

Challenging the Innovation Paradigm

Consequencenses of Temporary Incompetence in the Financial Sector

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Theories applied



Competence:

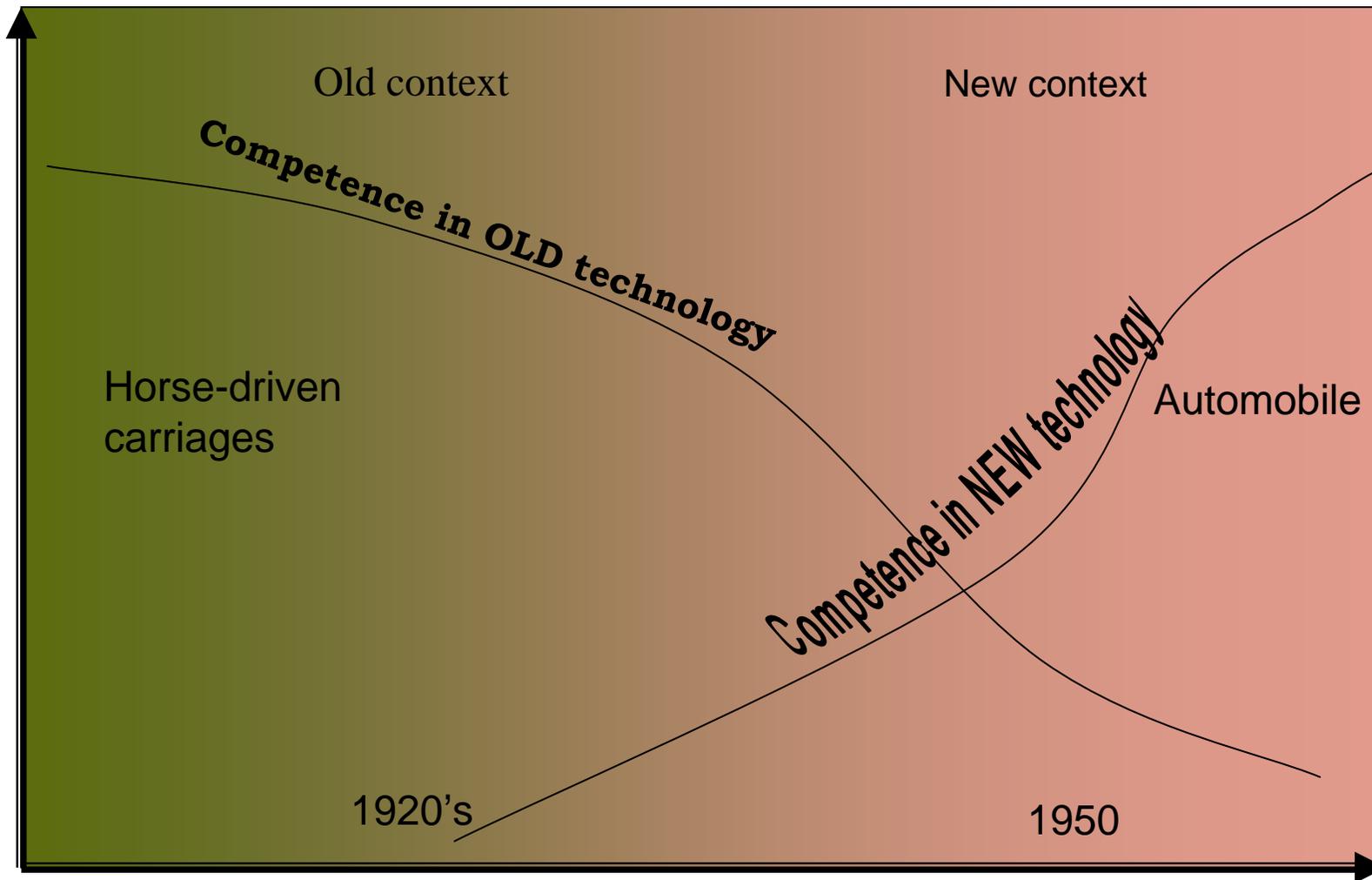
A capacity to act in a (professional) context

From Polanyi 1962

Theories:

- Competence (Michael Polanyi 1962)
- Unintended consequences. (Robert K. Merton 1936)
- Stakeholder theory (C. Freeman 1984)

"Innovation both destroys and enhances competence"¹
Stylised example of the theory

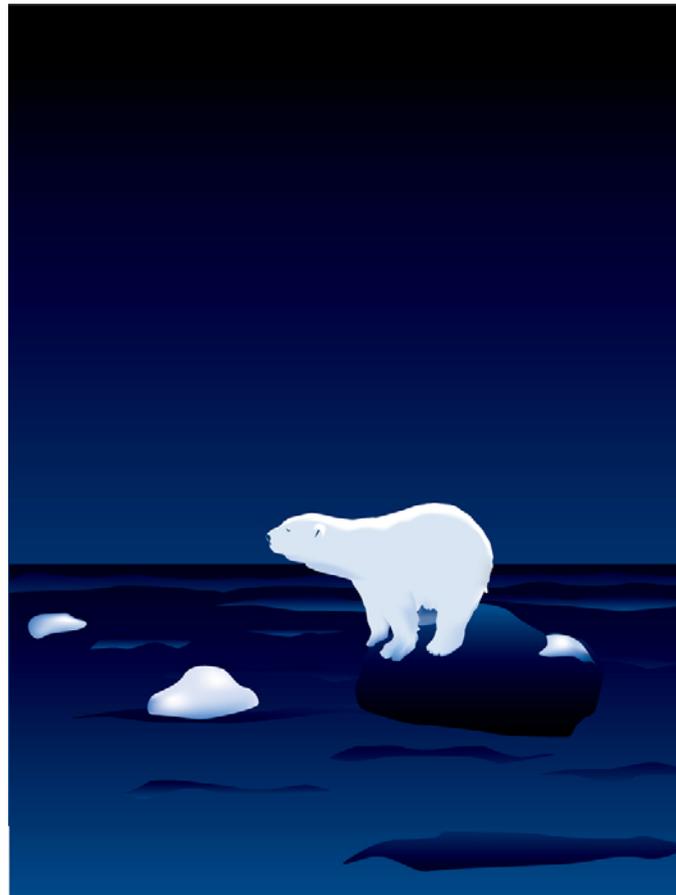


When the context changes...

From competent



To incompetent



Polanyi's Definition of Incompetence



Professional competence includes an ability to make predictions, which turn out to be correct over a period of time.

Polanyi (1962) distinguishes two kinds of errors:

- *professional predictions, which turn out to be mistaken, and*
- *unprofessional predictions, which are not only false but **incompetent**.*

“Temporary Incompetence”

When an industry expert unwittingly makes prediction errors due to unnoticed change in the professional context.

Mistaken professional prediction

Weather forecast



Mistaken professional prediction

Incompetent prediction



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“Recent regulatory reform, coupled with innovative technologies, has stimulated the development of financial products, such as asset-backed securities, collateral loan obligations, and credit default swaps, that facilitate the dispersion of risk.”

October 12 2005
Press release

Greenspan did not perceive how the professional context had changed.
He was temporarily incompetent.



December 17, 2009.
At Senate Committee hearing

“Those of us who have looked to the self-interest of lending institutions to protect shareholder's equity — myself especially — are in a state of shocked disbelief.”

Questions and Data



Research questions:

What was the innovation volume 1980 – 2008?

What evidence of actors' prediction errors can be found 1980 - 2008?

Data:

- 2,307 collateralized securities
- 1,772 US patent applications, EP documents, etc.
- 264 chapters in 6 editions of the *Handbook of Mortgage-backed Securities* (Fabozzi 1985-2006)
- Newspaper articles covering 1980 - 2008

The Twelve most Innovative CDO-issuing banks



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	Lead manager	NPD* %	Losses 2008 <i>Half bankrupt or bailed out</i>
1	Bank of America	35 %	\$66Bn + \$8.9 Bn settlement for predatory lending.
2	Societe Generale	21 %	€4.9 Bn write down caused by alleged fraudulent trader 2008.
3	Goldman Sachs	19 %	CDO Loss \$4.3 Bn 2007. Accused of creating and selling CDOs, then betting against them. Settled for \$550 Mill in CDO-related case.
4	Citigroup	18 %	Bailed out by US Government Nov. 2008 via \$20 Bn in direct investment and \$306 Bn in guarantees.
5	Lehman Brothers	17 %	Bankrupt. Pieces acquired by Barclays and Nomura Sept 2008.
6	Credit Suisse	16 %	Write down of \$2.65 Bn due to overvaluation of CDOs in 2008
7	Credit Agricole	15 %	Write down €3,3 bill fourth quarter 2007.
8	JP Morgan Chase	14 %	\$3.7 Bn in settlements in Enron scandal.
9	BNP Paribas	13 %	Its closure of 3 sub-prime funds August 9th 2007 is seen as start of the financial crisis. Wrote off €542M and approx €2 Bn in 4thQ loss 2008.
10	Royal Bank of Scotland	13 %	CDO write off est. \$1.3 Bn 2007. Bailed out by British government Oct. 2008.
11	UBS Switzerland	12 %	Write off est. \$7.2 Bn 2007. Lost €690 million the LTCM collapse. Received a \$4.9Bn bail-out in 2008.
12	Merrill Lynch	11 %	Saved from bankruptcy by Bank of America Sept. 2008.

Two innovation booms 1980's & 2000's: Innovation accelerated and creativity declined



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	1970's	1980's	1990's	2000's	
New CMO/CDO offerings	0	59	2	336	Innovation up: >5-fold
Repeat CMO/CDO offerings	0	112	7	1,791	Volume up: 12-fold
Total CMO/CDO offerings	0	171	9	2,127	
Percent new CMO/CDO offerings	0	35 %	22 %	16 %	Creativity down: Less than half.
Significant financial innovations (Matthews, 1994 + Finnerty & Emery, 2002)	14	107	6	n/a	
Patent applications globally by 20 top CDO-launching banks	15	34	452	1,271	Patents: mainly for protection
Patent applications annually	0	n/a	83	155	

Sources:

2,307 securities with a security code classified as 'collateralized' in Thomson Banker One's database 1985-2009, and 1,772 US patent applications, EP documents, abstracts of Japan, and World Intellectual Property Organization.

The Case of the Collateralised Debt Obligation

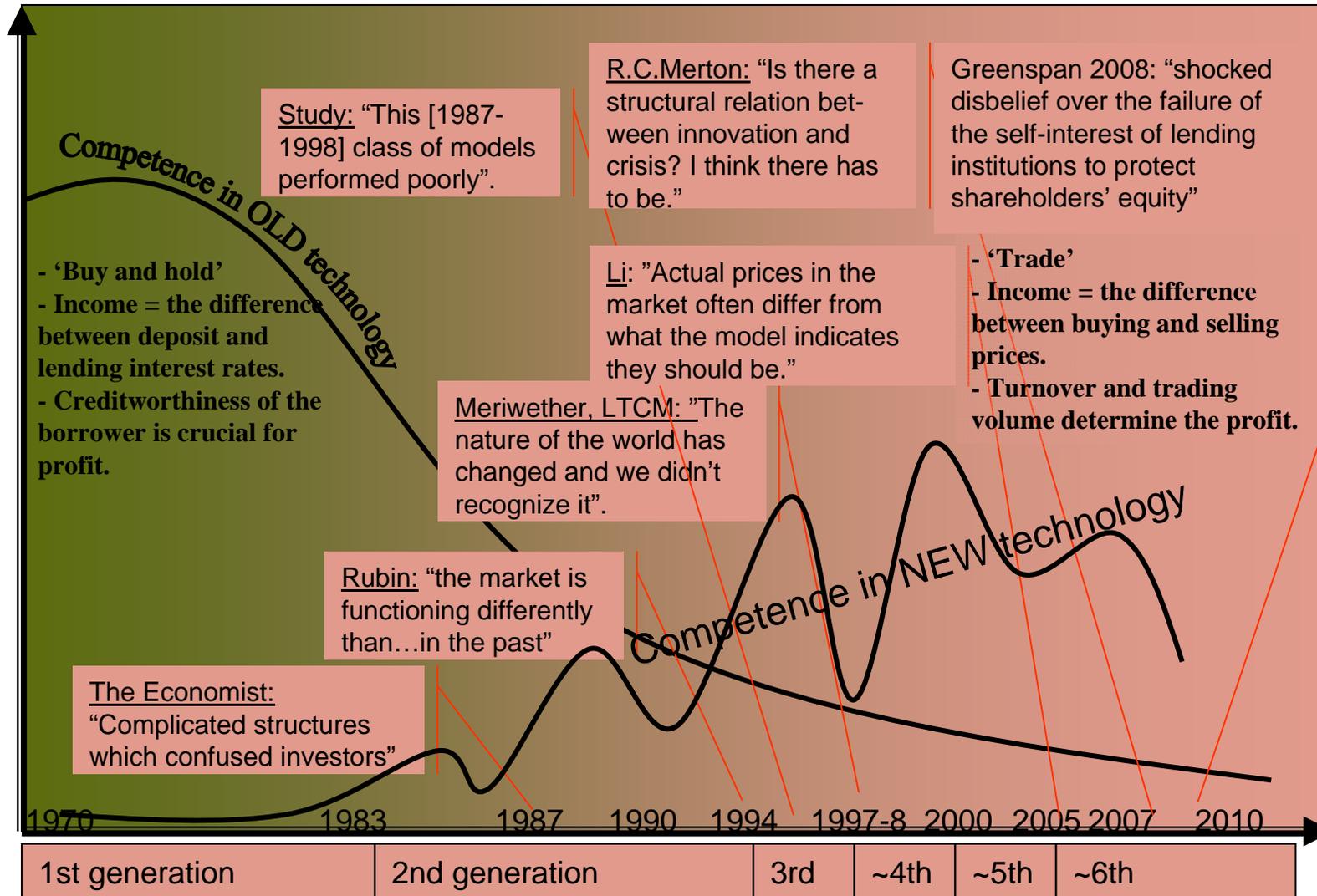


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OLD CONTEXT

Professional context of banking

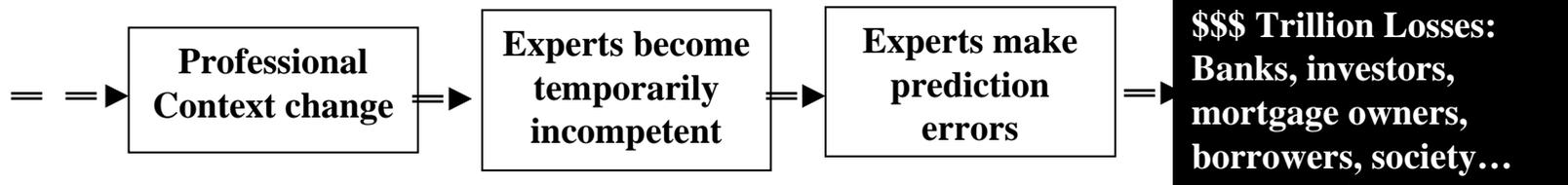
NEW CONTEXT



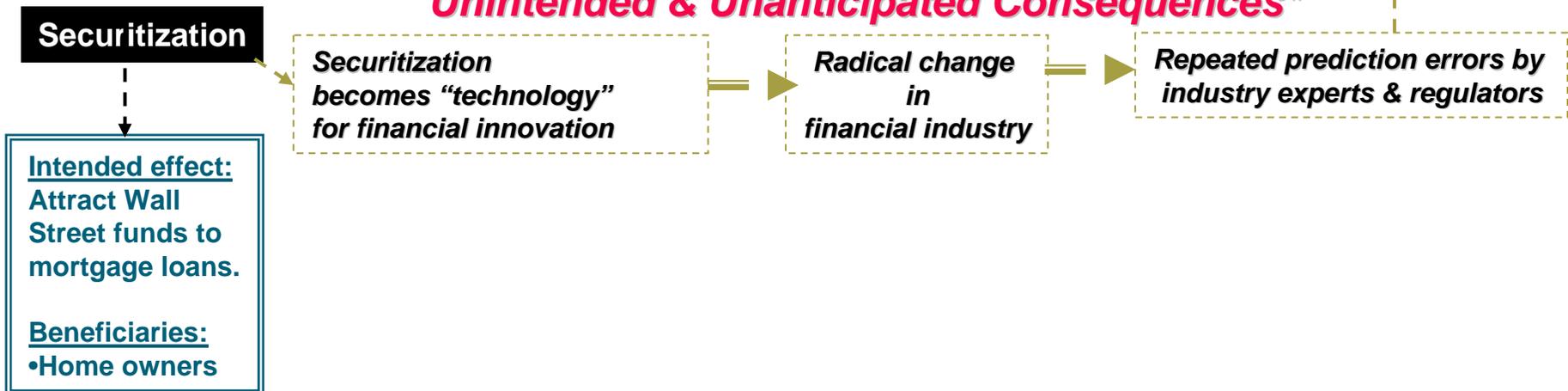


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How radical innovation causes temporary incompetence



Unintended & Unanticipated Consequences*



* Merton, R. K. (1936)

Why did temporary incompetence persist?



1. The New Context was measured with the tools of the Old
2. Prediction errors were built in the products
3. Systemic changes of professional context due to herding
4. Pro-Innovation Bias:
 - a) Belief that faster innovation is better
 - b) No double-loop learning in industry
5. Experts and legislators were blinded by ideology
6. Legislation created path dependency

1. *Measuring the New Context with the tools of the Old*



- Unanticipated: Securitization rapidly changed the professional context.
- Industry statistics lagged behind the change, therefore...
- ...relevant data were not collected, and ...
- ...systemic effects on the financial industry were not perceived (until mid 1990's):
- **Temporary incompetence persisted on policy + industry level**



2. Prediction errors were built in the products



- **CMOs and CDOs: “Prediction is the product”**. Value depends on prediction of behaviours of home owners based on historic trends.
- Statistical models do not (can not) anticipate behavioural changes due to endogenous factors.

3. Systemic changes of context due to herding



- The whole financial industry embraced securitization and influenced home owners' behaviours in unpredictable ways.
- **Computer models were always one step behind, and...**
- **...temporary incompetence persisted on industry level**



4a. Pro-Innovation Bias 1: *Faster is better*



- Innovation is “good” – therefore more and faster innovation must be “better”.
- However, when innovation intensified creativity declined. **Speeding up became dumbing down.**
- **Temporary incompetence increased on policy + industry level.**

4b. Pro-Innovation Bias 2: No double-loop learning in Industry



Six financial crises occurred 1987-2008 (= one every 3.5 year).
None of the handbooks* published immediately after a crisis contains a chapter discussing what can be learned from the crisis.

- No chapter criticizes the fundamental flaws in the designs. Instead solutions were advanced:
 - Incremental (more of the same) innovations to solve the problems with the previous innovations.
 - Improve efficiency of calculations and accelerate design of new varieties of the existing fundamental design.
- Temporary incompetence persisted on policy + industry level

*) *Handbook of Mortgage-backed Securities (6 editions, 264 chapters)*

5. *Ideological blinds*



- Neo-classic economic theories underlying the equations also became enshrined as fundamental values of government.
- Critique was dismissed as political debate
- Temporary incompetence persisted on policy level

6. *Legislation created path dependency*



- US agencies and legislators played decisive role in the initial CDO designs and repeatedly paved the way with changed legislation. Design deviations were open to litigation.
- Effects:
 - **The flawed design became ironclad.**
 - **The financial industry's descent into its death-spiral was speeded up.**
- **Incompetence became a built-in feature of the product**



Conclusions



Radical innovations may alter the context in which they are diffused. This leads to *temporary incompetence* that causes unintended negative consequences.

Worst case: temporary incompetence persists for long time. This may lead to disaster for the industry and for society.

Four Myths of the Innovation Paradigm



1. **Myth: Innovation is overwhelmingly “good”.**
 - Innovation has both desirable and undesirable consequences. They often affect different groups.
 - **Desirable** short-term economic benefits: Firms, innovators and some users
 - **Undesirable** health issues, pollution, long-term indirect effects: All others.
2. **Myth: The innovating firm is the risk taker.**
 - **Society is the ultimate underwriter** of all indirect risk on health, ecology and economy.
 - The innovator has an economic risk/reward equation.
3. **Myth: More innovation is better.**
 - Innovation may merely multiply the unintended consequences of an inherently flawed design due to path dependencies and systemic effects.
4. **Myth: Acceleration of innovation is essential for survival (of firm, country, region).**
 - Speeding up easily becomes dumbing down. Two surges of financial innovation were highly instrumental in the lead up to the Global Financial Crisis.

Implications



Effect of Paradigm : Innovation research is biased and routinized.

- Less than 0.5% of articles discuss other consequences than the intended positive effects.

Concern: Negative effects of innovation may be increasing.

- Negative effects and indirect consequences are neglected by research funding bodies
- Acceleration of innovation is encouraged on all levels in society
- ICT-enabled innovation is systemic - local effects become global

Huge unexploited potential to improve net effectiveness of innovation:

- **Explore how to reduce negative and unintended effects of innovation in society.**

The Research Report



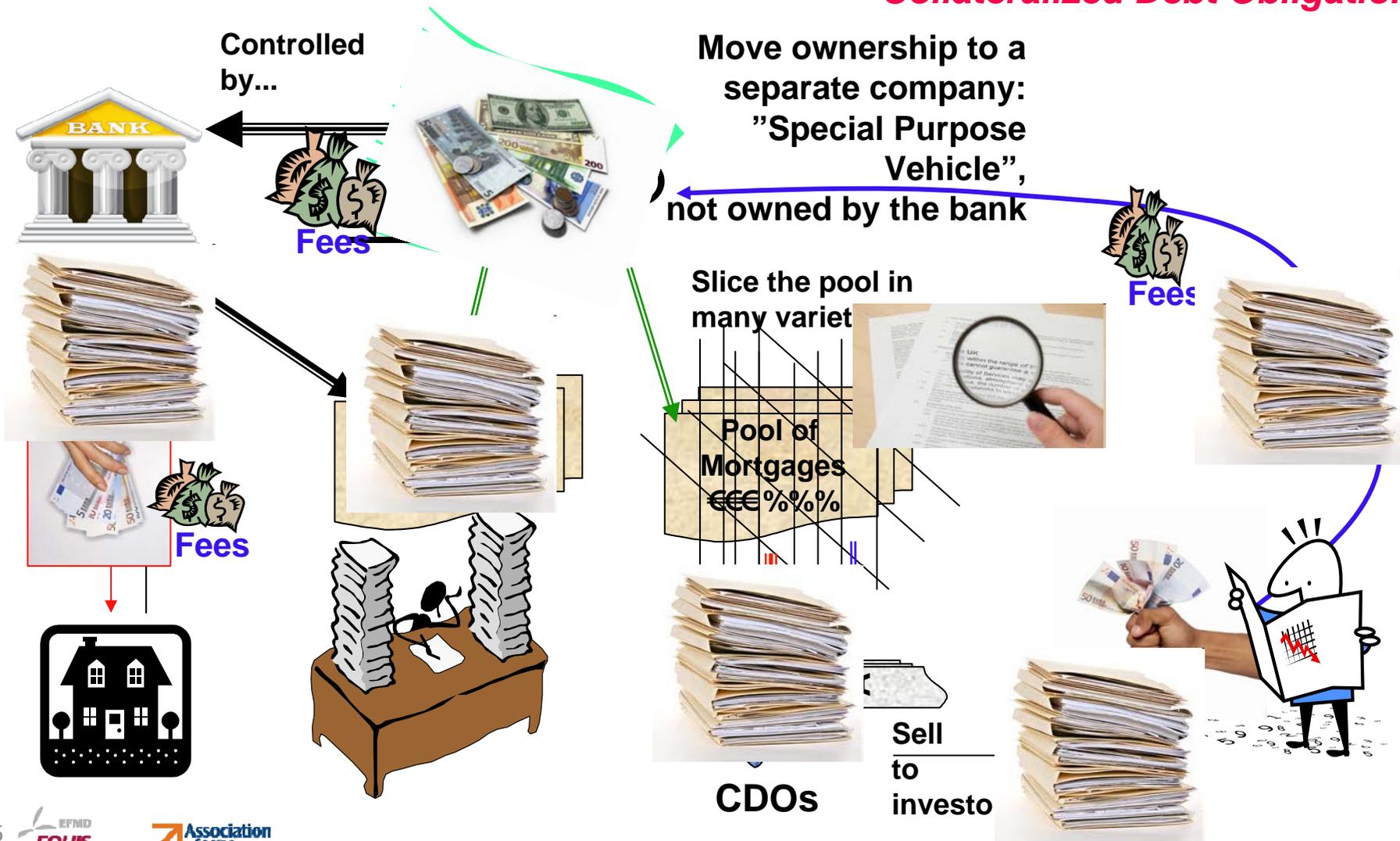
The aim: To contribute to a more nuanced perspective on innovation

16 scholars from 9 countries

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Benoit Godin
Karl-Erik Sveiby
Karl-Heinz Leitner
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Martin Fougere
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Paloma Sanchez
Pernilla Gripenberg
Urmas Varblane***

Securitization and the *CDO*

Collateralized Debt Obligation



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