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Recent policies for financial market integration in Indonesia

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Working Paper No. 300

Recent Policies for Financial Market
Integration in Indonesia

by

Friedrich L. Sell*

Institut für Weltwirtschaft an der Universität Kiel
The Kiel Institute of World Economics

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Kiel Institute of World Economics
Department IV
Düsternbrooker Weg 120, D-2300 Kiel 1

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Friedrich L. Sell*

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I. Introduction

In most developing countries financial markets are still "highly fragmented and dualistic" (Nunnenkamp 1985, p. 20). This is considered as a hindering factor to economic development. The rationale behind this is the view shared by most economists that a higher level of financial integration c.p. lowers intermediation costs, encourages competition and improves the allocation of loanable funds throughout the economy.

If these are ultimate goals of financial integration, which intermediate objectives can be strived for? For example:

- the substitution of "unproductive" assets"¹ - in view of the financial intermediation process- by "productive assets"²;
- the withdrawal of discriminatory measures against informal financial activities that play "an important complementary role" (Nunnenkamp 1985, p. 21) with regard to formal financial savings and/or credits³;
- the competition for customers of informal money lenders, whose credit transactions are connected with severe market imperfections by adequate and possibly new formal financial intermediaries;
- the overall reduction if not abolition of financial repression within the formal financial sector.

More alternatives could be added, but the examples given should suffice.

¹ As hoarding of gold jewellery (Fischer 1987, p. 23).

² Informal credits and/or deposits with the formal financial sector.

³ As savings and credit associations.

Indonesia is an example for a country that has pursued different approaches towards the financial sector in the last years; each of these will most likely have affected financial integration:

- (i) the "macroeconomic approach": the so-called June 1, 1983 Financial Reform which enabled state banks to determine their own credit terms vis-à-vis to the non-priority sectors as well as interest rates on most categories of deposits. One major goal of this reform was to improve the "allocation of financial resources through the financial system" (Baliño/Sundararajan 1984, p. 1).
- (ii) the "small-scale approach": The KIK/KMKP¹ programs launched in 1974 with the aim of extending concessional credit to small-scale enterprises (SSE). Formal eligibility criteria are (i) the business' net worth which originally should not "exceed RP 100 million in industry and construction, or RP 40 million in other sectors" (Bolnick 1982, p. 66) and (ii) that the enterprise is owned by indigenous people (pribumi). The explanation of such policy is that the financial market "would otherwise seriously underallocate credit to SSE" (ibid, p. 80/81).
- (iii) the "institutional approach": the implementation of a system of small banks, called "Bank Perkreditan Rakyat" (BPR) in 1978, built up under the supervision of Bank Rakyat Indonesia (BRI), which is the biggest (state-owned) commercial bank specialized in granting agriculture, fishery, cooperative and rural development credits. The main purpose was to create a new bank type with lower market access restrictions for savers and borrowers than the existing formal financial institutions.

¹ Small Investment Credit/Permanent Working Capital Credit.

(i) and (ii) have already been discussed (Nunnenkamp 1985; Bruch/Hiemenz 1984; Bolnick 1982) to some extent in the literature. This paper intends to focus on (iii) and the possible impact it had on trade-tied informal lending which traditionally has been a widespread phenomenon in Indonesia (Bank Indonesia 1985, p. 20) and is incriminated to often imply exploitation of borrowers. The presentation is as follows: any investigation into the possible repercussions of Bank Perkreditan Rakyat's implementation presupposes the discussion of the theoretical links between formal and informal finance. This is done in Section II. In III the characteristics of "trading-cum-money lending" in Indonesia are discussed, whereas IV gives an overview on the new Indonesian small bank type properties. The empirical findings in V may show if this new bank type has had any substantial impact on the relevance of trade-tied money lending. To this end spatial data will be analyzed. Finally, in VI a summary is given, including some policy conclusions.

II. The Links Between Formal and Informal Finance

Acharya and Madhur (1983, 1984) belong to those who have made attempts at modelling the nature of interactions between the informal and the formal credit markets. Their approach used time series of bazar bill rates of major business centres in India - which is the rate of discount on these - as a proxy for informal interest rates. They measured spill-over effects through the impact of a credit demand switch on informal interest rates: "A reduction in the stock of commercial bank credit to the private sector leads to an increase in the excess demand in the commercial bank credit market which then spills over to the informal credit market and thereby leads to an increase in the rate of interest in the latter market" (1983, p. 1755). Their paper led to a controversy with Sundaram and Pandit (1984, 1985) who kept to the Acharya-Madhur-Model-specification but used a different data base: according to them "the ... hypothesis that the ... bill market and the organized credit market are (i) segmented, cannot be rejected out of hand" (1984, p. 677).

In a cross-sectional context there are at least two more alternatives: it could be that the informal credit market satisfies demand needs complementary (ii) to the formal credit market, but one could also think of a (iii) competitive or substitutionary relationship.

In the following, a graphical illustration for all three cases will be presented.

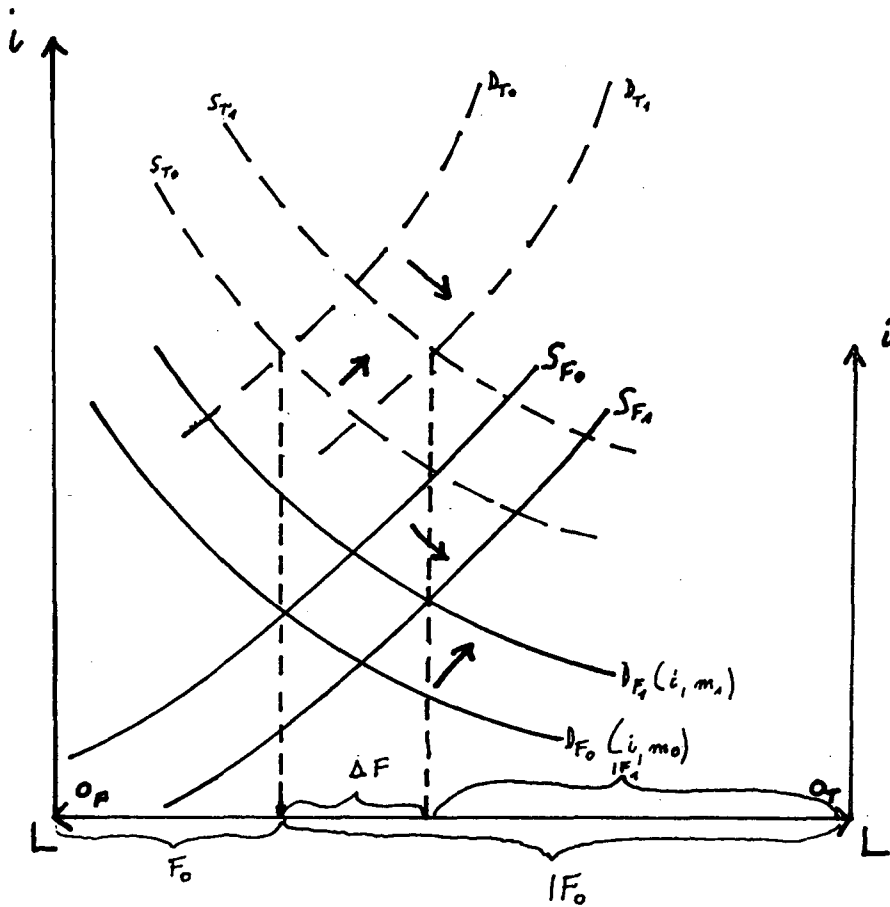
As Roemer (1986, p. 435) already explained, some lenders in developing countries - "money-lenders, traders and family members - operate only in the unorganized sector". Let us consider the case of competition between banks and traders first. Graph 1 depicts formal credit supply and demand (S_F, D_F) before and after the introduction of a new bank type (Bank Perkreditan Rakyat) which has lower market access restrictions (m) than the yet existing formal financial institutions in the region. As a consequence, total formal credit demand will c.p. rise ($D_{F0} \rightarrow D_{F1}$). But also supply will ($S_{F0} \rightarrow S_{F1}$), assuming, "that any lender who can place money in the organized market at an acceptable rate will do so rather than" (Roemer 1986, p. 434/435) remain in the unorganized sector. The trader's credit supply will shrink ($S_{T0} \rightarrow S_{T1}$). Most likely, the additional formal credit demand is due to agents who take the chance of a new formal institution with adequate conditions to change the debtor ($D_{T0} \rightarrow D_{T1}$).

As a result, in the new equilibrium formal credits provide an additional part (ΔF) of the total loanable funds (L) available to the region. To this extent, the amount of informal credits sank ($IF_0 \rightarrow IF_1$) caused in the end by the bank's competition!

Alternatively, a complementary function of the new bank type may be thought of, represented by Graph 2: if the banks draw resources from non-traders and win customers not involved in trade tied-in credit arrangements, the loanable funds available to the region can rise ($L_0 \rightarrow L_1$) without affecting the trader's credit market negatively ($IF_0 = IF_1$). This event may be brought about by a process of financial deepening: people depositing for the first

GRAPH 1

"COMPETITION"



L =Loanable Funds available in the region

i =interest rate

F =Formal Credits by Banks

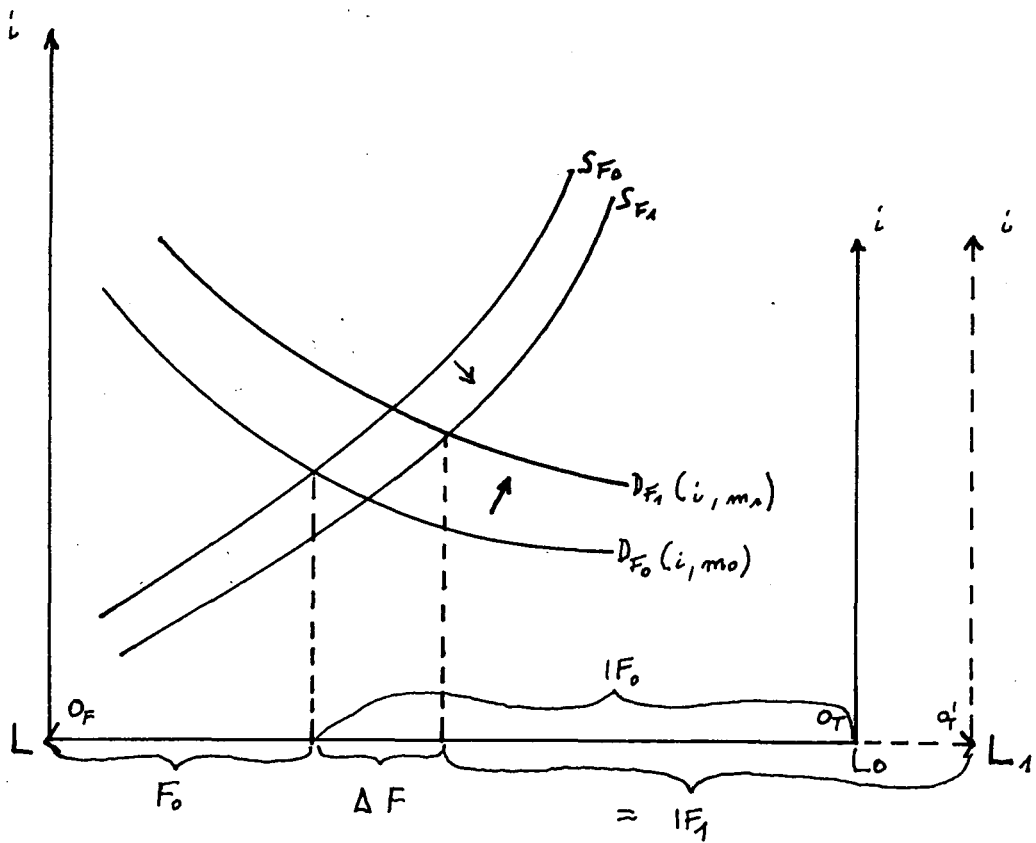
IF =Informal Credits by Traders

O_F =Formal Credit Supply Origin

O_T =Informal Credit Supply Origin

GRAPH 2

"COMPLEMENTARITY"



L=Loanable Funds available in the region

i=interest rate

F=Formal Credits by Banks

IF=Informal Credits by Traders

O_F =Formal Credit Supply Origin

O_T =Informal Credit Supply Origin

time their money with banks, and small scale entrepreneurs who relied before totally on self-financing, now becoming first-time-borrowers.

Finally, let us consider in Graph 3 the case of segmentation: Now we introduce a third credit/second informal credit market extending loans in the initial equilibrium in the amount of IF_{10} , with the trader's credit remaining at IF_{20} . One could think of a different set of lenders ("pure money lenders", family members, housewives etc.) and borrowers¹ in comparison to the trader's credit market. It is characterized by the fact that it is "closer" to the banks' market in the sense that the expansion of the bank's market share will in the first phase always be at its expense ($IF_{10} \rightarrow IF_{11}$). Thus, the above explained shift ($D_{F0} \rightarrow D_{F1}$; $S_{F0} \rightarrow S_{F1}$) does not affect trader's credit segment (IF_{20}). Only if the second informal credit market has been competed away, will the banks knock on the trader's credit market door.

III. The Characteristics of Trading-Cum-Lending in Indonesia

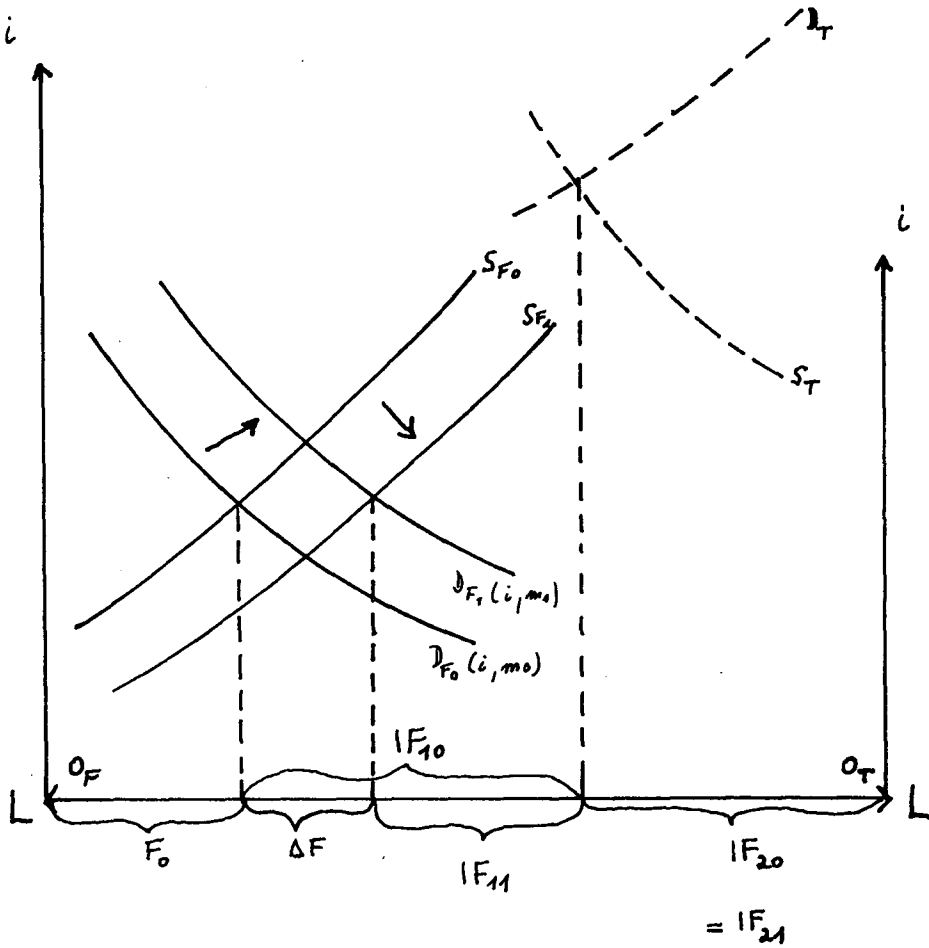
It is a widespread view that informal money markets matter in developing countries (Fischer 1986, p. 123-128, 169-170): the informal money (or better: credit) market (ICM) is successful in providing finance easily, quickly and with flexible conditions and repayment terms (Fischer 1987, p. 26) to small borrowers in urban and rural areas. The failure of formal financial institutions to reach these customers has been attributed - among other things - to the fact that they adhere to bureaucratic procedures, do not provide complementary services, ask for collateral etc.

If a typology of informal credit arrangements - which can be found nowadays in Indonesia - should be given, the following have proven to be the most frequent (BI 1985, p. 19):

¹ "The credit market... becomes segmented between borrowers with collateral, who obtain lower cost loans from informal... institutions, and borrowers without collateral, who pay higher interest on informal loans..." (Unnevehr/Zain 1986, p. 370).

GRAPH 3

"SEGMENTATION"



L=Loanable Funds

i=interest rate

F=Formal Credits by Banks

IF_1 =Informal Credits by Non-Traders

IF_2 =Informal Credits by Traders

O_F =Formal Credit Supply Origin

O_T =Informal Credit Supply Origin

- (a) Rotating Savings and Credit Associations
- (b) Credit Cooperatives
- (c) Labor and Land Related Credit Arrangements
- (d) Private Pawnbrokers
- (e) "Pure" Money Lenders
- (f) Trade Linked Lending

This paper deals basically with (f): In Indonesia, trade linked lending has primarily two aspects: firstly, we find - for instance in West Kalimantan, Jambi, Jakarta etc. - the practice of CEK-PUTIH (Sell 1987), which is nothing but a system of circulating "white checks" as an in-group instrument of payment and/or credit. Secondly, there is lending by traders to non-traders. TENGGULAKS (middlemen) and BAKULS (vendors), for example, are involved in these transactions. Bakuls can be found preferably in the rural sector: in their majority they purchase village products and provide both credit and input factors. They are used to sell some products on credit and to make purchases of outputs in advance. It is important to realize that the advances in goods, raw materials and funds function as one joint transaction. In the case of cultivators, these are obliged to deliver the crops to the creditors at harvest time. As a consequence, when their harvest produce is not adequate to meet their debts, their commitment towards the small traders continues Therefore, it is argued, the creditors tend to gain some sort of monopolistic power in the credit market, reflected on the "real side of the economy" by a monopsony power in the product market¹. High

¹ Bhaduri (1977, pp. 343/44) illustrates this power in the context of agrarian credit markets: "The functioning of unorganized rural money markets is inextricably interwoven with personal power relations in the villages, consequently giving such markets their personalised character... Thus, a local money-lending trader through whom the borrowing peasant markets his harvest, is usually in a much stronger position than a lender in an organized market to recover defaulted loans, using such means as ... the forthcoming harvest, etc. It is this high degree of personal power over the borrower which allows a private money-lender to accept a whole range of securities as collaterals for advancing loans which would otherwise be unacceptable. But on the other hand, the "unmarketability" of these collaterals elsewhere also gives a private money-lender the exceptional economic power arbitrarily to value the collaterals offered by poor peasants".

effective interest rates are a "natural" outcome: Their calculation depends on the overpricing of commodities sold by the merchants and the purchase of the farm products at a "discounted" price (underpricing)¹.

As a consequence, it has been claimed that the institutionalized credit sector should not complement this type of informal credit arrangement but compete with, and where possible, compete away from the informal credit lenders involved.

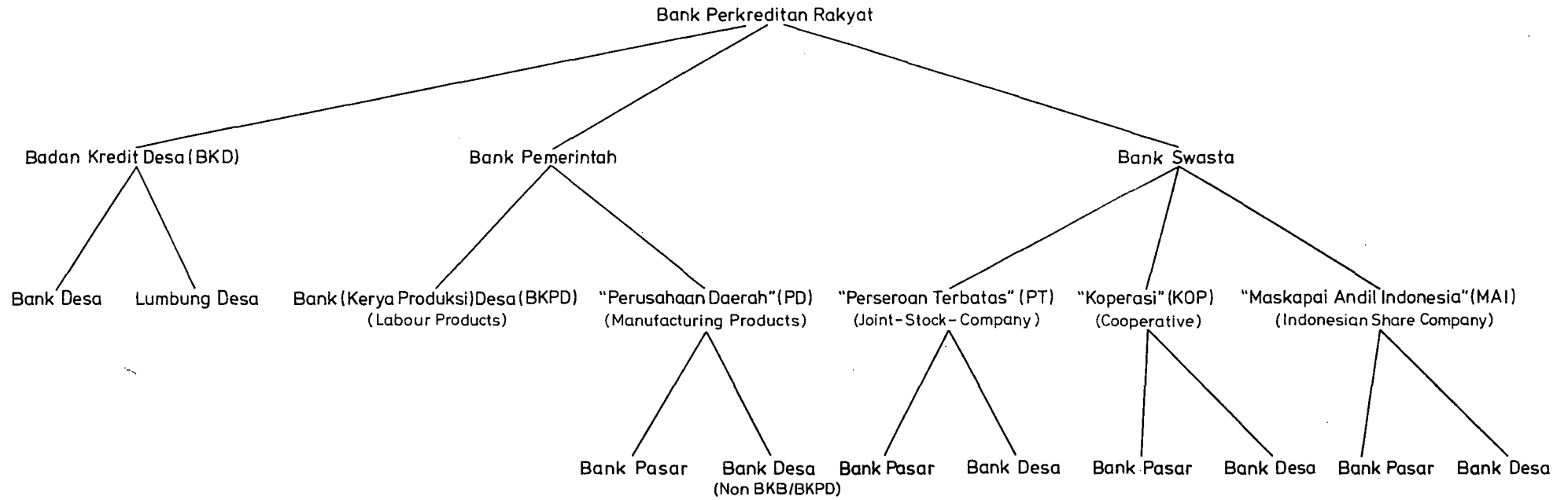
Tengkulaks are not confined to the rural sector but will be found in urban areas, too. Their customers consist less of small peasants; more frequently these are running small-scale enterprises with the need to finance part of their working capital by external finance inflows. Typically lacking from collateral they address their credit wishes to professional money lenders and Tengkulaks. The latter provide their credits in a way similar to the Bakuls: the supply of intermediate goods and of funds is an interlinked contract. In comparison to the Bakuls less is known about the significance of monopoly power "in explaining the interest rates charged" (Fischer 1987, p. 27). But there are no relevant sources indicating that this element is absent.

IV. Properties of the New Indonesian Small Bank Type

At first glance (see Graph 4) it seems that Bank Perkreditan Rakyat represents a huge variety of different bank types. This is at the same time true and not true: On the one hand, all kinds of specific "realizations" can be traced back to three basic types: (i) the urban banks (Bank Pasar); (ii) the village banks providing credit in kind (Lumbung Desa) and (iii) extending loans in

¹ As Gangopadhyay and Sengupta put it, "credit market imperfections manifest themselves in the underpricing of the product of the farmer" (1987, p. 341). But one could add that overpriced consumption goods contribute to these "imperfections" too. Thus, it is the effective interest rate which matters with the here and there observed apparently low nominal interest rates charged by small traders being irrelevant.

Graph 4



Source: Bank Indonesia

cash (Bank Desa). What do they have in common? Their status is either private (Bank Swasta, Badan Kredit Desa) or regional government/village government owned (Bank Pemerintah). They collect time and savings deposits like any other commercial bank and they make their living out of giving credits to small customers/small-scale enterprises. Worth mentioning are the facts that they do not have any credit-volume-restrictions for single customers, operate only locally with an employee collecting personally interest rate payments from the debtors. Due to relatively high overhead costs - so bank officials say - the interest rates charged are slightly higher than those of the big banks. And they are far away from being unanimous in every region as well. On the other hand, the organization of Bank Pemerintah follows a "product principle" whereas Bank Swasta differentiates as to the "principle of capital ownership". No further distinctions are made as far as Badan Kredit Desa is concerned.

The macroeconomic relevance of Bank Perkreditan Rakyat (BPR), which is still under supervision of BRI, is reflected by a 1 percent share in total outstanding credits of Indonesian banks at the end of 1984. In 1983, 82% of credits extended were for "productive purposes".

Since June 1, 1983, the banks compounding BPR did not receive any more direct credits by Bank Indonesia, which was until then a source of subsidized refinancing. Each single bank calculates its own interest rates on deposits/credits with the only "recommendation" being a preference for small customers. In the context of our topic it is important to realize that Bank Perkreditan Rakyat has been set up - among other things - to compete with professional money lenders/traders-cum-money lenders for small customers.

V. Empirical Results

The role of a financial intermediary belongs to the most important functions traders have in developing countries (Al-Ani/Geschka 1968, p. 728). This applies to Indonesia, also. First of all, one has to realize the fact that trading in LDC's is mostly allocated in the informal sector: As Sethuraman points out, in Indonesia a "significant feature of the informal sector, especially in urban areas, is the predominance of tertiary activities" (Sethuraman 1985, p. 719)¹. Following the Population Census of Indonesia in 1980 he estimates "that 55 per cent of informal sector employment in urban² Indonesia was in" (ibid, p. 729) the tertiary sector: trade (49%), transport (5.4%) and finance and related services (0.19%). The last figure, however, is misleading: the majority of informal trading activities are in one way or another tied to the often so-called "unorganized money market": A recent (1985) case study on small and medium business in Indonesia (Rahardjo 1985, p. 50) disclosed some interesting facts: small scale traders locate 55% of their savings outside banks, cooperatives and their own group. On the other hand, responding small scale establishments declared that more than 40% of their external capital inflow stemmed from "other sources" (ibid, p. 44) with interest rates per month varying between 5 and 30 per cent (ibid, p. 44). The "other sources", in turn, were identified primarily as Tengkulaks (see above) and money lenders. As was explained above both Tengkulaks and Bakuls can be characterized by a "lending-selling-tie" or interlinked contracts with their customers, where an artificial separation between "pure trading" and "pure lending" is meaningless. The assumption that the vast majority of Indonesian small traders are either Bakuls or Tengkulaks does not seem to be too far from reality.

¹ According to Ananta/Tjiptoherijanto (1985, p. 36) in 1980, 70% of the workers in the informal sector "were in sector S, that is, the commerce, finance and service sectors" (ibid).

² On the other hand, it has been estimated "that the percentage of workers in the informal sector is larger in the villages than in the cities" (Ananta/Tjiptoherijanto 1985, p. 37).

Hence, the average number of small traders located in a well-defined area is now chosen as a proxy for the spatial availability¹ of small traders's informal credits².

Tables 1 gives the figures for different points in time:

Table 1: The Number of Small Traders in Indonesia, 1977-1981 and 1984

	All Provinces (26)			Provinces with Bank Perkreditan Rakyat (12)			Share in all Small Traders
	Total	Δin %	Average	Total	Δin %	Average	
1977	93.821	-	3.609	69.910	-	5.826	74.5
1978	111.731	+19.1	4.300	85.272	+21.9	7.106	76.3
1979	88.129	-21.1	3.390	62.724	-26.4	5.227	71.2
1980	86.709	-1.6	3.350	55.284	-11.9	4.607	63.8
1981	64.701	-25.4	2.489	38.544	-30.3	3.212	59.6
1982	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1983	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1984	57.788	-10.7	2.222	30.628	-20.5	2.552	53.0

Sources: Bank Indonesia, own computations.

¹ This absolute figure does not reveal the density of trader's credit supply which would have to take into account the population of the relevant area and/or indicators for the size of economic activities. However, the correlation coefficient between the distribution of population over provinces and the occurrence of small traders in these is only 0.45 (surprisingly for both samples), when data from the 1980 population census are used. The coefficient is not significant at the 0.01 level of error probability.

² With provinces being the smallest spatial unit traders can be attached to. If it is argued that a comparison of provinces' averages is only legitimate when (1) relative dispersion of traders is alike and (2) the different sizes of provinces are considered, the following figures back the procedure chosen: in 1980 the variable "small traders per square km" has a normalized variation coefficient of 0.897 in the 26-provinces-case and of 0.939 in the 12-provinces-case. Thus, the relative dispersion per distance unit is very similar.

Basically, Table 1 demonstrates:

- (i) Small traders' credit availability in the bank-provinces area is persistently higher than on a national level¹;
- (ii) After 1978 the appearance of small traders diminished remarkably; this was especially true for the bank-provinces;
- (iii) As a consequence, the share of small traders located in bank-provinces in the total of small traders over all the economy decreased.

Therefore, tentative conclusions from Table 1 would be that

- small traders became less important for the extension of informal credits for the economy as a whole²,
- the bank provinces became less interesting for the small traders.

The first conclusion can hardly be attributed to financial liberalization in general (after June 1, 1983) as the tendency towards "disappearance" of small traders had already started in 1979, at a time when overall financial repression was fully at work. As far as "financial factors" are concerned one has to make allowance for the possibility that competitors in the field of informal credits (Credit Unions, Credit and Savings Associations) have been able to partly push small traders back, as they could offer the better credit conditions.

¹ This fact could be taken as a sort of justification for Bank Perkreditan Rakyat to set up its business, in order to reduce the "monopolistic" power of traders.

² Given also the fact that the population of Indonesia rises by a percentage of 2... per year (2.3% between 1971 and 1980).

Although, we have to consider some arguments which shed light on the fact, that there are indeed other factors influencing small traders in their decision to either leave or not to leave their present job:

- (i) A rising real income per capita for the whole economy - as it can be stated for Indonesia in the last ten years¹ - will generally be accompanied by an increased level of demand for final and/or intermediate goods. That would - other things being equal - tend to induce a higher number of people engaged in trading.
- (ii) However, if the increased level of demand goes with a changed structure of demand - with goods typically offered by small traders experiencing a relative decline - a constancy or even a fall in the number of small traders may be the outcome.
- (iii) A decreasing number of small traders should also be seen as a result of macroeconomic sectoral shifts: as Wirosardjono (1985, p. 78/79) reports, "the trade sector actually showed a decline from 14.4 per cent in 1976 to 13.0 per cent in 1980... "as far as absorption of labour was concerned..."²
- (iv) Indonesia has been improving its transport and communications system considerably in the last 15 years; this enabled traders to reach distant villages more easily than before. It can support some sort of willingness to disperse over a country. Also, it allows large traders who can afford costs for transportation to displace small traders to some extent.

¹ ADB 1986, pp. 1,7.

² During the same time period trade's share in GDP declined from 16.5 to 14.1 per cent (ADB 1986, p. 167). In other words: labour productivity in the trading sector grew by 2.5 per cent less than for the total economy.

- (v) "An informal sector trader may prefer to remain where he is (and what he is, the author) rather than enter manufacturing, which will yield a return of 20 per cent on the capital invested because he (himself, the author) has to borrow from local money lenders at exorbitant rates of interest..." (Sethuraman 1985, p. 719). But this argument can be reversed in an environment of decreasing average informal interest rates. They make c.p. trading-cum-lending less attractive; small traders may then indeed prefer entering manufacturing and "profit" from improved credit conditions¹.
- (vi) Another aspect is given by S.M. Plattner: During the development of regional systems of exchange "... some of the rural villages become the sites of periodic markets. This occurs as a consequence of increases in demand intensity and decreases in the costs of transportation for farmers relative to the opportunity costs of farm work not done while they are travelling" (Plattner 1976, p. 77). Thus the mediation part played by traders is noticeably reduced in importance with small traders being more vulnerable to this effect than medium and large traders.

More general factors with influence on the phenomenon of decreasing numbers of small traders in Indonesia could probably be added. On the other hand, following the principle of insufficient reason ("Prinzip des unzureichenden Grundes") we have no argument in particular why the mentioned aspects ((i) through (vi)) should have had a stronger impact on the subsample (12 provinces) than on the total economy (26 provinces). Thus, the introduction of a new bank type may indeed have helped to push away Bakuls and

¹ In comparison to 1978 (21.6%) the average ratio of gross domestic savings to GDP for the subsequent years (1979-1984) rose by 3.3 percentage points (24.9%, ADB 1986, pp. 169/179).

Tengkulaks¹! Their trading function can be taken over today quite easily by medium and large traders, as explained in (iv).

As spatial analysis shows us, regions are considered homogeneous whenever neighbouring areas exhibit similar patterns in relation to (at least) one common feature. Graph 5, for example, depicts two rather extreme cases with very little homogeneity in case A and two homogeneous blocks in case B. In modern spatial research a test for homogeneity of regions is done through the so-called spatial autocorrelation analysis:

Cliff et al. (1975, p. 145) define spatial autocorrelation in the following manner:

"In general, if high values of a variable in one area are associated with high values of that variable in neighbouring areas, we say that the set of areas exhibits positive spatial autocorrelation with regard to this variable".

The Cliff-Ord-Autocorrelation Coefficient² is given by:

$$(1) \quad r = \frac{\sum_i \sum_j w_{ij} z_i z_j}{\sum_i \sum_j w_{ij} z_i^2} ; \quad i \neq j$$

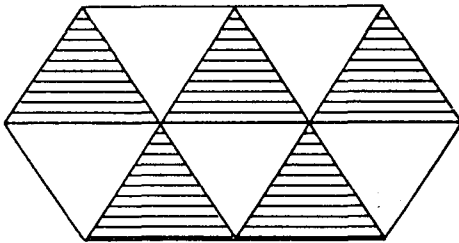
¹ To show this one needs more information than the average or total numbers of small traders. We must be sure that banks and small traders "meet", that is to say a large number of Bank Perkreditan Rakyat branches correlate with a significant amount of small traders: The correlation coefficient between the distribution of all Bank Perkreditan Rakyat's branches and the distribution of small traders over 12 Indonesian provinces was 0.8881 for 1984. It is worth mentioning that as far as the different "realizations" of BPR are concerned, Bank Desa was the most highly correlated (0.8939) and Bank Pasar (0.6939) was the lowest.

² The numerator is nothing but a covariance standardised by the denominator which is a weighted variance.

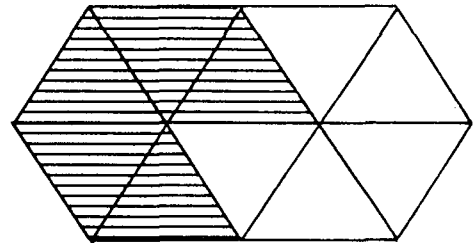
Graph 5

Similar and Dissimilar Patterns of Neighbouring (Regional) Cells

Case A



Case B



Source: A. D. Cliff/P. Haggett a.o.: Elements of Spatial Structure, A Quantitative Approach, Cambridge 1975, p. 151.

with n = sample size

$$z_i = x_i - \bar{x}$$

x_i = number of small traders in region i

\bar{x} = mean number of small traders over all regions

$w_{ij} = 1$ if the i -th and j -th provinces are contiguous and 0 otherwise

Also, Cliff et al. (1975, p. 32) showed that:

$$(2) \quad \max |r| \leq 1 \text{ whenever}$$

$$(3) \quad W^2 \text{Var}(z_i) \geq n^2 \text{Var} \left(\sum_j^n w_{ij} z_j \right) ; W = \sum_i^n \sum_j^n w_{ij}$$

The significance of computed r values (r_i) can be tested with the help of the so-called Fisher-Transformation, as the expected value of r ,

$$(4) \quad E(r) = (-n-1)^{-1} = r_0$$

follows approximately a standard-normal distribution with mean zero and variance 1;

$$(5) \quad r_0 \sim N(0,1)$$

The Test-statistic, T , is then given by

$$(6) \quad T = \frac{z_r - z_{r_0}}{\sigma_z} \sim N(0,1), \quad \text{with}$$

$$(7) \quad z = \frac{1}{2} \ln \left(\frac{1+r}{1-r} \right) \quad \text{and}$$

$$(8) \quad \sigma_z = (n-3)^{-\frac{1}{2}} \quad (\text{Hauser 1981, p. 190}).$$

To illustrate the rationale of spatial autocorrelation as a tool of analysis, Cliff and others put forward: "spatial autocorrelation in the incidence of liver and lung cancer in England and

Wales" was found. "That is, certain regional clusters of counties in these countries had statistically abnormally high/low rates of occurrence of cancer of these organs. Identification of these areas may be suggestive of particular local environmental factors which might contribute to this increased/decreased incidence" (Cliff et al. 1975, pp. 145/146). In our context, common "local environmental factors" are taken as - given small trader's credit activities - a comparable high demand for informal credits, as this helps to explain small trader's presence¹.

In other words: We take the homogeneity of a well-defined region with regard to the distribution of small traders as an indicator for the spatial intensity of informal credit demand².

To make our argument clear, let us consider first Case A in Graph 5 in which high (shaded) and low (white) values of a given variable totally alternate: spatial autocorrelation is then negative ($r = -1$)³. For Region A it is impossible to say that a comparable high informal credit demand which "draws" small traders into the cells is a relevant, observable spatial phenomenon. On the contrary, in Case B ($r = 0.45$)⁴ the shaded cells can be lumped together to a block which is presumably characterized by a strong presence of borrowers who attract small traders in a similar way: Region B is characterized by two homogeneous segments, one of them strongly affected by the comparable presence of informal credit demand.

¹ E. v. Böventer explains this "duality phenomenon" in the framework of demand for/supply of consumer goods: "Da die Präferenzen der Konsumenten und damit die Struktur der Nachfrage nach Konsumgütern unter anderem eine Funktion des Standorts sind,... impliziert jede Veränderung der Standortstruktur der Produktion auch ceteris paribus, eine Veränderung der Konsumstruktur des Landes..." (v. Böventer 1962, p. 13).

² "Spatial autocorrelations arise because the properties of a place are not simply a function of other properties of that place but are affected by its ties to other places and the flows of influence that accompany these ties" (Cliff et al. 1975, p. 147).

³ Cliff et al. 1975, p. 152.

⁴ Cliff et al. 1975, p. 152.

Table 2 depicts the computed spatial autocorrelation coefficients, when the total sample (26 provinces) is compared with a sub-sample, where Bank Perkreditan Rakyat can be found (12 provinces).

For both cases, a tendency towards a stronger spatial autocorrelation can be seen until 1979. At the end of 1984, on the other hand, spatial autocorrelation has declined heavily; for the economy as a whole we would expect this trend to be brought about last but not least by the financial reforms of June 1, 1983 and the repercussions it should have had on the size of the informal credit market, and on informal credit demand, respectively. This implies the conviction that there has been a shift from informal to bank-tied credit demand.

More interesting in our context is the insignificance of r for the bank provinces in 1984: The decline in homogeneity (in comparison with 1979) is far greater than for the all-provinces-sample. Therefore, we presume that - among other things¹ - the efforts of Bank Perkreditan Rakyat to draw credit demand have had some success.

In terms of Graph 5 the decline in the homogeneity index for the bank-provinces-subsample can be easily illustrated: the so far rather monolithic shaded block has started to crumble as the forces which held it together are weakening...

¹ Most of the bank provinces are concentrated in Jawa and it is a well known fact of Indonesian economic policy that this region is characterized by more interlinkages and a stronger diffusion of impacts than other parts of Indonesia. Therefore, overall liberalization effects will be felt primarily in Jawa and also the impact is greater than elsewhere.

Table 2: Spatial Autocorrelation Results for the Small-Traders-Sample¹

	All Provinces (n = 26)	Bank Provinces (n = 12)
1977	$r = 0.5292$ Significance H_0 rejected at the 0.01 level $H_0 : r = -0.04 (r_0)$	$r = 0.4335$ Significance H_0 rejected at the 0.1 level $H_0 : r = -0.09 (r_0)$
1978	$r = 0.5728$ " "	$r = 0.5139$ Significance H_0 rejected at the 0.05 level $H_0 : r = -0.09 (r_0)$
1979	$r = 0.6452$ " "	$r = 0.5882$ Significance H_0 rejected at the 0.05 level $H_0 : r = -0,09 (r_0)$
1984	$r = 0.4140$ Significance H_0 rejected at the 0.05 level $H_0 : r = -0.04 (r_0)$	$r = 0.2592$ Significance H_0 cannot be rejected $H_0 : r = -0.09 (r_0)$

¹The data for 1980 and 1981 were not complete enough to compute the index.

VI. Summary and Policy Conclusions

Turning back to our initial question of what Bank Perkreditan Rakyat could and can do in Indonesia in helping to integrate financial markets, we have found some (but weak) evidence that they contributed to the dampening of the size of trade-tied credit activities. We will make plain our conclusion through Table 3:

Table 3: Changing Importance of Indonesian Small Traders in Credit Activities

Homogeneity of the Relevant Area						
Number of Small Traders in the Rele- vant Area	constant		increasing	decreasing		
increasing	a_{11}	displacement of other informal credit suppliers	a_{12}	complementary role with re- gard to banks	a_{13}	displacement of other informal credit suppliers
constant	a_{21}	unaffected (due to segmenta- tion?)	a_{22}	complementary role with re- gard to other informal credit suppliers	a_{23}	position main- tained against banks (due to segmentation?)
decreasing	a_{31}	position weak- ened by other informal credit suppliers	a_{32}	position weak- ened by other informal credit suppliers	a_{33}	position weak- ened by compet- ing banks

Source: Tables 1, 2.

In relation to the bank-provinces and in comparison with 1977 we find situation a_{12} present in 1978, which was alternated by a_{32} in 1979. Only 1984 gives hope for a change towards a_{33} ... This sequency is not surprising. In their first stage of implementation, small banks of a new type can be satisfied with "complementing" informal credit transactions if they are able to effect anything at all. all. Before they are in a position to compete with traders for customers it is more likely that other types of informal credit arrangements challenge the monopolistic power of small traders. Later on, small banks themselves become "smart" enough to pull the customers over their tables...

This investigation is not contradictory to the conviction that "desirable" forms of informal credit supply as credit cooperatives, savings and credit associations should receive some sort of legal status - not to be associated with external assistance, as such support would tend to make these self-help organizations less independent (Fischer 1987, p. 32) - to complement the role of the organized banking sector. However, it remains a task of formal financial policy to face those forms of informal money lending that are connected with a considerable degree of exploitation.

From an overall economic perspective, the introduction of a new type of small banks may overcome some "defects" in formal Indonesian credit supply and ban - to some extent - undesired types of informal credit arrangements and thereby contribute to financial integration. But BPR's macroeconomic importance (see above) is too small to alleviate the larger shortcomings in Indonesia's banking sector: the oligopolistic structure, with state banks still playing a dominating role, hampers a sound financial development. But this would be another topic that goes beyond the scope of this paper.

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