FINANCIAL INTEGRATION AND FINANCIAL DEVELOPMENT: A CONCEPTUAL FRAMEWORK

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March 1993

UNE Working Papers in Economics No. 3

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FINANCIAL INTEGRATION AND FINANCIAL DEVELOPMENT: A CONCEPTUAL FRAMEWORK

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Studies of financial integration concentrate on a number of issues including: measurement of the degree of integration using the law of one price; barriers to integration, with particular reference to the choice of exchange rate regimes; optimal currency areas; loss of economic sovereignty; etc. A common thread throughout the literature is the implicit assumption that the regions (or countries) whose markets are to be integrated are at approximately the same level of both financial and economic development. General conclusions are rather limited since the efficiency argument runs into the usual equity conflicts as well as second-best problems in the presence of incomplete integration.

Some financial development macro models do introduce financial integration in a round about way via the effects of capital flows during financial liberalisation programs. Generally, these McKinnon-Shaw type models recommend variable exchange rates to protect against destabilising capital flows. Financial disintegration is therefore recommended, at least during the adjustment period.

With the exception of the law of one price, financial integration is treated theoretically in macroeconomic contexts. Its effects rather than the process and alternate types of integration are the main concern.

The purpose of this paper is to develop a simple microeconomic framework for analysing the process of financial integration. What are the types of financial integration? What implications do these types have for financial development? The paper is a first step towards a theoretical and empirical study of the effects of international financial integration on financial development in developing countries.

We begin by developing a framework for financial integration between two regions in a single country and then expand it to integration between a developed country and a less developed country. The latter is treated both as a single region and as two regions where one region is more financially developed.

Section 1. Domestic Financial Integration

We attempt to develop a simple framework for analysing the various forms of financial integration. The objective of our assumptions is to be able to use the aggregate supply of loanable funds and the aggregate demand for loanable funds as the market demand

for loans and supply of deposits facing the financial intermediaries. Furthermore, we abstract from the theory of the financial firm by supposing that deposits are the only variable input in producing loans and from the money creation process by supposing that loans made in the current period do not affect the supply of deposits until the next period.

The specific assumptions are:

- A country composed of two regions (Rⁱ and R^j) with a fixed degree of economic integration and no financial integration, except a payments system for interregional trade. "No financial integration" means: (a) financial intermediaries in Rⁱ (Iⁱ) have no branches in R^j (regional monopolies are separate corporations); (b) savers and borrowers in Rⁱ cannot deal directly with their counterparts in R^j, e.g., savers in Rⁱ cannot lend directly to borrowers in R^j, or to financial intermediaries in R^j; (c) no interintermediary market (IIM) exists, i.e., Iⁱ does not borrow from or lend to J^j; and (d) the central bank does not reallocate funds between regions through lending or other policies.
- 2. There is only a single type intermediary in each region which collects all financial savings in the form of deposits and makes all loans.
- 3. The rate of interest on loans is net of loan origination and servicing costs. The savings rate of interest includes the cost of servicing deposits. Both these "internal" transactions costs are assumed to be constant percentages of the corresponding volume¹. Therefore in 7 and 8 below we refer to the 'gross' deposit interest rate and the 'net' lending rate.
- 4. Default risk on loans is zero.
- 5. Required and working reserves are zero.
- 6. Loans made in one period do not affect the level of deposits in that period.
- 7. The supply of deposits is a function of the (gross) deposit interest rate (rate of interest on savings), r_s; the level of income; the volume of loans made in preceding periods; and the degree of financial development of the region, e.g., the number of intermediary offices. The last three factors are assumed to be constant.

¹ Assumption 3 must be relaxed for the size of individual perfectly competitive intermediaries to be determinate.

- 8. The demand for loans is a function of the (net) lending rate of interest, r₁, and a variety of other factors including time preference, productivity of capital, degree of financial development, etc.
- 9. Actual and expected inflation in both regions are zero.

The competitive structure of each region may vary. This give three 'pure' cases²:

Case 1 Monopoly in both regions;

Case 2 Monopoly in R_i competition in R_j;

Case 3 Competition in both regions.

Regional monopolies may be either first degree price discriminators in both deposit taking and lending or not³. Price discrimination could be based on different maturities, size of transactions, loan purpose, etc. Our simple framework does not allow us to treat these differences specifically since that would involve more than one supply and demand function. Instead we use the standard first degree price discrimination analysis for homogeneous goods as a surrogate.

shows the market outcome for each market structure.



In fig. 1-1a the intermediary, being a monopolist in lending and a monopsonist in deposit taking, maximises profit by equating the marginal revenue of lending to the marginal cost of deposits (saving), producing a wedge between r_1 and r_s ($r_1 > r_s$), a lower volume of intermediation (V^m < V^c), a lending rate above and a savings rate below their competitive counterparts, and $r_1 > MR$, MC>r_s

In fig. 1-1b first degree price discrimination leads to the competitive volume of deposits and loans and the competitive interest rate on the last deposit and last loan. The price

²Oligopolistic and other 'intermediate' structures are not examined formally.

³ A national monopoly that is not a first degree discriminator intraregionally will price discriminate between regional markets.

discrimination appropriates both the borrowers' and savers' surplus, earning a higher profit that the nondiscriminating monopolist.

Fig 1-1c shows the competitive solution: $r_1 = MR$, $r_s = MC$, and $n = r_s$

Four basic types of financial integration are analysed in this framework (in each of the three cases). The types of integration considered are:

- 1. An interintermediary market (IIM).
- 2. Collusive agreements between intermediaries in different regions.
- 3. Interregional competition by existing intermediaries.
- 4. Establishment of new intermediaries to offer alternate links between savers and borrowers.

This obviously does not exhaust the possible types of financial integration. For example, central bank policies may effectively increase integration. In addition, we do not consider the effects of removing specific regulatory or other barriers to integration. Nor are the impacts of changes in underlying economic variables (interregional trade volume, factor mobility, differential inflation rates, etc.) considered. Changes in these variables create opportunities for financial integration while the four types of integration represent possible reactions by the intermediaries and their customers.

The Interintermediary Market (IIM)

Case I: Monopolies in both regions.

Fig. 1-2 shows the initial equilibria and subsequent IIM activity for two first degree price discriminators.





In the absence of a collusive agreement, suppose both intermediaries first maximise their regional profits (leading to V¹ and V²) and subsequently create an IIM (shown in panel (c)). Since interest rates are not equal between regions profitable IIM opportunities exist. Demand in the IIM (D_{IIM}) = D¹-V¹ while S_{IIM} = S² - V². Since both firms are price discriminators MR=r_I = D_{IIM} and MC = r_s = S_{IIM}. Even though the IIM is a bilateral monopoly, the profit maximising condition for the monopolist (I²), MC = D_{IIM}, and for the monopsonist, MR = S_{IIM}, lead to the same solution, D_{IIM} = S_{IIM}. This is the same volume as a competitive IIM would produce. As in the standard bilateral monopoly case without price discrimination, an IIM may fail here if the firms cannot agree on the division of profits from the IIM. The r¹_{IIM} shown in panel c assumes that neither firm attempts to act as a price discriminator in the IIM. For example, I² does not insist on charging r⁰_{IIM} = r⁰_I for an initial loan of V₀ to I¹.

After the IIM transactions, $r_s^2 = r_l^1$ while r_l^2 is still less than r_s^1 . Thus the IIM does not lead to complete integration. Further scope for the IIM exists in the situation where the firms maximise profits from their regional markets and the IIM market simultaneously rather than sequentially. This possibility is considered later as a form of collusion.

Note that pressure for increased integration has not been completely removed. Since $r_1^2 < r_s^1$, individuals in R¹ could attempt to borrow from I² and deposit the loan proceeds in I¹.

Fig. 1-3 represents the IIM for nondiscriminating monopolists.



Demand in the IIM is given by $D^1 - V^1$ and supply by $S_{IIM} = S^2 - V^2$. MR_{IIM} and MC_{IIM} are the corresponding marginal curves. This IIM is also a form of bilateral monopoly with I² a monopolist and I¹ a monoponist. Therefore, I² would maximise IIM profits when MC_{IIM} = D_{IIM}, raising r_s^2 to r_s^* and lending in the IIM at r^* . I¹

maximises IIM profits at $MR_{IIM} = S_{IIM}$ borrowing at a ratef and relending in R^1 at f_1 . Since neither I^1 nor I^2 would be content to act as a price taker in the IIM, either the IIM will fail⁴ or a game theoretic/collusive solution will obtain. As an illustration, suppose a cooperative solution obtains where $MC_{IIM} = MR_{IIM}$. Then $r_s^2 = \hat{r}_s$, $r_l^2 = \hat{r}$ and $r_{IIM} = MC_{IIM} = MR_{IIM}$. IIM activity is lower than if the IIM were competitive. ($D_{IIM} = S_{IIM}$).

Welfare effects are unambiguously positive. Additional scope exists for the IIM were the firms to maximise profits simultaneously (see below). In addition, since r_l and r_s differ both within and between regions, profitable opportunities may exist for alternate forms of integration.

To compare the IIM in these two cases, whenever $r_1^1 > r_s^2$ for price discriminators an IIM may arise. In the nondiscriminating case. $r_1^1 > r_s^2$ is a necessary but not sufficient condition for an IIM since $r_1^1 > r_s^2$ does not imply MR¹> MC². Also the IIM potential volume depends on the difference between MR¹ and MC², not on the difference between r_1^1 and r_s^2 . A given difference between r_1^1 and r_s^2 will produce a larger IIM volume in the price discrimination case, cet. par.

The most important conclusions are: (1) even in the monopoly case, profit incentives may lead to increased financial integration; (2) the monopoly IIM does not remove the incentives for further integration; and (3) the existence of an IIM may depend on a collusive agreement between the firms.

Case 2 Competition in both regions.

⁴ It is more likely to fail here than in the previous case, while both firms profit maximizing 11M quantities are the same.





Since r_s and r_l cannot differ intraregionally⁵ the demand for IIM funds is given by $D_{IIM} = D^1 - S^1$ while $S_{IIM} = S^2 - D^2$. Then r_{IIM} equates $D^1 - S^1$ to $S^2 - D^2$ and $r^1 = r^2 = r_{IIM}$. Therefore the IIM leads to complete financial integration since r_{IIM} will equate $D^1 + D^2$ to $S^1 + S^2$. In panel a, $L^1 = S^1 + V_{IIM}$ while $L^2 = S^2 - V_{IIM}$. Therefore $S^1 + S^2 = L^1 - V_{IIM} + L^2 + V_{IIM} = L^1 + L^2 = D^1 + D^2$.

Case 3 Monopoly and Competition

Consider a price discriminating monopolist in \mathbb{R}^1 where $r^m > r^c$ with aggregate supply and demand shown in panel a of fig. 1-5.

⁵ Except by an amount representing the cost of real factors.





Demand and supply in the IIM are derived as in the competitive case (panel b). Assuming the monopolist also acts as a monopsonist in the IIM, he equates MC^m ⁶to D_{IIM} which, as a price discriminator, equals MR. As panel b illustrates volume in the IIM here (V^m_{IIM}) is smaller than in the competitive case. Consequently, the IIM does not lead to complete integration of the two regions as total intermediation will be less than $L^1 + L^2$ (panel a) and the resulting interest rate (r^{*}_{IIM}) will be less than r^c_{IIM}). Interregional interest rates are not equalised.

Fig. 1-6 shows a monopolist in R^I facing perfectly competitive firms in R². Here MR^m (=MC^m) > r^c (=r₁^c = r_s^c). Since MR^m > r_s^c an IIM will arise, as shown in panel b. D_{IIM} is assumed to equal D^m-V^m, rather than D^m - S^m, since (a) in the most probable case $r_s^m < r_s^c$ and no incentive exists for the monopolist to lower r_s^m and (b) if $r_s^m > r_s^c$ retain the assumption of sequential profit maximisation. If $r_s^m > r_s^c$ and simultaneous profit maximisation is assumed, an IIM similar to those considered in the collusive cases below will arise. This is not considered here except to note that it would lead to an increase in both r_{IIM} and IIM volume.

⁶ In panel b we assume that the monopolist cannot act as a price discriminator in the IIM, so MC >S. If he also acts as a price discriminator in the IIM, MC = S and the perfectly competitive IIM result would obtain.



 S_{IIM} is unchanged from earlier cases. IIM profits are maximised now by $MC_{IIM} = MR_{IIM}$. To compare IIM activity here with previous cases, note that $D^m - V^m < D^1 - S^1$ in panel b. fig. 1-4. Consequently, IIM activity is lower in this case and greater interregional interest rate disparities exist than for the price discriminating monopolist. This, of course is true for only r_1 and r_s on the last loan made and deposit taken by the price discriminator. Inframarginal r_s 's and r_1 's differ within the monopoly region. Since profits of the price discriminator are greater than in any other case, cet. par., the most pressure exists for non IIM forms of financial integration to emerge.

In both monopoly/competitive cases the welfare effects from a national standpoint are positive since the total volume of intermediation increases. However the effects in the competitive region are ambiguous. Savers in this region gain while the borrowers are worse off since r_l increases. Regional investment declines but by less than the increase in borrowing in the monopoly region. In the competitive case similar effects on welfare exist. National welfare is unambiguously improved although welfare effects within regions are ambiguous. In the formerly high interest rate region, savers are worse off and borrowers better off after integration. The opposite is true in the formerly low interest rate region.

Table 1-1 summarises the five IIM cases and their effects on financial integration.

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IIM Comparisons

	Q	S	MR	MC	Effect on Interest Rates	Relative Volume	Integration
Price discriminating monopoly	Dl-V1	S ² - V ²	= D	II S	$r_l^1 = r_s^2$ (on last loan, deposit) $r_s^1 > r_l^2$	4(may=0)	incomplete
Monopoly	D1-V1	S ² - V ²	< D <	∧ S	$r_1^2 \neq r_1^1$ $r_S^1 \neq r_S^2$	1(may=0)	incomplete (may be no effect)
Perfect competiton	$D^{1}-S^{1}$	S ² -D ²	= D	II S	r ¹ equalised	5	complete
Price discriminating monopolist/competition	D ¹ -S ¹	S ² -D ²	= D	∧ S	$r_1^1 > r_S^2$ (on last loan) $r_S^1 = r_1^1 > r_1^2$	ω	incomplete
Monopolist/competition	Dl-Vl	S ² -D ²	C >	∧ S	$\begin{aligned} r_{S}^{l} > r_{S}^{2} = r_{l}^{S} \\ r_{l}^{l} > r_{2}^{l} \end{aligned}$	7	incomplete
Note: $D^1 - V^1 < D^1 - S^1$ and S	$S^{2}-D^{2} > S^{2}$	-V2					

10a

Collusive agreements between monopolists

Both the formation of a national monopoly and a collusive IIM are considered. A national monopoly will not lead to complete financial integration since the resulting monopoly maximises profits by practicing price discrimination in lending between the regions if the elasticities of D¹ and D² differ. Equating MR¹ and MR² would lead to $r_s^1 \neq r_l^2$. In deposit taking, the national monopolist would act as a multiplant monopoly, taking deposits in each region until MC¹ = MC². Different supply elasticities would result in $r_s^1 \neq r_s^2$. Since monopoly MC (MC^m) = MC¹ + MC², MC^m is marginal to D¹ + D². Total intermediation is determined by D¹ + D² and S¹ + S² where MR^m = MC^m. This is shown in fig. 1-7.





In the situation shown, $MC^1 = MR^1$ at $L > L^1$ and $MC^2 = MR^2$ at $L < L^2$. Compared to the separate monopolies result, lending interest rates in R^1 increase and the savings interest rate declines while in R^2 , r₁ declines and r₅ increases.

This result dominates the case shown in fig. 1-3 since there the lending volume in \mathbb{R}^2 and the savings volume in \mathbb{R}^1 were not allowed to adjust due to the uncertainty of achieving a solution in the bilateral monopoly IIM.

Consider a collusive IIM in the case of two monopolies with simultaneous profit maximisation in their regional markets and the IIM. Referring to fig. 1-3, in this case $D_{IIM} = D^1 - S^1$ and $S_{IIM} = S^2 - D^2$ since now both monopolies adjust both r_1 and r_s . As

long as $MC^1 \neq MC^2$ and $MR^1 \neq MR^2$ funds will flow through the IIM until $MC^1 = MC^2 = MR^1 = MR^2$, exactly the result above. Therefore a collusive IIM can lead to the joint profit maximising (national monopoly) result. The division of the increased profits may prevent either a national monopoly or a fully collusive IIM from arising.

A cartel or national monopoly could also be formed by two price discriminating regional monopolies,. Since $r_s = MC$ and $r_l = MR$, this would lead to the competitive volume of intermediation, exceeding that in the IIM case above.

Interregional competition by existing intermediaries

This type integration could arise if: (1) intermediaries in R^i open branches in R^j and/or (2) intermediaries in R^i accept deposits from and make loans to individuals in R^j . The choice between the two hinges on the differences in internal transactions costs (loan making and deposit taking) between the two choices and the fixed costs of opening new branches. Presumably, both internal and external transactions costs (those borne by the borrowers and depositors) are reduced when branches are located in the same region as borrowers and savers. Lower external transactions costs would also lead to an increase in the volume of transactions.

Whichever form dominates is not crucial, since it can be argued that an IIM (or collusive agreement) would dominate this form of integration from a profit maximising point of view in the monopoly/monopoly and competitive cases⁷. This follows from two assumptions ('facts') (1) Default risk on IIM loans is lower than average default risk on other loans. (2) Total internal transactions costs are primarily a function of the number of transactions and not the dollar volume of transactions. An IIM reduces the number of interregional transactions to, in the limit, one, with lower default risk than a number of interregional loans made directly to the final borrowers. In addition, with an IIM each firm incurs the transactions costs on only one side of the intermediation process. For example if I² lends in the IIM, it will incur the costs of collecting the increased savings while I¹ will incur the costs of the increased lending. Both will carry the lower intraregional transactions costs. If, however, I² lent directly to borrowers in R¹, it would incur the same transactions costs on deposit taking plus the transactions costs on the increased number of loans at the higher interregional transactions cost level. If IIM = interregional MC = interregional MR, no incentive exists to make interregional loans given that (net) interregional MR < intraregional MR.

⁷ Here we abstract from the problem of the maturity of IIM loans vis-a-vis the average maturity of loans and deposits. If IIM loans have an average maturity shorter than deposits, borrowing in the IIM to make 'long' maturity loans could adversely affect the maturity structure of the firm's assets and liabilities. Both r and the maturity of IIM loans would be endogenous variables in a fuller IIM model.

A variety of outcomes other than an IIM are possible in the monopoly/monopoly and monopoly/competitive cases. These include duopoly solutions (where each duopolist may price discriminate between regions), a dominant firm type solution in monopoly/competition, the emergence of a national monopoly after a price war, and various oligopolistic structures with more than two firms. Since an IIM increases profits from the initial levels while avoiding the uncertainties and chaos of oligopoly, an IIM should dominate many of these possibilities.

The competitive IIM leads to complete financial integration without the necessity of interregional competition. There is, of course, no certainty that the competitive solution is stable. Interregional competition and an IIM could both be means through which the competitive industries decay towards oligopoly.

Competition by new intermediaries

New intermediaries may evolve when either intraregional or interregional interest rates differ. Start up costs, transactions costs and the size of interest rate differentials are crucial factors. Existence of an IIM inhibits the emergence of new intermediaries by lowering intra- and interregional interest rate differences. Both monopoly solutions, particularly first degree price discrimination, would decay in the absence of stringent barriers to entry. Even with such barriers a variety of 'black' intermediaries are likely to arise. Also, self financed investment is likely to be a higher proportion of total investment than in the absence of monopoly.

Section 2: International Financial Integration

The framework developed in Section 1 is used to investigate the impact of international IIM's on financial development in developing countries⁸. First we examine the impact of an international IIM in a fixed exchange rate context. Several assumptions are used: (1) the developing country market is very small relative to the developed country's financial sector and to the IIM and (2) the financial sector in the developed country is competitive⁹. Two situations are considered in the developing country, First, it is treated as a single monopolistic region. In the second, there are two regions in the developing country where one is more financially developed. The section ends with a brief discussion of the impact of flexible exchange rates on financial integration.

⁸ The increased costs of international transactions between savers/borrowers in one country and intermediaries in another as well as the (probably) more restrictive barriers to entry of intermediaries (either old or new) from country i to country j make an IIM even more prevalent in international, as compared to domestic, financial integration.

⁹ Other market stretures would follow the analysis in Section 1.

Fig 2-1: Single Monopolistic Region



By assumption the monopoly is a price taker in the IIM, where r_{IIM} equals $r_s^D = r_l^D$. Consequently $r_{IIM} = MC_{IIM} = MR_{IIM} = a \text{ constant}^{10}$. Two cases are shown in fig. 2-1: $r^1_{IIM} > MC^1$ (= MR¹) and $r^2_{IIM} < MC^1 = MR^1$. Interest rates before IIM activity are r_l^1 and r_s^1 , and total volume is V¹.

Assume the monopoly maximises national profits and IIM profits simultaneously. For $r^{1}IIM$, MR = BCr¹IIM and MC = ADr¹IIM. Profit maximisation occurs at D. r_{1} and r_{s} increase. CD is lent in the IIM. Domestic borrowing declines while domestic savings increase. For $r^{2}IIM$, MC = AEr²IIM and MR = BFr²IIM. Profit maximisation is at F with EF borrowed in the IIM. Both r_{1} and r_{s} decline. In neither case is the static welfare gain unambiguously positive. For $r^{1}IIM$, domestic lending (investment) falls while for $r^{2}IIM$ domestic savings fall¹¹. Monopoly profits increase which may provide additional funds for internally financed development expenditures.

For both r_{IIM}^{I} and r_{IIM}^{2} domestic interest rates change in the same direction. Consequently, IIM activity does not necessarily decrease the spread between r_{L} and r_{S} . International financial integration may not improve this indicator of the level of domestic financial development. In any event, an IIM does not change the degree of competition in the developing country unless savers and borrowers are permitted to transact in it.

 $^{^{10}}$ Currency conversion costs increase MC and reduce MR> This additional cost is essentially the only difference from the analysis in section I.

¹¹ When funds are lent in the IIM, not only does the developing country suffer a multiplier impact from the decline in domestic investment, it also does not benefit from the real return on the investment financed by the additional savings.



Fig. 2-2 shows the two region case. For simplicity assume that demand in both regions is the same, while supply in the less developed region (S^u) is less than supply in the more developed region (S^d). A domestic IIM is assumed to exist¹² with volume = AB = CD (sequential profit maximisation). Assume only the intermediary in the developed region can transact in the international IIM. If $r^d = r_{IIM} = r_I^D > MR^u > MC^d$, then MR^d = OGr₁^D and MC^d = NFr_I^D. rf^d and rs^d increase until GF is lent in the IIM. Volume in the domestic IIM falls to zero. I^u would like to lend GE in the international IIM but cannot by assumption. Profits of I^d increase while I^u's profits decline with the suspension of the domestic IIM.

Consider r_2^D where $MR^u > r_2^D > MR^d$. $MR^d = OIr_2^D$ and $MC = NJr_2^D$. IJ is lent in the international IIM. Since $MR^u > r_2^D$, I^d could simultaneously borrow HI (where $MR^u = r_2^D$) from the international IIM and relend these funds to I^U in the domestic IIM. This would cause a net inflow of IIM funds equal to HI - IJ. Presumably I^d would appropriate the bulk of the profit from this combination of transactions.¹³

¹² Prior to the introduction of the internation1 IIM.

¹³ Bilateral monopoly problems would make the outcome in the domestic IIM uncertain in this case as well.

Finally, for $r_s^D < MC^d < MC^u$, $MC^d = NLr_3^D$ and $MR = OMr_3^D$. Id borrows LM in the international IIM and r_l and r_s both decrease. I^u would like to borrow KM but cannot unless I^d acts for him. If I^d does not act in the IIM on I^u_s behalf, the international IIM has no positive effects on I^u and could reduce I^u's profits by eliminating the domestic IIM. Thus increased financial integration between the more developed region and the developed country could reduce the degree of domestic financial integration by disrupting the domestic IIM.

Flexible exchange rates

Flexible exchange rates are a formidable barrier to international financial integration, particularly via an IIM. While a formal framework is not developed here, it is possible to make a number of general observations. If only a spot foreign exchange market exists no hedging is possible and participants in an IIM are fully exposed to exchange rate risk on both the principal and interest on IIM loans. As an example, suppose firms in the developing country wish to borrow in the IIM, where $r^1_{IIM} = r_1^D$. Now introduce variable exchange rates and the expectation that the developed country's currency will appreciate. If IIM transactions are denominated in the developed country's currency, borrowers will only be willing to pay an r_{IIM} below r^1_{IIM} . Therefore no IIM transactions occur.

Forward markets permit hedging of IIM transactions. Several points are relevant here. (1) The added costs of forward contracts are a deadweight loss and restrict IIM volume by raising international transactions costs. (2) The maturity of IIM loans should be limited to the longest futures contract maturity or a portion of the exchange rate risk will be uncovered. If this shortens the average maturity of IIM loans (compared to the fixed exchange rate result), IIM borrowing will fall. (3) Forward markets in the developed country's currency are probably better developed (smaller differences from the spot rate, cet. par.) than in the developing country's currency. As a result the exchange rate risk and hedging costs will be borne primarily by intermediaries in the developing country.

Section 3: Financial Development

Financial development, within the framework presented here, can occur in either a static or dynamic sense. Static development occurs in the context of fixed D_l and S_s . Regional development consists of increased volume of regional financial intermediation and a reduction in the difference between r_l^i and r_s^i . Interregional development involves a reduction in the differences between r_l^i and r_l^j and between r_s^i and r_s^j . Total (national) intermediation increases.

Dynamic development implies increases in D_1 and/or S_s . In a financially underdeveloped situation, both the effective demand and supply are significantly less than their potential counterparts, since intermediation services are either unavailable at any price or the transactions costs for individual borrowers and savers are relatively high. Increasing the number of intermediary offices (of either 'old' or 'new' intermediaries) will therefore increase both D_1 and S_s , increasing total intermediation.

Fig 3-1: 'Dynamic' Development'



Fig. 3-1 illustrates a number of possibilities. D^1 and S^1 show the initial situation. If both 'double' to D^2 and S^2 , r_1 and r_s are constant. If D is constant and S increases to S^2 (point B) both r_1 and r_s increase. consequently 'dynamic' development in a single region cannot necessarily be characterised by declining r_1 , increasing r_s , or falling spread between r_1 and r_s . The result in specific situations depends on the relative shifts in D_1 and S_s as well as their interest elasticities. Therefore narrowing intraregional spreads may be a reliable indicator of increased financial development only in the static case.¹⁴

The types of integration considered here are related in a loose way to these two notions of financial development. Dynamic development involves capital outlays by the

¹⁴ Even in a static case, a collusive IIM between monopolies could result in both regional interest rates changing in the same direction without necessarily reducing the spread in either relative or absolute terms. When government imposes nonmarket solutions on the intermediaries it is also possible that narrowing spreads could reduce the volume of intermediation, reducing the level of financial development.

intermediaries while static development does not. Since IIM loans are probably not a good source of long term financing¹⁵. IIM activity and the financial integration it creates are primarily associated with static development. On the other hand, increased interregional competition stimulates dynamic development.

Since IIM activity tends to equalises interregional interest rates, the existence of an IIM may discourage interregional capital investment by potential competitors and therefore slow dynamic development.

Section 4 Concluding Remarks

One reason for writing this paper was to see if the very simple macro framework could provide reasonable insights into the process of financial integration and its effects on financial development. At this point, only IIM's were considered in detail and then only in a static context.

The main points that emerged from the analysis were:

- (1) An IIM increases the intermediaries' profits in every case but one while at the same time increasing financial development as measured by the volume of intermediation.
- (2) A successful IIM reduces profitability of other forms of financial integration by lowering at least some of the inter- and intraregional interest rate spreads. Thus increased static development may conflict with dynamic financial development.
- (3) A competitive IIM leads to complete financial integration while the other IIM's do not.
- (4) IIM's may not arise in the monopoly-monopoly case. If they do, their volume and interest are indeterminate. But if a collusive agreement (either in the IIM or a merger) can be reached total monopoly profits as well as the degrees of financial integration and financial development are increased.
- (5) In all but a few cases (sequential profit maximisation) the regional welfare effects (as well as national welfare in the case of international financial integration) of an IIM are ambiguous. Either savers or borrowers in a single region will be better off after the IIM, but not both.

¹⁵ IIM loans probably are of shorter maturity than loans for capital expansion. Nevertheless they may have some 'capital' impact since money is fungible and since IIM activity increases profits and therefore potential internally financed expansion.

- (6) International IIM's may slow the process of domestic financial integration in developing countries by disrupting the domestic IIM.
- (7) Narrowing interest rate spreads are not a reliable indicator of dynamic financial development.

Hopefully, the results obtained at this point justify additional 'investment' to expand the approach to consider financial integration in the context of dynamic financial development. Once this part of the conceptual framework is completed, testable hypotheses can be derived and the methodology applied to both developed and developing financial systems.