Credit and Efficiency in Centralized and Decentralized Economies

And Some Notes on Financial Crises

- Focus on the degree to which credit markets are centralized under conditions of asymmetric information.
- Decentralization of credit may promote efficient project selection when creditors are not fully informed *ex-ante* about the quality of the project.
- The adverse selection problem prevents the creditor from distinguishing between a good and a bad project *ex-ante*.
- Nevertheless, the project may not be terminated, even after the creditor has discovered its quality, if significant costs have been incurred.

- If the threat of termination deterred entrepreneurs from undertaking poor projects in the first place, creditors would wish to commit *ex-ante* not to refinance them.

- Sunk costs may well make this threat incredible: *ex-post* both parts of the credit would be better off by carrying on with this project.

- Credit decentralization: ownership of capital is diffuse. The capital needed to refinance the same project may not be in the hands of the same creditor.

- The initial creditor can monitor the project and enhance its value. Monitoring is not observable to subsequent creditors.

- Refinancing is less likely in a decentralized market and the threat of termination is more credible than in a centralized market.

- Entrepreneurs are therefore induced not to undertake bad projects in the first place, and this enhances efficiency.

- Decentralization deters projects that drag on too long, but this may affect profitable projects that are just slow.

- Poor entrepreneurs are stuck with bad projects, whereas good entrepreneurs have a choice of whether their project is going to be short- or long-term.

- The degree of centralization is determined endogenously by owners of capitals, who can decide if they want a few big banks or many small banks.

- Relevant framework: the soft budget constraint under socialism and the financing practices-investment horizons in Anglo-Saxon and Japanese-German models.

Decentralization as a Commitment Device

There are three periods such that $T = \{1, 2, 3\}$.

There is one entrepreneur and either one or two creditors (banks).
Stage game:
Period 0: contracting between the entrepreneur and a bank.
Periods 1 and 2: projects are carried out.
If a project remains incomplete at the end of period 1, then the entrepreneur and the bank can negotiate the terms of the contract to their mutual advantage.

A project can be either good (g) or bad (p).
A good project is completed after one period. A bad project is completed after two periods.

α = prior probability that the project is good

E_g =a good entrepreneur's private benefit

E_t =a poor entrepreneur's private benefit

when the project is terminated after period 1

E_p =a poor entrepreneur's private benefit

when the project is completed

$E_p \geq E_t$

Payoffs under centralization

	Good project $if\ E_g > 0$	Poor project without refinancing	Poor project with refinancing
Entrepreneur	E_g	E_t	E_p
Bank	$R_g - 1$	-1	$\Pi_p^* - 2$

Payoffs under decentralization

	Good project $if\ E_g > 0$	Poor project without refinancing	Poor project with refinancing
Entrepreneur	E_g	E_t	E_p
Bank 1	$R_g - 1$	-1	$\Pi_p^{**} - 2$
Bank 2	0	0	-1

<u>Centralization:</u>

There is a single bank endowed with two units of capital.
Period 0: entrepreneur E whose type is private information comes up and asks for financing, i.e. a loan of one unit of capital.

The bank makes a take-it-or-leave-it offer and the contract is concluded or not.

$R_g > 1 =$ observable return for a good project,

which B can extract

If the project is poor, B gets nothing unless he agrees to refinance in the beginning of period 2, since the observable return is zero in the end of period 1.

Period 2: If refinanced, the poor project's observable return in the end of period 2 is a random variable $\overline{\overline{R}}_p = \left\{0, \overline{R}_p > 0\right\}$, which is the liquidation or resale value of the completed project.

The monitoring role of B is defined through its influence on

$$\overline{\overline{R}}_p = \left\{0, \overline{R}_p > 0\right\}.$$

B can spend monitoring effort $a \in [0,1]$, to raise $\overline{\overline{R}}_p = \{0, \overline{R}_p\}$.
As a rises, so it rises the cost of B's monitoring.

$$\psi(a) = \text{cost of monitoring}$$

$$\frac{\partial \psi(a)}{\partial a} > 0, \frac{\partial^2 \psi(a)}{\partial a^2} > 0, \psi(0) = \frac{\partial \psi(0)}{\partial a} = 0, \frac{\partial \psi(1)}{\partial a} = \infty$$

$$\overline{R}_p = \frac{\partial \psi(a^*)}{\partial a} \Rightarrow \Pi_p^* = a^* \overline{R}_p - \psi(a^*)$$

Decentralization:

Two banks: B_1, B_2

- Each bank has one unit of capital. The entrepreneur goes to the first bank in period 1. There is no difference from before if he is good and financed or bad and not refinanced.

- If he is to be refinanced, then he goes to the second bank, since the first bank does not have anything anymore.

- The second bank does not have access to the monitoring of the first bank. The second bank has no bargaining power, but the first bank can make ultimatum offers.

The first bank needs to convince the second bank to refinance, in exchange for a share in $\overline{\overline{R}}_p = \left\{0, \overline{R}_p > 0\right\}$.

The higher the expectation of the second bank on the first bank's monitoring effort in period 1, the smaller this share can be.

The effort that the first bank contributes now is less than under centralization such that:

$$\alpha^{**} < \alpha^{*}$$

$\overline{\alpha} = B_2$'s assessment of the expected level of B_1 's monitoring activity.

$$B_1 \text{ maximizes: } a(\overline{R}_p - \frac{1}{\overline{\overline{\alpha}}}) - \psi(a) \Rightarrow \overline{R}_p = \frac{\partial \psi(a^{**})}{\partial a} + \frac{1}{a^{**}} \Rightarrow \Pi_p^{**} = a^{**}\overline{R}_p - \psi(a^{**})$$

$$\Pi_p^{**} = a^{**}\overline{R}_p - \psi(a^{**}) < \Pi_p^*$$

Comparability of equilibria-assumptions:

$\Pi_p^* + E_p < 2$: negative social surplus (poor projects)

$R_g + E_g > 1$: positive surplus (good projects)

$E_t < 0 < E_p$: poor entrepreneurs deterred by termination

Proposition 1

Assume $E_t < 0 < E_p$.Under either centralization or decentralization, there exists a unique equilibrium. For parameter values such that some financing is undertaken in equilibrium, a necessary and sufficient condition for project selection to differ in the two equilibria is $\Pi_p^{**} < 1 < \Pi_p^{*}$. If this condition holds, only a good project is financed under decentralization (the socially efficient outcome); both good and poor projects are financed (and the latter refinanced) under centralization.

Proof

If $\Pi_p^* < 1 \Rightarrow$ it is inefficient to finance a poor project under centralization.

Because $E_t < 0 \Rightarrow$ a poor entrepreneur will not seek refinancing and thus only good projects will be financed.

If $\Pi_p^{**} > 1 \Rightarrow$ it is even efficient to finance a poor project under decentralization given that $E_t < 0$.

If $\Pi_p^{**} < 1 < \Pi_p^* \Rightarrow$ it is efficient to finance a poor project under centralization but not under decentralization.

Hence, either centralization or decentralization lead to the same project selection in equilibrium or decentralization is strictly better:

- Decentralization selects efficiently.
- Centralization is subject to a soft budget constraint.

If we relax the assumption $E_t < 0 < E_p$:

- If $E_t > 0$: both types of projects get financed under either system.
- If $E_p < 0$: only good projects get financed under either system.

Alternative specifications

Instead of project length being given exogenously, E can affect it through unobservable effort.

Under centralization, B could reward the entrepreneur for early completion. However, this could be unattractive for E.

Under decentralization, the threat of termination would induce early completion. Similar results as before.

If $\overline{\overline{R}}_p = \overline{R}_p$ and it is concealed by E and B_1 against B_2, then poor projects do not get refinanced.

Financial globalization and international contagion:

- Eichengreen and Bordo (2002): under conditions of increasing globalization financial crises are growing more likely, but their consequences are not more severe.

- In comparison to the pre-1914 period of financial globalization, crises are twice as likely now; frequent incidence of currency crises, politics of the monetary regime, soft currency pegs under conditions of democracy and high capital mobility may account for that.

- Electoral rules also matter.

The IMF put a financial database up to 2008:
http://www.imf.org/external/pubs/cat/longres.aspx?sk=22345

Obstfeld and Taylor (1998) propose the trilemma of an open economy

1. Full freedom of cross-border capital movements
2. Fixed exchange rate and
3. An independent monetary policy oriented toward domestic objectives.

<u>You cannot have all three at the same time.</u>

Kaminsky et al. (2003) contend that:

1. An increase in capital flows
2. Lack of information and
3. The existence of a common creditor constitute the unholy trinity generating conditions for a strong and persistent financial contagion.

Systemic causes of financial crises: The Great Depression

Eichengreen (1992): the main cause of the world depression originating in the United States was a structurally flawed and poorly managed international gold standard system.

He suggests that:

- The constraints of the inter-war gold standard magnified the initial economic shock and were a significant obstacle to any policies again the ongoing Depression.

- The initial destabilizing shock may have originated with the NYSE crisis of 1929, but it was the gold standard system that transmitted the problem to the rest of the world.

The gold standard system before and after WWI was different. Before the war, the system was founded on credibility and cooperation credibility by governments:

- to sacrifice internal goals, such as lowering unemployment,
- to maintain a fixed exchange rate and gold conversion;
- cooperation by central banks and governments to multilaterally adjust discount rates together and provide lending, when necessary, in order to stem currency runs.

In the postwar period, political institutions increased the role of the unions, which undermined credibility, while cooperation became extinct, due to different views on monetary management, state regulation of financial markets, and WWI reparations and debts.

Banking politics: the inexperience of the Fed combined with the internal fight between NY and DC banks generated critical conditions for the Great Depression.

Contractionary monetary policy → sterilization of gold inflows, bank runs, global decrease in money supply, output, prices and employment. Hence, the gold standard system was abandoned in Europe as well (1936).

Bank Runs and Asset Prices

Calomiris and Mason (1991) identify two models of banking panics:
1. Random withdrawal theory and 2. Asymmetric information theory
The random withdrawal model implies an unusual increase in withdrawals from banks combined with a large interregional flow of funds.

The asymmetric information model implies unusually adverse economic news prior to panics. Strong declines in real stock prices and commercial failures can well predict bank panics.

They also suggest that the occurrence of bank failures reflects the informational level of the interactions between different bank loan portfolios (=assets) and systemic disturbances=shocks).

Wicker (1980) contends that the banking panic of Nov-Dec 1930 was the outcome of bad investments made in the 1920s.
Allen and Gale (2000): bubbles are caused by financial agency relationships between investors and banks; investors use money borrowed from banks to invest in risky assets.

Comparing the 2008 crisis with Great Depression, Eichengreen (2008) explains that a stock market crash is not the same as a depression and that the Fed's response to flood financial markets with liquidity was the correct choice.

He proposes the creation of World Finance Organization (WFO), which would be committed to fostering supervision, cooperation and coordination of national financial strategies, emulating the WTO paradigm.

Eichengreen (1996): economic growth in the European Golden Age is largely due to the bargain between investors and workers; if investors make productive investments increasing labor productivity, then workers are incentivized to ask for higher wages.

The solution to this bargain was facilitated by a series of institutions, both domestic and international: national wage bargaining, union representation, conditional access to government programs, or GATT, ECSC and EPU (trade would remain free despite changes in socio-economic conditions).

Overview of the IMF database on systemic banking crises:
http://www.imf.org/external/pubs/cat/longres.aspx?sk=22345