Banking Strategy and Credit Expansion: a Post Keynesian Approach

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Concerns of the paper:

- What determines the limits to the asset growth of an individual bank over the business cycle?
- Is there any connection between an individual bank's strategy and the behavior of the banking system?
- How does banking strategy affect business-cycle outcomes?

The paper aims at:

- Clarifying the remark by Keynes in his *Treatise on Money*, concerning the relationship between individual-bank and banking industry behavior in credit expansion.
- Understanding better how micro and macro levels can be integrated into one model of bank behavior, to see the mutual causality between banking strategy and business-cycle outcomes.
- **Paper´s argument:** the bank´s balance sheet is only partially determined by its management decisions; it is also determined by the balance sheet positions of other banks.

Keynes'Treatise on Money(1930)

- Bank´s volume of reserves depend to a large extent on the other banks' finance policies - that is, on the growth rate of other banks' loans. As a result, an individual bank can grow much faster than other banks only if it increases its market share of total banking-sector deposits. This bank rapid-growth strategy will, at the same time, reduce its reserve and strengthen other banks' lending capacity.

A quote from Keynes' Treatise on Money

- "There can be no doubt that .. all deposits are 'created' by the bank holding them. .. But it is equally clear that the rate at which an individual bank creates deposits on its own initiative is subject to certain rules and limitations; it must keep step with the other banks and cannot raise its own deposits relatively to the total deposits out of proportion to its quota of the banking business of the country. [T]he 'pace' common to all the member banks is governed by the aggregate of their reserve resources".

Post Keynesian debate

- **Banks´role in business cycle:** (i) key role as a reliable transmission mechanism for other sectors' pursuit of consumption and investment spending; (ii) banks accomodate the demand for credit by the non-financial corporate and household sectors; (iii) ´hang together´ mentality: banks behavior tends to amplify the scale of upwings and downturns.
- *Horizontalism* versus *Structuralism approach*
- Diversification of behaviors among banks? Implications of strategic diversity for the link between micro and macro process?

Money Multiplier Approach (1)

Definition

MM = M1/Base = 1/(1-D(1-R)), where:

M1= cash + demand deposits

D = public preference for deposits (demand deposits-to-means of payment ratio)

R = fraction of total reserves (reserves-to-demand deposit ratio)

Simple Bank Balance Sheet:
the impact of the money multiplier after an increase in the monetary base

Table 1. Representative bank balance sheet

Δ Assets	**Δ Liabilities**
Cash: R D MM ΔB	Deposits: D MM ΔB
Loans: (1 – R) D MM ΔB	Net Worth: Δ NW = 0

Money Multiplier Approach (2)

Conventional wisdom

- **MM** is automatically determined by B, as reserve ratio and public preference are given

Keynesian approach

- **MM** is partly a result of liquidity preference of banks (portfolio allocation)
- banks may innovate to manage reserves (liability management)

Disaggregated Money Multiplier (1)

$$\mathbf{MM} = 1/[1- D (1- \Sigma R_i \Gamma_i)]$$

- $\Sigma R_i \Gamma_i$ is the total of reserves of banking system, pondered by deposit bank attraction coefficient (Γ_i)
- Ri: reserve policy of a bank
- Γ_i: deposit attraction of a bank (fraction of total deposits D)

Disaggregated Money Multiplier (2)

Table 2. Balance sheet of bank "i" at the end of the multiplier process

Assets	**Liabilities**
CASH	DEPOSITS
$R_i \Gamma_i D \Delta B \Sigma D^z (1 - (\Sigma R_i \Gamma_i))^z$	$\Gamma_i D \Delta B \Sigma D^z (1 - (\Sigma R_i \Gamma_i))^z$,
LOANS	NET WORTH
$(1 - R_i) \Gamma_i D \Delta B \Sigma D^z (1 - (\Sigma R_i \Gamma_i))^z$,	ΔNW_i

Numerical Simulation:

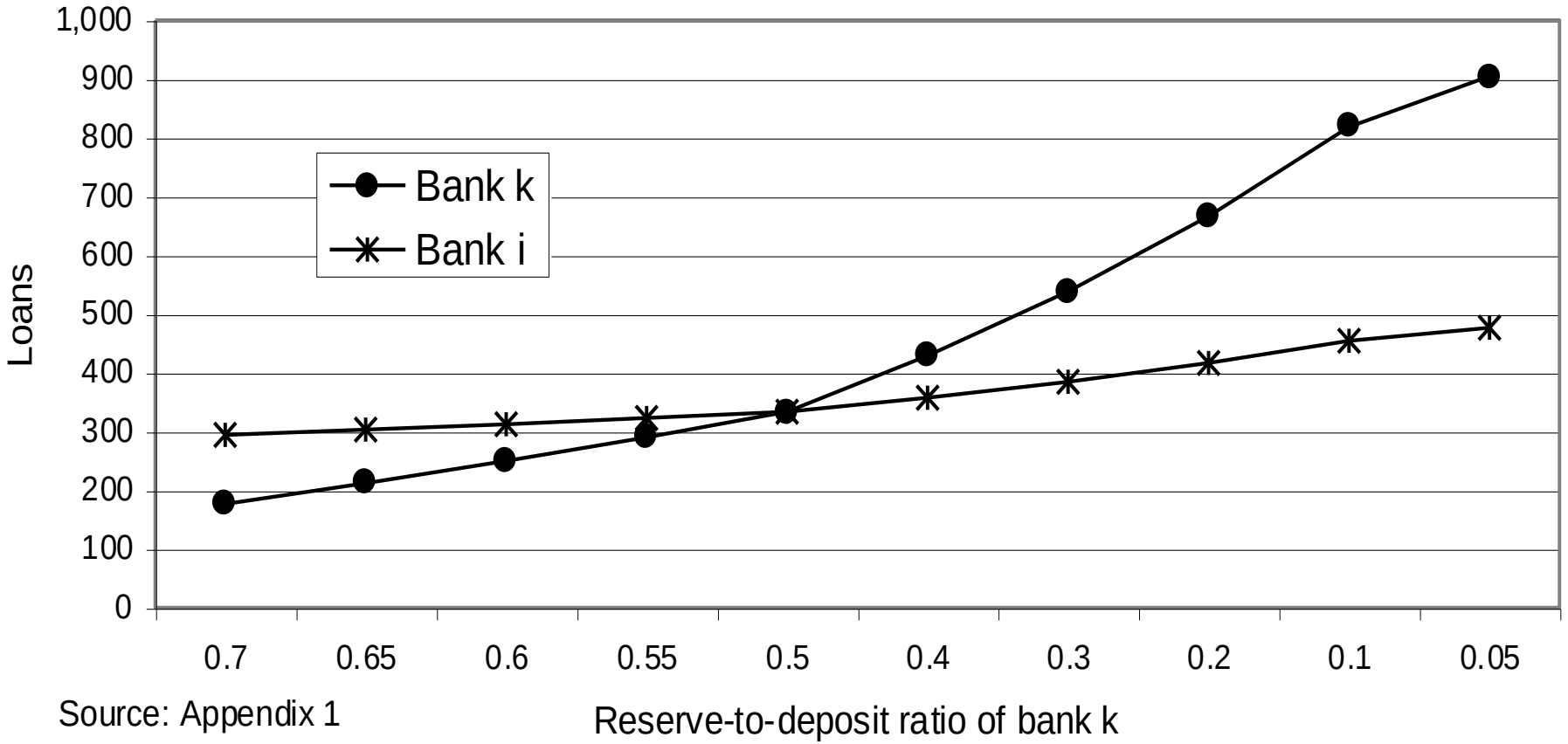
- The whole bank system has just two banks, **k** and **i**
- Both banks have same Γ**s** = 0.5, and $\Gamma_i + \Gamma_k = 1$
- Bank i does not change its R_i (=0.5)
- *Only bank **k** change its R_k* (more aggressive credit policy)
- Both banks have initially the same figures in their balance sheet

Annex 1. Changes in some banking variables (bank k and i) for different reserve-to-deposit ratios

	Assets			Reserves		Loans		Loans/Net worth		Assets/Net worth	
Reserve-to-deposit ratios of bank k	Bank k	Bank i	Banking sector	Bank k	Bank i	Bank k	Bank i	Bank k	Bank i	Bank k	Bank i
0,70	688,24	688,24	1376,47	481,76	344,12	106,47	244,12	1,06	2,44	6,88	6,88
0,65	706,06	706,06	1412,12	458,94	353,03	147,12	253,03	1,47	2,53	7,06	7,06
0,60	725,00	725,00	1450,00	435,00	362,50	190,00	262,50	1,90	2,63	7,25	7,25
0,55	745,16	745,16	1490,32	409,84	372,58	235,32	272,58	2,35	2,73	7,45	7,45
0,50	766,6	766,6	1533,3	383,3	383,3	283,3	283,3	2,83	2,83	7,67	7,67
0,40	814,29	814,29	1628,57	325,71	407,14	388,57	307,14	3,89	3,07	8,14	8,14
0,30	869,23	869,23	1738,46	260,77	434,62	508,46	334,62	5,08	3,35	8,69	8,69
0,20	933,33	933,33	1866,67	186,67	466,67	646,67	366,67	6,47	3,67	9,33	9,33
0,10	1009,09	1009,09	2018,18	100,91	504,55	808,18	404,55	8,08	4,05	10,09	10,09
0,05	1052,38	1052,38	2104,76	52,62	526,19	899,76	426,19	9,00	4,26	10,52	10,52

Simulation (1)

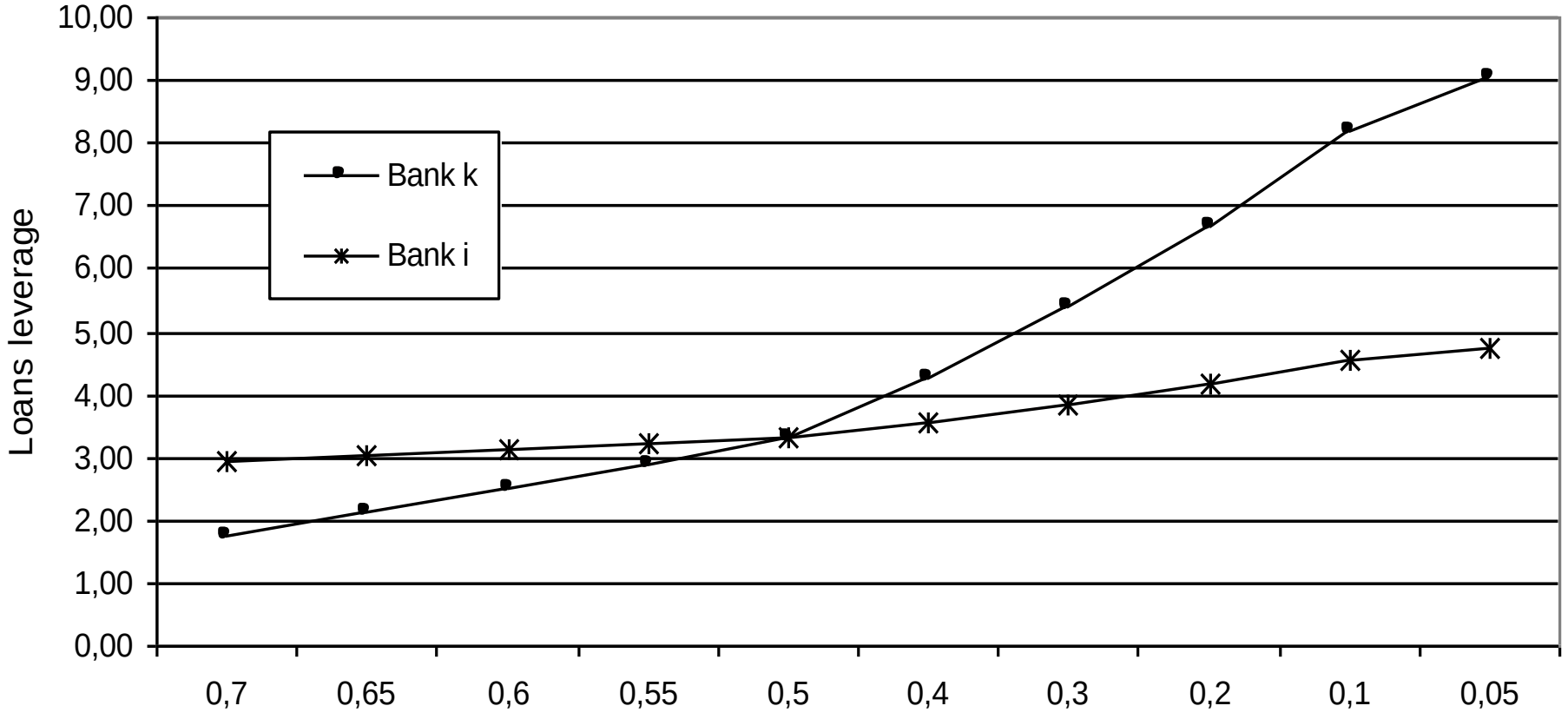
Figure 1. Loans of banks k and i for different reserve-to-deposit ratios of bank k



Source: Appendix 1

Simulation (2)

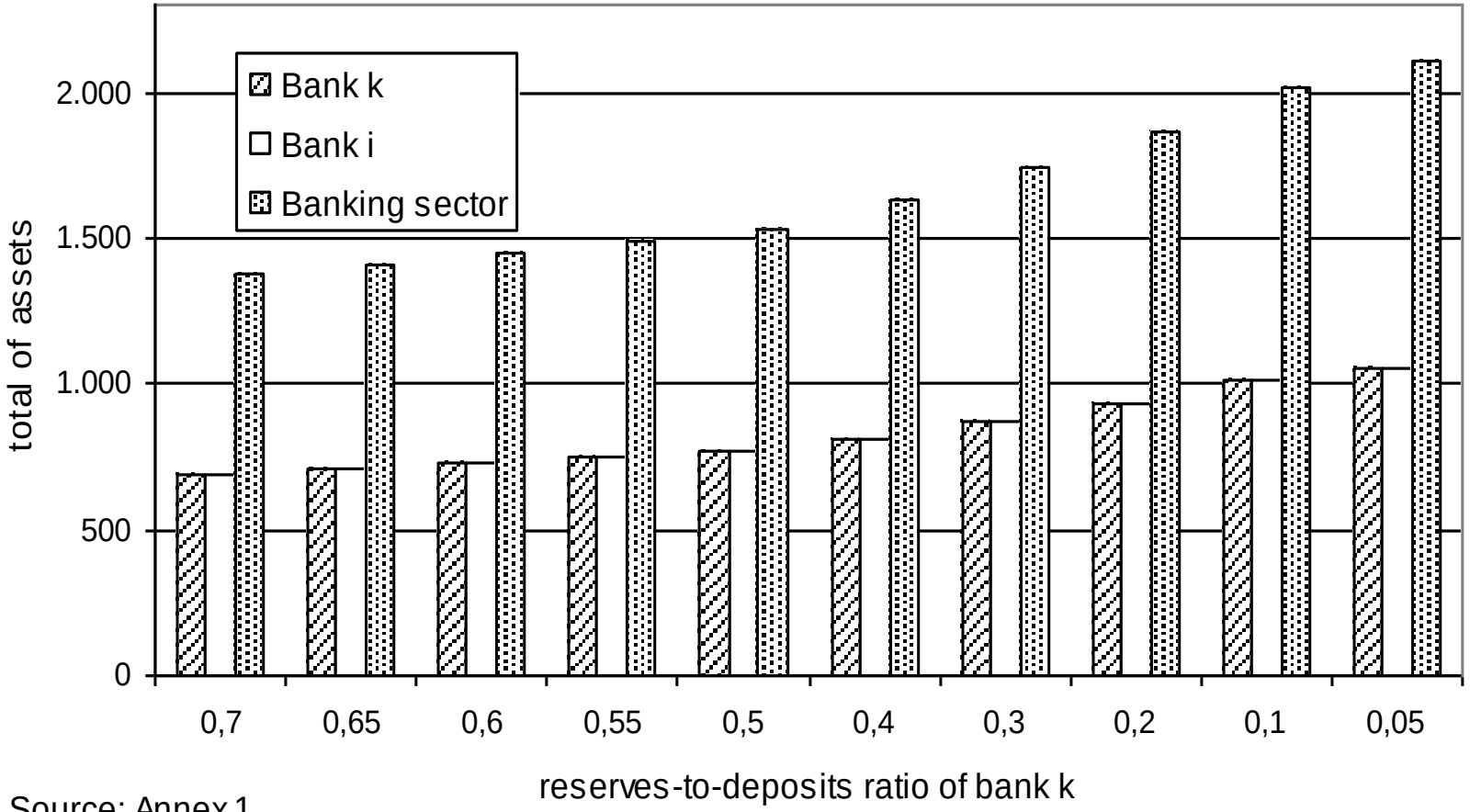
Figure 2. Leverage of loans (loans/net worth) for different reserve-to-deposit ratios of bank k



Source: Annex 1

Simulation (3)

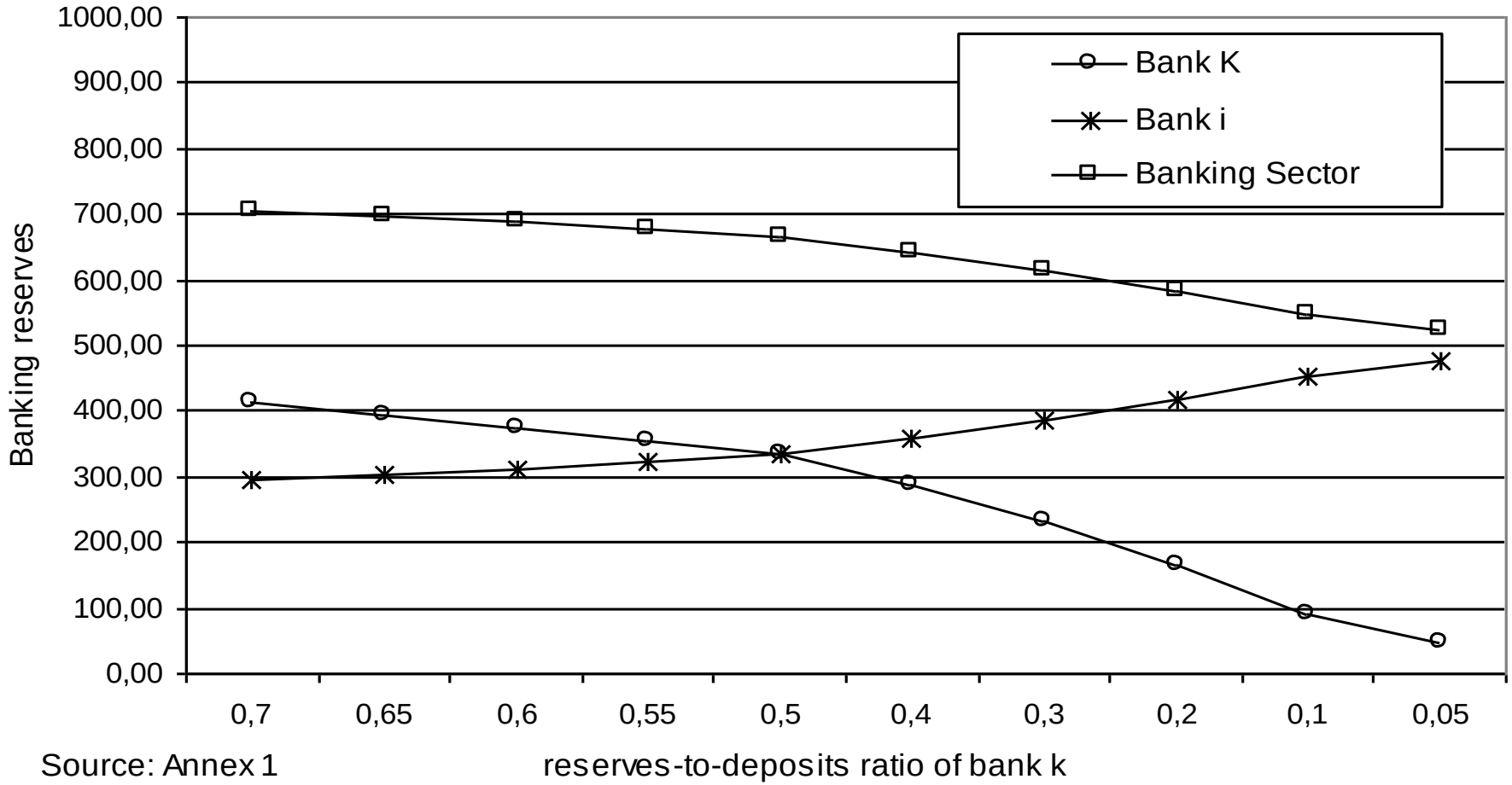
Figure 3. Banking assets of bank k and i for different reserve-to-deposit ratios of bank k



Source: Annex 1

Simulation (4)

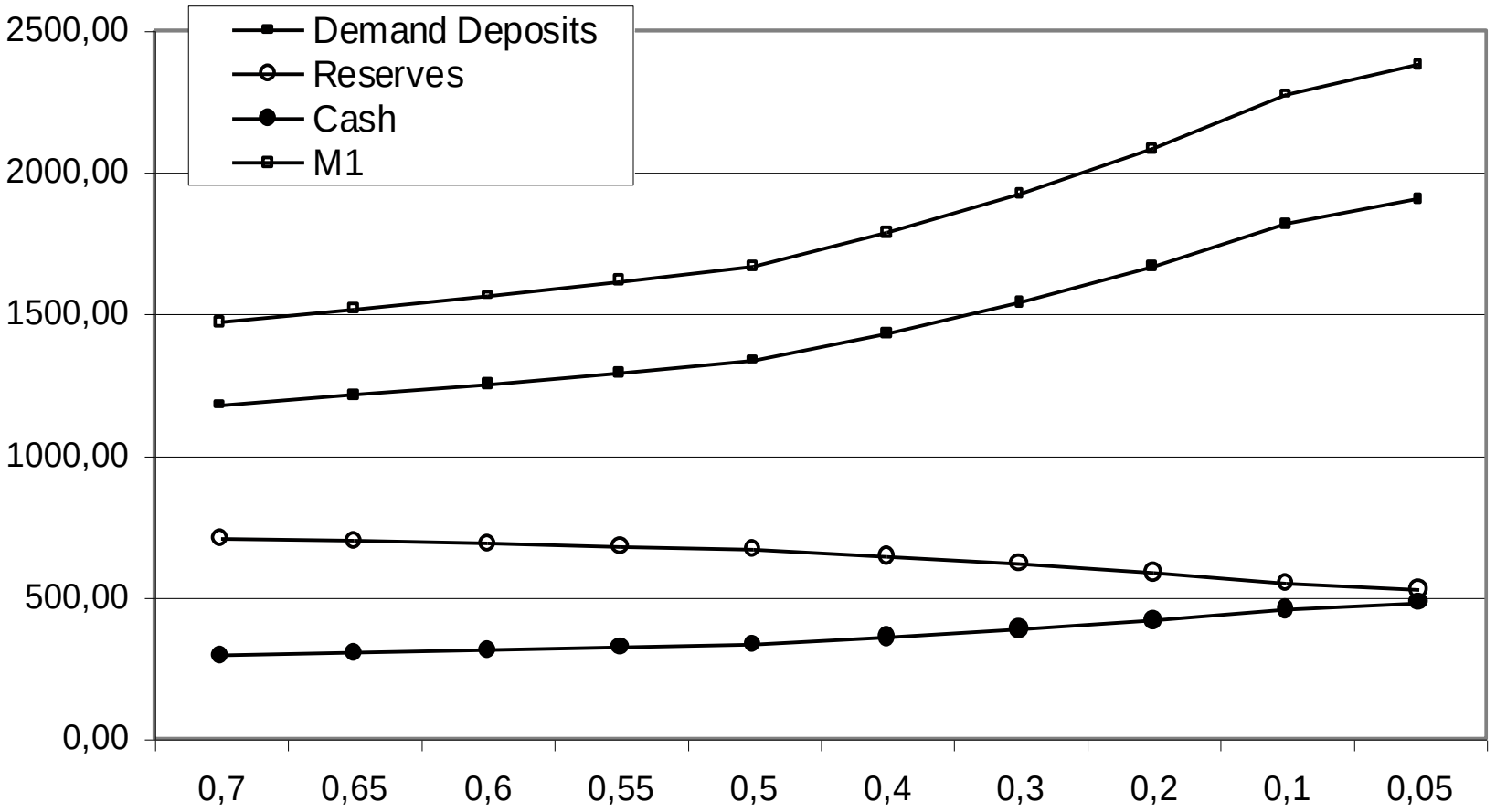
Figure 4. Banking reserves of bank k and i for differents reserve-to-deposit ratios of bank k



Source: Annex 1

Simulation (5)

Figure 5. Monetary Aggregates



Conclusions:

- The balance sheet of the individual banks and the risks that each bank faces depend partially on other banks´ portfolio decisions.
- If banks have different rhythms of loan expansion, then a more aggressive bank will lose reserves to other banks; at the same time it will take on higher liquidity and insolvency risks.
- More conservatively managed banks will however *also* be forced into higher systemic liquidity and insolvency risks. A more aggressive bank will be more financially fragile than other banks; this might impose a limit on its loan growth strategy.