

The Future of Financial Engineering

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Creating new financial instruments to

Solve problems

16thC—Life annuities raise money while avoiding religious prohibitions on interest

21stC—Credit default swaps (CDSs) insure bond portfolios

Improve financial efficiency

15thC—Bills of exchange reduce costs of international payments

21stC—Foreign exchange swaps reduce international borrowing costs

Expand sources of funds

18thC—Joint stock companies

20thC—Securitization



Combining financial instruments to

Replicate existing instruments

- Cheaper

- More liquid

- Increase supply

Create bespoke financial instruments

- Desired risk exposures

- Create new payoff structures

- Leads to more efficient hedging and risk allocation

Expand sources of funds

- Restructure cash flows to facilitate financial intermediation



Link between financial crisis and financial engineering

Simultaneous expansion of securitization and credit bubble

Causal?

Securitizations and CDSs became “toxic assets”

Opaque and hard to value

Supporting mechanisms (ratings, insurance) proved faulty

Off balance sheet structures failed

Liabilities came back on balance sheet

New financial instruments invite blame

Hard to understand

Easy to demonize



Financial crises occurred before modern financial engineering

Common elements—Leverage and credit expansion

Instruments vary—Tulips, stocks, foreign debt

This financial crisis directly involved

Real asset prices

Housing (also commodities)

Credit sensitive financial innovations

Securitizations, CDSs, CDOs, SIVs, etc

Financial crisis has not directly involved

Interest rate and FX swaps

Exchange traded derivatives



Markets and regulators did not understand risks

Delegated risk certification to rating agencies and insurers

Who did not know how to measure risk either

Reliance on historical data (where there was any)

Data came from “good times”

Models assumed future would be the same

Securitizations changed incentives

For lenders and other intermediaries

Investors had no idea what they were buying

Relied on sellers’ representations

Were investing “other people’s money”



Dealer concentration risk

Too big/complex/important to fail

Counterparty credit risk

OTC collateral arrangements are fragile

Liquidity risk

Over reliance on short term financing

Regulatory failings

Ignored liquidity risk

Missed implications of off balance sheet structures

Mismatch between regulatory/supervisory structures
and market/financial firm structures

Relied on “market discipline”



Economically useful financial engineering will return

Securitizations

- Easy to value assets

- Simple structures

CDSs

- Market structure is changing (CCPs) to mitigate counterparty credit risk problems

Economically dubious structures should disappear

- Markets may become more discriminating

- For a while

Regulators will devise new regulations

- This will be extremely difficult and contentious
