

# **The Definition and Control of Systemic Financial Risk**

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The recent financial crisis has left us with a catalogue of buzz-words, including:-

- (1) systemic risk
- (2) macro-prudential regulation
- (3) interconnectedness

and several others. All too often they are used in a fuzzy manner.

Can we give such terms more precision? Can we define and quantify such terms? This will be attempted in Section 1 for 'systemic risk' and 'interconnectedness'.

Having attempted such a quantification, I shall discuss some measures for controlling and regulating systemic risk and interconnectedness in Section 2.

# 1. Definition and Quantification of Systemic Risk and Interconnectedness

Shorthand: Scale x Correlation  
Examples

Large scale: Low Correlation

Amaranth

BCCI

Leeson and Kerviel

Small scale: High Correlation

Reserve Primary Fund

Northern Rock

UK Fringe Banks, 1974

Sub-prime mortgage market

Problem is that correlations change rapidly over time, down in good times, way up in crises. An institution that is not systemic in a boom may well be so in a bust.

## Definition and Measurement

	Individual Risk	Systemic Risk
Portfolio Risk	VaR	Co-Var (Brunnermeier)
Distance to Default	Merton models KMV (Value & Volatility)	Conditional (Segoviano) Prob of Default (Value, Volatility & Interaction)
Who operates	Banks/BCBS	Central Banks/FSB/IMF
Tests of extremes	Stress	Centralised (Tsomocos) Simulations (Summer)

## How does one assess interaction?

Market data: Equity, CDS

Use copula rather than correlation.

Also assess similarities of portfolio structures.

Cluster analysis.

Use judgement as well as models.

Much research still needs to be done.

Who will do it? Need for a systemic risk research centre?

## Beware the Lucas Critique

Proposals to make bank debt more loss absorbing.

Implication bank debt not a suitable investment for a similar (bank-like) financial intermediary.

## 2. The Control and Regulation of Systemic Risk

### (1) Infrastructure and Markets (the plumbing)

PvP, DvP, Netting, CCPs, RTGS, etc. Any market large enough to be systemic, e.g. CDS, MBS, etc., should have infrastructure that makes it transparent and standardised, (and hence more liquid). (Banziger, FT, August 12).

### (2) Procyclicality

Measures of systemic risk quite likely to be as procyclical as individual risk measuers (correlations rise in crises). Some techniques may help (EVT, copula, systemic risk simulation), but complex.

Proposed solutions:

- (1) Macro-prudential counter-cyclical measures.
- (2) Insurance, but who prices, who pays?

### (3) Systemic risk

In so far as we can, and should, measure this, should there be a specific capital add-on?

It is not related to size alone, but to scale plus interconnectedness.

It is not related to risk (casino), but to systemic risk.

Would any measurement survive the Lucas critique (Goodhart's Law)?

(4) What do we do about cross-border banks?

(a) Create a world system for ‘the safe unwinding of banks’, Banziger/Ackermann, FT articles.

(b) Make a cross-border bank into a holding company with each national subsidiary regulated in every respect by host national regulators. M. Pomerleano, N.Z.

Problems of

(a): Laws and fiscal resources are national, and likely to remain so, even in EU.

(b): Disintegrates global financial systems.

Given the impracticality of (a) and the unattractive nature of (b), the likely outcome will be muddle and incoherence.

Is there any hope of a special world-wide law for resolving bank insolvencies?