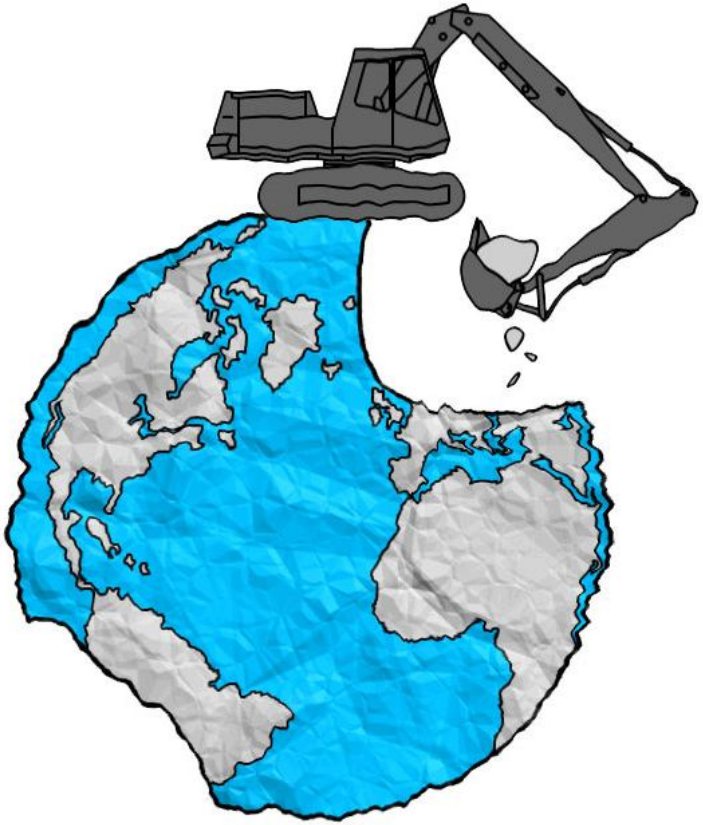
SARASIN
& PARTNERS

Considerations for investing Sustainably

Henry Boucher
25th November 2010

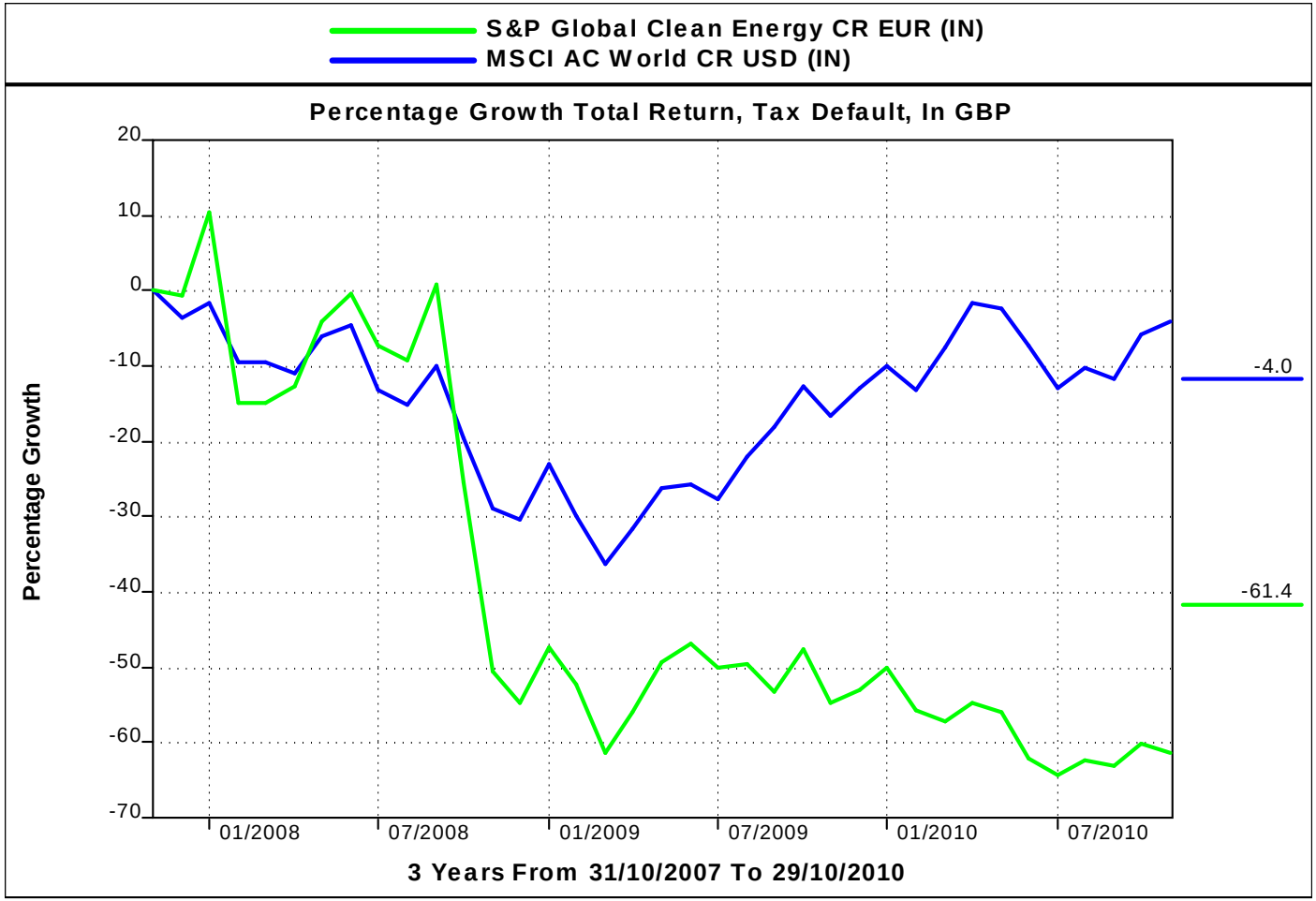
Lack of long-term perspective
Tragedy of the commons



Global Institutions failing to tackle the issues

- Global capital but local regulation & politics
- Failures of:
  - G20
  - GATT
  - UN etc
- Copenhagen

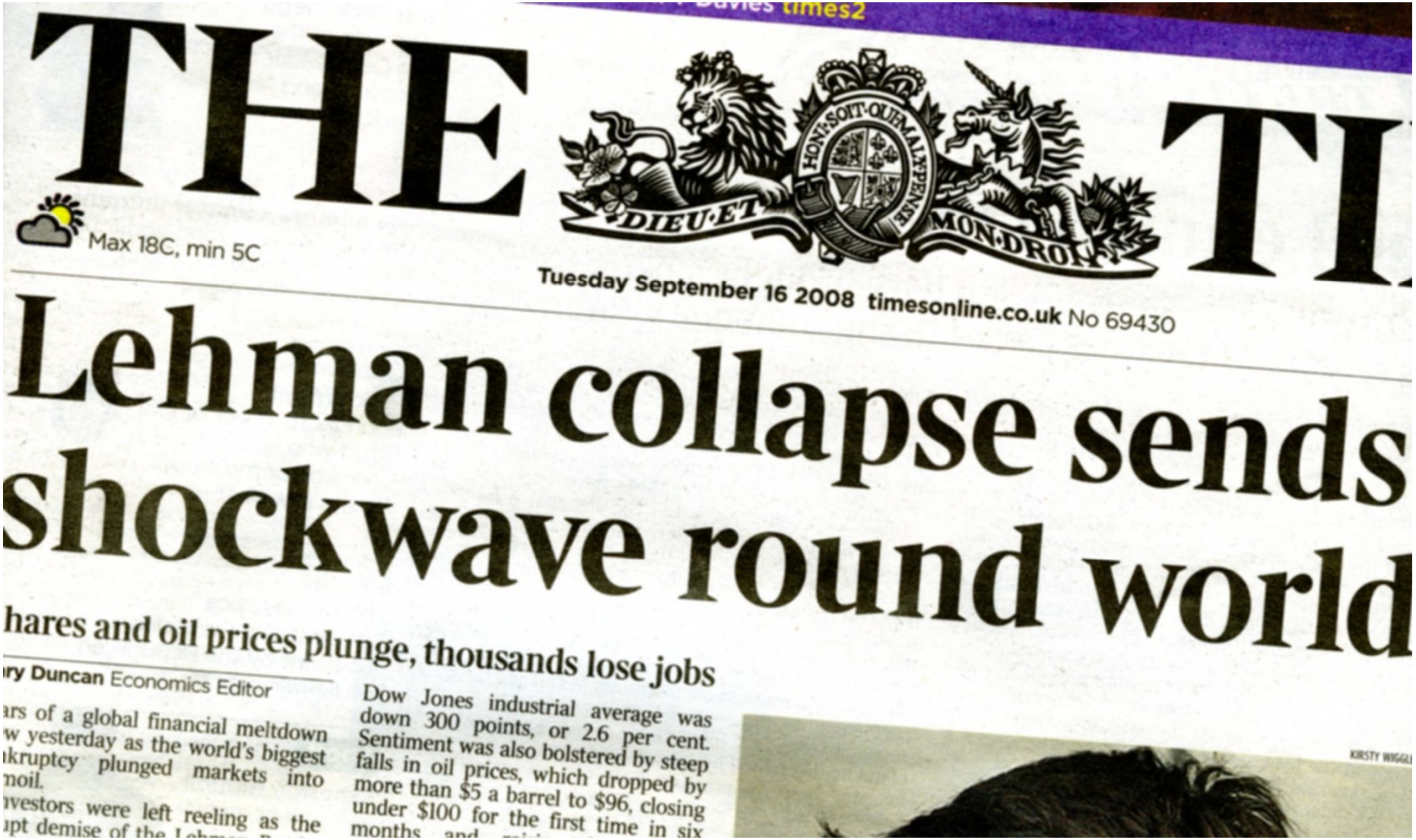
Dramatic underperformance by clean energy stocks



User may have modified the original chart and axis titles provided by Lipper.

LIPPER

Other government priorities…



THE TI

Max 18C, min 5C

Tuesday September 16 2008 timesonline.co.uk No 69430

Lehman collapse sends shockwave round world

hares and oil prices plunge, thousands lose jobs

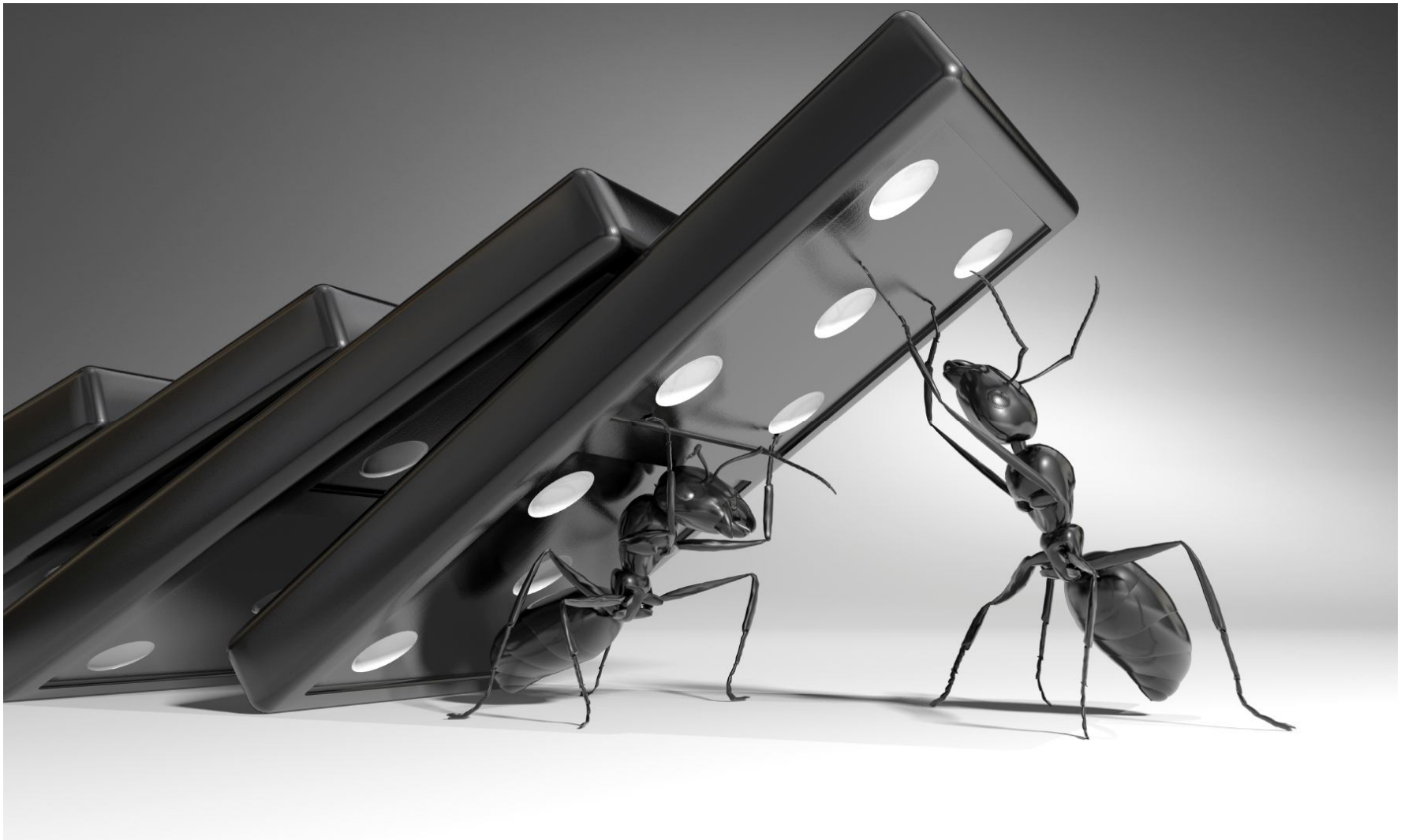
ry Duncan Economics Editor

ars of a global financial meltdown w yesterday as the world's biggest ıkruptcy plunged markets into noil.

ıvestors were left reeling as the ıpt demise of the

Dow Jones industrial average was down 300 points, or 2.6 per cent. Sentiment was also bolstered by steep falls in oil prices, which dropped by more than $5 a barrel to $96, closing under $100 for the first time in six months

…crushing debt burdens

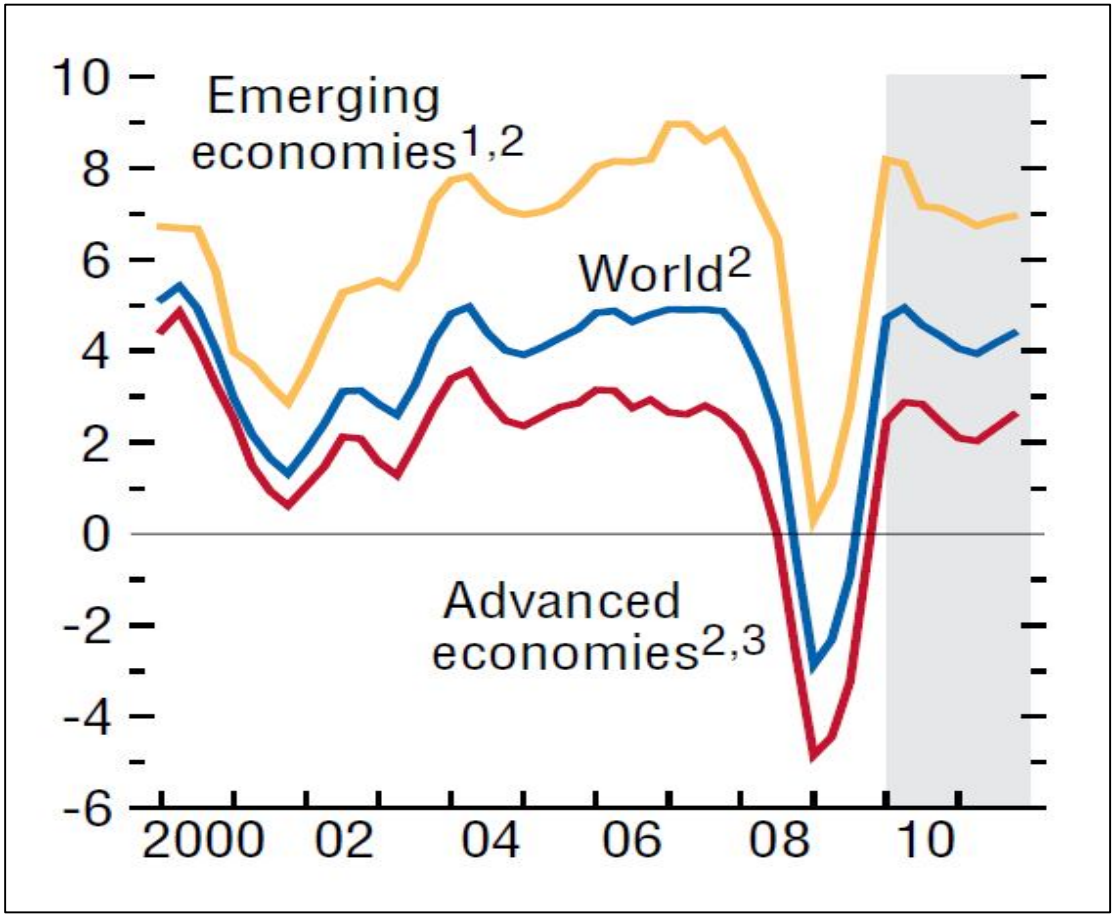


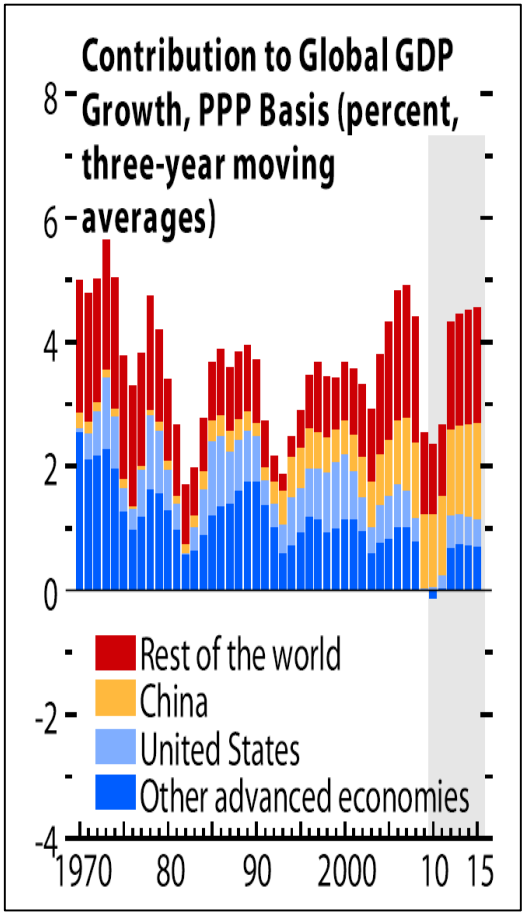
Investors still reluctant to take longer-term risk

For long-term projects with future cash flows, access to capital has diminished dramatically

- Shorter-term mind sets
- Loss of subsidies
- Shrinking bank balance sheets
- Cashflow-focused capital markets
- Only venture capital available

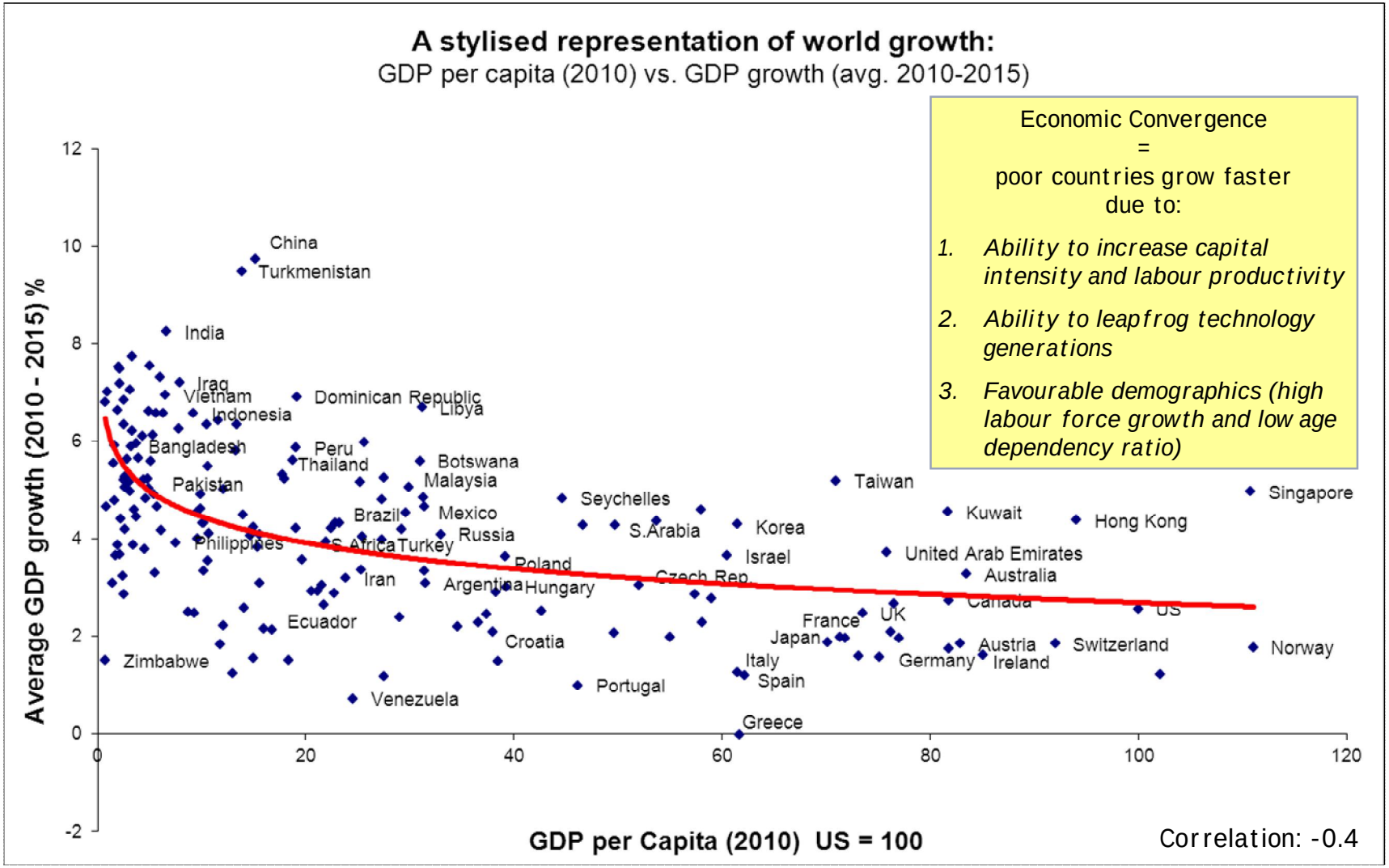
But demand for energy is accelerating…
…driven by emerging market growth





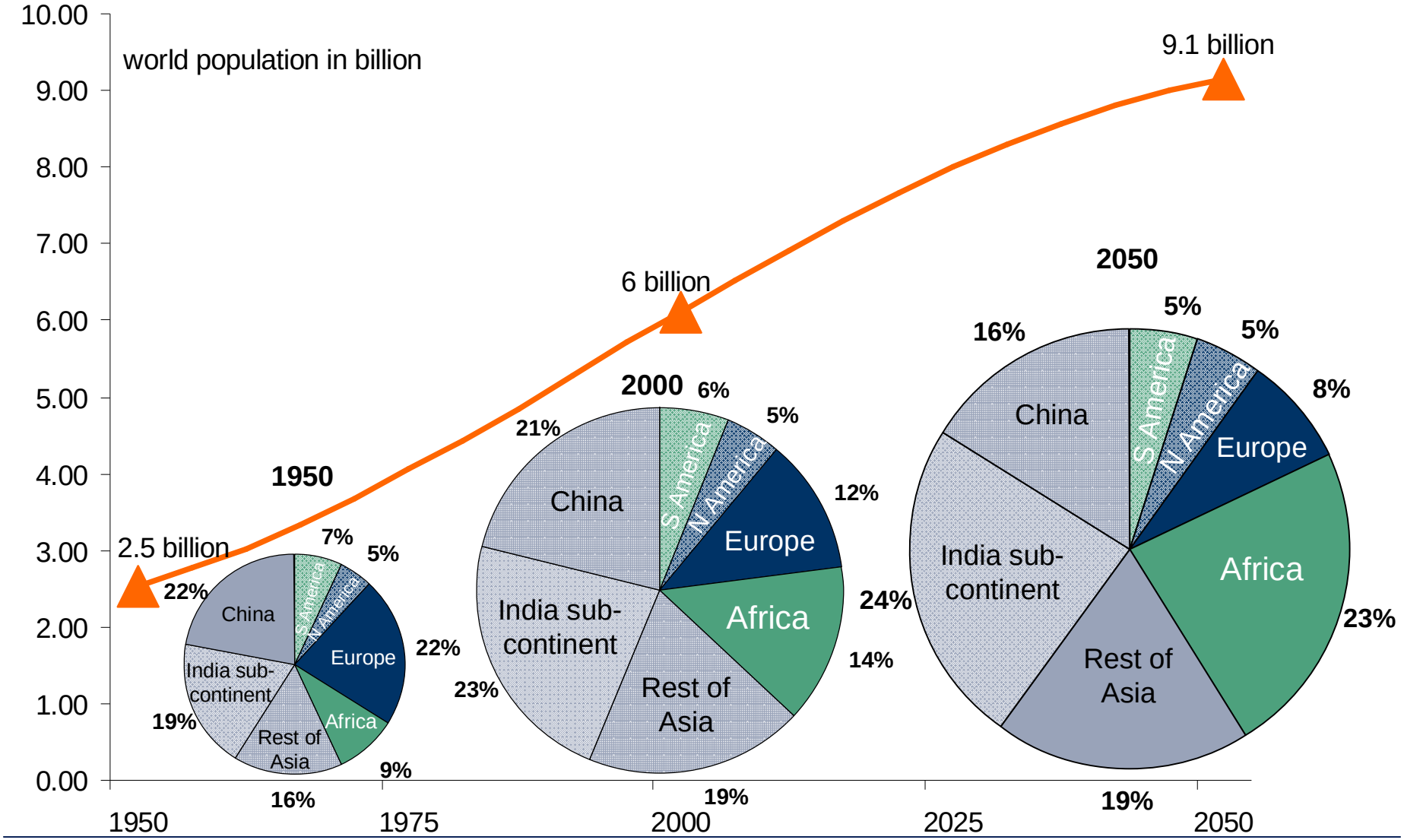
Source: Sarasin & Partners, IMF and WEO October 2010

Built on the dynamics of economic convergence



Source: Sarasin & Partners, IMF and WEO April 2010

The giant leap forward:
A century of quadrupling the world's population



Source: United Nations, February 2010

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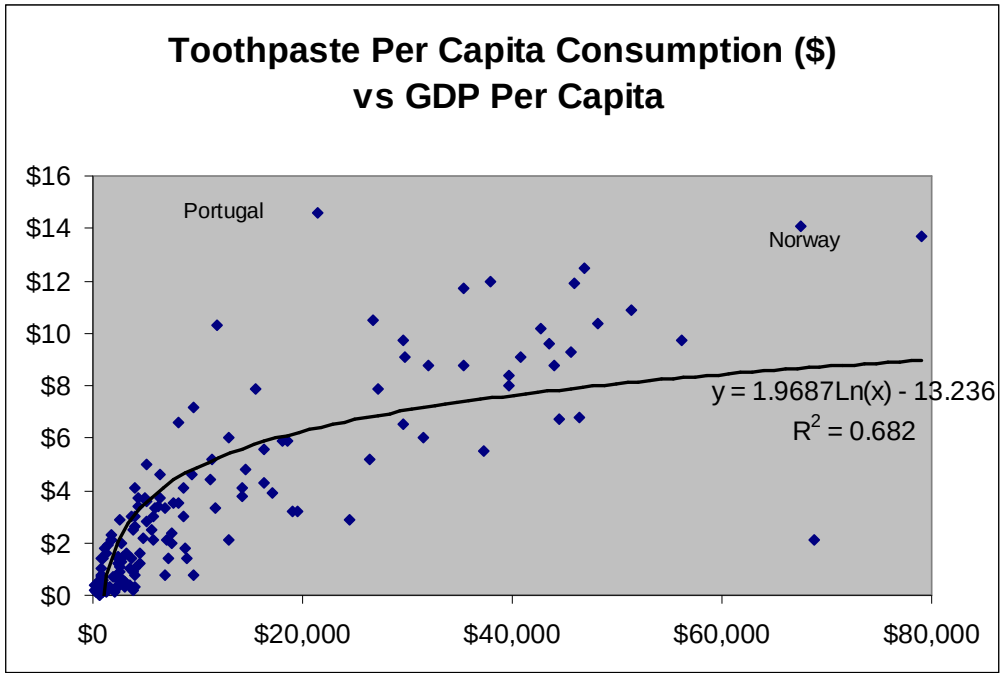
The rise of the EM consumer:

Income growth across the developing world is driving inexorable demand for consumer products and energy

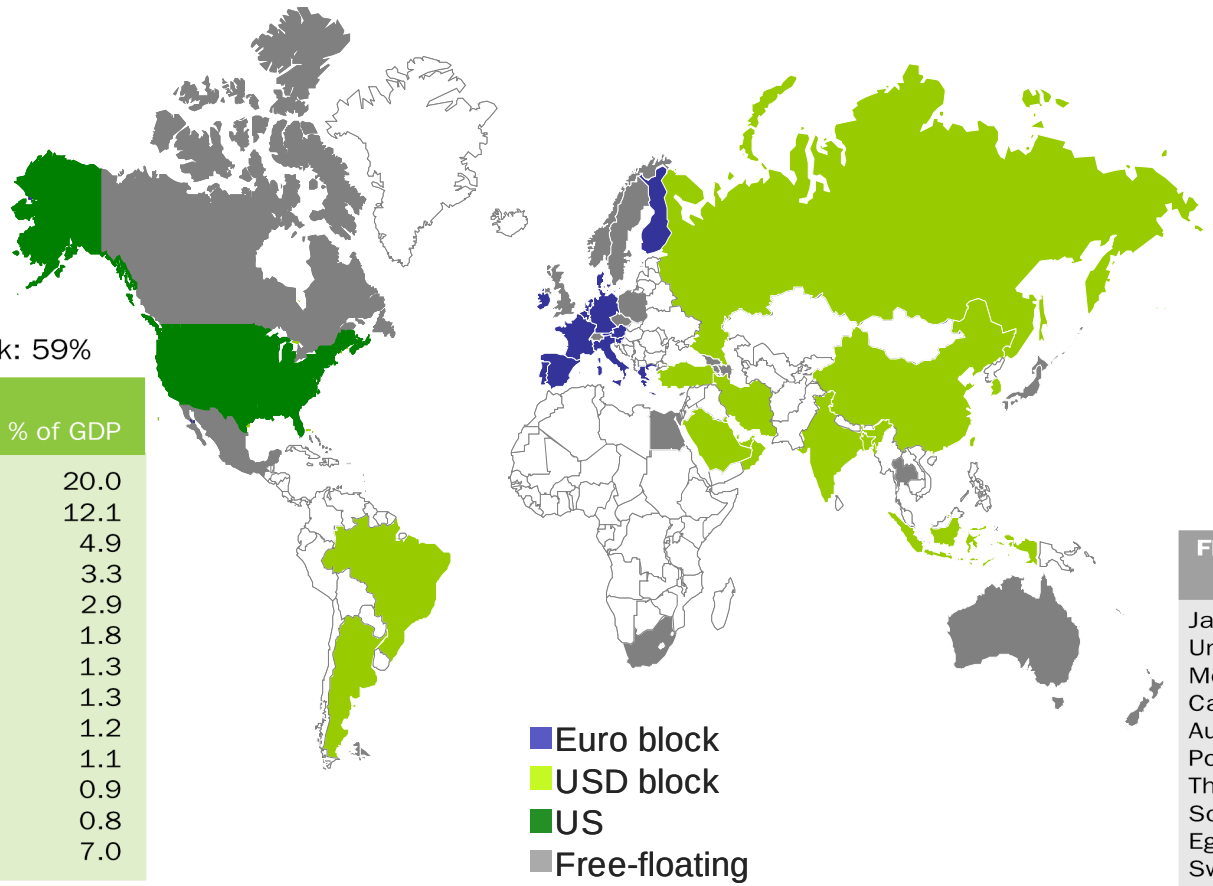
- As the incomes of the world's poorest rise from very low levels they enter the market for consumer goods, such as shampoos and toothpaste but also lots of energy…
- Everything needs energy – light, air conditioning, transport…



Sources: Hindustan Unilever, Dabur, P&G, AC Nielsen, Euromonitor

Currency blocs are exporting low interest rates from the core to the periphery… and accelerating the process

Flexible vs. Rigid Exchange Regimes (% of global GDP)



USD Block: 59%

USD Block	% of GDP
United States	20.0
China	12.1
India	4.9
Russia	3.3
Brazil	2.9
Korea	1.8
Turkey	1.3
Indonesia	1.3
Iran	1.2
Taiwan	1.1
Saudi Arabia	0.9
Argentina	0.8
Others	7.0

Euro Block: 15%

Euro Block	% of GDP
Germany	4.1
France	3.0
Italy	2.6
Spain	2.0
Netherlands	1.0
Belgium	0.5
Greece	0.5
Austria	0.5
Portugal	0.3
Finland	0.3
Ireland	0.3

Floating Currencies	% of GDP
Japan	6.2
United Kingdom	3.1
Mexico	2.2
Canada	1.8
Australia	1.1
Poland	1.0
Thailand	0.8
South Africa	0.7
Egypt	0.7
Sweden	0.5
Czech Republic	0.4
Norway	0.4
Others	1.4

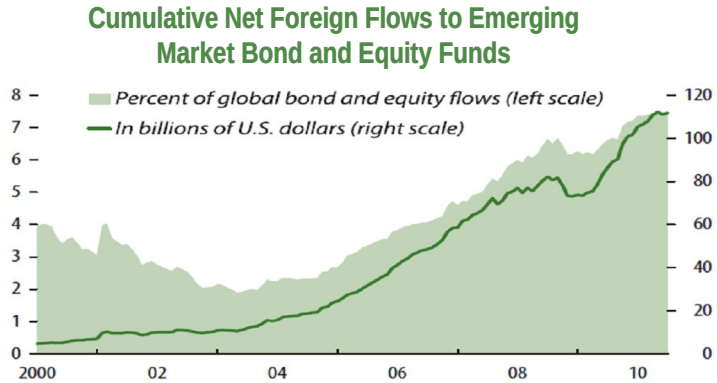
Source: Sarasin & Partners, IMF and WEO April 2010

Hence the danger that *'The world is in the midst of an international currency war'* Brazilian Finance Minister Guido Mantega…

US real estate and banking problems demand ultra low interest rates and quantitative easing – ***but US liquidity chases higher yield in EM Countries….***

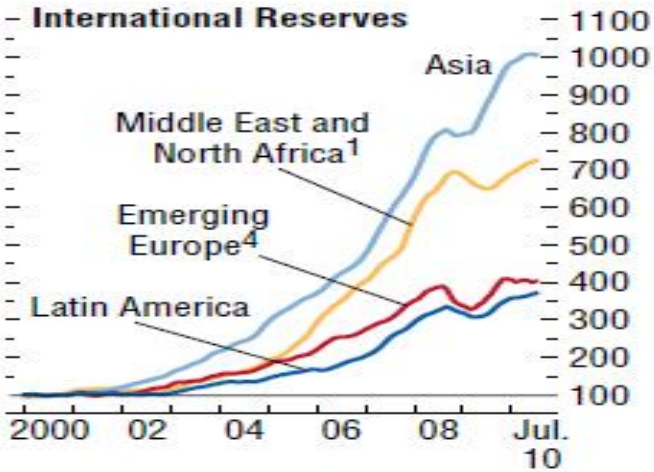
Without a sharply lower US dollar & improving exports - Bernanke ***needs more QE***

EM Countries: boom with large capital inflows



Sources: BNY Mellon iFlow℠ data; and IMF staff estimates.
Note: Flows are cumulated from January 1997.

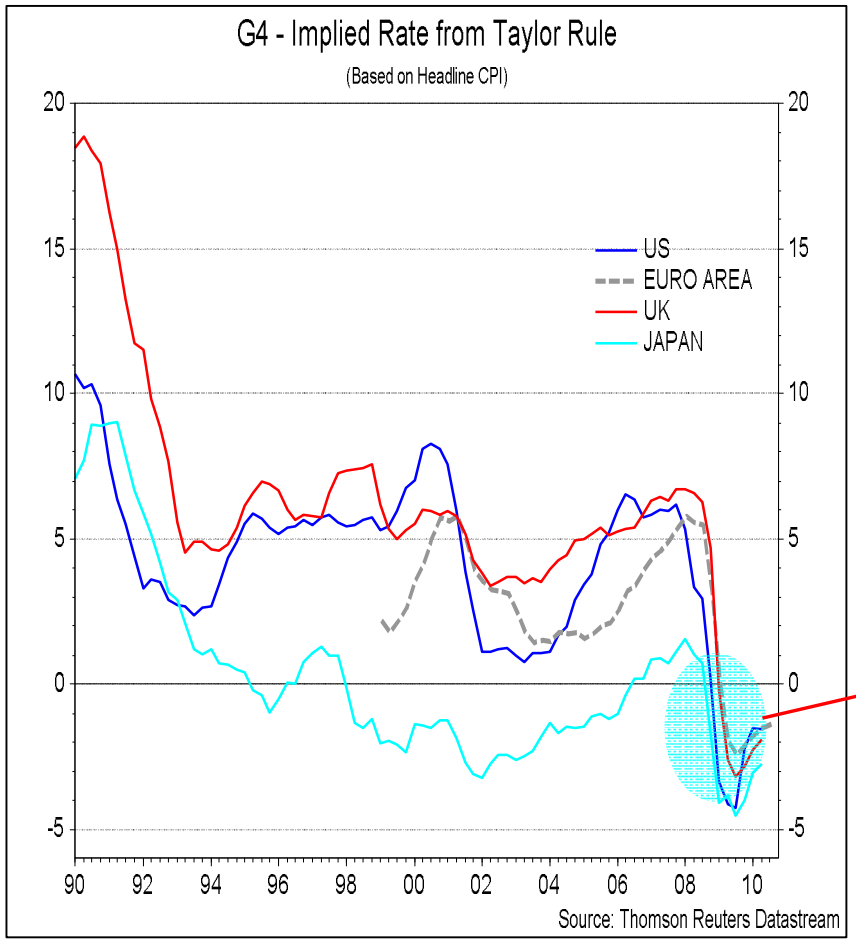
Massive dollar reserves are accumulated to restrain local currency appreciation…

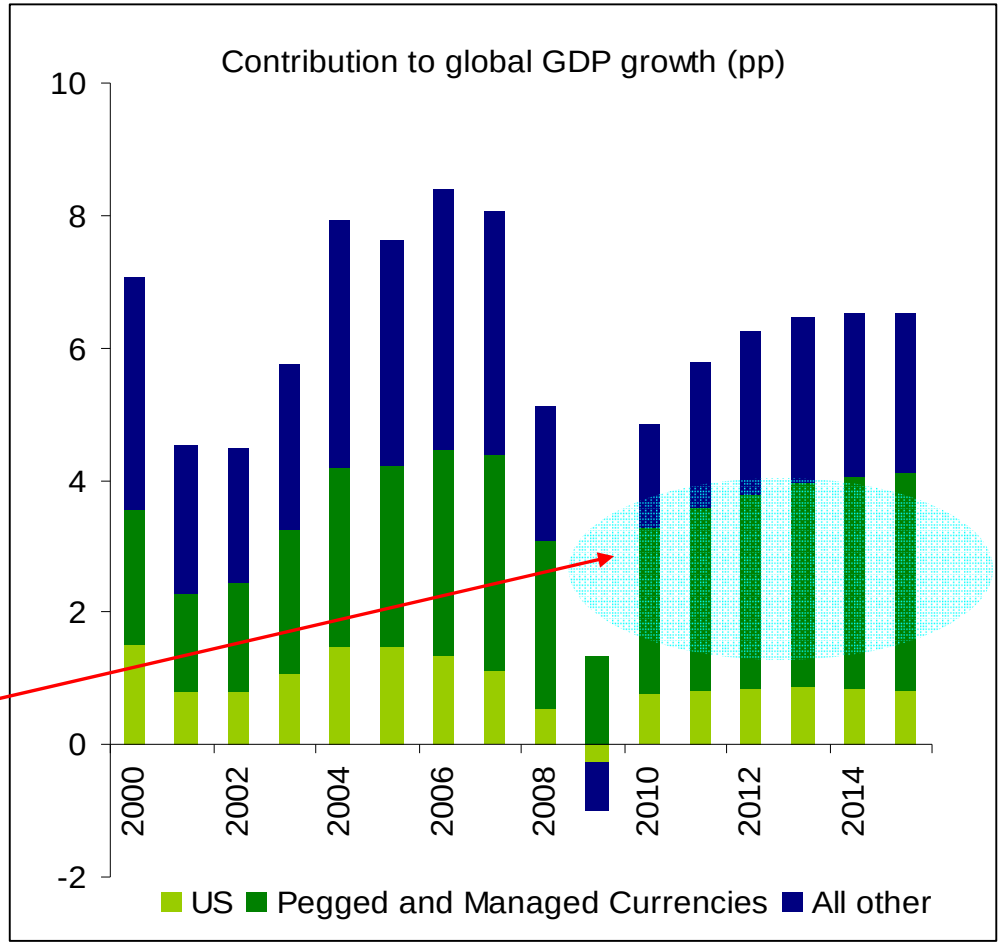


While floating currencies soar… with capital controls already seen in Brazil, Thailand, Indonesia.

Guido Mantega

With zero or even negative interest rates in the West, driving 'hyper-convergence' in the emerging world





***The Taylor** rule is a simple monetary policy rule that prescribes how a central bank should adjust its interest rate in response to developments in inflation and macroeconomic activity.*

Source: Sarasin & Partners, IMF and WEO April 2010

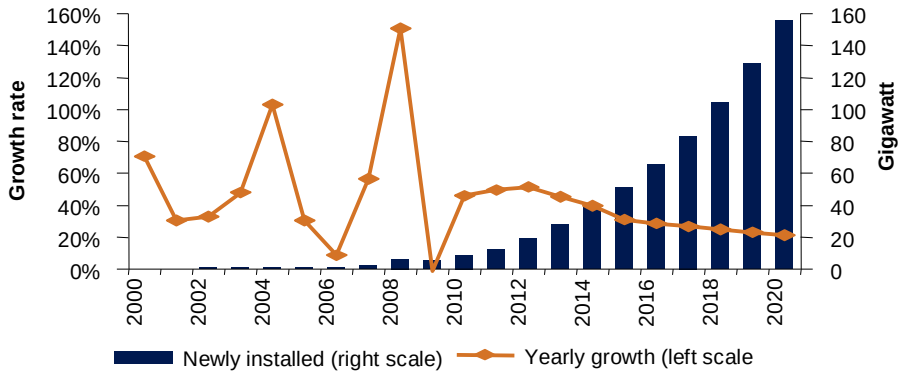
Key Drivers of Renewable Energy Demand

- Such unprecedented global development is likely to lead to an increase in World energy demand of over 45% by 2030 (*based on projections by the International Energy Agency, IEA)*
- Although the significance of climate change has dropped out of the headlines, energy efficiency and a switch to renewable energy production are still the main measures being taken to reduce the emissions of greenhouse gases
- The reliance of most countries on imported oil and gas also makes energy a key political issue – few want to be beholden to dominant energy suppliers
- Oil & gas reserves appear to be depleting and prices are rising

This is one of the most significant trends of our time

Renewable Energy – where to invest?

Energy saving	Thermal insulation, heating & ventilation, electrical equipment, energy contracting, etc.
Efficient power technology	Combined heat and power plants; Combined cycle power plants; Coal gasification, etc.
Conventional energy carriers with low Carbon-content	Natural gas Nuclear energy: an option? Carbon (with CO_2-reduction): an option?
Renewable (CO_2-neutral) energies	e.g. photovoltaics, Sarasin forecast of sector growth: +45% p.a. until 2012



Source: Sarasin, December 2009

Opportunities in Renewable Energy – Latest Trends

- First glimmer of recovery for Renewables for the future
- Financing of renewable energy project has become slightly easier
- Increased demand through 13 government stimulus packages (USD 512 bn for Clean Tech)
- Increasing involvement of power utility companies
- Fast track to cost competitiveness, reaching grid parity from 2012 onward
- Intelligent network solutions – Smart Grid applications and power infrastructure

Opportunities in Renewable Energy – Volumes of renewable energies resilient to the crisis

- 2009, both Europe and the USA, installed **more** energy from **renewable than** from **conventional** sources.
- Renewables reached a total installed capacity of 305 GW, a **16%** year-on-year growth.
- Including **large scale hydro** (925 GW), 25% of global electricity capacity is provided by Renewables.
- In 2009 a total of EUR **130 bn** was invested in renewable capacity expansion
- Cumulative **global PV** capacity stands now a 21 GW. (equiv. to the electr. production of **3 nuclear power plants**)

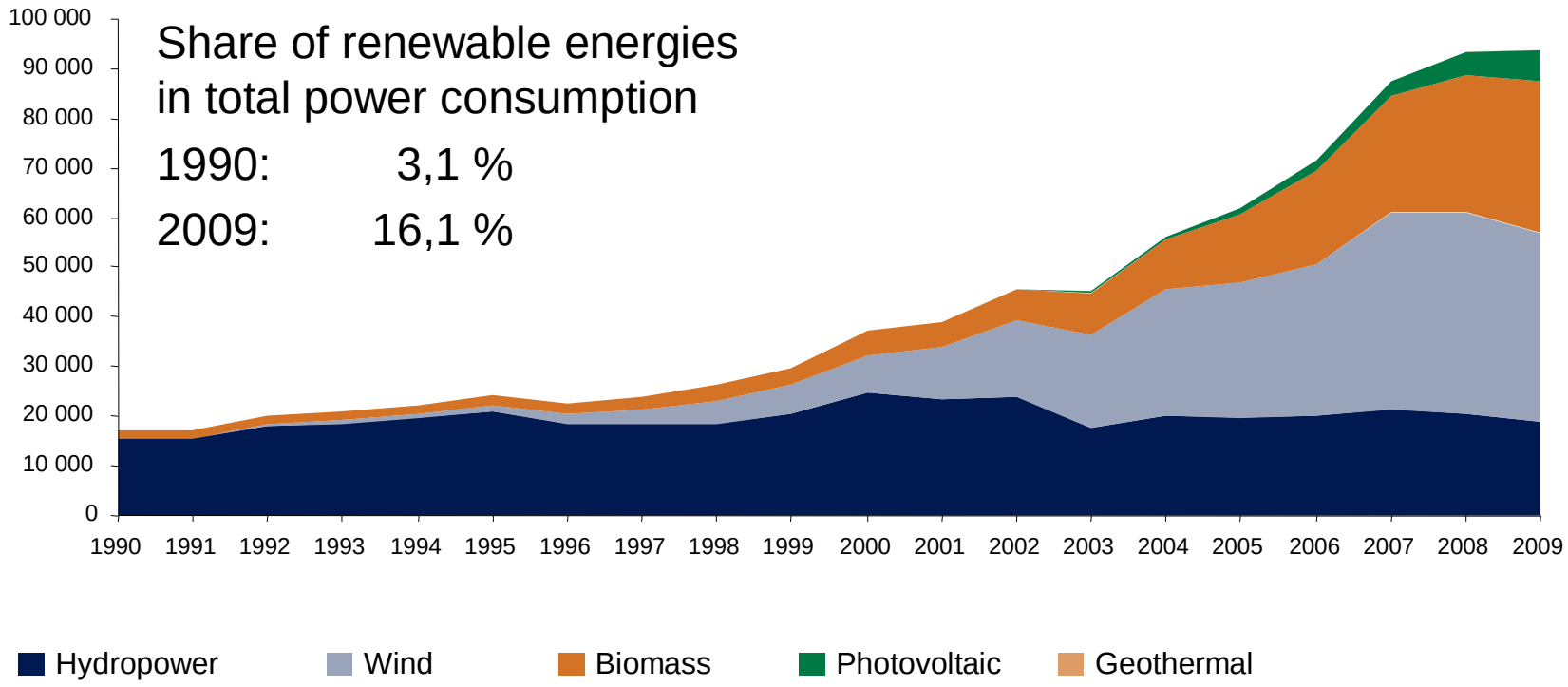
Global renewable electricity capacities at y/e 2009

Technology (gigawatt)	**Total world**	3rd world	**EU-27**	**CN**	**US**	**DE**	**ES**	**IN**	**JP**
Wind	**159**	40	75	26	35	26	19	11	2
Small hydro	**60**	40	12	33	3	2	2	2	4
Biomass	**54**	24	16	3.2	9	4	0.4	1.5	0.1
Photovoltaics	**21**	0.5	16	0.4	1.2	10	3.4	~0	2.6
Geothermal	**11**	5	0.8	~0	3.2	-	-	-	0.5
CSP plants	**0.7**	-	0.2	-	0.5	-	0.2	-	-
Ocean	**0.3**	-	0.3	-	-	-	-	-	-
Total renewables	**305**	**110**	**120**	**62**	**52**	**42**	**25**	**14**	**9**

Source: REN 21, Aug 2010

Opportunities in Renewable Energy – Example Germany – Growing Weight and Diversity

Power generation from renewable sources 1990 - 2009
in gigawatt hours

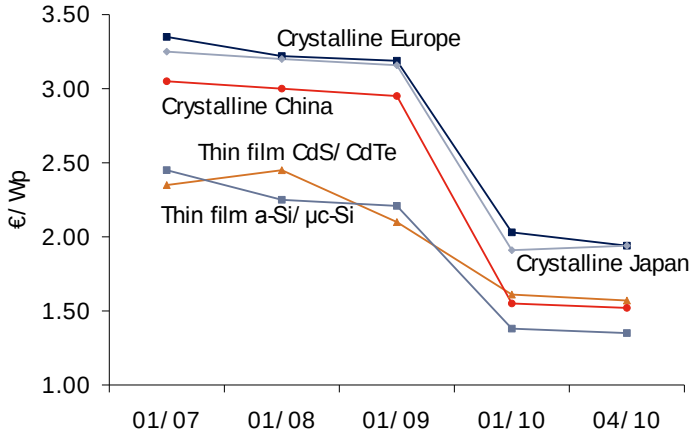


Source: Bundesumweltministerium Deutschland, March 2010

Opportunities in Renewable Energy – Since 2007 first time stable margins

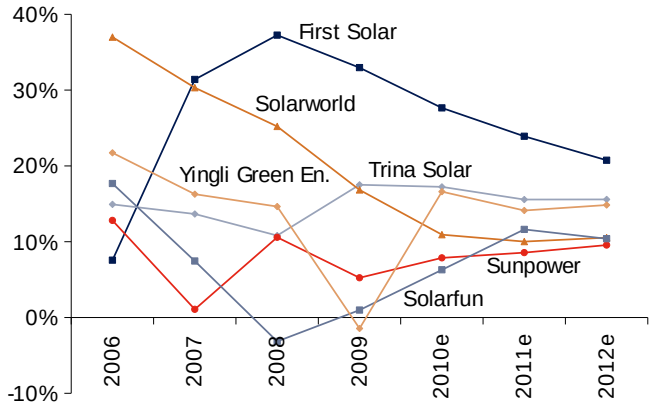
- In **2009 module prices** were **down by 30 to 50%.** Before, normally it was 5 to 10% p.a.
- Price difference between Chinese and European modules increased from 10 to 20%.
- Growing number of solar companies, esp. from Asia, aiming to gain market share.
- **Growing competition** led to a price slump and ergo to increasing margin pressure.
- In the **future operating margins between 10 to 15% are still achievable**. This is a normal level in a mature industry with competitive mass production.

Solar module price slump



Source: PVXchange, Bank Sarasin, August 2010

EBIT margin of 6 PV-companies

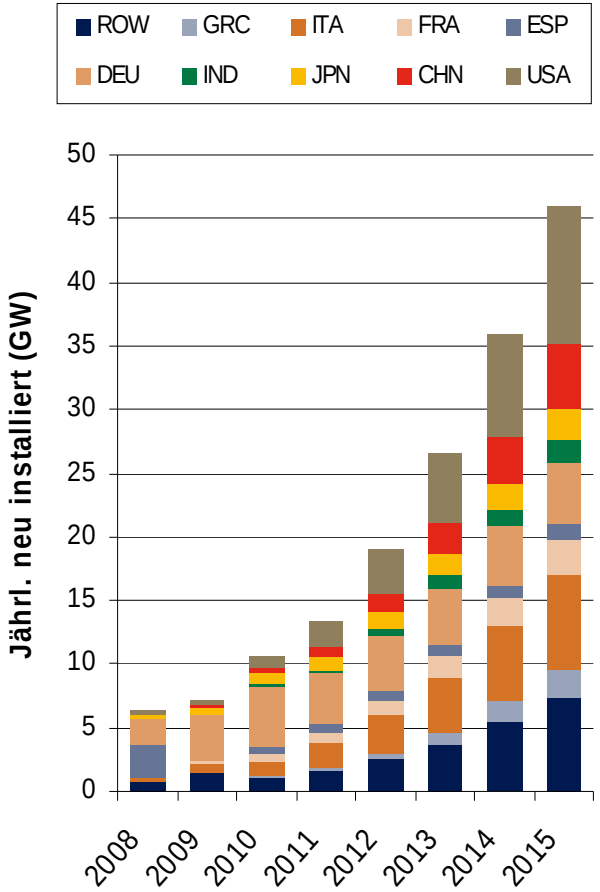


Source: Datastream, Bank Sarasin, August 2010

Opportunities in Renewable Energy – PV-Industry – from a niche to a mass market

- **2009**: PV business changes to a **buyer's market**. Despite economic crises and cuts in subsidy programmes the newly installed PV capacity grew by 13%.
- **2010:** Further decrease of feed-in tariffs. Industry reacts with **cost reductions and efficiency increase**. This allows the newly installed capacity to grow by 48% (10,6 GW).
- **2011:** Growth will be reduced to 26%. Slowing **German market** will be **replaced** by other booming markets (China, Japan, India, South Africa and USA), 13,3 GW.
- **2009 - 2015:** Annual growth of newly installed capacity of **36% p.a**. Module prices decrease by **10% p.a**.

PV market forecast up to 2015

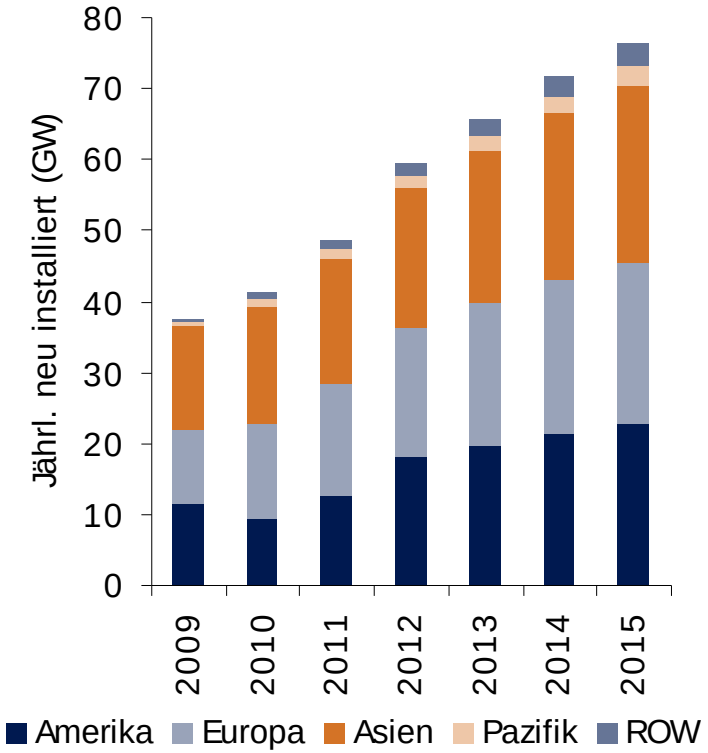


Source: Bank Sarasin, August 2010

Opportunities in Renewable Energy – Wind energy – still upward trend

Sarasin forecast for the wind energy market up to 2015 in Gigawatt:

- New installations in 2009: 37 Gigawatt
- Forecast 2010: 41 Gigawatt newly installed
- Average annual growth rate **2010-15**: **13%**
- 2015 could see a newly installed capacity of 76 GW
- Above average growth in China, Australia, Canada, Brazil and India
- USA needs further incentives and a higher gas price (since 2008 it has fallen by 65%)

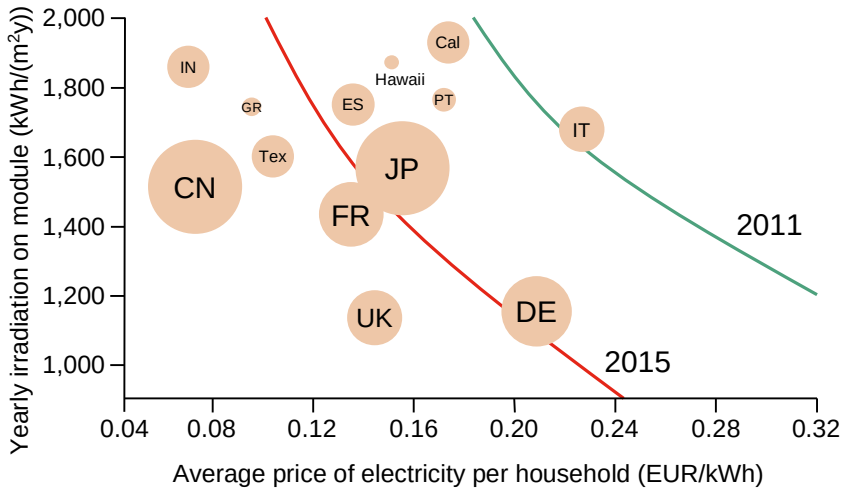


Source: Bank Sarasin estimates, based on data from BTM Consult, Denemark

Renewable energies – Strong drivers enable development from a niche to a mass market

- Further decrease of subsidies requires price and cost reductions coupled with efficiency increase.
- Average growth of newly installed PV-capacity by 33% over the next five years.
- Additional booming PV-markets such as China, Japan, India, South Africa and USA.
- Grid parity for PV-systems in Italy and California in 2011. Other regions will follow.
- After consolidation the real winners in Renewables will emerge and create value.

PV-markets: Progress towards grid parity for private consumers

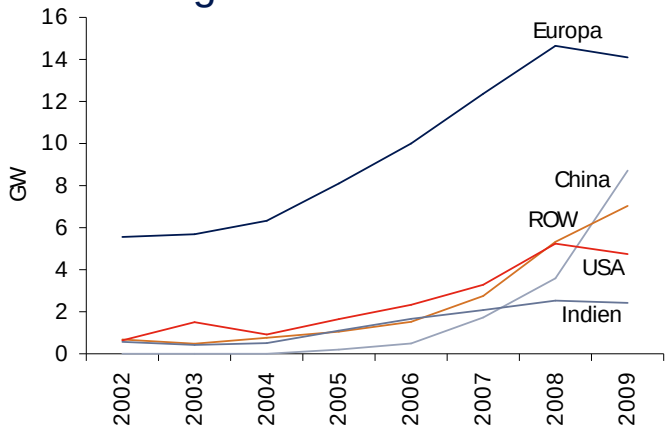


Source: EPIA, REC, Bank Sarasin, Sep. 2010

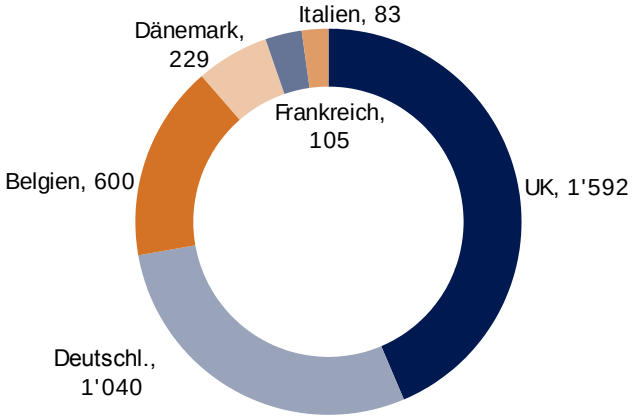
Opportunities in Renewable Energy – Wind energy – Offshore and China the big drivers

- **Chinese wind turbine manufacturer are on the rise**. Vestas, Gamesa and GE Wind are loosing market share. Five Chinese comp. in the Top 15: Sinovel (9,2% market share), Goldwind (7,2%) und Dongfang (6,5%).
- **China** is biggest market for newly installed wind turbines (2009: 13 GW; **35%** of the world market)
- UK plans biggest Offshore wind parks with 25 GW. Until 2020 more than 5 000 turbines for EUR 90 bn shall be installed around the island.
- Siemens is the biggest supplier of Offshore wind turbine with a market share of 70%.

Booming Chinese



Offshore wind parks under constr. (MW)



Source: BTM Consult, EWEA (Jan 2010), Bank Sarasin

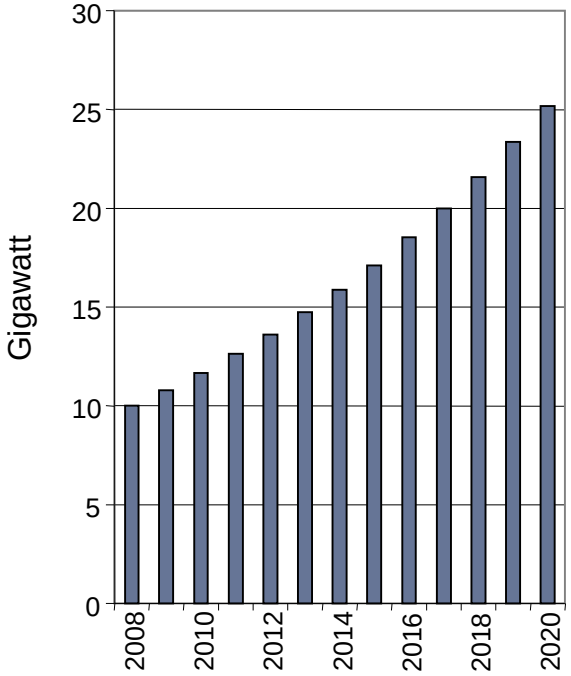
Opportunities in Renewable Energy – Geothermal

- Since 1990 worldwide geothermal power generating capacity grew by 5% per year and this rate is predicted by EGEC (European Geothermal Energy Council) to remain stable for the next decade
- Geothermal power is a very cost-competitive electricity generation
- 215 geothermal power stations in 24 countries worldwide are in operations
- In 2009 the total installed capacity exceeded 10 GW
- Additional geothermal power plants with a total capacity of 9 GW are currently being built

Forecast global of geothermal energy generation capacity to 2020 (Cumulative data)

Installation 2009: 11 GW

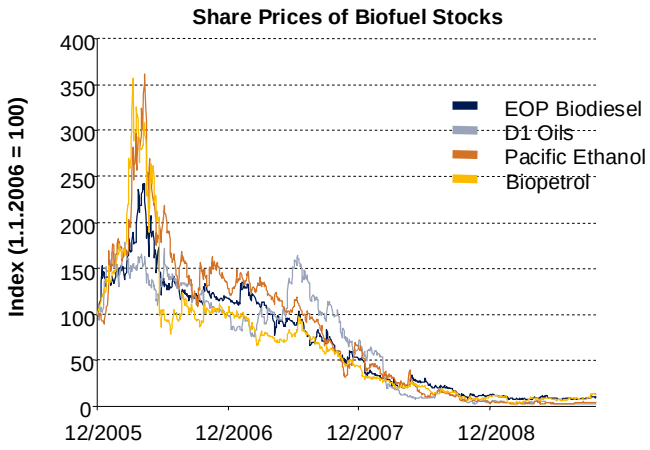
Forecast 2020: 25 GW



Source: Enel, Bank Sarasin, June 2009

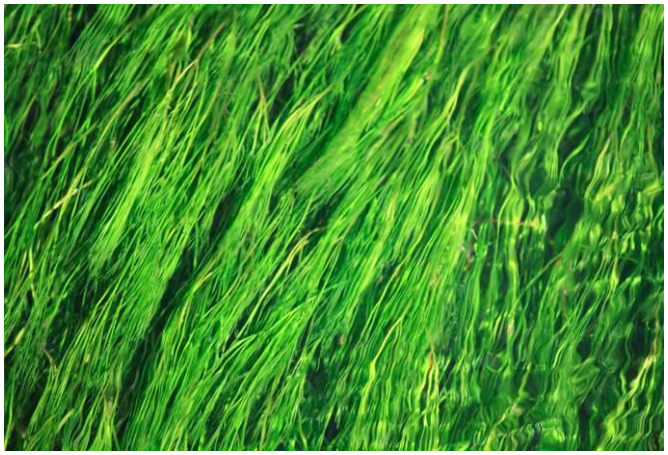
Opportunities in Renewable Energy – Next generation of Biofuels

- Disillusion about **1st Generation** Biofuels (ethanol from maize and sugarcane, biodiesel from vegetable oils): “Food versus Fuel” debate and questionable environmental benefits



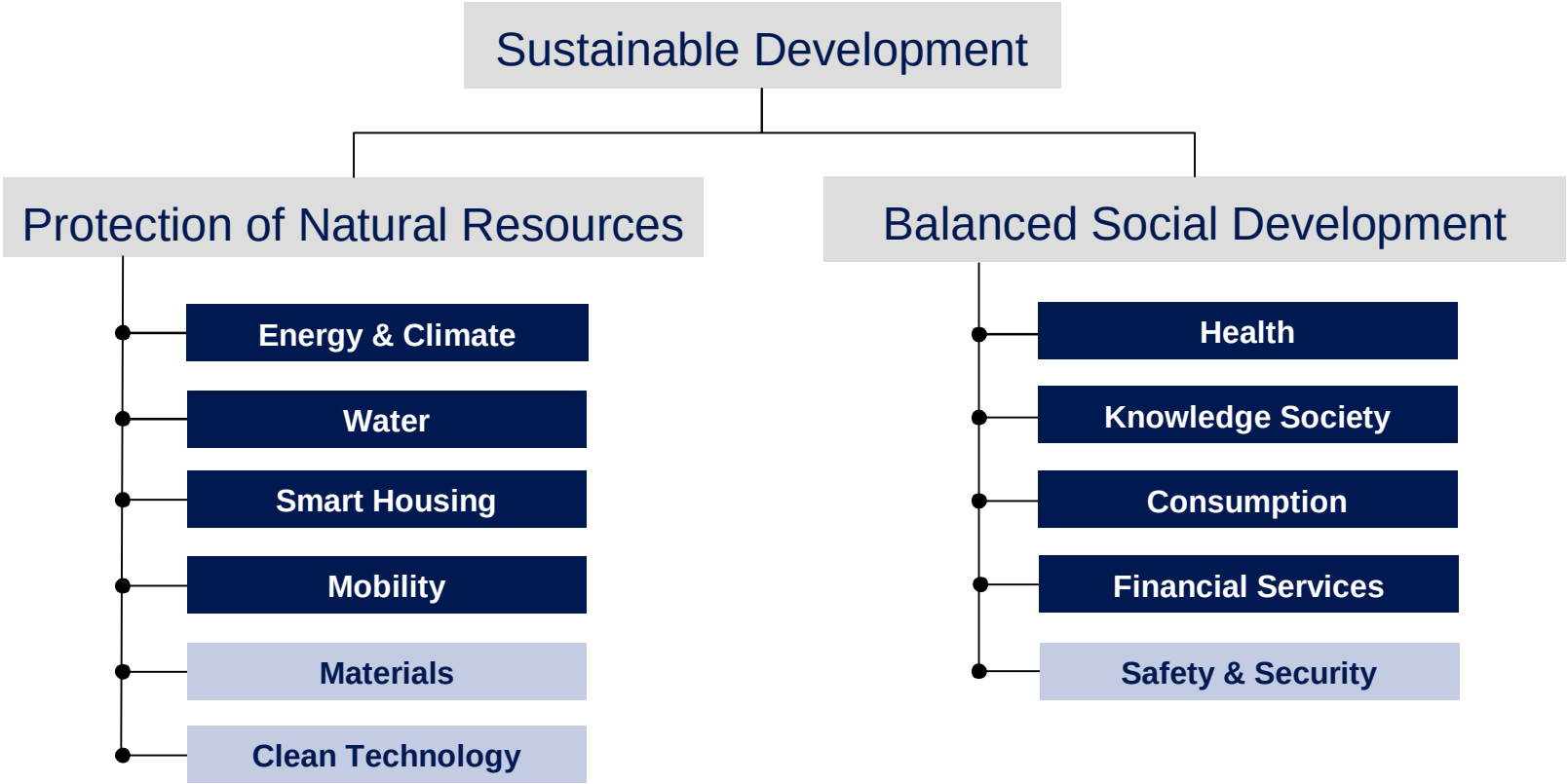
Source: Datastream, 30.11.2009

- **Next generation** Biofuels (no competition to food)
  - New plants and organisms (Jatropha, Algae)
  - New processing technologies for agricultural waste (Cellulose Ethanol)



Energy is just one part of the Sustainable investment universe

The Universe of Sustainable Investment Themes



= currently selected themes

= potential future themes

Sustainability Themes – "Water crisis" - Clean Water is Scarce

Climate change accelerates water crisis

- United Nations Development Programme (UNDP): "The climate change threatens to intensify water insecurity on an unparalleled scale."
- Food and Agriculture Organization of the United Nations (FAO): "The countries that already suffer from water scarcity will be hit the most."

Access to drinking water

- 1.1bn people are without access to clean drinking water
- 2.6bn people are without sufficient sanitary facilities
- 30% of world population lives in regions with scarcity of water

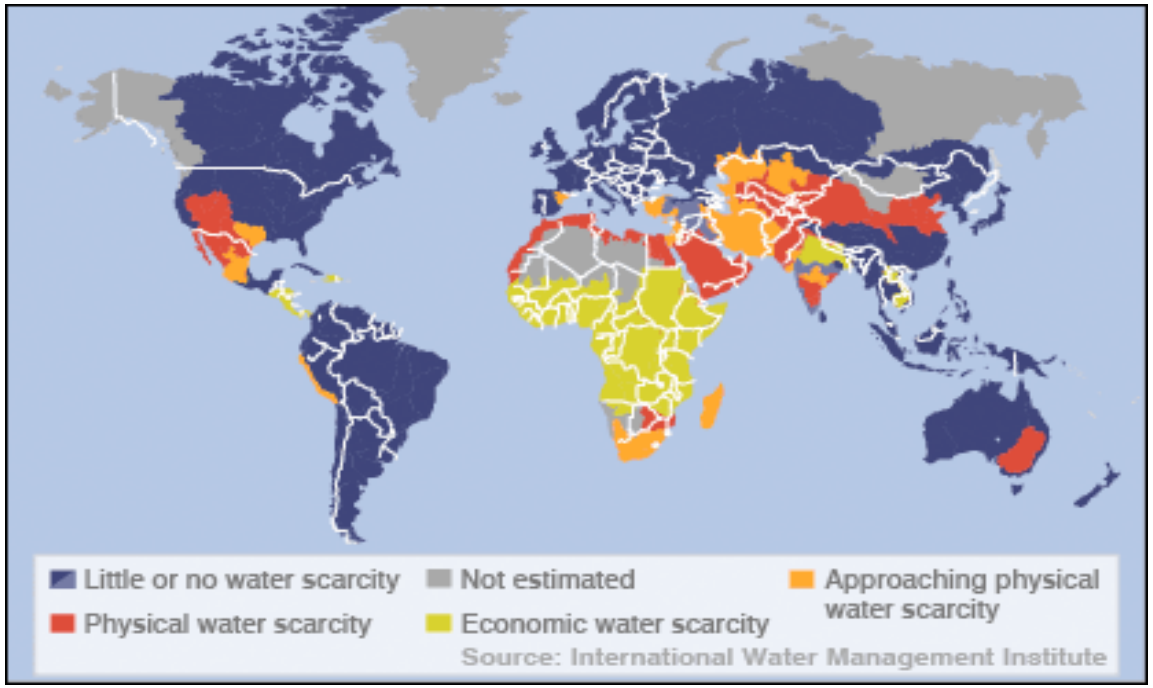
Water pollution

- through industrialization (especially in emerging markets like China) and agriculture

Source: WHO, UNICEF 2004

Sustainability Themes – Freshwater stress is not limited to developing countries

- Global warming causes changes in precipitation and evaporation patterns
- 2025 two-thirds of the world population will live in water stressed regions*



* Source: United Nations Environment Programme, 2008

Sustainability Themes – Water – Which companies will benefit?

Construction and operation of local water systems

- Privatization of international water suppliers
- High potential of political conflict requires a socially responsible management

Water storage and transportation

- Dams
- Irrigation projects
- Water pipelines

Water purification technology

- Drinking water preparation
- Wastewater treatment
- Desalination of sea water

Water efficiency

- Agriculture: efficient irrigation systems
- Industry: Circular flow processes (multiplexing)
- Households: Water saving solutions (e.g. lavatory flush, utilization of rainwater)

Sustainability Themes – Company Example of the Water Theme

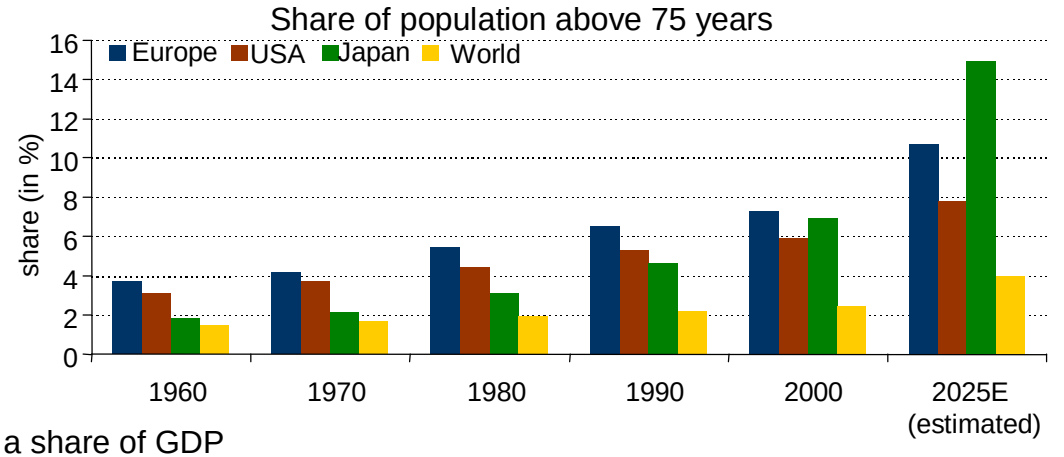
Companhia de Saneamento Basico do Estado de Sao Paulo (SABESP)

- Third largest water and sewage utility company in the world in terms of customers
- Plans, constructs and operates water, sewage and industrial wastewater systems in over Brasilian 366 cities
- Achieves reductions in water loss and pushes up the portion of local sewage that is collected and treated
- Also supports projects for the preservation of water sources, the clean-up of local river systems and the improvement of shanty town areas

Performance of the share price
31/10/2000 – 31/10/2010 in BRR

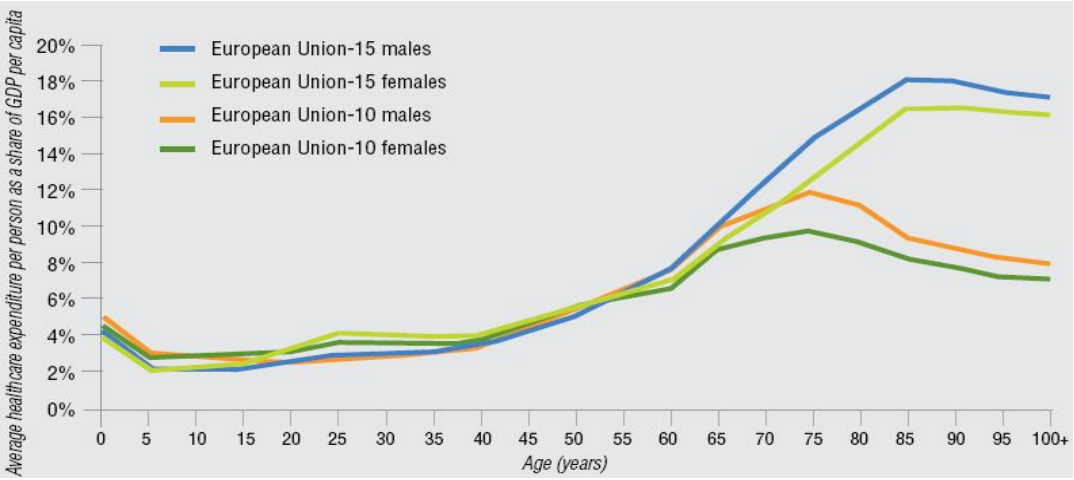
Sustainability Themes – Health – Bottlenecks in the health care systems

Change in demographics…



Source: WHO, 2005

Average healthcare expenditure per person as a share of GDP



…and rising cost pressure

Source: IBM, 2006

Sustainability Themes – Health – Which companies will benefit?

Increasing cost pressure

- Cost efficient products (medtech, generics)
- Prevention (fitness, safety, vaccines)
- Disease management
- Healthcare Information Technology

Focus on quality/outcomes

- Diagnosis
- Medical data providers

Well-being

- Minimal invasive
- Alternative medicine
- Home based therapies, hearing devices etc.

Access to healthcare

- Products for neglected diseases (new incentives from US Food and Drug Administration, reputation benefits, access to new markets, tropical diseases move north)
- Orphan drugs

Sustainability Themes – Company Example of the Health Theme

Essilor

- Essilor Group manufactures and sells ophthalmic lenses (95% of revenues) and instruments for lens edging and vision screening
- Environmental and safety aspects are systematically integrated in product and process development
- Airwear lenses made from polycarbonate are the first recyclable product
- Production and offering of simple and effective lenses as well as education in ophthalmology in emerging market countries
- Ophthalmic lab in the countryside (India)

Performance of the share price

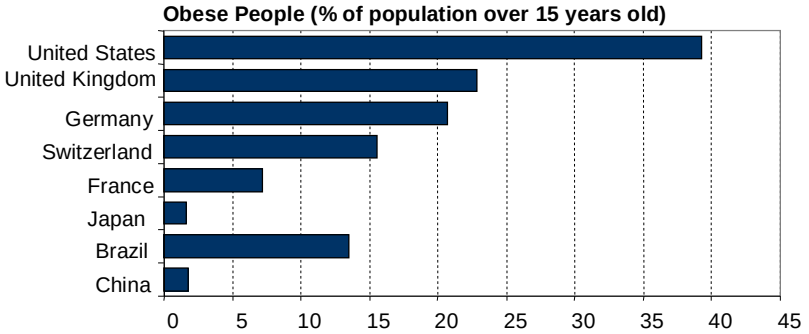
31/10/2000 – 31/10/2010 in EUR

Source: Datastream. No re-investment of dividends.

Sustainability Themes – Consumption – Out of Balance

Food: too much – too little

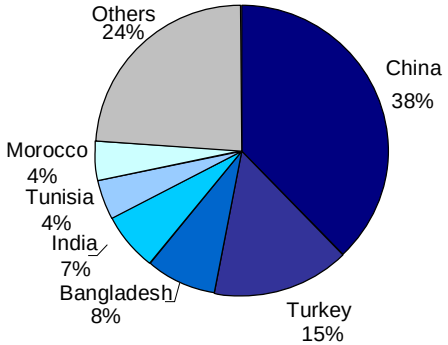
- Quantity: Obesity poses a growing problem
- Quality: a continuous flow of food scandals
- While 800m people remain undernourished worldwide



Source: WHO, 2008

Globalisation of supply chains

- The relevance of emerging markets rises due to advantages in labour costs



Example apparel: Countries of origin for textiles in the EU (2007)

Source: Eurostat, 2008

Ethical questions

- Genetic engineering, animal husbandry, animal testing

Sustainability Themes – Company Example of the Consumption Theme

Starbucks

- Operates coffee shops all over the world and is a buyer, roaster and retailer of specialty coffee. The company also produces and sells tea, CDs and brewing equipment and accessories
- 78% of the sales are generated from the US coffee shop business, 18% from the international coffee shop business and 4% from other products and merchandise
- Starbucks operates 15,000 coffee shops in 45 countries
- 59% of Starbucks coffee comes from environmentally friendly production, which the company promotes through financial incentives and technical support for its suppliers. 6% of Starbucks coffee originates from fair trade sources

Performance of the share price

31/10/2000 – 31/10/2010 in USD

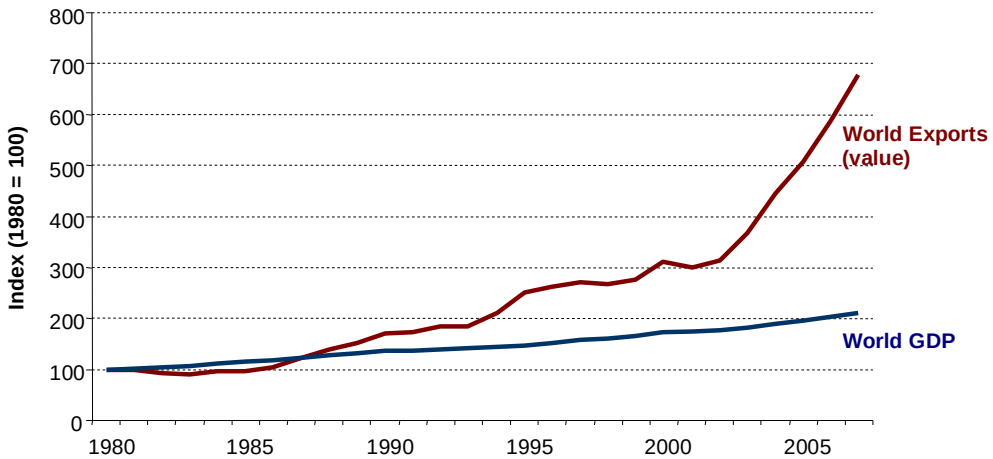
Source: Datastream. No re-investment of dividends.

Image & source: www.starbucks.com

Sustainability Themes – Mobility - Rapid global growth

Growing global trade

…as growth driver to the transportation sector

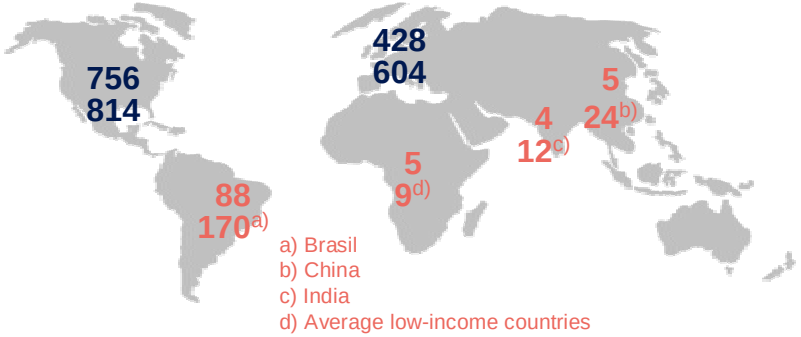


Source: WTO, 2008

Increasing motorization

… and expansion of road networks in emerging markets

Global Motorisation (vehicles/1‘000 inhabitants for 1990 and 2005)



Source: World Bank, World Development Indicators 2008

Sustainability Themes – Mobility – Environmental risks & regulatory pressure

Climate change, particulate matter

- **20-25%** of worldwide climate relevant emissions
- with **+2%** p.a. growing faster than in other sectors
- Air traffic could supersede road traffic as largest contributor to emissions in the medium term

Increasing regulatory pressure

- **Consumption & emission** will be limited
- Inclusion of air traffic in the European **emission trading system**
- **Relocation** towards more sustainable means of traffic will in political debates increase in weight

Sustainability Themes – Mobility – Which companies will benefit?

Clean technologies

- Increasing efficiency of conventional engines
- Electrification

Sustainable logistics

- “Rail renaissance” - shift to railroads
- Logistical services for demanding customers with integrated environmental management

Sustainable transport for individuals

- “Rail renaissance” - expansion of public transport (especially in agglomeration areas in Emerging Markets)

Sustainability Themes – Company Example of the Mobility Theme

Canadian Pacific Railway

- Specialized on Railroad transportation of goods
- Benefits from high crude oil prices
- Reduction of CO2 and NOx-Emissions per ton kilometer by 25-30% since 1990; voluntary agreement with Canadian authorities to reduce emissions (in North America mainly Diesel propulsion)
- Mutual trust with (powerful) Labour Unions

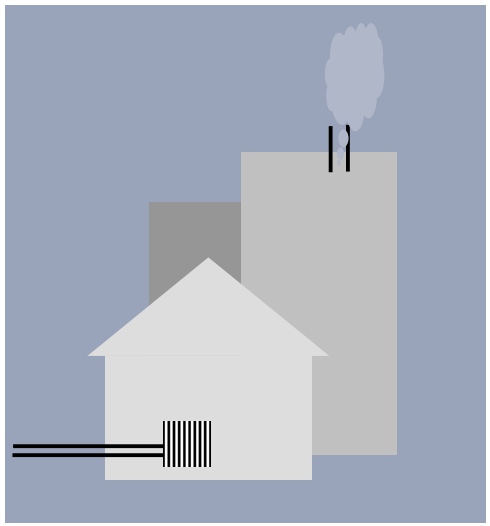
Performance of the share price
31/10/2002 – 31/10/2010 in CAD

Image & source: www.cpra.ca.

Sustainability Themes – Smart Housing – Oil price and climate change push drive for energy efficiency

Oil price

- Heating oil prices on long-term rise
- Energy: one third of operating costs of real estate/houses



Climate Change

- Buildings: a major source of greenhouse gases (24% globally*)
- Buildings offer most cost-effective CO2 abatement potential
- Growing urbanization exaggerates the problem
- Strong regulatory action

*Source: IEA, 2008

Sustainability Themes – Smart Housing – Stricter standards around the world

EU

- aims to save 50% of energy consumed by buildings by 2020
- Germany (energy pass) and UK (zero-carbon homes by 2016) as front runners

USA

- Stricter standards pushed by big cities and states (i.e. California)
- Widely accepted certification system

Sustainability Themes – Smart Housing – Which companies will benefit?

Heating/Cooling Technologies

- Energy-efficient and low-carbon technologies (e.g. heat pumps, solar energy technologies)

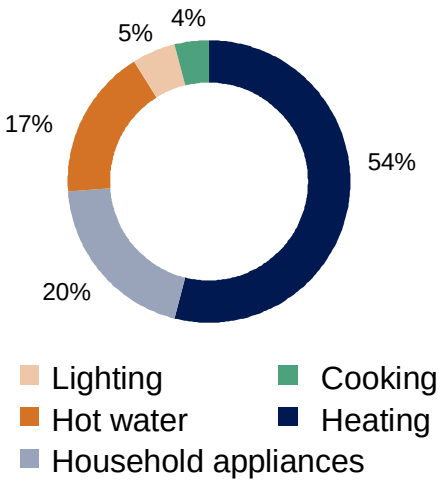
Insulation

- Insulation Materials
- Building products (e.g. windows)

Planning and Engineering

- Energy efficient integrated building concepts
- Regional planning

Amount of energy used to run homes



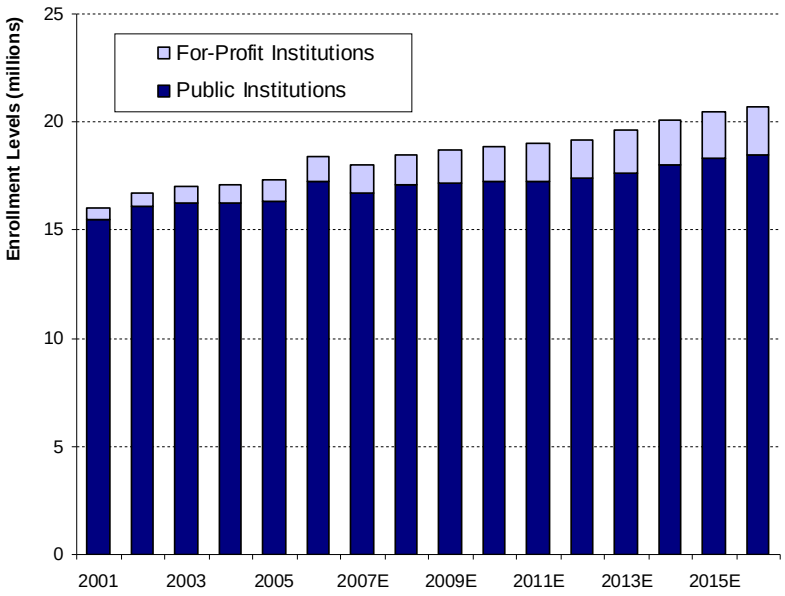
Source: IEA 2008

Sustainability Themes – Knowledge Society

Need to raise educational standards in the face of global competition

- The trend towards specialization among economies puts pressure on industrialized nations to focus on knowledge intensive activities
- To maintain the knowledge leadership huge investments (both public and private) will have to be made in professional training and higher education
- Information providers have a powerful impact on making knowledge available to the broad population

USA: Increase of enrolments for education programs and growing share of for-profit institutions

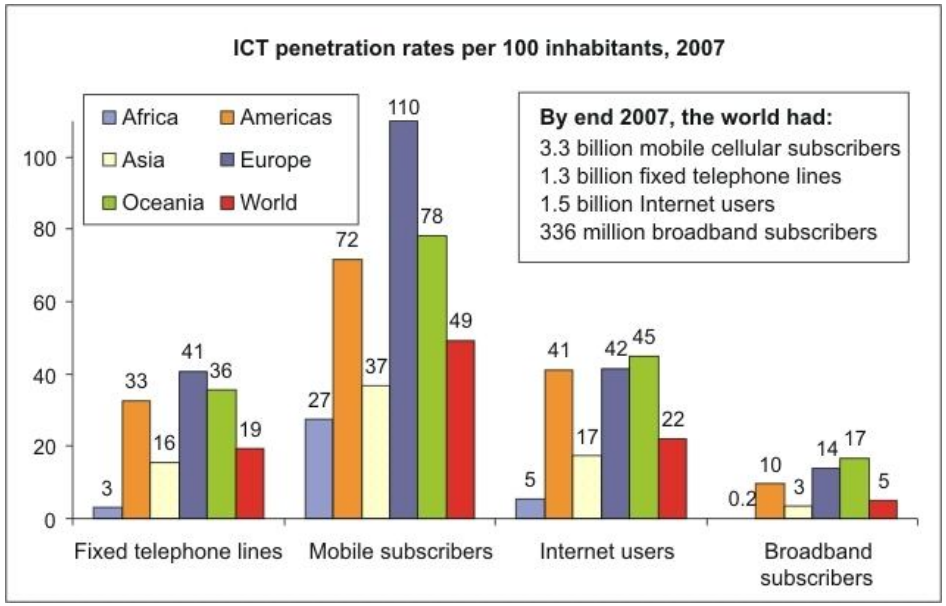


Source: National Center for Education Statistics und Morgan Stanley (Forecast), 2008

Sustainability Themes – Knowledge Society

Access to information is a crucial condition for economic and social development

- Closing the gap in access to communication and information for people in emerging markets will remain one of the priorities in development strategies
- This requires enormous investments in infrastructure projects as well as improvement measures in basic education
- Consumers in the emerging markets benefit from leapfrogging technologies (e.g. already more users of mobile phones than fixed telephone lines)



Source: International Telecommunication Union ITU, 2008

Sustainability Themes – Knowledge Society – Which Companies will benefit?

Education providers

- Private universities
- Continuing training / distant learning for professionals

Media

- Publishers of scientific, medical, legal and economic journals
- High quality news publications

Access to information services

- Affordable and widely accessible cellular telephony services in Emerging Markets
- Information infrastructure (e.g. internet, telephony)

Sustainability Themes – Company Example of the Knowledge Society Theme

Infosys

- Infosys Technologies is a global IT service provider (software and consulting)
- Infosys operates in 26 countries with six subsidiaries in India, Australia, China, Mexico, Sweden and the US. India accounts for 80% of the total workforce
- The development of "sustainable IT solutions" has become part of Infosys' business strategy
- In 2008 Infosys achieved a 13% reduction of electricity use and carbon emissions compared to the 2007 level. In India, power use at data centres was reduced by 83%.

Performance of the share price

31/10/2000 – 31/10/2010 in INR

Source: Datastream. No re-investment of dividends.

Image & source: www.infosys.com

Sustainability Themes – Financial Services

- The financial sector has a high leverage on the real economy by encouraging sustainable strategies both through financing and investment activities
- Institutional assets (e.g. pension money) can bring about positive change by allocating assets to sustainable businesses
- Financing the growth in emerging markets has far-reaching environmental, social and ethical implications

PRI Principles for Responsible Investment

The Equator Principles
A benchmark for the financial industry to manage social and environmental issues in project financing

Sustainability Themes – Financial services – Which companies will benefit?

Access to basic banking services

- Building retail banking networks in Emerging Markets
- Microfinance

Project and corporate financing

- Financing growth in Emerging Markets while complying to ethical standards

Sustainable Investment

- Comprehensive product lines in socially responsible investment
- Basic SRI screens for all managed assets

Safe pensions

- High quality products for private retirement savings
- Fair and responsible dealing with customers

Sustainability Themes – Company Example of the Financial Services Theme

HSBC

- One of the world's largest banks with international presence in emerging markets
- Business units : Personal Financial Services (48% of net operating income 2008), Commercial Banking (18%), Global Banking and Markets (16%), Private Banking (4%) and Other (14%)
- HSBC has guidelines for the financing of companies working in various environmentally relevant industries, e.g. forestry, chemicals and mining. The bank committed itself to applying the criteria of the World Bank for financing projects.

Performance of the share price

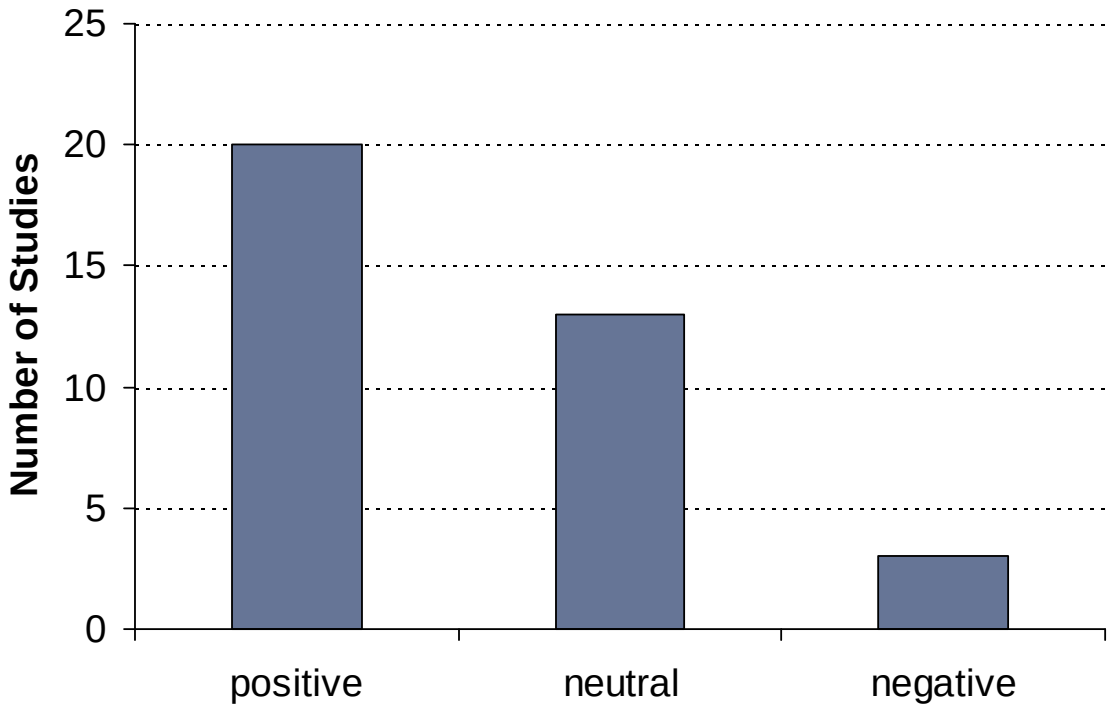
31/10/2000 – 31/10/2010 in HKD

Source: Datastream. No re-investment of dividends.

Image source: www.hsbc.com

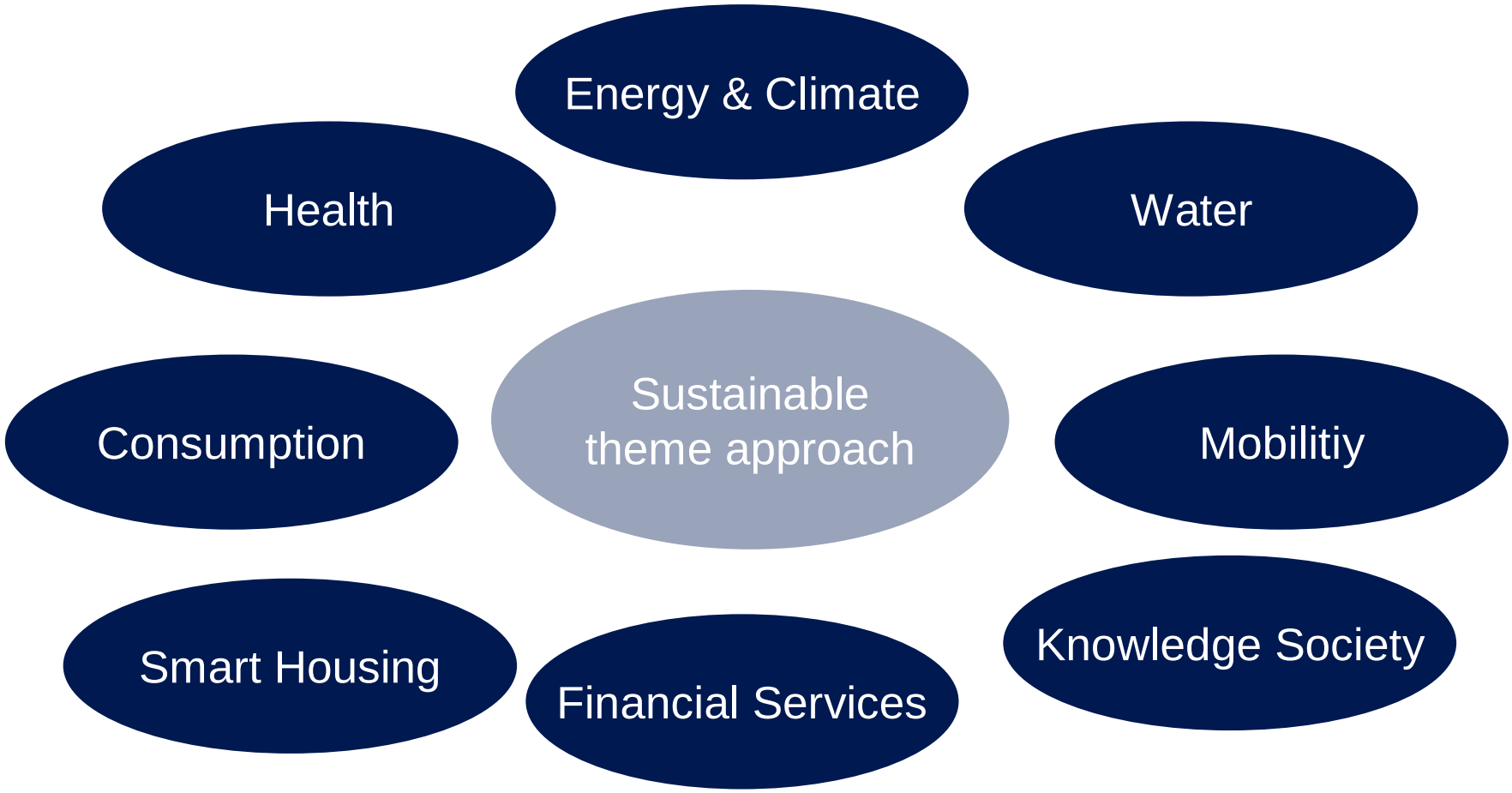
SRI & Performance:
Results of a Recent Survey by Mercer

Review of 36 studies on SRI and performance[a)]: Majority shows evidence of a positive relationship



a) Combined result of Mercer-Studies "Demystifying Responsible Investment Performance", October 2007 and "Shedding Light on Responsible Investment", November 2009

Despite short-term problems, there are still exciting long-term opportunities in Sustainable investment



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& PARTNERS

For further information please contact us

Sarasin & Partners LLP
Juxon House
100 St. Paul's Churchyard
London, EC4M 8BU
Tel. +44 (0)207 038 7000
Fax. +44 (0)207 038 6850

www.sarasin.co.uk