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# Sustainability & the Financial System

## Resource & Environment Board





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# The Actuarial Context

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20 May 2015

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Learned society  
Opportunity  
International profile  
Journals  
Support

# Background

- Resource & Environment Board, established late 2013
- Threefold objective of the board
- Builds on the work of previous literature reviews
  - Climate change & resource depletion, 2010 <http://goo.gl/tpMAqS>
  - Climate change & resource depletion, 2011 <http://goo.gl/gko7vO>
  - Resource constraints: sharing a finite world, 2012 <http://goo.gl/t69DY0>



# The context

Natural Environment



Real Economy



Financial Economy



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# Conclusions

- Literature review was wide ranging
- Surprising absence of peer-reviewed analysis in top-rated economic journals
- Apparent absence of research aimed at understanding the institutional framework of our system
- Of the themes that did come up, the ones most relevant to actuaries were:
  - GDP – as a measure of economic performance
  - Preparing for steady-state or de-growth economy
  - The use of discount rates





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# Banking & the Destruction of Nature

Professor Richard A. Werner





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# Agenda

- Some Results from the Literature Review
- Problems with Conventional Approaches
- Directions for Future Research
- How can Actuaries Contribute?

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## Key Results of the Literature Review

### Question:

What is the link between

- the financial sector/banking &
- the unsustainable exploitation of the environment?

**Universe:** Top ranked journals in economics, finance and social sciences  
(ABS Journal Quality Guide 2010-2014; 355,000 articles in 125 journals, > 30 yrs.)

### Some results:

- Very few papers are concerned with this question.
- Most of those few focus on the discount factor (interest rates), the limitations of GDP as a measure of output, etc.
- None of them includes a detailed modelling or analysis of the **banking sector**.





## Why has there been so little interest in this question?

### Limitations of conventional approaches to economics and finance:

1. Methodology: Axiomatic hypothetico-**deductive approach**: Reality is ignored. Economists build theoretical dream worlds and refuse to engage with reality.
2. Focus on 'equilibrium' and disregard for the possibility of pervasive **disequilibrium**.
3. Incorrect or absent modelling of banks: Banks are wrongly considered **financial intermediaries**, when in fact they are the **creators and allocators of the money supply**.
4. Bias in the measure of economic performance: Physicists know that **there is no 'growth'**, just a transformation of energy. GDP is a misleading indicator, ignoring the depletion of natural resources and adding up gross 'positives'.



## The Need for a New Paradigm in Economics

New research is needed which addresses these limitations:

1. Methodology: **Inductive**, empirically-driven approaches should dominate. There is no room for unrealistic, but result-critical assumptions.
2. The reality of **no growth** needs to be recognized, and emphasis shifted on improvements in the quality of life, standards of living.
3. Without unrealistic assumptions, there **cannot be equilibrium**. There is pervasive **rationing**, whereby the short side has **allocation power**: decisions are not made based on the market mechanism. Market for money: the **suppliers of money** are key.
4. **Banks** must be recognized as the pivotal **agents of change** that they are, reshaping the economic landscape due to their **lending decisions**.



## The Quantity Theory of Credit (Werner, 1992, 1997)

**This is how banks' decisions reshape the economic landscape:**

$$\begin{array}{ll} \text{Total new credit money} & \Delta C = \\ & \begin{array}{ll} \Delta C_F \rightarrow \Delta (P_F \times Q_F) & C_F V_F = (P_F \times Q_F) \\ + \\ \Delta C_R \rightarrow \Delta \text{nominal GDP} & C_R V_R = (P_R \times Y) \end{array} \end{array}$$

If banks create credit (money) and allocate it for

1. financial/asset transactions (CF), this affects asset prices and is, in aggregate and if large, never sustainable (banking crises, income and wealth inequality).
2. consumption purposes, this creates consumer price inflation (unsustainable).
3. productive purposes (defined to include environmental sustainability and quality of life enhancement), the result will sustainable growth without inflation and with a more equal income and wealth distribution: Money is allocated for productive, sustainable work, not speculation.



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# The Link Between These Issues:

## Banking and Usury

Interest is merely a transfer payment, charged on the creation of money out of nothing: a transfer from the many to the few

Sustainable only if extended for productive purposes and for public benefit

Nominal GDP is designed to measure an economy's **ability to service national debt**, which is unnecessary and results in a transfer of wealth from the many to the few.

To service a debt-based monetary system, **nominal growth** is needed, imposing the bias towards depletion of resources (outside GDP)

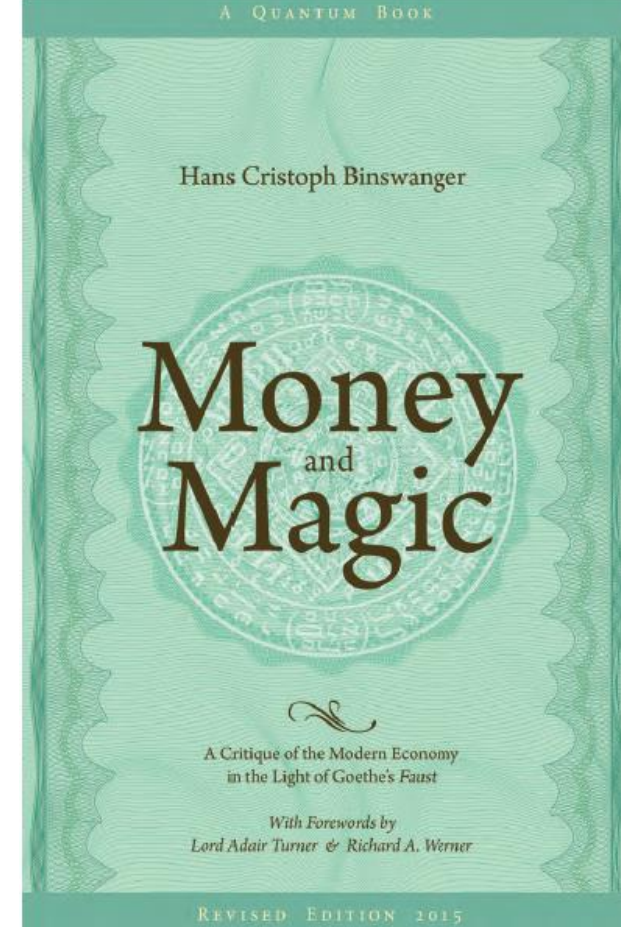


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# Money as Destructive Force

## Goethe: *Faust II*

- Written in 18<sup>th</sup> century, in the drama the devil appears (Mephistopheles) and advises the Emperor to issue fiat money. This is used to fund projects exploiting and destroying nature.
- A fiat/bank money-based system drives the need for 'growth' and environmental destruction.
- Explained by Prof. H. C. Binswanger in ***Money and Magic***: Money creation is alchemy, with negative consequences for the environment, if not managed appropriately.





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## Action Needed: How to Make Money Constructive

Create banks that only create credit for productive purposes

- The privilege to create & allocate money is only justified if used for public good
- Public benefit banks: Hampshire Community Bank & network across UK
- All returns go back to the community
- A small bank interested in lending to SMEs
- The Community Bank can advance patient money for environment-enhancing projects
- This grassroots action can be taken without delay.
- The lending has started (GBP 900,000 to date)
- Capital needed. An opportunity for insurance companies and their CSR?

# Questions

# Comments

The views expressed in this presentation are those of the presenter.



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