Establishment of savings and spending rule

- Under the jurisdiction of the Supreme Economic Council
- Modelled the impact of specific fiscal rules on Saudi government finances
  - Key message: don't delay further…delays are costly (have already been costly)

Proposed the formalisation of two sovereign funds

- Stabilisation Fund: with $250bn in initial capital
- Saudi Future Generations Fund: with $500bn in initial capital

Suggested governance arrangements for both funds

- Stabilisation to remain with SAMA (central bank), reporting to MoF
- Future Generations Fund to be managed by new entity, with:
  - Governing Council: Supreme Economic Council
  - Board of Directors: independent, fixed-term appointments
  - Management authority: led by Senior Executive

The Role of SWFs in Development & Diversification

The issue of domestic investments

Note the original SWF model was about taking resource revenue out of the domestic economic system

- Institutional capacity constraints in attempts to scale up domestic investment
- Dutch disease
- Economic bottlenecks
- Political economy

Poor countries are developing the "sovereign development fund" model

- Infrastructure and power

Richer countries have "strategic investment funds"

- Strategic sectors, technology, co-investments

The emergence of hybrid models with multiple structures/objectives

- Stabilisation
- Savings/Income generation
- Domestic investment

Why do some countries grow?

- Classical factor-driven convergence: Labour and capital have high returns and drive convergence ("catch up" growth) due to their scarcity
- Institutions: Countries grow because of strong, democratic institutions: rule of law, broad-based participation and lack of corruption
- Geography and natural resources: Countries grow (or don't) because of geographical positioning – access to trading routes, fertile land etc. - and natural resource endowment
- Human capital: Education and health of nation's population drives productive capacity and therefore growth trajectories
- Exports and production: What your country can and does produce is the most significant element to growth

Economic complexity: the role and potential of productive knowledge

Three fundamental premises of Economic Complexity theory

1. ‘Productive knowledge’ is the secret to economic growth: Countries that have the knowledge to produce and export more types of goods have a higher likelihood to grow.

2. Economic evolution is sequential: Economies should enter industries that require similar capabilities as they currently have – “jumping to the nearest trees”

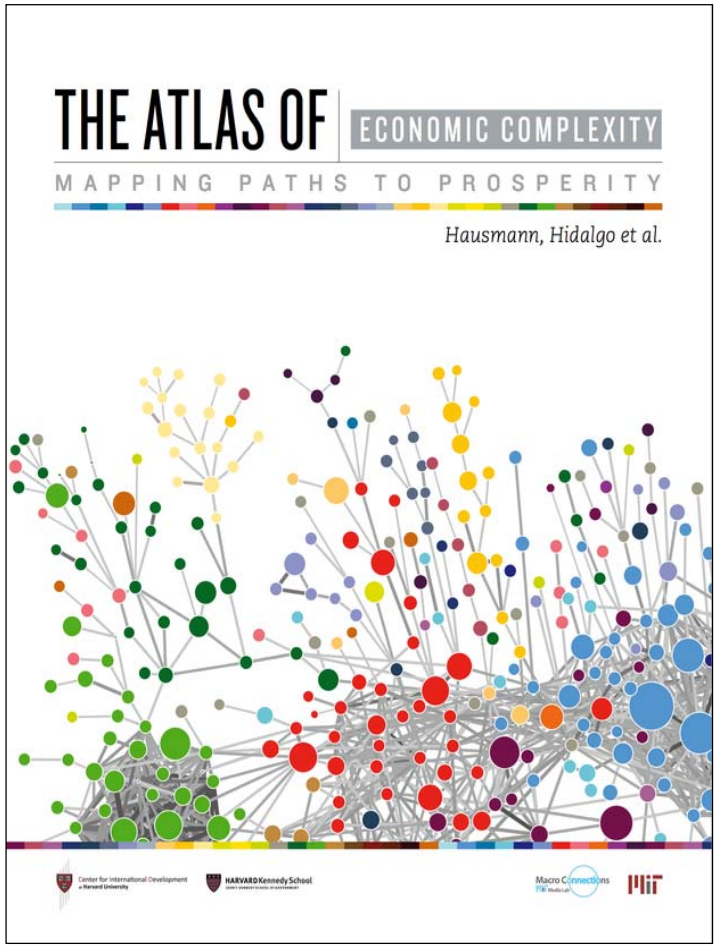
1. Complexity drives level and pace of growth: The ‘complexity’ of an economy will drive GDP per capita growth. If economies are more complex than their level of growth, we should expect long-term catch up

Economic complexity: What is it and how is it measured?

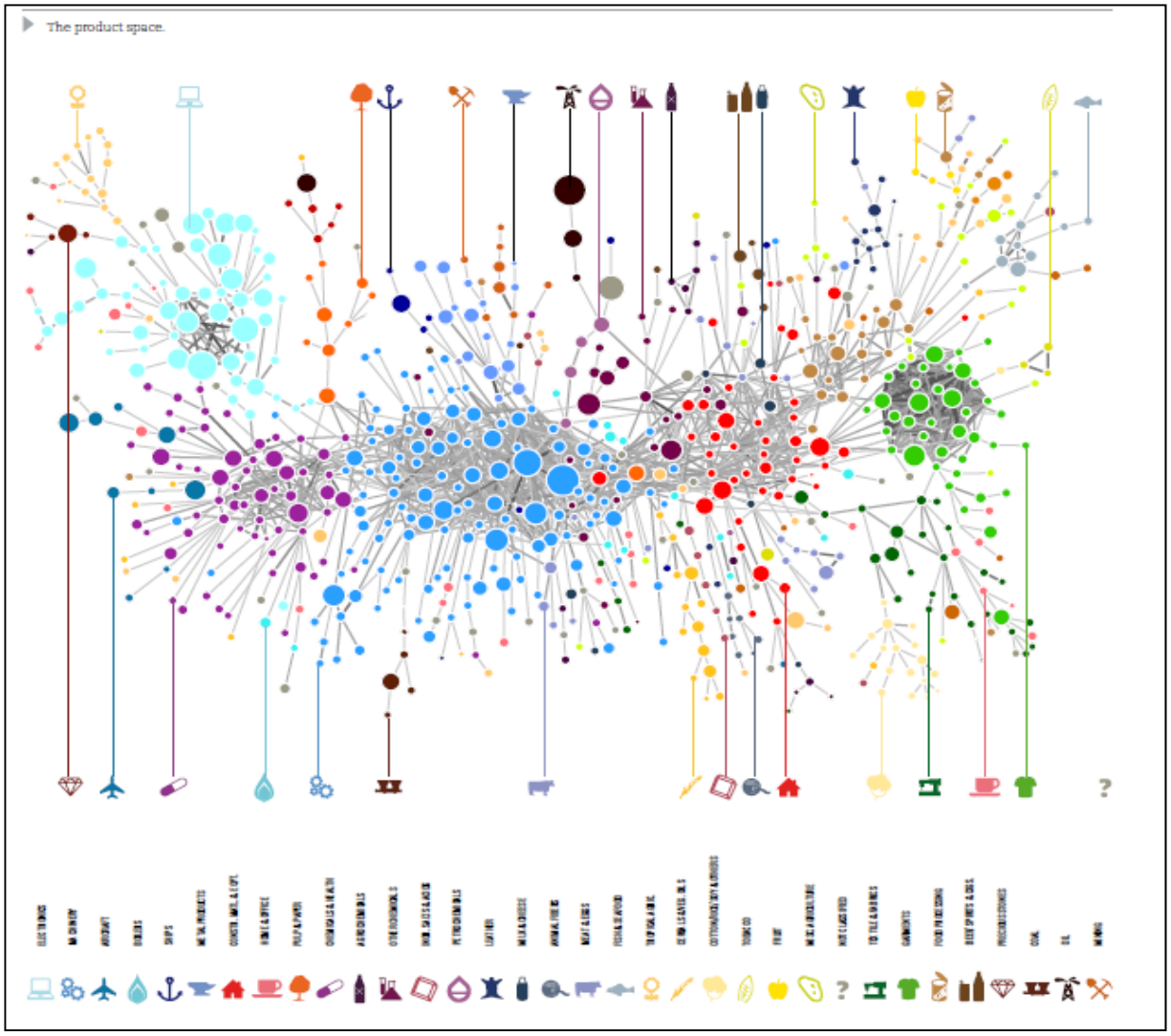
Concept: 'Economic complexity' is the total amount of productive knowledge in an economy. It is expressed by the composition of a country's productive output

Measurement: diversity of a country's exports (how many different products), as well as their ubiquity (how many other countries also produce the same product)

Output: Harvard researchers release two indices: Economic Complexity Index (ranking of countries by their score) and Product Complexity Index - as well as an "Outlook Index".



Economic complexity: the Product Space



Product Space portrays "clusters" of products likely to be co-exported

- Products that are tightly connected share most of the requisite capabilities

Having what it takes to make one product makes it easier to move to a connected one

- Automobiles => airplanes
- Jumping to the nearest tree

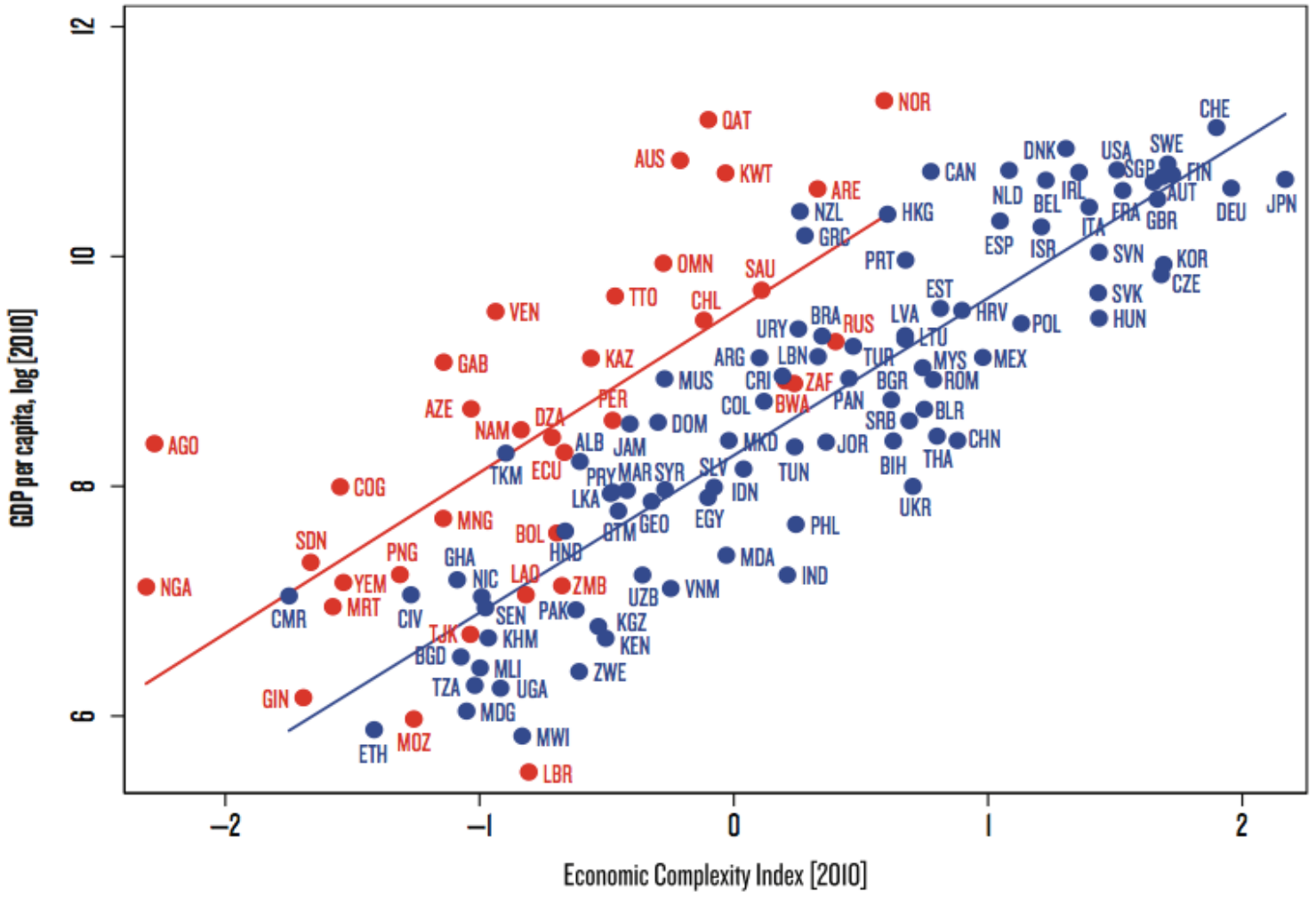
Notice where oil is: far away from other products

- Not a complex product
- Not well connected to other products

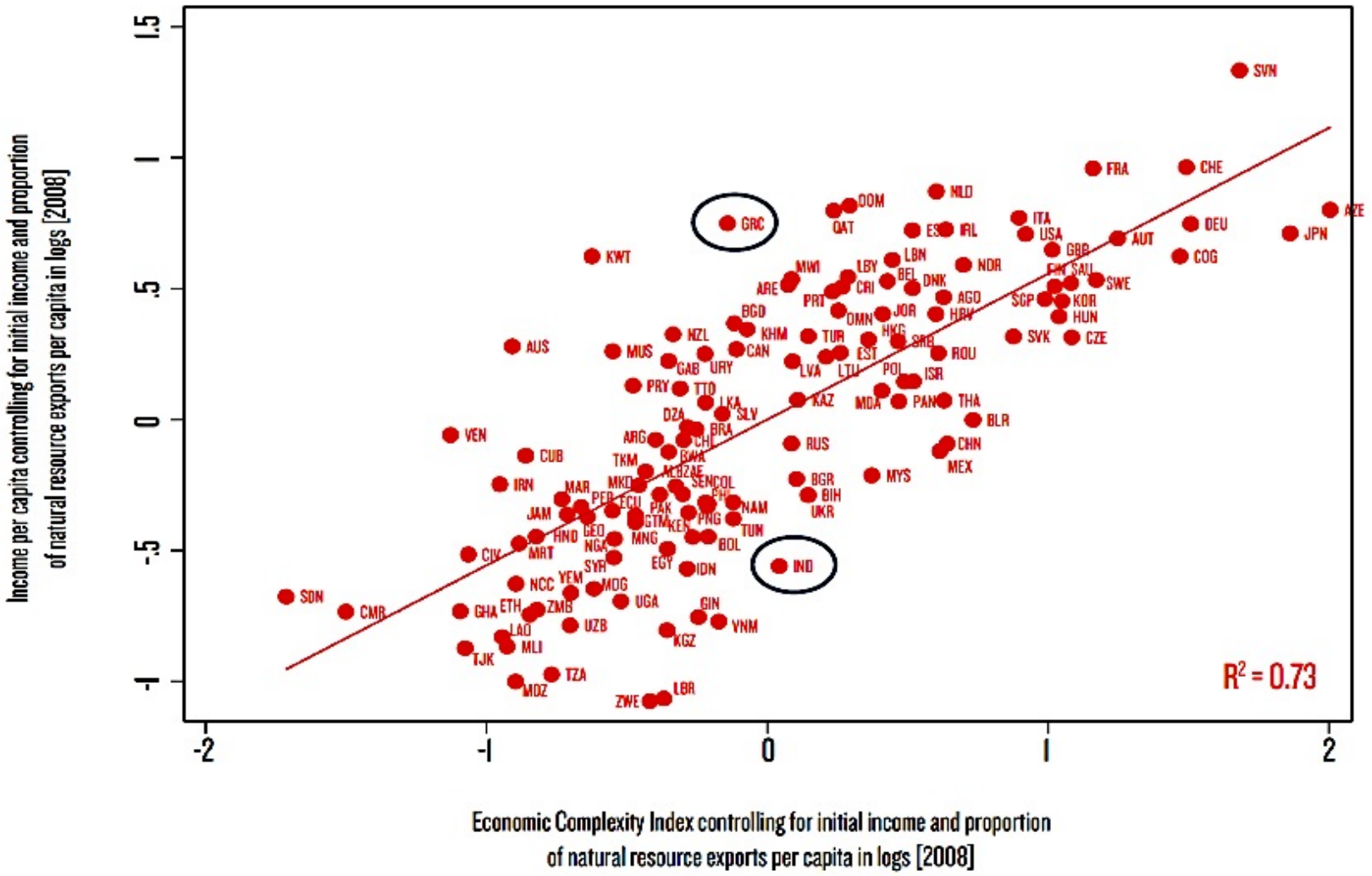
Economic complexity: explaining wealth

Economic Complexity Index correlates strongly with income per capita

- resource-driven
- non-resource-driven



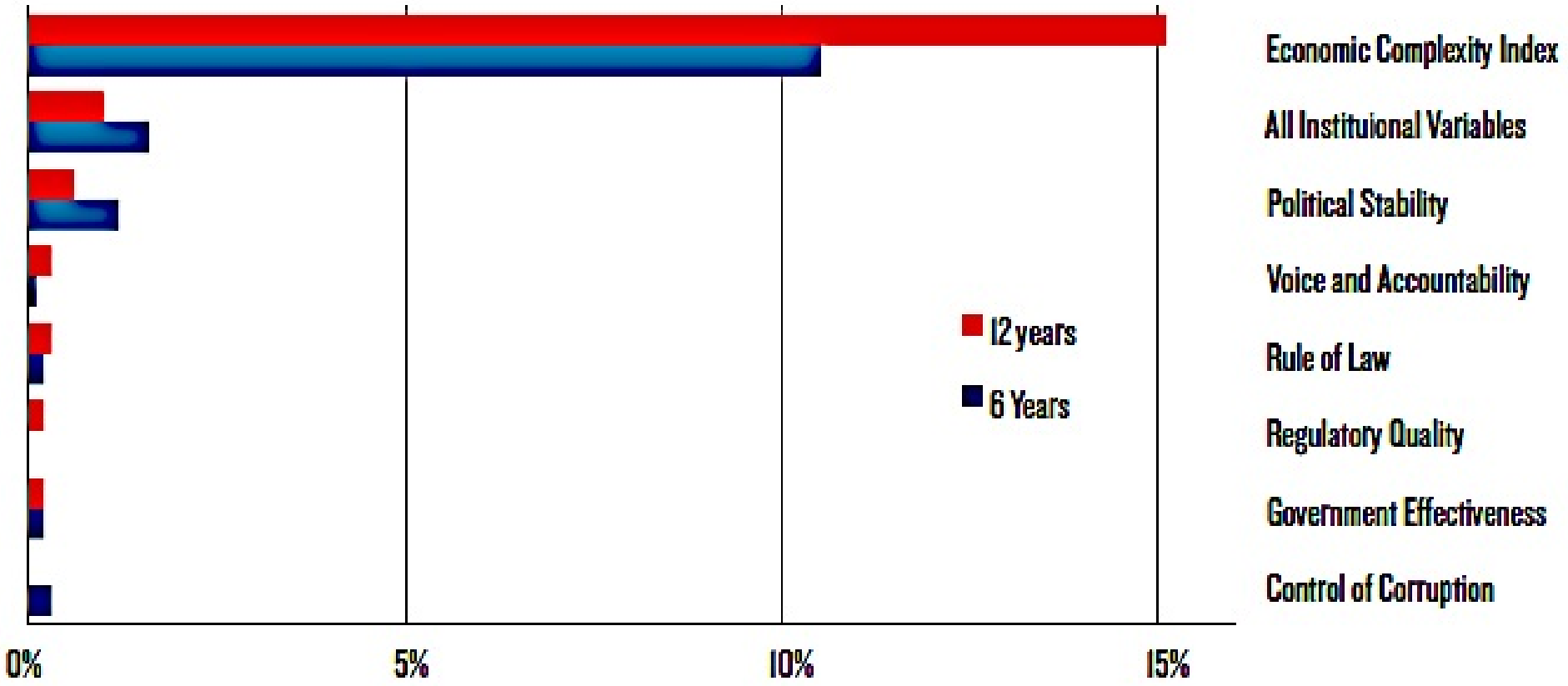
Economic complexity: predicting growth



Economic complexity: explanatory power

Economic Complexity captures more growth-relevant information that other measures:

- 7x more explanatory power on variance of growth compared to 'Institutional Variables'
- 5x more compared to the World Economic Forum Competitiveness Ranking



Economic complexity: implications for Africa

8 out of the 10 expected fastest growing countries from 2010-2020 are in sub-Saharan Africa:

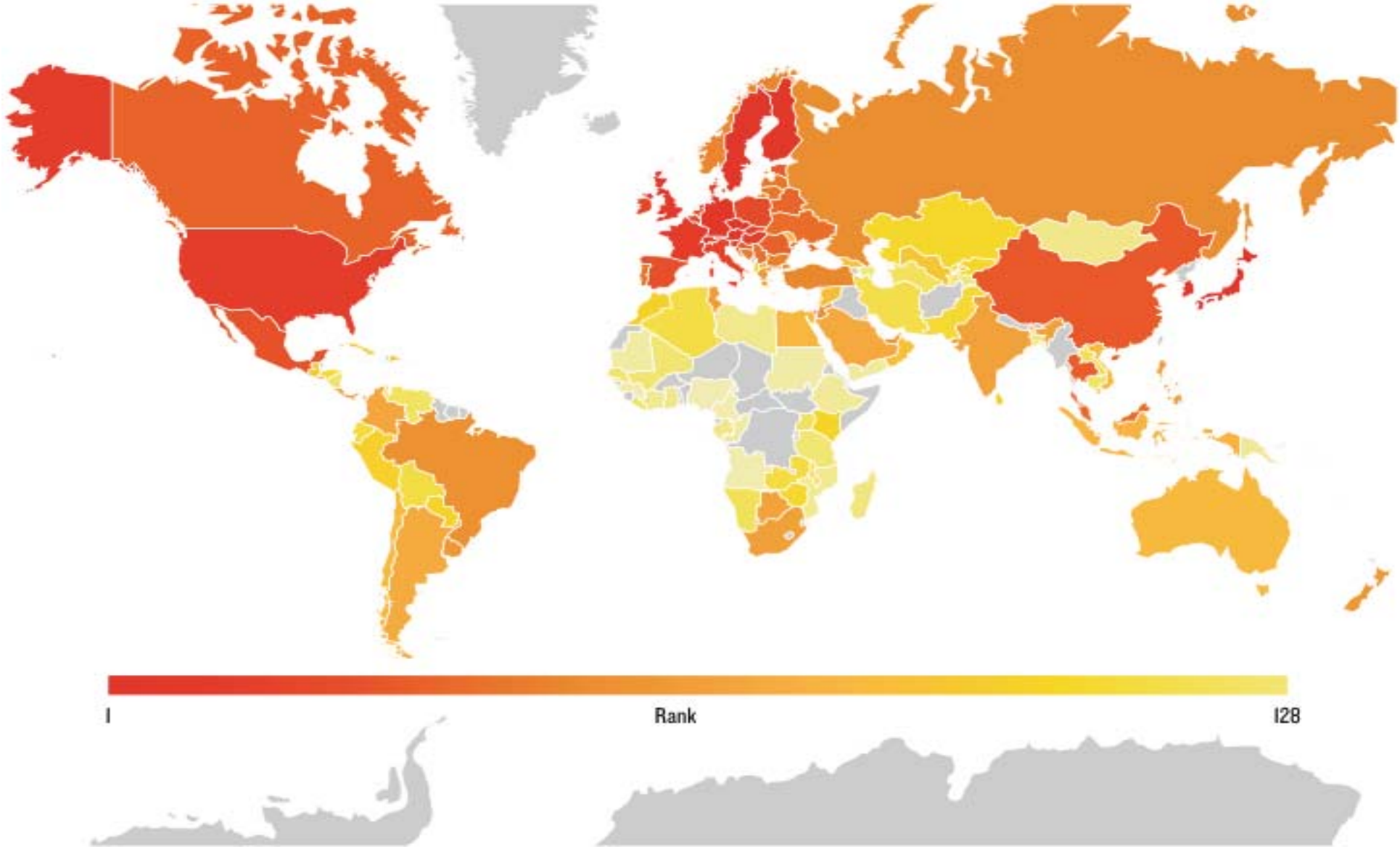
- Uganda, Kenya, Tanzania, Zimbabwe, Madagascar, Senegal, Malawi and Zambia
- South Africa and Nigeria, two of Africa's largest economies, are expected to grow 3.8% and 3.7% respectively from 2010-2020

African economies typically have low levels of Economic Complexity

But also not taking advantages of existing "productive capabilities"

Together, these two factors lead to expectation of high GDP per capita growth

Economic complexity: predicting growth



RANKING 4. EXPECTED GDP GROWTH TO 2020

RANK EXPECTED GDP GROWTH	REGIONAL RANK EXPECTED GDP GROWTH	COUNTRY NAME	ISO CODE	EXPECTED GDP GROWTH 2010-2020	GDP GROWTH 2000-2010	RANK INCOME 2010 [USD]	INCOME 2010 [USD]	EXPECTED POPULATION GROWTH	REGION
1	1/4	India	IND	7.0%	7.4%	101	1,375	1.3%	South Asia
2	1/26	Malawi	MWI	6.4%	4.7%	127	339	3.3%	Sub-Saharan Africa
3	2/26	Tanzania	TZA	6.1%	7.0%	121	527	3.1%	Sub-Saharan Africa
4	3/26	Liberia	LBR	6.1%	7.0%	128	247	2.6%	Sub-Saharan Africa
5	4/26	Kenya	KEN	6.0%	4.1%	117	795	2.6%	Sub-Saharan Africa
6	5/26	Uganda	UGA	5.8%	7.4%	122	515	3.1%	Sub-Saharan Africa
7	6/26	Madagascar	MDG	5.5%	2.6%	124	421	2.8%	Sub-Saharan Africa
8	7/26	Zimbabwe	ZWE	5.2%	-4.9%	120	595	2.1%	Sub-Saharan Africa
9	8/26	Mali	MLI	5.1%	5.7%	119	613	2.9%	Sub-Saharan Africa
10	9/26	Zambia	ZMB	5.1%	5.6%	104	1,253	3.2%	Sub-Saharan Africa
11	1/16	Egypt, Arab Rep.	EGY	5.0%	4.8%	90	2,698	1.6%	Middle East and North Africa
12	2/4	Pakistan	PAK	5.0%	4.6%	113	1,019	1.7%	South Asia
13	1/16	Philippines	PHL	5.0%	4.8%	94	2,140	1.6%	East Asia and Pacific
14	2/16	Vietnam	VNM	4.7%	7.3%	106	1,224	0.9%	East Asia and Pacific
15	3/16	China	CHN	4.6%	10.5%	74	4,433	0.3%	East Asia and Pacific
16	10/26	Mozambique	MOZ	4.5%	7.8%	125	394	2.2%	Sub-Saharan Africa
17	1/21	Guatemala	GTM	4.5%	3.3%	87	2,873	2.5%	Latin America and the Caribbean
18	4/16	Indonesia	IDN	4.4%	5.2%	85	2,952	0.9%	East Asia and Pacific
19	5/16	Thailand	THA	4.3%	4.3%	70	4,614	0.4%	East Asia and Pacific
20	1/27	Turkey	TUR	4.3%	3.9%	46	10,050	1.0%	Eastern Europe and Central Asia

Looking at domestic investment opportunities though the Economic Complexity lens

Economic Complexity analysis provides guidance on "adjacent industries" that drive greater complexity and hence growth

- Which trees are closest?
- Note that emphasis unlikely to be around commodities cluster

Look for products that are "closest"

- Make use fo the same productive capabilities you current possess

Look for products that give higherst "complexity gains"

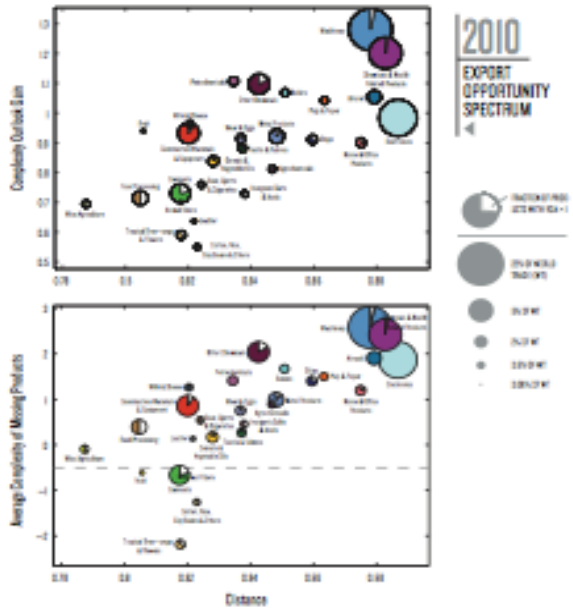
- Aquire productive capabilities that are associated with highly connected production chains

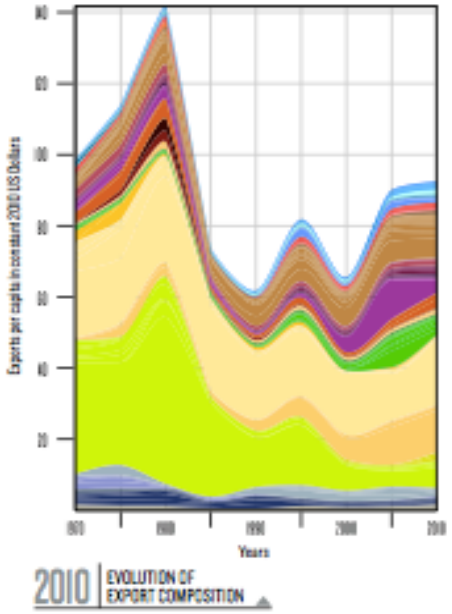
Remember, growth and complexity gains will be piecemeal and incremental

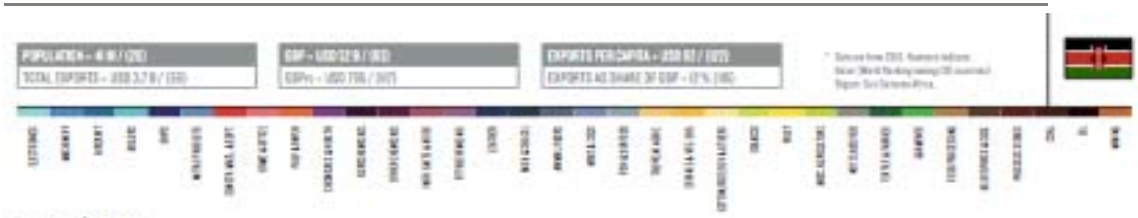
KENYA

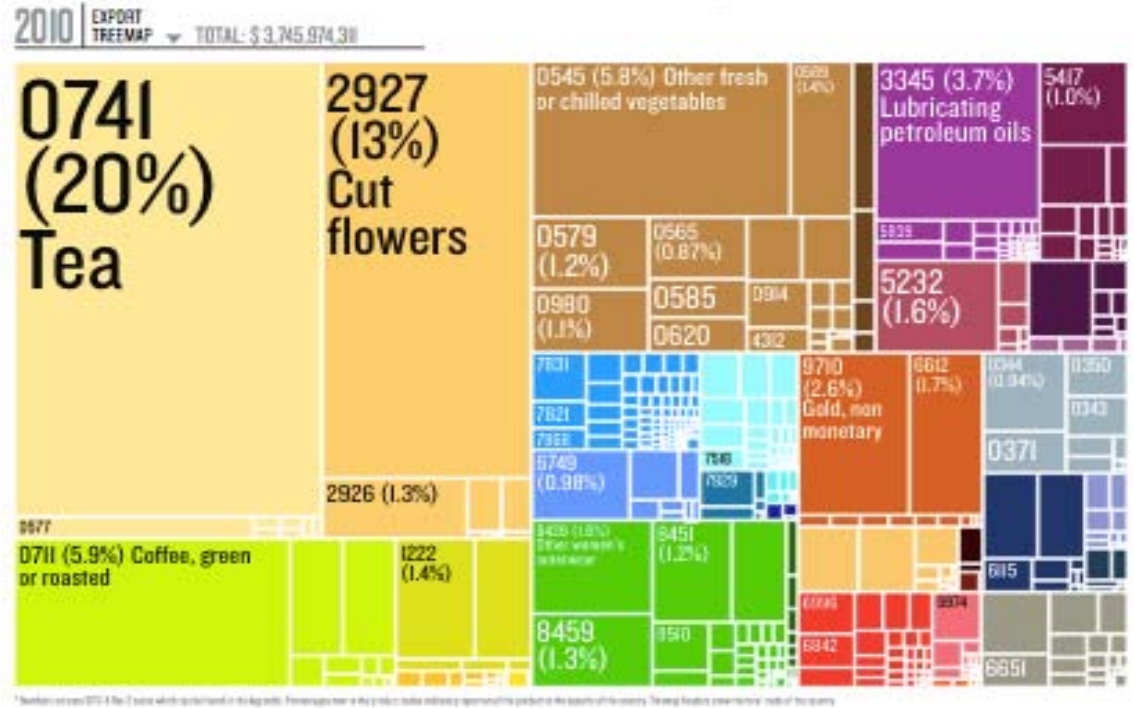
ECONOMIC COMPLEXITY INDEX [2010] - -0.503 (85) | COMPLEXITY OUTLOOK INDEX [2010] - 0.272 (50) | EXPECTED GDP PC GROWTH * - 3.4% (13)

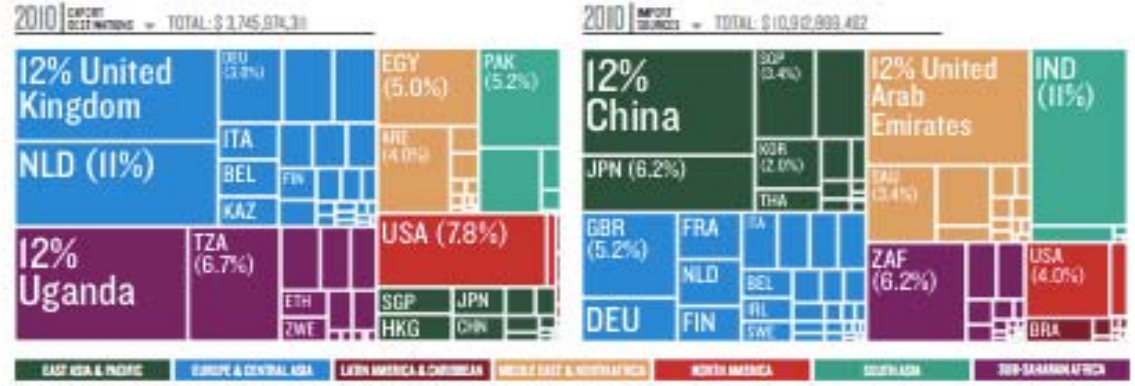
*Expected annual average for the 2010-2020 period.











Challenges in domestic investment

Domestic investment subject to stability and sustainability contraints

- Procyclical public investment undermines efficacy
- Fiscal stability and solvency are critical
- Diversification of fiscal revenue
- Recurring costs associated with capital expenses (infrastructure)
- Dutch disease: scale up gradually

Poltical issues

- Establish governance that promotes avoidance of political pet projects
- Danger of prestige projects (“white elephants”)
- Risk of “constitutent pleasing”

Finding the balance

- Look for suitable co-investment opportunities
- Be clear about criteria and processes
- Don’t establish a parallel budget
- Balance saving, stabilization and domestic investment (nobody saying Africa should “send all its money abroad”)

Key messages

SWFs are about creating stability and sustainability in the management of resource revenues

- Commodities (and revenues) are uncertain, volatile and unpredictable
- The absence of appropriate rules leads to procyclicality and short-termism
- Planning for the future should continue despite current commodity prices

The emergence of hybrid models:

- Stabilisation
- Savings/Income generation
- Domestic investment

However, domestic investment subject to stability and sustainability constraints and good governance

Oil-to-equities logic part of the case for savings and alternative source of wealth and income

Biography

Malan Rietveld is the Director of the Investment Institute. His focus is on policies towards investment around the extractive industries, including resource-related infrastructure, foreign direct investment and the management of resource revenues. Previously, he worked in the Emerging Market Debt team at Investec Asset Management and was involved in the firm's advisory work with central banks and sovereign wealth funds. Prior to that he worked at Central Banking Publications and the Official Monetary and Financial Institutions Forum in London. He is the editor of three books on sovereign wealth funds: Sovereign Wealth Management (with Jennifer Johnson-Calari), *New Perspectives on Sovereign Asset Management and Sovereign Risk Management.*

Malan holds an M.Sc in Economics from the University of Leuven and an M.Sc in Economic History from the London School of Economics. He is currently completing his PhD in Economics from the University of Stellenbosch on the topic of sovereign wealth funds. Malan is a Fellow at the Center for International Development at Harvard Kennedy School and a Fellow of the Columbia Center for Sustainable Investment at Columbia University.

Contact details

Malan Rietveld
Director, Investec Investment Institute
Email: malan.rietveld@investecmail.com

Investec Asset Management
Woolgate Exchange
25 Basinghall Street
London
EC2V 5HA
United Kingdom

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Investec Asset Management

Australia

Level 23, The Chifley Tower
2 Chifley Square
Sydney, NSW 2000

Telephone: +61 2 9293 6257
Facsimile: +61 2 9293 2429

Botswana

Plot 64511, Unit 5
Fairgrounds
Gaborone

Telephone: +267 318 0112
Facsimile: +267 318 0114

Channel Islands

PO Box 250,
St. Peter Port
Guernsey, GY1 3QH

Telephone: +44 (0)1481 710 404
Facsimile: +44 (0)1481 712 065

Europe (ex UK)

Woolgate Exchange
25 Basinghall Street
London, EC2V 5HA

Telephone: +44 (0)20 7597 1890
Facsimile: +44 (0)20 7597 1919

Hong Kong

Suites 2602-06, Tower 2
The Gateway, Harbour City
Tsim Sha Tsui, Kowloon,
Hong Kong

Telephone: +852 2861 6888
Facsimile: +852 2861 6861

Namibia

100 Robert Mugabe Avenue, Office
1 Ground Floor, Heritage Square
Building, Windhoek

Telephone: +264 (61) 389 500
Facsimile: +264 (61) 249 689

Singapore

25 Duxton Hill #03-1
Singapore
089308

Telephone: +65 (0)6832 5052

South Africa

Cape Town
36 Hans Strijdom Avenue,
Foreshore
Cape Town, 8001

Telephone: +27 (0)21 416 2000
Facsimile: +27 (0)21 416 2001

Johannesburg

100 Grayston Drive
Sandown
Sandton, 2196

Telephone: +27 (0)11 286 7000
Facsimile: +27 (0)11 286 7777

Taiwan

Unit C, 49/F, Taipei 101 Tower
No.7, Section 5, Xin Yi Road
Taipei 110, Taiwan

Telephone: +886 (0)2 8101 0800
Facsimile: +886 (0)2 8101 0900

United Kingdom

Woolgate Exchange
25 Basinghall Street
London, EC2V 5HA

Telephone: +44 (0)20 7597 1900
Facsimile: +44 (0)20 7597 1919

United States

666 5th Avenue
37th Floor
New York, NY 10103

US Toll Free: +1 800 434 5623
Telephone: +1 917 206 5179
Facsimile: +1 917 206 5155

www.investecassetmanagement.com