Regulation And Financial Innovation

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Achieving Financial Stability: Challenges to Prudential Regulation

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How should regulation deal with financial innovation

Financial innovation:

- **Bad reputation: "The major impulses to financial innovations have come from regulations and taxes." (Miller 1986)**
- **However also many success stories: "Credit scoring, as a cost- and time-saving technology that became a central element of credit underwriting during that period, likely has contributed to improved credit availability and affordability." (Board of Governors 2007)**

Overall: it probably helps growth but also increases vulnerability (Allen 2011, Beck 2012) => need for a balanced approach by regulators.

How should regulation deal with financial innovation

Rationale for regulation:

- **Positive externalities, e.g. a more widespread access to credit and risk sharing which could increase growth and smooth cycles.**

⇒ **The traditional approach to internalize these effects would be to grant patents to financial innovations**

- **However patenting financial innovations is relatively controversial and such patents have high litigation rates (Lerner 2010).**

How should regulation deal with financial innovation

Rationale for regulation:

- **Negative externalities, e.g. higher leverage which amplifies cycles and leads to boom-bust dynamics.**

⇒ three possible, non-mutually exclusive approaches:

- **FEMA: "strengthen the security and resilience of the Nation against earthquakes": increase capital to build resilience.**
- **FDA: "responsible for advancing the public health by helping to speed innovations that make medicines more effective, safer, and more affordable": subject complex products to regulatory approval, demand a safe default option in all complex contracts.**
- **NRA: "guns don't kill people, people kill people": emphasize personal rather than corporate responsibility, shift from buyer beware to duty of care standards.**

How will financial innovation affect regulation

The next wave of financial innovation could reshape the financial system and its regulation:

1. Big Data + AI

⇒ transform soft information into hard data and (most) uncertainty in risk

⇒ This allows firms to design state-contingent contracts

2. Increase in computing power

⇒ progressive reduction of transaction costs.

Overall effect: markets become more complete (Bisin, 1998).

How will financial innovation affect regulation

Arrow (1969): externalities can be seen as a missing market.

In a world with (nearly) complete markets (in which for example banks would be redundant), what would still justify the existence of financial regulation?

1. **The transition to the new equilibrium.**

2. **The existence of economies of scale.**

3. **True Knightian uncertainty.**

How will financial innovation affect regulation

The transition to a new equilibrium:

- **With complete markets and low transaction costs, the boundaries of firms become much more flexible. A variety of providers of financial services could emerge.**
- **Adding new securities to incomplete markets is not necessarily beneficial (Hart, 1975). Some might actually be detrimental.**
- **The financial sector might need to grow significantly to manage a system based on state-contingent contracts. Such a system would be very sensitive even to small market imperfections (Caccioli et al, 2009).**

⇒ **Regulation should target functions rather than firms (Merton, 1995) and keep pace with increasing complexity to mitigate new forms of risk and amplification mechanisms.**

How will financial innovation affect regulation

Economies of scale could matter more in the future:

- **For the infrastructure needed to process massive amounts of data and the development of software to analyze it.**
- **Because of network effects in the collection of data.**

⇒ **High fixed costs and price competition could lead to instability due to strategic interaction of few large players: endogenous boom-bust dynamics due to market dynamics**

⇒ **Regulatory answer to such situations in other industries: separate the infrastructure - and regulate it as a utility - from the provision of services which would be open to competition. Could finance go the same way?**

How will financial innovation affect regulation

True Knightian uncertainty:

- **Black swan events will still be hardly quantifiable.**
- **They might even be difficult to imagine and therefore embed in a state-contingent contract.**

⇒ **Simple metrics might be effective in understanding them (Aikman et al, 2014).**

⇒ **How to protect the financial system against such events? Balance between building resilience against (un)known unknowns and minimizing impact ex post. Key features of macroprudential policy: design and manage a backstop and devise structural measures to reduce the impact of uncertainty.**

How will financial innovation affect regulation

Even going towards more complete markets financial regulation's ultimate goal is still financial stability but with different means:

- **Shift focus from institutions to functions or even contracts.**
- **Invest heavily in understanding complexity: data, analysis, infrastructure.**
- **Perhaps develop state-contingent policy instruments with stabilizing features and embed them in the system (e.g. CoCos are an example in the current framework).**
- **Concern itself more with market structure than business models. Integration with competition policy.**
- **Move from cyclical concerns to backstops for worst-case scenarios. Devise structural policies to deal with uncertainty.**