

**“Reti ospedaliere
Strumenti e modelli per la programmazione”**
Agenzia nazionale per i servizi sanitari regionali
6th November 2009



EUROPEAN CENTRE FOR HEALTH ASSETS AND ARCHITECTURE

Investing in hospitals of the future

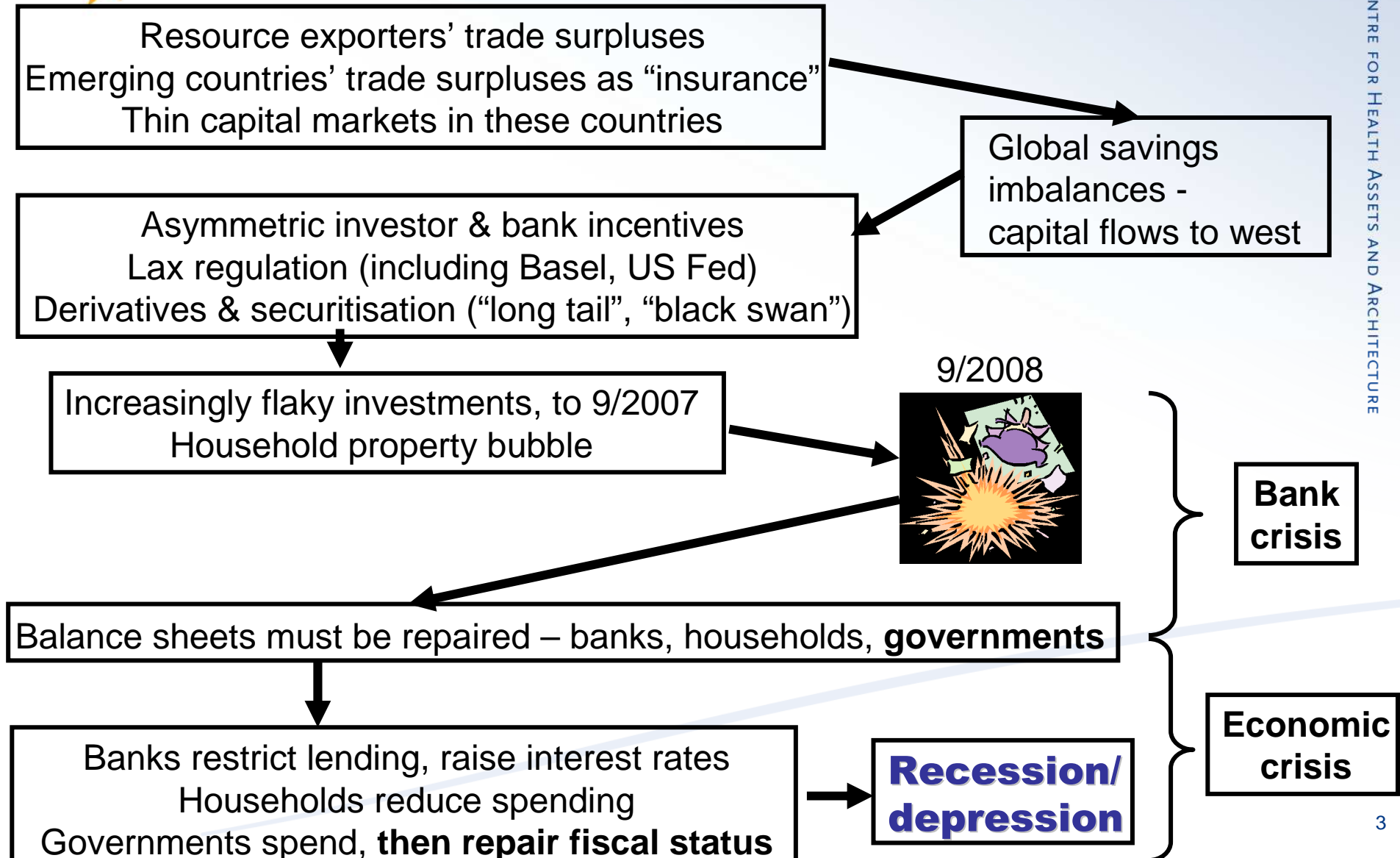
Steve Wright



European Centre for Health Assets and Architecture

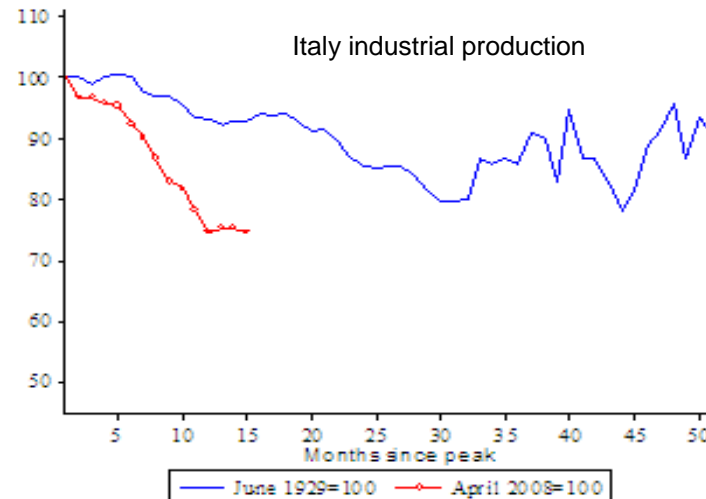
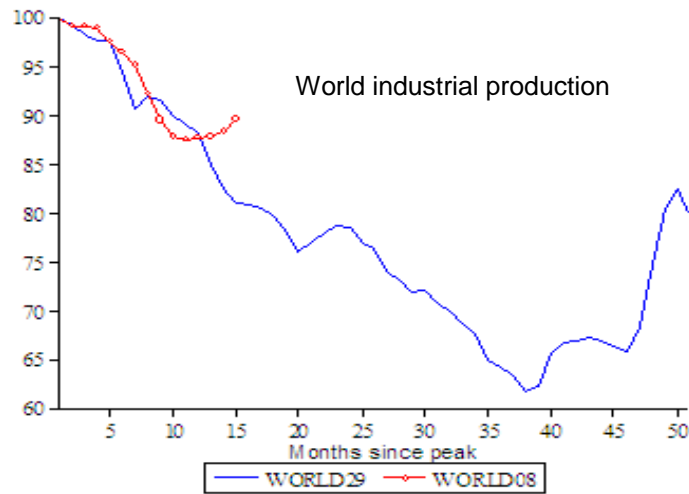
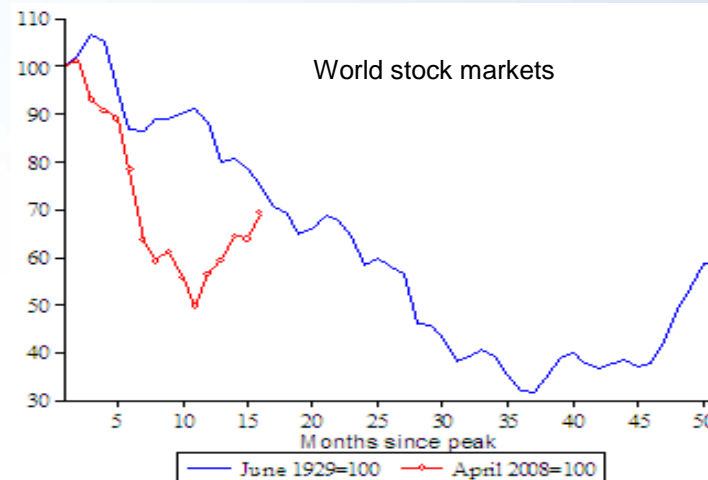
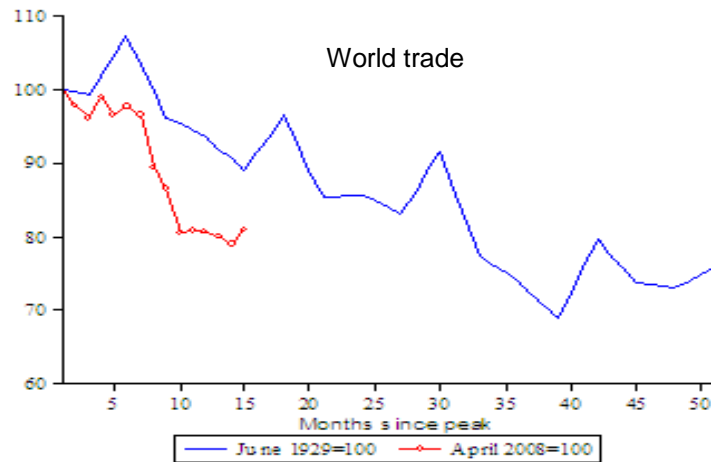
- ECHAA's aim is, by means of comprehensive & rigorous analysis, to:
 - support & promote evidence-based policy decisions on contribution of built environment to European health sector
 - focus on long-term issues of sustainability & appropriateness of estate
 - cover service planning, architecture/design, finance, construction & operation of hospitals & other healthcare facilities
- Founding Partners:
 - DuCHA: within TNO, state Netherlands Organisation for Applied Scientific Research, www.tno.nl/ducha
 - HaCIRIC: collaboration of British universities research centres – Imperial College, Loughborough, Reading & Salford (www.haciric.org)
 - [Karlsruhe University of Technology]

The economic crisis - where did it come from? - a model





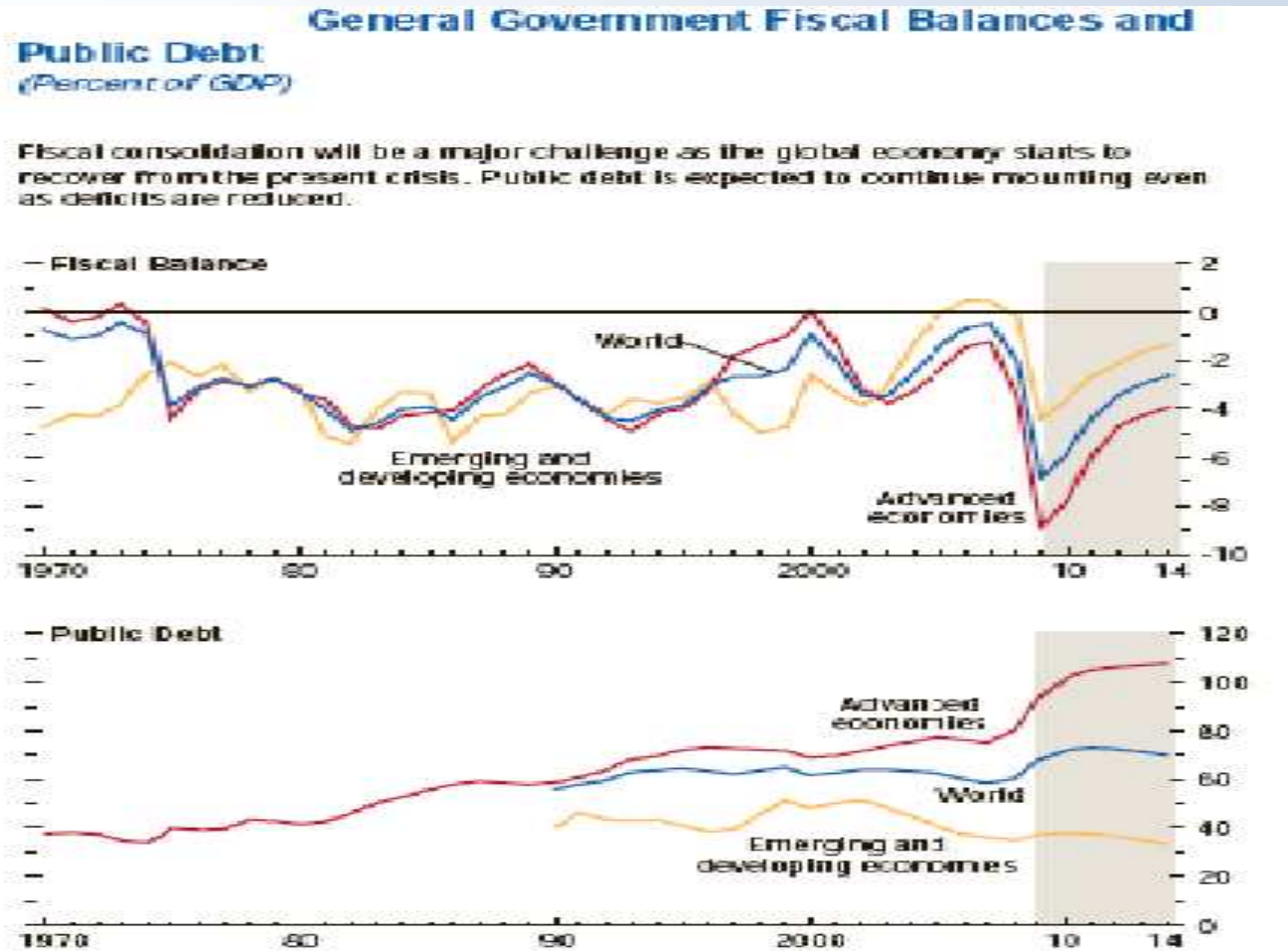
It's a tough world out there: is this "The Great Recession"? 2009 vs 1929



Source:
Eichengreen
& O'Rourke
Sep 2009

In this environment, keep investing. But, even more than before, get the capex decisions right...

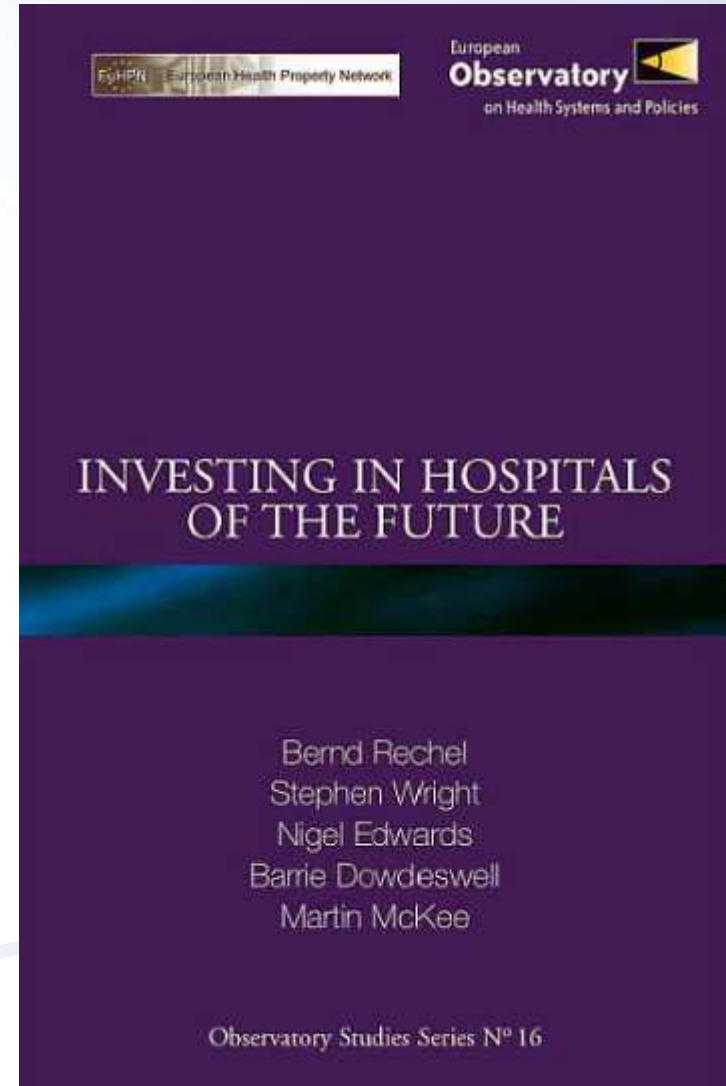
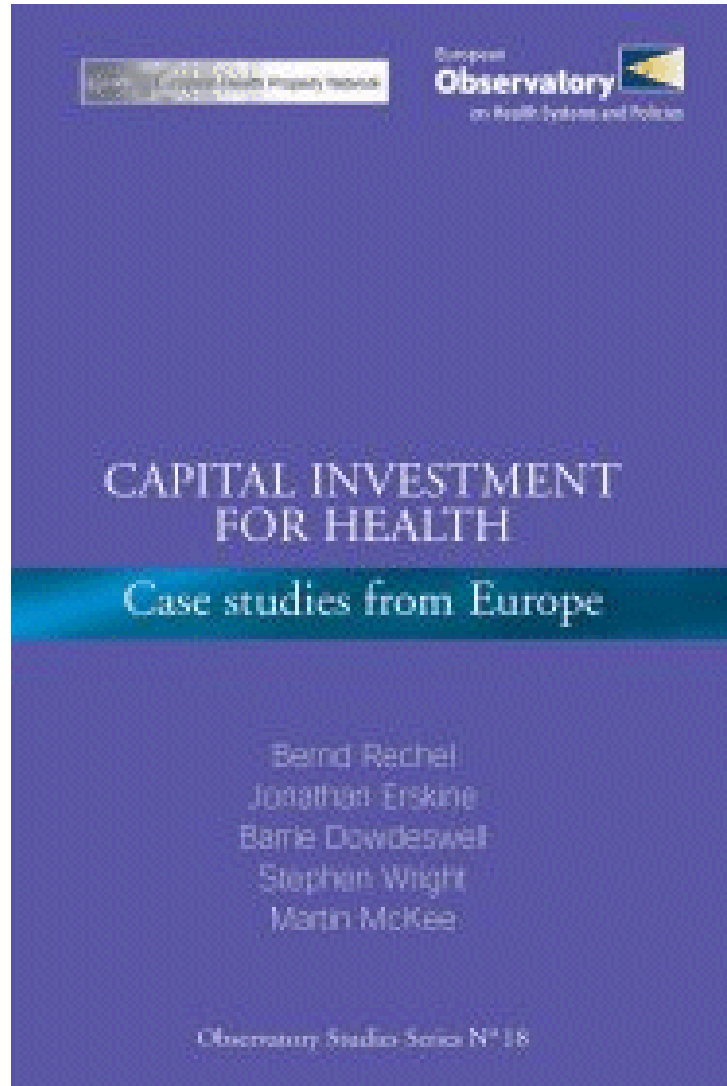
IMF projection of governments' fiscal position



Note this depends on the recession ending in 2009

These fiscal trends are unsustainable – but how to unwind them without aborting the recovery?

A major issue for governments is transition from the crisis to dealing with the “ageing bomb” – now almost upon us





For the study, why these two organisations?

- European Observatory:
 - 12 members from government, international institutions, academia, NGOs
 - Secondary research
 - Flood of evidence-based country/regional & thematic studies
 - The prime source of European health policy advice
- EHPN:
 - 12 members representing nations, international institution
 - Main European source on the *estate* : *services* interface
 - Information-sharing (still in EHPN)
 - Knowledge development & strategic advice (**now in ECHA**)



Context of the study

- The healthcare system is changing fast (the known epidemiological, demographic, technological, societal shifts)
- The acute (district general) hospital in particular is threatened from both sides (teaching hospitals ↔ primary/intermediate care settings)
- Hospitals are expensive places – around 40-50% of national healthcare system costs passes through
- Social infrastructure is long-lasting (40-50 years?)
- **The estate is critical (in poorly-understood ways) to modern service delivery**

Question:

Given this context, how would you start thinking about good healthcare capital investment?



“Investing in Hospitals of the Future”

This was the way we approached the question:

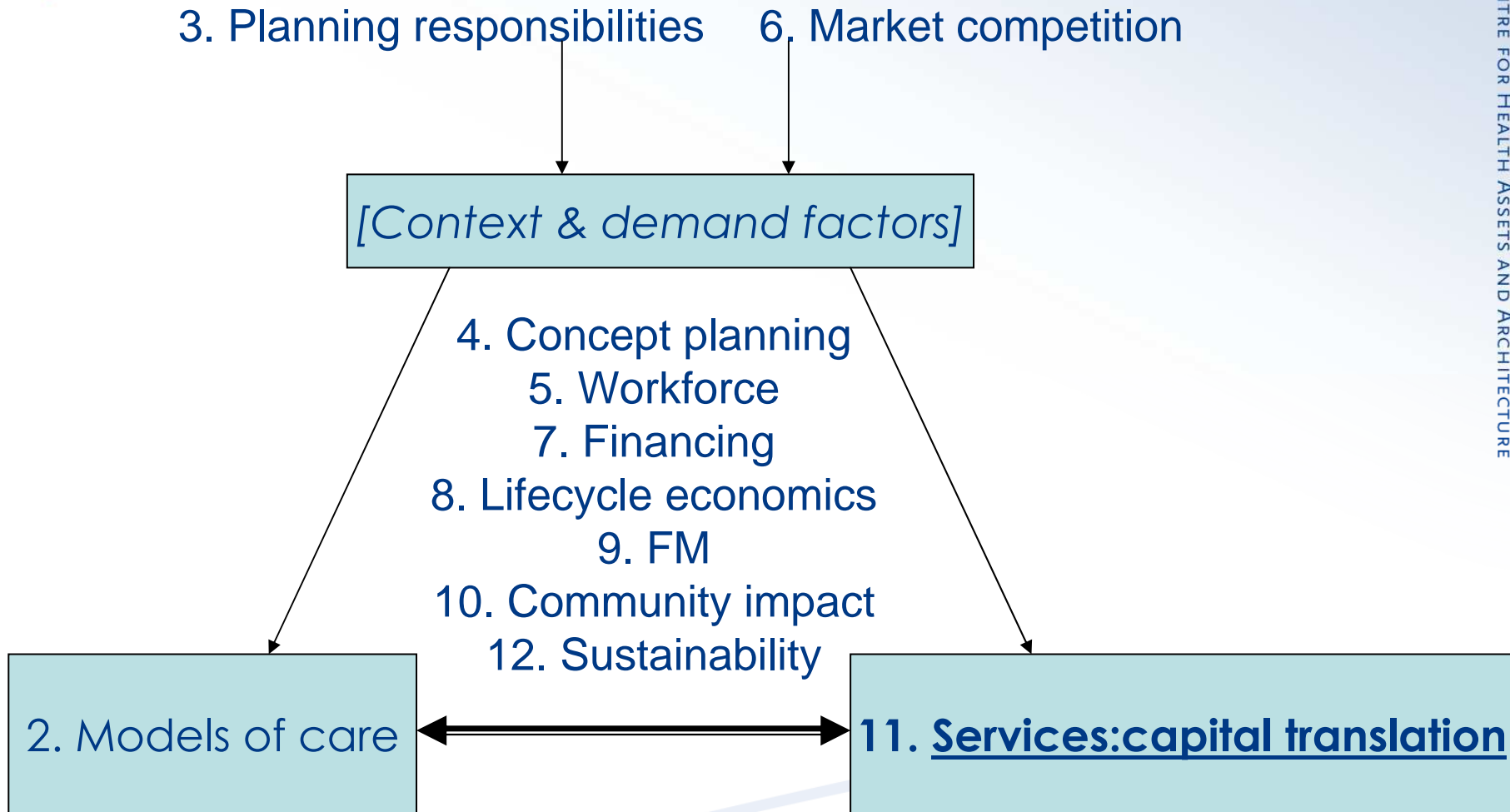
Thematic book covering the analytical issues – led by Observatory, supported by EHPN; 13 chapters

Case studies of real-world examples – led by EHPN, supported by Observatory; 11 chapters

- Timing; thematic book was out in April, case studies in September
- Both published by the Observatory
- Dissemination throughout 2009-10



Structuring the thematic book



I will pick out one area this morning (Chapter 11)



The hospital is a healthcare location which exploits **economies of scope** (but not economies of scale)

Economies of scope in treatment (especially for advanced work & complications, & despite pressures to take all these into other settings):

- Surgery
- Imaging
- Diagnostics

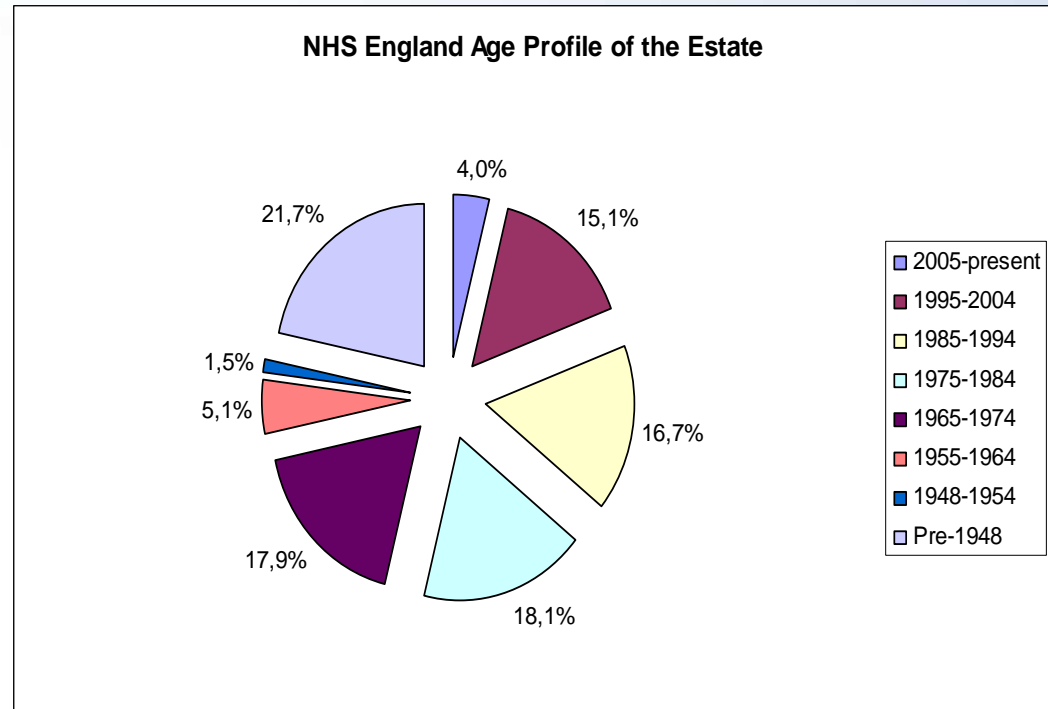
And meanwhile, hospitals also serve other “scope” functions:

- Training of medical staff
- R&D
- Urban regeneration

The changing environment threatens the ordinary acute site. But “the hospital” as a concept will not disappear

What strange facilities hospitals are...

- Over a fifth of English NHS estate is >60 years old – but still somehow used
- The capital stock concerned must be fully depreciated
- Few other industries have (or want) capital stock this old
- It implies that acceptable capital:labour ratios in healthcare can be dramatically variable (how can this be so?)



Good medicine can be delivered in ancient monuments – but is it desirable?



“Beds” as an index of capacity

- Hospital capacity is a mix of buildings, medical & diagnostic equipment, operating theatres, ICUs...
- In practice, it is almost universal to denominate it in terms of **certified or manned beds**, forecast using:

$$\text{Bed numbers} = \frac{\text{Population} * \text{Hospital admissions frequency} * \text{ALoS}}{\text{Occupancy rate} * 365}$$

- This formula substantially **drives** the capital planning process for hospitals in most healthcare jurisdictions
- Something similar is used for operating theatre capacity
- But other hospital functions are not integrated

The “bed” as a function is mostly storage – warehousing of patients while the institution works out what to do with them



What **should** be the design principles?

There may be a better approach than “beds”:

- Develop & articulate models of care based on systematised care processes
- Treat such clinical pathways as **flows** for a patient across the system viewed as a **network**
 - multiple paths via nodes
 - non-linear
 - reversible
- Build the appropriate **capacity** for those flows

Methodologies (or data) are not yet there to prove this, in comparing one hospital in its setting against another



Overview of the thematic book major conclusions

- A strategic response to context is vital
- Planning is still a policy lever, don't rely just on market forces
- Link capital funding to desired design (not vice-versa)
- Flexibility is critical across the site, & through lifespan
- Life-cycle approach to economics
- Consideration of wider community impact
- Therapeutic design – for staff as well as patients
- Sustainability
- Whole systems perspective
- Hospitals should be planned as complex flow networks

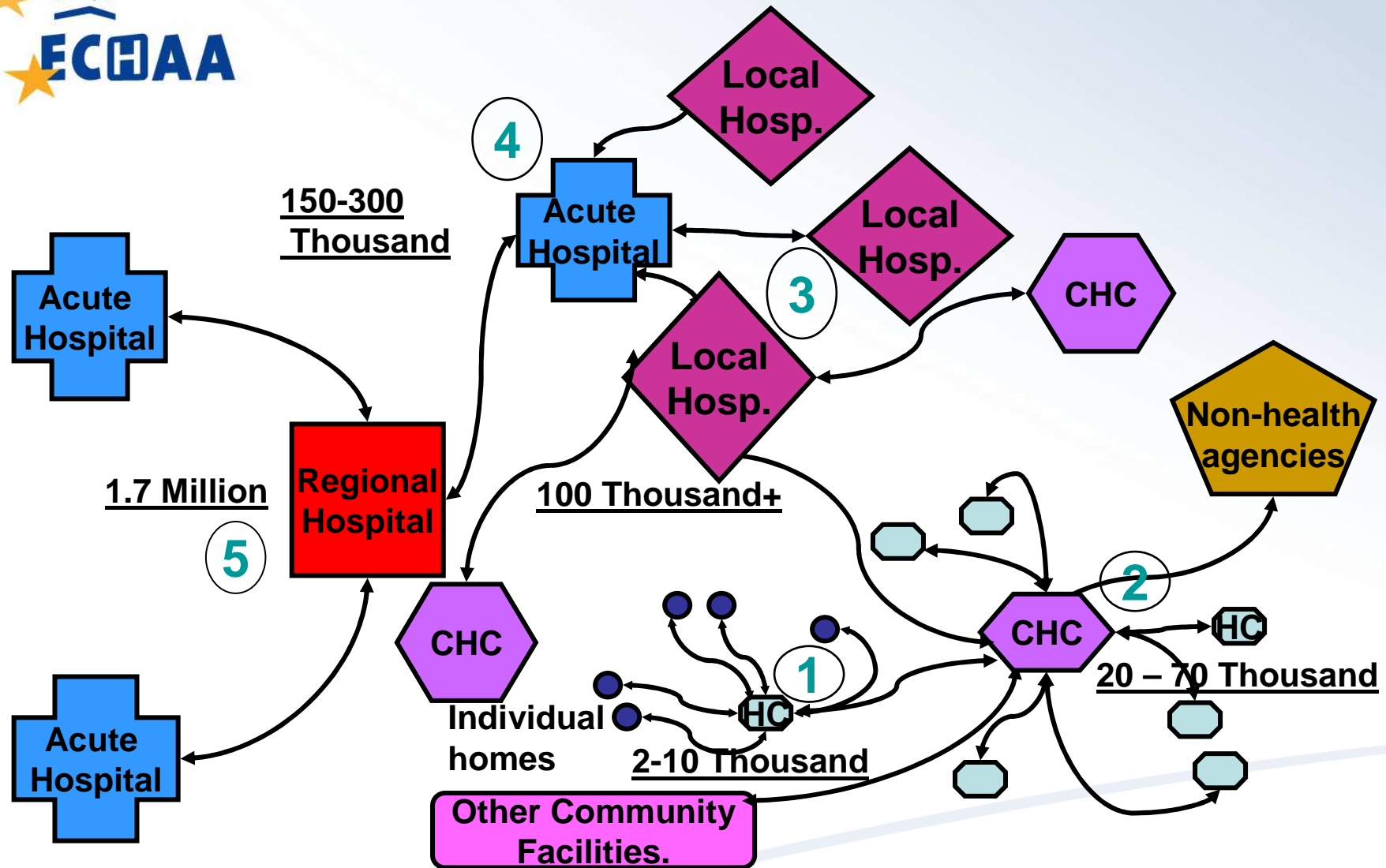


The 11 case studies

Case study	Country
Orbis Medical Park, Sittard & <u>Martini Teaching Hospital, Groningen</u>	Netherlands
Trondheim University Hospital	Norway
Karolinska Hospital	Sweden
<u>Coxa Hospital, Tampere</u>	Finland
Rhön Klinikum Group	Germany
John Paul II Hospital, Krakow	Poland
<u>Alzira model: Hospital de la Ribera</u>	Spain
Regional planning, Tuscany	Italy
Regional planning, <u>Northern Ireland</u> , & Private Finance Initiative, England	United Kingdom

- **Regional planning** - Tuscany, Northern Ireland
- **New hospital projects** - Coxa, Karolinska, Trondheim, La Ribera, Groningen, Sittard
- **Hospital groups** - Rhön Klinikum
- **Financing models** - UK PFI, Krakow

Northern Ireland integrated health & social care



Ten-year capital investment of €8 billion (for 1.75 million people!)



Martini Hospital Groningen



- “Industrial Flexible and Demountable” (IFD) design
- Buildings re-useable for other functions
- Progressive site re-phasing over 40 years



Alzira private healthcare under concession

➤ **Alzira Model I (hospital care): 1999-2003**

- Concession to a private company for management of secondary medical care of a Health “Area”
- Building of a new hospital: the Hospital de la Ribera (€61 M)
- Capitation fee: €204 + CPI (1999) paid by Region
- Company ran into difficulties

➤ **Alzira Model II (integrated care): 2003-2018**

- Concession for the management of specialist & **primary** care in the Health Area
- Investment: €68 M in the Area during the 15-20 year concession
- Capitation fee: €379 + % yearly increase in the Region’s health budget
- Profit share between company and Region



Coxa 1 – regional & national hip replacement PPP “factory”

Before

- The problem for the Region:
 - Increasing waiting times
 - Healthcare inequalities
 - Duplication of services across sites
 - Shortage of capital to modernise facilities
- The problem for the hospital:
 - Competing for capital with other hospitals
 - Poor quality outcomes
 - Rising demand – but forecasts not believed
 - Danger of losing staff



Coxa 2 – the PPP solution

- Voluntary move out of State system via PPP model:
 - Public & private shareholding – municipalities, other hospitals & private equity
 - Total freedoms on capital & workforce strategies
 - Acceptance of risk
- Concept – quality driven:
 - Integrated care pathways, whole systems
 - Regional responsibility, & national reference centre, for endoprosthetic care
- Viability is dependent on:
 - Role delineation with hospitals in catchment area
 - Competitive tendering (cost and quality)
 - Adequate debt servicing (capital and equity)





Common themes of the case studies

- Need for comprehensive systems of **capacity planning**
 - In particular for people with chronic conditions, such as diabetes or asthma
 - Integration with other levels of health care, as well as with social care
- Need for **flexibility** to encompass:
 - Infrastructure
 - Services
 - Financing arrangements
- **Care pathways:**
 - Ideally, across care settings
 - In line with resource allocation
 - A potential measure of capacity
- **Engaging patients & staff:**
 - Rarely meaningfully involved
 - Not only a question of design, but also change management



Thank you!

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