A Brief (7 Slide) History of Banks

Mesopotamia and Egypt: Grain was the main form of deposits at first, but in the process of time other deposits were commonly taken: other crops, fruit, cattle and agricultural implements, leading eventually and more importantly to deposits of the precious metals. Receipts testifying to these deposits gradually led to transfers to the order not only of depositors but also to a third party. In the course of time private houses also began to carry on such deposit business ... The banking operations of the temple and palace based banks preceded coinage by well over a thousand years and so did private banking houses by some hundreds of years. Davies (2002)

Babylon: The lending system of ancient Babylon was evidently quite sophisticated. Debts were transferable, hence 'pay to the bearer' rather than a named creditor. Clay receipts or drafts were issued to those who deposited garin or other commodities at royal palaces or temples. Borrowers were expected to pay interest ... [and] compound interest could be charged on long-term loans. But the foundation on which all of this rested was the underlying credibility of a borrower's promise to repay.

It is no coincidence that in English the root of 'credit' is *credo*, the Latin for 'I believe.' Fergusson (2007)

Restoration England: The direct ancestors of modern banks were neither the merchants nor the scrivenors but the goldsmiths. At first the goldsmiths accepted deposits merely for safekeeping; but early in the 17th century their deposit receipts were circulating in place of money and so became the first English bank notes. *EB* (1954)

By 1660, London's goldsmiths had emerged as a network of bankers ... [Their] notes, orders and bills (collectively called demandable debt) acted as media of exchange that spared the costs of moving, protecting and assaying specie. Quinn (1997)

Further on English Banking: Above all they learnt to issue promissory notes and made their deposits transferrable by 'drawn note' or cheque. Joslin (1954)

Colonial Virginia: Tobacco was commonly used in transactions because of the scarcity of precious metals. The practice of depositing tobacco in public warehouses and then exchanging authorized certificates, attesting to its quality and quantity, was extremely common and survived for over 200 years. Galbraith (1975)

Venice: [Deposits were] comparable to checking accounts today; i.e. it was not intended primarily for safekeeping or for earning interest but rather as a means of payment which facilitated the clearance of debts incurred in the process of doing business. In short, the current account constituted 'bank money,' money based on the banker's promise to pay... Little capital was needed ... it was deposits rather than funds invested by partners which provided bankers with investable capital. In the final analysis, it was the visible patrimony of the banker–alone or as part of a fraternal compagnia–and his reputation as an operator on the market place in general which were placed on the balance to offset risk and win trust. Mueller (1997)

Renaissance: The great banking families in Italy and Southern Germany in the 16th century were originally merchants, who began lending their own capital and then started collecting deposits from other merchants, nobles, clerics, and small investors. They were not the wealthiest group; wealth then was concentrated in the hands of landowners, who controlled agriculture, forests, and mineral rights. But the merchants arguably had the most to lose from reneging on obligations. Thus, because commerce involved the constant giving and receiving of credit, much of a merchant's effort was devoted to ensuring that he could fulfill his obligations and that others would fulfill theirs. Kohn (1999)

History tells us that the salient facts about bankers are:

1. they were few in number;

2. they were highly visible or subject to monitoring;

3. they were active in business, and in the economy, generally;

4. they started by taking deposits, in commodities, well before the invention of coinage;

5. then began making investments out of deposits;

6. and, above all, their liabilities were used as media of exchange to facilitate general transactions.

This was all based on *trust*:

1. the 'underlying credibility of a borrower's promise to repay;'

2. the banker's 'reputation as an operator on the market place in general;'

3. implying that certain agents had 'the most to lose from reneging on obligations;'

4. and allowing liabilities to serve as money 'based on the banker's promise to pay.'

We propose a theory consistent with this, with few prior assumptions on who banks are or what they do.

Mechanism Design à la Townsend, Williamson:

primitives are preferences, technologies and frictions;
the goal is to get banking to emerge endogenously.

The Wallace dictum extended.

Hahn's essentiality extended.

The approach complements previous theories:

Diamond‑Dybvig, Wallace, Green‑Lin, Ennis‑Keister,
Leland ‑ Pyle, Boyd ‑ Prescott,
Diamond, Williamson, Rajan, Diamond‑Rajan,
Cavalcanti ‑ Wallace, Berentsen et al., He et al.

Ingredients in the Theory:

1. Temporal separation to generate role for credit

    ● similar to Diamond Dybvig.

2. Limited commitment to endogenize repayment

    ● just like Kehoe - Levine, Alvarez - Jermann.

3. Imperfect monitoring

    ● as in Cavalcanti - Wallace

    ● but we make this endogenous.

4. Investment as partial collateral, like Kiyotaki - Moore

    ● liquidation value.

Predictions of the Theory:

1. Delegated investment.

2. Bank liabilities used to facilitate payments.

3. Bankers chosen endogenously

   ● those who are more easily monitored

   ● or, those with greater stake in the economy

   ● economies of scale in monitoring.

4. Good bankers have proftable investment opportunities, but it can also be efficient to sacrifice this for trust

   ● rate of return dominance.

The Environment: Same as Francesca's! (Gorton's)

Same as Gu - Wright model (although this one came first)

Replicate it so there are J groups (needed later)

Each period $t = 1, 2 \ldots$ is divided into two subperiods

Two permanent types $i = 1, 2$ with equal measure

In each period t, in every group j:

measure γ^i of each type $i = 1, 2$ active, while rest sit out
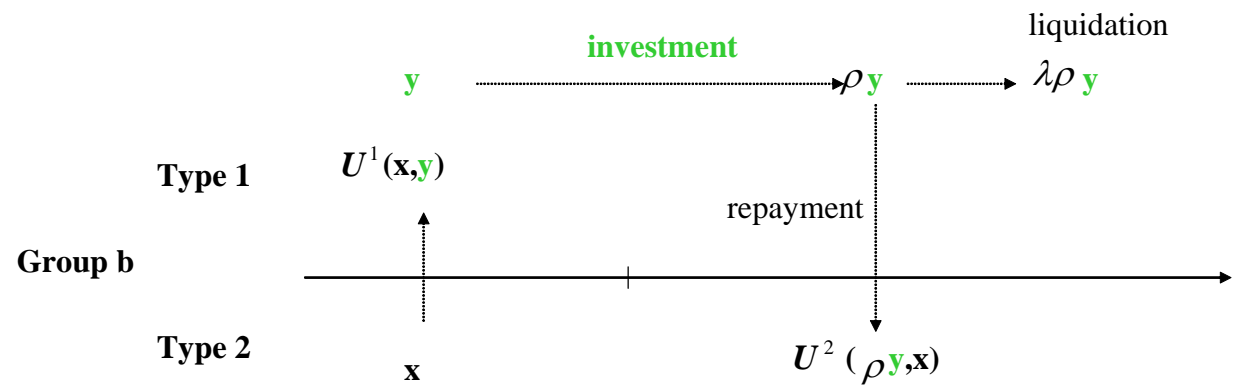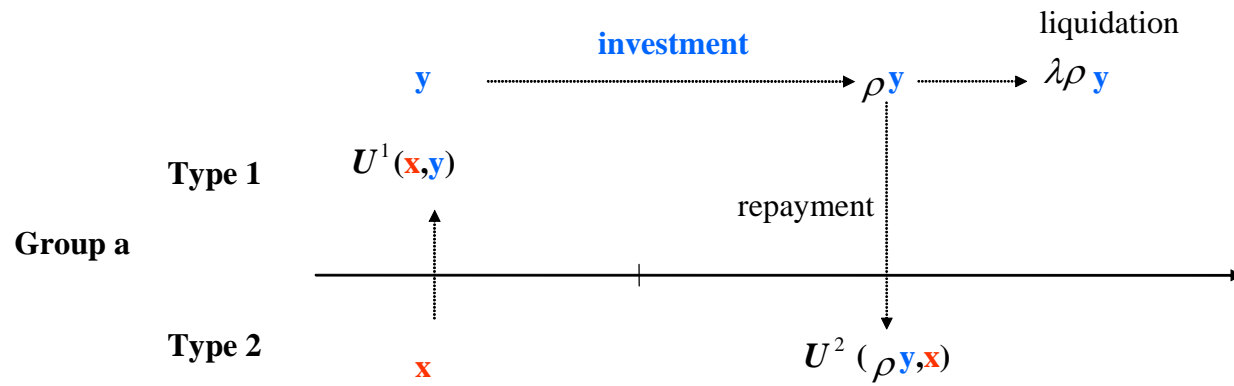
active type i consumes good i and produces $\sim i$ for utility $U(x_i, y_{\sim i})$, with $x_1 = y_2$ and $x_2 = \rho y_1$.

Market Structure: *None* – We do Mechanism Design

Frictions:

1. Temporal separation

2. Limitted commitment

3. Specific investment & imperfect collateral

- type 1 invests good 2 (from any group) w/ return ρ

- type 1 gets $\lambda\rho y$ from liquidating ρy (from any group)

4. Imperfect monitoring

- observe deviations with probability π

Time Line

investment

liquidation

y ·····························▶ ρ**y** ············▶ $\lambda\rho$ **y**

Type 1 U^1(**x**,**y**)

Group a

repayment

Type 2   **x** U^2 (ρ**y**,**x**)

- -

investment

liquidation

y ·····························▶ ρ **y** ············▶ $\lambda\rho$ **y**

Type 1 U^1(**x**,**y**)

Group b

repayment

Type 2   **x** U^2 (ρ**y**,**x**)

IF Allocations: Let $V^i = \gamma U^i(x_i, y_i)/(1 - \beta)$.

A stationary IF allocation (x, y) satisfies DP for each $i = 1, 2$,

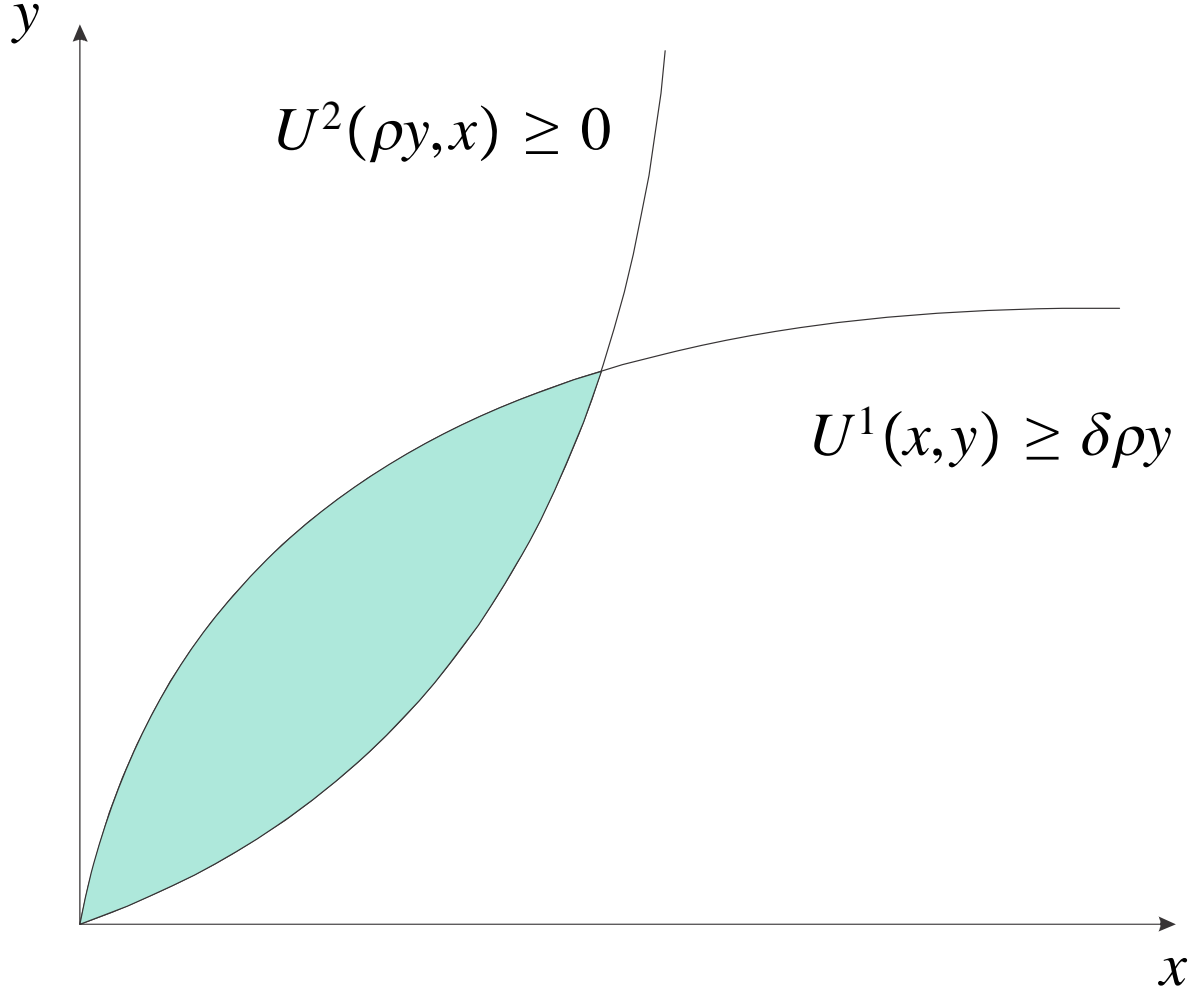$$U^i(x_i, y_i) + \beta V^i(x_i, y_i) \geq (1 - \pi)\beta V^i(x_i, y_i)$$
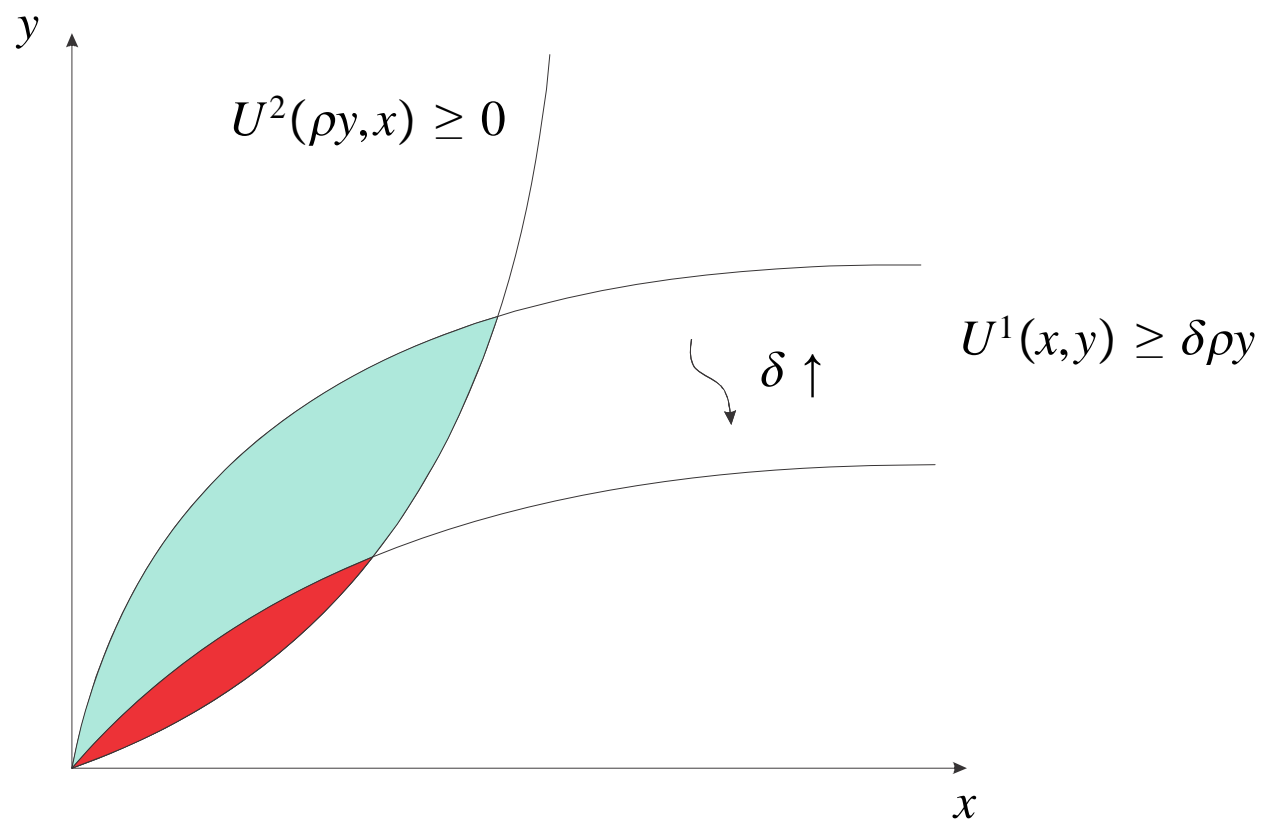
and RC for type 1,

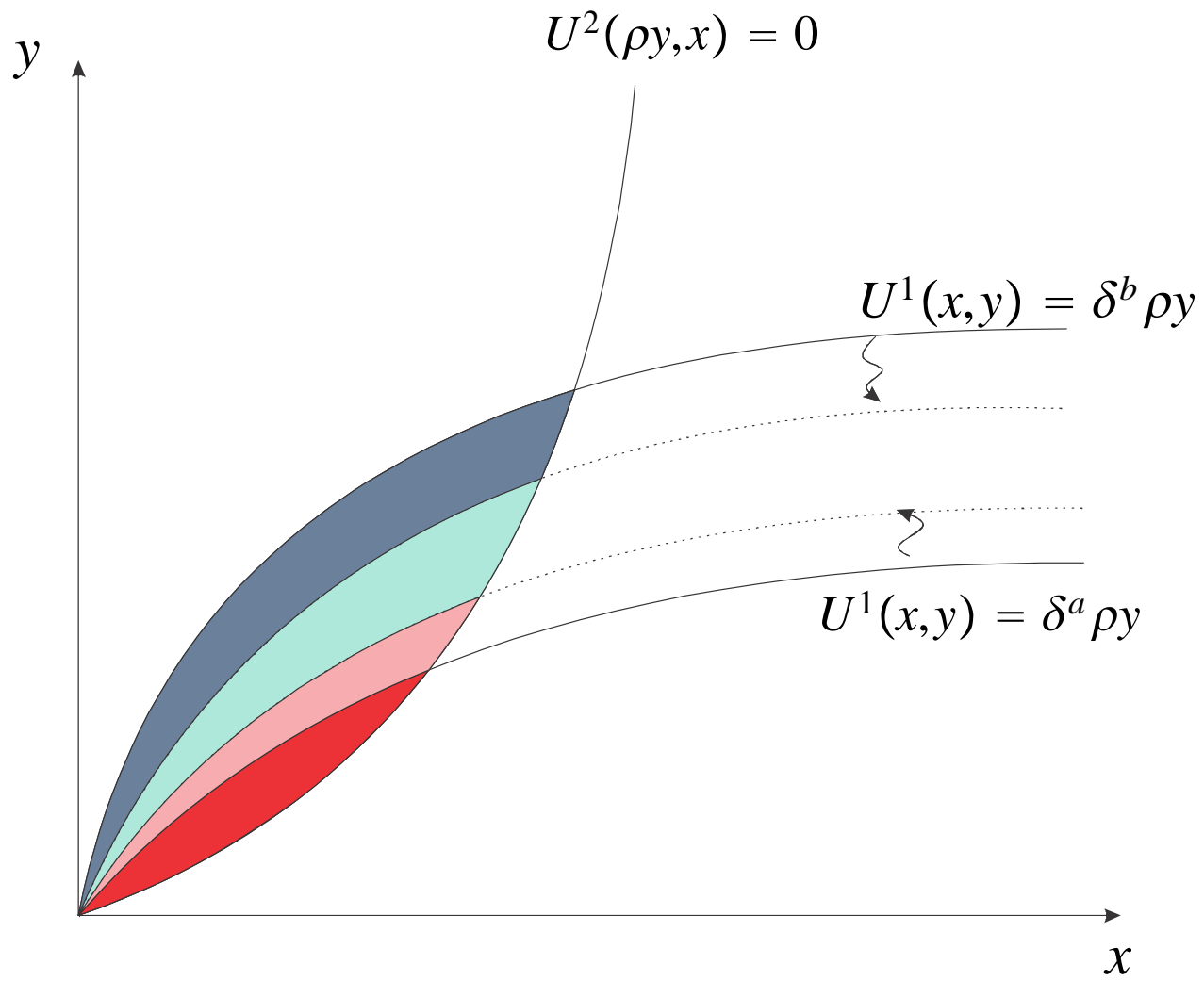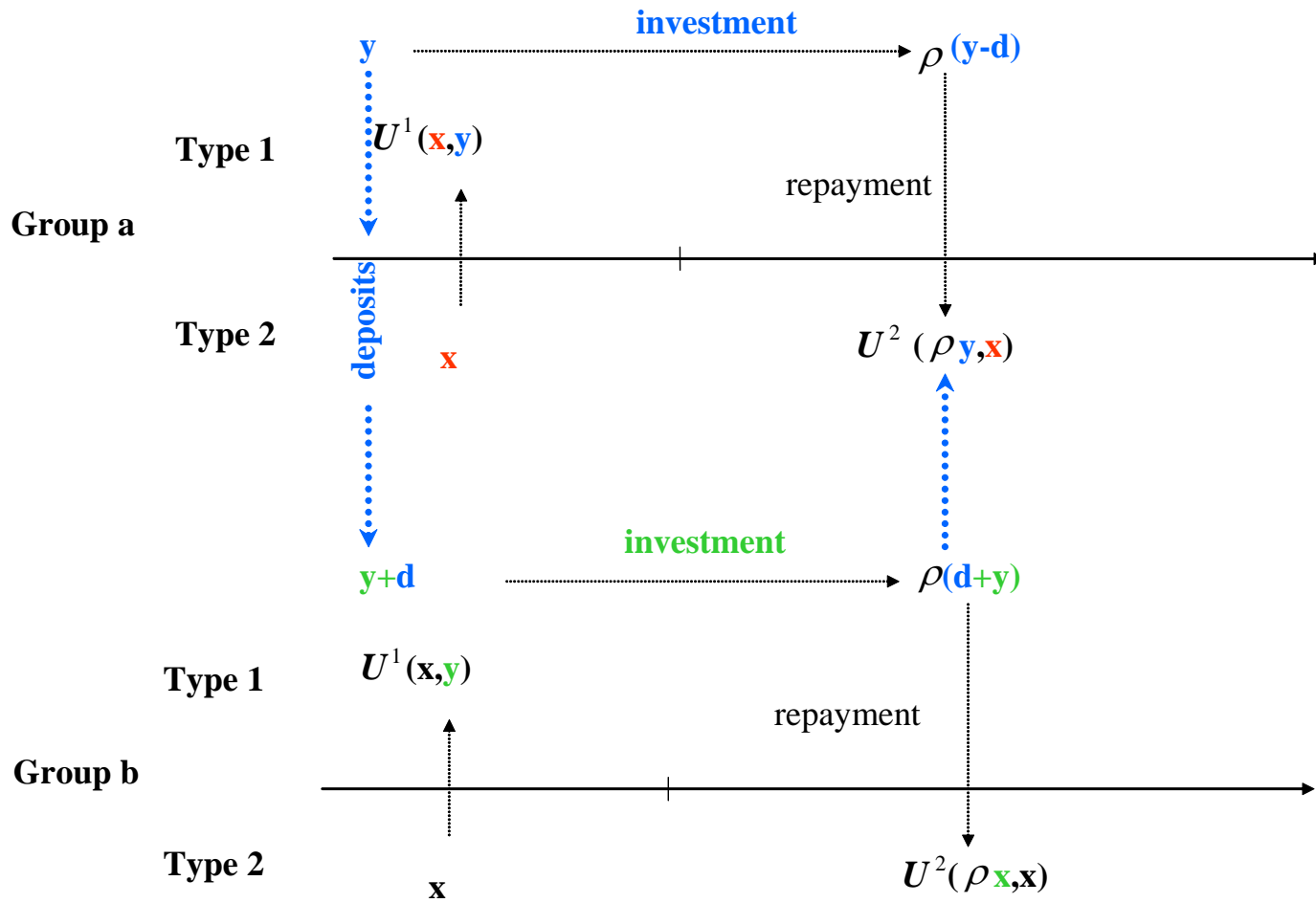$$\beta V^1(x_1, y_1) \geq \lambda \rho y + (1 - \pi)\beta V^1(x_1, y_1).$$

These reduce to

$$U^2(\rho y, x) \geq 0 \text{ and } U^1(x, y) \geq \delta \rho y$$

where $\delta = \lambda(1 - \beta)/\beta\gamma\pi$.

Propostion: Deposits are essential.

Deposits are essential iff RC binds for one group and not the other. Suppose $\rho^b = \rho^a$ and $\delta^b < \delta^a$. Then deposits from group a to b can be essential, but not deposits from group b to group a.

Who should accept deposits and play the role of banker? Those who have:

- relatively patience - β;
- higher monitoring probability - π;
- greater connection to the market - γ;
- less incentive to liquidate investments strategically - λ;
- better access to good investment opportunities - ρ;

Extensions:

Rate of Return Dominance:

Proposition: Let $\rho^a > \rho^b$. It can still be essential to have group a deposit withy b as long as $\delta^b < \delta^a$.

Proof: Continuity.

Endogenous Monitoring

Optimal Number of Bankers

Optimal Size of Banks

Conclusions

Credit is plagued by incentive issues.

This gives rise to endogenous equilibrium dynamics under a variety of institutional mechanisms (markets)

In *some* ways (but not others?), models of credit look a lot like models of currency.

Banking may arise endogenously if some agents are better in terms of criteria we identify with trustworthyness.

Even if agents are the same on these criteria, it can still be good to have some specialize in role of banker.

Although, in general, there shouldn't be too many and they shouldn't be too big.