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## Bank cooperation and banking policy in a monetary union: A political-economy perspective on EMU

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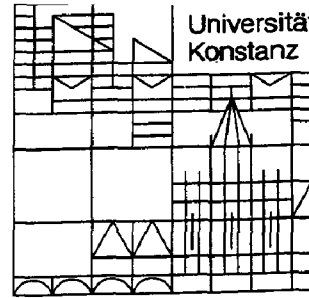
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**Sonderforschungsbereich 178  
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Diskussionsbeiträge

Juristische  
Fakultät

Fakultät für Wirtschafts-  
wissenschaften und Statistik

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in a Monetary Union:  
A Political-Economy Perspective  
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**Bank Cooperation and Banking Policy in a Monetary Union:  
A Political-Economy Perspective on EMU**

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Abstract:

Why do large European banks lobby for monetary union? We show in a game-theoretic model that monetary union can trigger a change in the structure of the market for international banking transactions with asymmetric effects on profits: large banks are induced to cooperate internationally and gain from European Monetary Union (EMU) while small banks are likely to lose. Monetary union can be interpreted as a device for large banks to push small banks out of the market for cross-border financial services.

JEL classification numbers: E 5, F 3, G 2.

Key words: European Monetary Union, Interest Groups, Banking Policy, Bank Cooperation.

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## **1. Introduction**

The process of monetary integration in Europe has been accompanied by a discussion of the benefits and costs of abandoning national monetary autonomy. The effects of fixed exchange or full monetary union on national monetary autonomy are discussed and it is tried to identify optimum currency areas by weighting benefits in form of reduced transaction costs and increased credibility of monetary authorities against the costs of reduced, or lost, monetary autonomy for national stabilization purposes (see Tavlas, 1993, for a summary of the discussion). This framework however is inadequate to address national distributional consequences of European Monetary Union (EMU) because it does not distinguish between different national sectors of the economy (see Bofinger, 1994, for a similar critique). When taking different national sectors in an economy into account, distributional issues and conflicts arise.<sup>1</sup>

This paper derives distributional effects of monetary union by focusing on the effects of changes in banking policy which necessarily accompany monetary and financial integration. While monetary policy is the action taken by a central bank to achieve objectives in terms of price level, employment and interests rates, banking policy focuses on actions vis-à-vis commercial banks or other financial institutions, together with financial regulation and banking supervision (see Giovannini, 1993a). Building on this distinction, the paper explores the role and interests of large commercial banks in the process of monetary integration. Starting out with the common market project, we show that large commercial banks are not only interested in full financial integration but also gain from a single currency and unification of banking regulation. While the first point is rather obvious and has been frequently observed in the literature (see e.g. Cohen, 1989), the second seems at first glance rather paradoxical because banks profit from currency transactions. Giovannini (1993b) hence views the transactions costs savings through monetary union as a distribution of resources between the financial and

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<sup>1</sup> Only very little literature has tried to identify distributional interests in connection with monetary regimes. Frieden (1991) and Epstein (1991) derive conflicts between factors of production, namely labor and capital, while Ruland and Viaene (1993) derive sectoral interests (importing and exporting sector). Vaubel (1990) analyzes the position of central banks with regard to EMU. Giovannini (1993b) and Eichengreen and Frieden (1993) give an overview of different approaches to identify interest groups and to endogenize the choice of exchange rate regimes.

nonfinancial sector. In Giovannini's estimation these amount to 4 to 5 percent of total value added in the EU financial sector and he consequently identifies "a significant transfer of resources across two clearly identifiable interest groups: from international banks to their clients involved in cross-border transactions within Europe" (Giovannini, 1993b, 16). This statement, however, is not only in contrast to public wisdom, which broadly views the common market and monetary integration project as driven by the large industry and business leaders who try to exploit economies of scale (Casella, 1992) in general, but is also in contrast to explicit statements by major European banks (see Frieden, 1991; Lipp et al., 1992; and Weber, 1993).

We offer a solution to this seeming paradox between the fact that, on the one hand, everybody assumes the financial industry and major banks to be behind the European integration process and, on the other hand, that the banking industry loses profits when a common currency is introduced. While banks clearly lose some profits in form of the margins they take when converting currencies, we are able to identify much larger gains arising from monetary union implying common regulation of the European banking industry through a common central bank and, specifically, increased cooperation among large European banks.

The resulting effects for banks, however, are not at all unambiguous. It turns out that only the large banks will gain from cooperation across borders because of their larger *national* market share for international transactions. There is hence a conflict between large and small banks in their position concerning EMU. Only large banks can afford the costs arising from cooperation across borders because of their size. Therefore differences in size and reduction in variable costs by cooperation determine the position of a particular bank with regard to EMU. Even a uniform reduction of transaction costs for cooperating and noncooperating banks due to the fact that exchange transactions are no longer necessary affects market structure and thus large bank's profits.

We proceed as follows. Section 2 gives a broad overview of the structure of the market for banking services in major European countries, the cross-border cooperation among European banks, and the position of banks concerning EMU. Section 3 lays out our

argumentation in full and develops a model to highlight the effects of monetary union on European banks. Section 4 concludes.

## **2. Financial Liberalization and the European Banking Market**

When taking a first look at the banking market in major European countries, the most striking impression is the high degree of concentration (see Table 1). While a small number of larger banks generally has an almost dominant market share, the rest is divided among a much larger number of small banks. Therefore, it seems important to take this dichotomy into account when analysing the European banking market and the actions taken by banks and their position vis-à-vis monetary union and financial liberalization.

### **Insert Table 1**

The second feature of the European banking market is the process of liberalization in financial services. In 1985 the member countries of the EC adopted the Single European Act, aiming for a completion of the "Common Market" in 1992. In late 1986, this was followed by a formal agreement to remove controls on a wide variety of capital movements within the community. The process of liberalization and deregulation, however, began much earlier, albeit without full liberalization of capital movements. In 1977 the First Banking Directive of the EC, applying to all banking institutions, made the first step in harmonizing supervision and regulation for these institutions. This directive required member countries to introduce a minimum system for authorization of new banks based on a minimum amount of capital and an honest, experienced management. In practice, however, member countries possessed much tighter national regulations. The second Banking Directive, adopted in 1988 by the Council of Ministers, is based on the Single Market Program of 1985 which laid down the principle of "mutual recognition" for the unification of financial markets. Finally, in June 1989 the Single Banking Licence was created. It permits any bank to establish and to offer a broad range of financial services in any other member country on the basis of only one licence issued by the home country (Canals, 1993).

The effect of such deregulation and liberalization is necessarily a higher degree of competition among banks, or this one would at least suppose. The reaction of banks naturally is action to prevent too much competition. They react to the increase in competition by trying to reduce their rivalry via mergers, acquisitions and cross-participation agreements (see Table 2).<sup>2</sup> The obvious reason for doing so is that collusion is easier to sustain with fewer rivals and that margins are larger under cooperation. Another reason is, of course, the realization of economies-of-scale and -scope (Vinals, 1991). An increase in the number of branches gives rise to network externalities because for the consumer this is an important consideration when choosing her financial institution. This also constitutes an important barrier to entry because it gives rise to economies-of-scale.

#### Insert Table 2

Against this background of concentration, cooperation and financial liberalization, we now turn to analysing the interests of the banks. Why do banks support financial liberalization and monetary integration given the implied increase of competition? One possible answer to this question would build on the consensus in the theoretical literature that capital owners and financial institutions gain from the common market program. Frieden (1991) states that financial integration and liberalization of capital movements tend to benefit owners of mobile capital and diversified assets because they increase investment opportunities. Furthermore the number of transactions will increase. That is why Europe's leading financial and multinational firms have been the stronghold of support for breaking down remaining barriers to EU financial and monetary integration. Cohen (1989) in contrast makes a clear distinction between the larger banks and the smaller ones in their interest for financial integration in Europe. High concentration and the fact that only the larger banks are already involved in international banking business gives rise to an important cleavage. Europe's large banks already earn a sizeable portion of their profits from cross-border operations. Hence, they are probably seeing

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<sup>2</sup> Canals (1993) describes in detail the declared strategies of the "Deutsche Bank" and the "Banque Nationale de Paris".



a single market rather as an opportunity than as a threat. In contrast, the small banks are probably benefiting from national regulation and restriction on rights of establishment and operation.

The evidence, however, is that major banks not only favor financial integration but lobby for the movement to full monetary union. For example, in Britain's Association for Monetary Union in Europe, a private-sector lobbying organization for rapid currency union, eight of the twelve firms organized in this group are firms in the financial and related services sector, among which are Barclays and Citibank (see Frieden, 1991 for a complete list). Likewise, the three largest German banks, in a statement of their chief-economists, vigorously defended the project of monetary union against the caveats of more than 60 German economists (see Lipp et al., 1991). In contrast, small banks are reluctant towards the idea of monetary union in the foreseeable future (see e.g. the annual reports of the BVR, 1987 -93). Why, then, is financial liberalization obviously not enough for major European banks? Why do they favor fixed exchange rates and why do they even go further and demand monetary union while small banks oppose it?

The first rough impression is that those who suffer most from currency volatility stand to gain the most from monetary union. These include major banks and corporations with pan-EC investment or trade interests (Eichengreen and Frieden, 1993). On the other hand, the European Community (1990) has carried out an assessment of the magnitude of transaction costs incurred by European countries because of the existence of various currencies. They estimate ECU 6.2 to 10.4 billion (June 1990) for turnover in the foreign exchange market multiplied by bid-ask spreads in the foreign exchange markets, netting out transactions in the interbank market and transactions involving nonmember currencies. Adding costs in the retail foreign exchange market and the costs of cross-border payments, treasury measurement in companies running separate wholesale payments systems across Europe adds to a total cost for the EU between 13.1 and 19.2 billion ECU. The costs amount to 4 to 5 percent of the total value added in the EU financial sector, where the largest part of it goes through London. Since a large part constitutes a transfer of resources between the financial and the nonfinancial sectors, Giovannini (1993b) concludes that the creation of a single currency represents a

significant redistribution of resources between two clearly identifiable interest groups. Based on the so-called transaction costs model, he predicts that international banks should resist the adoption of a single currency, in order to avoid the costs of adjusting to a new business environment, while firms which are involved in cross-border trade within the EU should favor it. One possible reason why large banks nevertheless lobby for monetary union is that monetary union can be seen as a commitment to the common market and financial liberalization. Without monetary union, given fixed exchange rates, there is an obvious danger that governments resort to capital controls to defend the exchange rate band (Eichengreen 1993). In this perspective, monetary union is the logical and only permissible solution to secure the common market for capital and services. It is thus an integral part of the common market and as such in the interest of all large firms and banks.

We offer an alternative solution to the above puzzle by explicitly taking into account the structure of the banking market in Europe. The high degree of concentration gives rise to a cleavage between large and small banks because the competition for market shares is one reason why large banks prefer a single European market. Monetary integration, moreover, and the implied common regulation of the banking business, reduce variable costs for cross-border transactions. The following section analyzes the effects of a cost reduction on market structure and profits in the concentrated oligopolistic market for transborder financial services.

### **3. Bank Size, Bank Cooperation and the Effects of EMU**

#### **A. The National Banking Market**

In this section we develop a simple model of the oligopolistic market for cross-border banking services in Europe. We restrict our attention only to transactions which involve cross-border capital movements and abstract from the domestic market, that is transactions between regions within one country. We assume an imperfect competition framework, where only two banks, a large bank (indexed  $i$ ) and a small bank (indexed  $j$ ), compete in a Cournot fashion. Moreover, we only model the domestic market, that is we only look at the choices domestic

banks face concerning international cooperation. Both banks have the same general profit function.

The profit function for the large bank is given by

$$\pi_i = px_i - x_i c_i - \xi_i F, \quad \xi_i = \begin{cases} 0, & \text{no cooperation} \\ 1, & \text{cooperation} \end{cases} \quad (1)$$

with

$$c_i = v^N + \frac{1}{s_i} - \xi_i \Delta v.$$

The parameter  $c$  measures variable costs, assumed to depend on a constant term plus a second term which is dependent on the size of the bank.  $s$  measures the relative advantages the large bank has. It can be thought of as the size of the subsidiaries network of the bank, giving rise to network externalities or as economies-of-scale and -scope which characterize the banking market. The larger the number of subsidiaries the bank has, the lower are its costs of doing business internationally. If banks cooperate internationally, they can reduce their variable costs by  $\Delta v$ .  $c$  is assumed to fall if banks cooperate internationally because cooperation reduces the costs of transborder transactions for any single bank. The component  $v^N$  in turn is reduced when banks are subject to common regulation in all places in which they conduct business and if exchange transactions are abandoned. This means that similar reserve requirements and supervision in all of Europe lower costs of doing business for international banks.  $F$  is a fixed cost parameter to measure the one-time costs of starting a cooperation among banks in Europe. Given the imperfect competition structure in the domestic banking markets, both large and small banks have to decide whether they should cooperate with partner banks in the respective European country, merge with them or takeover a foreign bank. We assume this decision to be made simultaneously in stage one of the game. While, on the one hand, cooperation implies considerable fixed costs of doing so, not only when buying a foreign bank but also building new departments to deal with the foreign partner, exchange personnel and so on, it, on the other hand, reduces variable costs. A reduction of variable costs arises because now there is an established net of contacts for every cross-border business, on-line computer connections, etc. Apart from these technical details, established contacts and

frequent meetings build trust among business partners and might also lead to faster and less costly dealings.

The price charged for cross-border financial services is defined via a standard inverse demand function

$$p = a - bX, \quad (2)$$

where  $a$  can be interpreted as the size of the domestic market for international banking services. We assume that national demand is always addressed to domestic banks, whether they cooperate internationally or not.  $X = x_i + x_j$  is the total amount of financial services supplied by all banks,  $x_i$  and  $x_j$  being the supply of the large and the small bank respectively. A cooperating bank is assumed to obtain the gains arising from its domestic business. We thus abstract from issues of negotiations and distribution of aggregated profits in different countries among cooperating banks.

The Cournot equilibrium of the game, given marginal costs, is described by the quantities

$$x_i = \frac{1}{3b}(a + c_j - 2c_i), \quad (3)$$

$$x_j = \frac{1}{3b}(a + c_i - 2c_j). \quad (3')$$

The national equilibrium is given by the following total supply (the sum of  $x_i$  and  $x_j$ )

$$X = \frac{2}{3} \frac{a}{b} - \frac{1}{3b}(c_i + c_j), \quad (4)$$

where the market clearing price of services is given by

$$p = \frac{1}{3}a + \frac{1}{3}(c_i + c_j). \quad (5)$$

Profits for the individual bank are therefore given by

$$\pi_i = \frac{1}{9b}(a + c_j - 2c_i)^2 - \xi_i F \quad (6)$$

and

$$\pi_j = \frac{1}{9b}(a + c_i - 2c_j)^2 - \xi_j F \quad (6')$$

respectively. It is obvious from equation 6 that the fixed costs  $F$  influence both banks similarly, while the relative and absolute size of a bank has an important influence on the equilibrium decision.

### B. The Effects of the Single Market

With these preliminaries at hand, we are now able to analyze the effects of different institutional arrangements on the market structure and on each bank's profits. The single market and economic integration are usually expected to expand the cross-border trade in Europe. According to the famous Cecchini-report, increased intra-industrial trade and economies-of-scale should contribute to a larger volume of trade, accompanied by increased direct investment and portfolio investment (see also European Commission, 1990 and Baldwin, 1991). Increased cross-border transactions will, of course, also entail expanded business for banks because transborder payments increase. This corresponds to an increase of the parameter  $a$  in our model. Effects on variable costs  $v^N$  are, however, unlikely to appear.

### C. The Effects of Monetary Union and Common Banking Policy

Since it is clear that a monetary union must comprise a *common* and *single* central bank, the nature of the banking business is transformed. A single central bank must necessarily unify regulations and supervision for the whole of its territory (Giovannini, 1993a). Under the Second Banking Directive, which follows the principle of mutual recognition, no substitution of national regulation is required unless necessary. While home-countries are in charge of supervision, host countries' authorities are in charge of liquidity ratios. However, the EU member countries are supposed to make necessary changes in their national laws to conform to the EC directives. Therefore, be it either because of the harmonized rules of the single-market directives, or as a result of competitive deregulation due to the freedom of establishment in the banking industry, bank regulations will become approximately homogeneous across member countries. To the extent that activities of financial firms go beyond their national borders, there is a clear reason to encourage tight cooperation among national authorities. Because the linkage of national payments systems will inevitably give rise to arbitrage-induced payments-

routing, we expect the substitution of national systems with a new, EU-wide wholesale payments system managed by the common central bank. Thus, problems of payments systems suggest a negative answer to the question whether the presence of a variety of financial systems and institutions is compatible with a single currency (Giovannini, 1993a).

Given this requirement of common regulation, it is here that we expect a uniform reduction in the variable costs of cross-border transactions, expressed as a reduction of  $v^N$  in our model. Not only is there certainly a reduction in the fixed costs from adapting to different regulations in different countries, but accounting procedures will be unified as well. Furthermore, exchange transactions are no longer necessary.

#### D. The Conditions

We are now in the position to derive explicit propositions about when we will see international cooperation among large banks and no cooperation among small banks. This will enable us to explain the stylized facts of section 2, and establish the interests of large banks in monetary union.

In our first proposition we state that there are marginal-cost structures that will lead to asymmetric international cooperation. In the second proposition we derive the conditions for symmetric equilibria where both the large and the small bank do or do not cooperate. Both conditions enable us to explain why decreasing marginal costs for both the cooperating and the noncooperating bank can induce a change in the market structure.

##### **Proposition 1**

For all positive  $a$ ,  $b$ ,  $v^N$ ,  $F$ ,  $s_i$  and  $s_j$  with  $s_i > s_j$ , there is a nonempty interval of cost differentials  $\Delta v$ , so that, for these parameter values, the following strategy profile is a subgame perfect Nash equilibrium (SPNE):

- (i) The large player chooses to cooperate internationally.
- (ii) The small player does not cooperate.

**Proof 1**

Necessary and sufficient for the existence of a SPNE where only the large bank cooperates is that the large bank gains from cooperation when the small bank does not cooperate, while the small bank does not cooperate when the large bank does. The first condition can be written

$$\begin{aligned} \frac{1}{9b} \left[ a + \left( v^N + \frac{1}{s_j} \right) - 2 \left( v^N + \frac{1}{s_i} - \Delta v \right) \right]^2 - F > \\ \frac{1}{9b} \left[ a + \left( v^N + \frac{1}{s_j} \right) - 2 \left( v^N + \frac{1}{s_i} \right) \right]^2, \end{aligned} \quad (7)$$

while the small bank does not cooperate iff

$$\begin{aligned} \frac{1}{9b} \left[ a + \left( v^N + \frac{1}{s_i} - \Delta v \right) - 2 \left( v^N + \frac{1}{s_j} - \Delta v \right) \right]^2 - F < \\ \frac{1}{9b} \left[ a + \left( v^N + \frac{1}{s_i} - \Delta v \right) - 2 \left( v^N + \frac{1}{s_j} \right) \right]^2. \end{aligned} \quad (8)$$

Both conditions can be rewritten as

$$\Delta v^2 > \frac{9}{4} bF - \Delta v \left( a + \frac{1}{s_j} - \frac{2}{s_i} - v^N \right) \quad (7')$$

and

$$\Delta v \left( a + \frac{1}{s_i} - \frac{2}{s_j} - v^N \right) < \frac{9}{4} bF. \quad (8')$$

Conditions (7') and (8') are represented graphically in Figure 1. We call  $\Delta v_I$  the infimum of the positive part of the solution set of (7') and  $\Delta v_{II}$  the supremum of the solution set of (8'). Both conditions are fulfilled if  $[\Delta v_I, \Delta v_{II}]$  is a nonempty interval and if  $\Delta v \in [\Delta v_I, \Delta v_{II}]$ .  $\Delta v_{II}$ , the solution to  $\Delta v \left( a + \frac{1}{s_i} - \frac{2}{s_j} - v^N \right) = \frac{9}{4} bF$ , is larger than the solution to  $\frac{9}{4} bF = \Delta v \left( a + \frac{1}{s_j} - \frac{2}{s_i} - v^N \right)$  because  $s_i > s_j$ . This value is in turn larger than  $\Delta v_I$  because the

positive solution of  $\Delta v^2 = \frac{9}{4}bF - \Delta v \left( a + \frac{1}{s_j} - \frac{2}{s_i} - v^N \right)$  is smaller than  $\frac{\frac{9}{4}bF}{\left( a + \frac{1}{s_j} - \frac{2}{s_i} - v^N \right)}$ . Therefore  $\Delta v_I < \Delta v_{II}$ .  $\square$

Insert Figure 1

It is straightforward to show that noncooperation of both the large and the small bank results if the cost reduction due to cooperation is relatively small. We have:

**Proposition 2**

(i) For all positive  $a, b, s_i, s_j, F, b$  and  $v^N$ , there is a maximal  $\Delta v^* > 0$  so that for all  $0 < \Delta v < \Delta v^*$  the following strategy profile is a SPNE:

Both players do not cooperate internationally.

For this upper bound we have  $\Delta v^* = \Delta v_I$ .

(ii) For all  $s_i, s_j, F, b$  and  $v^N$ , there is a minimal  $\Delta v_+ > 0$  so that for all  $\Delta v > \Delta v_+ > 0$  the following strategy profile is a SPNE:

Both players cooperate internationally.

For this lower bound we have  $\Delta v_+ = \Delta v_{II}$ .

**Proof 2**

(i) Conditions for a noncooperative Nash-equilibrium are easily derived. The proof is analogue to Proposition 1. (7'), the condition for the cooperation of the large bank, changes the sign:

$$\Delta v^2 < \frac{9}{4}bF - \Delta v \left( a + \frac{1}{s_j} - \frac{2}{s_i} - v^N \right). \quad (9)$$

The condition for the noncooperation of the small bank is obtained by exchanging indices



$$\Delta v^2 < \frac{9}{4}bF - \Delta v \left( a + \frac{1}{s_i} - \frac{2}{s_j} - v^N \right). \quad (9')$$

The solution set corresponds to the values of  $\Delta v$ , where in Figure 2 the parabola is below  $h'_I$ .

The supremum of the intersection of both solution sets, A, is  $\Delta v_I$ .

(ii) The condition for the cooperation of the small bank is obtained if we reverse the sign for inequality in (8')

$$\Delta v \left( a + \frac{1}{s_i} - \frac{2}{s_j} - v^N \right) > \frac{9}{4}bF \quad (10)$$

The condition for cooperation of the large bank is obtained by exchanging indices. The infimum of the intersection of both solution sets, C, is  $\Delta v_{II}$ . □

Both conditions are represented graphically in Figure 2.

Insert Figure 2

Propositions 1 and 2 so far established conditions for asymmetric cooperation and symmetric cooperation and noncooperation. How can the step towards monetary union lead from the latter equilibrium to the former one? The introduction of monetary union is characterized by a reduction of variable costs for cooperating and noncooperating banks due to the fact that currency exchange operations become unnecessary. We assume here that the reduction has the same size for both types of banks. The consequence of such a reduction in marginal costs can be studied with the help of Figure 3.

Insert Figure 3

The interval A is the interval of symmetric noncooperation in the initial situation of no monetary union derived in Proposition 2. B is the interval of asymmetric cooperation derived in Proposition 1. Suppose that before monetary union cooperation does not pay for the large enterprise. In this case  $\Delta v$  must lie in A, for example  $\Delta v^*$ . The entry into monetary union leads to a reduction of  $v^N$ . From (7') and (8)', we see that a reduction of  $v^N$  moves both  $\Delta v_I$  and

$\Delta v_{II}$  to the left. The interval for asymmetric cooperation thus moves to the left and becomes  $B'$ . The intersection of  $B'$  and  $A$  is the interval for  $\Delta v$  which is associated with a change in the market structure for a given reduction of  $v^N$ . Note that from Propositions 1 and 2 we have that an asymmetric cost reduction, i.e. an increase of  $\Delta v$ , would additionally increase the chances for a change in the market structure. Thus, we can state

**Proposition 3**

Given the before- and after-EMU cost differential  $\Delta v^*$ , the move to EMU induces a change in the market structure if the size of the cost reduction for cooperating and noncooperating players is sufficiently large to move the new interval of asymmetric cooperation,  $B'$ , sufficiently far to the left.

Finally, it can be shown that:

**Proposition 4**

(i) The large bank always gains from monetary union.

(ii) The small bank gains if the type of equilibrium does not change. If the type of equilibrium changes to asymmetric cooperation, the effect of monetary union on the profits of the small bank is negative if  $\Delta v$  is sufficiently large.

**Proof 4**

Consider the profit function (6) before monetary union when both banks do not cooperate. Joint reduction of variable costs makes monetary union more attractive for both players if they do not cooperate. Asymmetric cooperation additionally benefits the large bank if (8') is fulfilled. Profits in this new equilibrium for the small bank are smaller than before:

$$\frac{1}{9b} \left[ a + \left( v_{MU}^N + \frac{1}{s_i} - \Delta v \right) - 2 \left( v_{MU}^N + \frac{1}{s_j} \right) \right]^2 < \frac{1}{9b} \left[ a + \left( v^N + \frac{1}{s_i} \right) - 2 \left( v^N + \frac{1}{s_j} \right) \right]^2 .$$

The small bank loses from monetary union if  $\Delta v$ , the cost reduction for the large bank from cooperation, exceeds  $v^N - v_{MU}^N$ , the cost reduction due to monetary union, and if  $\Delta v \in [\Delta v_I, \Delta v_{II}]$ .  $\square$

Earlier we have derived that monetary union will induce a simultaneous decrease in variable costs for both large and small banks. Proposition 3 establishes our main result that such a symmetric reduction of variable costs can induce a change in the market structure with asymmetric effects on profits of small and large banks. Note also that an increasing market size,  $a$ , following from the common market, also moves the interval of asymmetric cooperation to the left and thereby triggers a change in the market share to the benefit of large banks. This result is able to explain the paradox that large banks favor monetary union despite foregoing profits from exchange transactions. Perfectly in line with this result, we observe, as shown in section 2, that large banks build cross-border strategic alliances. This explains why large banks favor a rapid movement to monetary union and are particularly in favor of the rigid time table of the Maastricht treaty.

#### **4. Conclusion**

This paper explains why large banks favor European monetary union although high mark-ups on international financial transactions will be reduced. Our solution to this puzzle is based on the observation that the market structure for bank transactions is currently dominated by a number of large national banks which compete with smaller regional ones. Assuming that monetary union will change the variable costs for both cooperating and noncooperating banks, we argued that this effect could bring together the critical mass necessary to induce changes in the market structure so that the demand for international transactions will almost exclusively be served by the large cooperating banks. There are at least two reasons to assume lower variable costs with monetary union: one is the fact that transaction costs for exchange operations vanish. The second point is that the unification of bank regulation laws will reduce the marginal costs for cross-border transactions again. Our model, thus, predicts a deepening of existing

international cooperations of large banks and a dramatic change in the market structure for international transactions occurring with monetary union.

## **References**

- Baldwin, Richard E. (1991) "On the Microeconomics of the European Monetary Union", European Economy, Special edition 1, 21-35.
- Bofinger, Peter (1994) "Is Europe an Optimum Currency Area?", CEPR discussion paper 915, February.
- BVR (Bundesverband der deutschen Volksbanken und Raiffeisenbanken), Annual Report, various issues.
- Canals, Jordi (1993) Competitive Strategies in European Banking, Oxford: Clarendon Press.
- Casella, Alessandra (1992) "On Markets and Clubs: Economic and Political Integration of Regions with Unequal Productivity", American Economic Review 82, 115-121.
- Cohen, Benjamin J. (1989) "European Financial Integration and National Banking Interests", in P. Guerrieri and P. C. Padoan, eds: The Political Economy of European Integration, New York: Harvester-Wheatsheaf, 145-170.
- Eichengreen, Barry (1993) "European Monetary Integration", Journal of Economic Literature 31, 1321-1357.
- Eichengreen, Barry and Jeffrey Frieden (1993) "The Political Economy of European Monetary Unification: An Analytical Introduction", Economics and Politics 5, 85-104.
- Epstein, Gerald (1991) "Profit Squeeze, Rentier Squeeze and Macroeconomic Policy Under Fixed and Flexible Exchange Rates", Economies et Sociétés 25.3, 219-257.
- European Commission (1990) One Market, One Money, European Economy 44, October.
- Frieden, Jeffrey (1991) "Invested Interests: The Politics of National Economic Policies in a World of Global Finance", International Organization 45, 425-451.
- Giovannini, Alberto (1993a) "Central Banking in a Monetary Union: Reflections on the Proposed Statute of the European Central Bank", Carnegie-Rochester Conference Series on Public Policy 38, 191-230.

- Giovannini, Alberto (1993b) "Economic and Monetary Union: What Happened?--Exploring the Political Dimension of Optimum Currency Areas" in The Monetary Future of Europe, London: Centre for Economic Policy Research.
- Lipp, Ernst Moritz, Ulrich Ramm and Norbert Walter (1992) "Stellungnahme zum Manifest der über 60 Professoren über die Maastricht-Beschlüsse zur Europäischen Wirtschafts- und Währungsunion", in Auszüge aus Presseartikeln, Deutsche Bundesbank, June 16, 1-2.
- Ruland, L.J./ J.-M. Viaene (1993) "The Political Choice of Exchange Rate Regimes", Economics and Politics 5, 271-284.
- Tavlas, George S. (1993) "The 'New' Theory of Optimum Currency Areas", World Economy 16, 663-685.
- Vaubel, Roland (1990) "Currency Competition and European Monetary Integration", Economic Journal 100, 930-940.
- Vives, Xavier (1991) "Banking Competition and European Integration" in A. Giovannini and C. Mayer, eds: European Financial Integration, Cambridge: Cambridge University Press, 9-31.
- Weber, Manfred (1993) "Die Europäische Währungsunion aus Sicht der deutschen Banken", manuscript, October.

Table 1: Market Share, 1989 (percent over assets)

	Three largest institutions	Five largest institutions	Ten largest institutions
France	36.1	54.5	71.4
Germany	15.3	26.1	37.0
Italy	19.5	36.2	48.7
Spain	30.2	38.5	64.7
United Kingdom	22.5	29.2	42.4

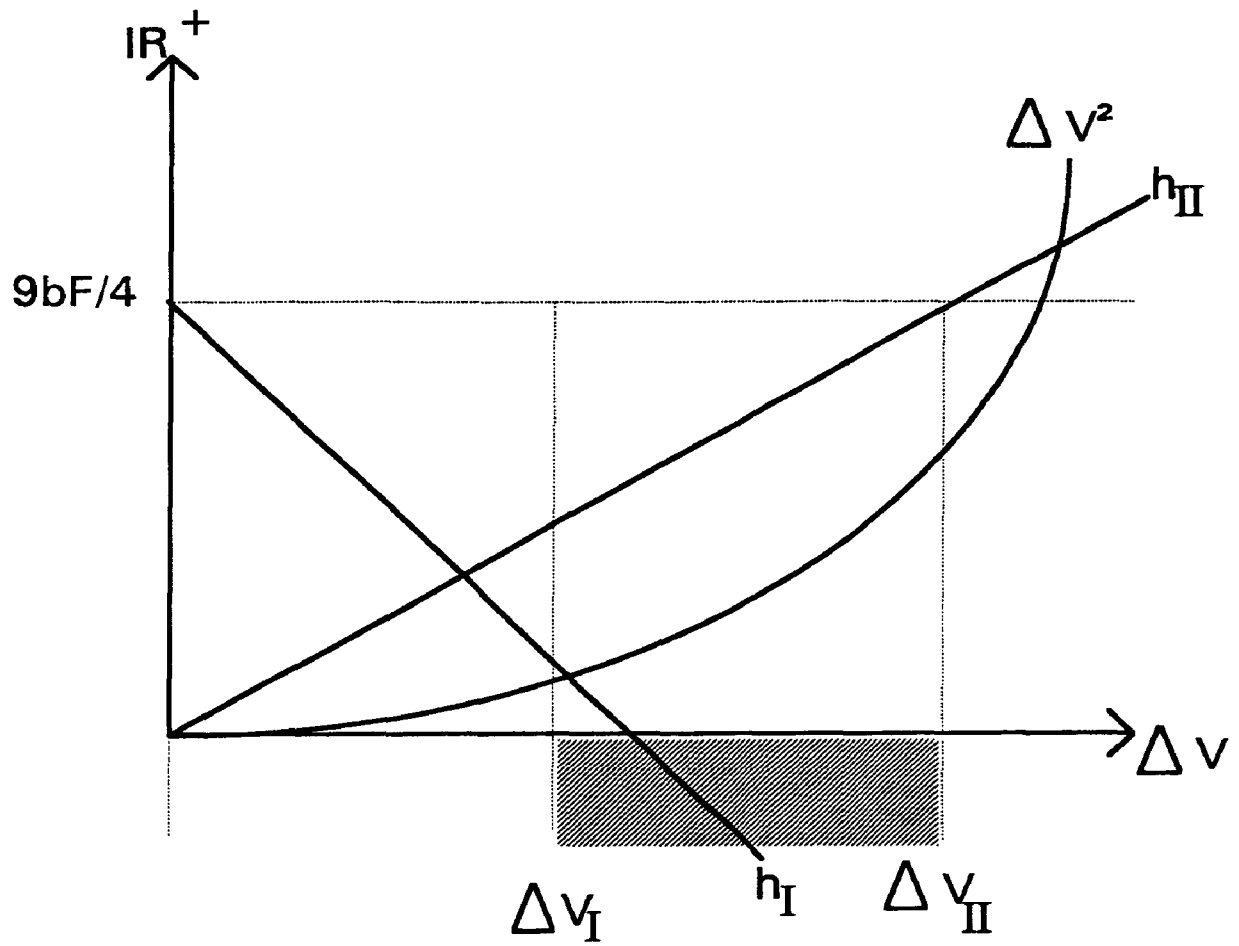
Source: Canals 1993, 60.

Table 2: Alliances and Acquisitions in the European Banking Industry

Category	Target Country	Year	Transaction
<i>Alliances/Minority Interests</i>			
San Paolo Bank (Italy)	UK	1986	Acquired 6% of Hambros Bank
Deutsche Bank (West Germany)	UK		Acquired 5% of Morgan Grenfell
San Paolo Bank (Italy)	France	1987	Acquired 1% of Compagnie Financiere de Suez
Générale de Banque (Belgium)	France	1987	Purchased 1.5% of Compagnie Financiere de Suez
Cariplo (Italy)	Spain	1988	Acquired 1% of Banco Santander
Commerzbank (West Germany)	Spain	1984	Purchased 10% of Banco Hispano-Americano
Banco Santander (Spain)	UK	1988	Swapped initial 5% shareholding with Royal Bank of Scotland
<i>Cross-Border Acquisitions</i>			
Banca Popolare di Novara (Italy)	France	1988	Acquired 80 % of Banque de L'Union Maritime from CCF
Bank of Ireland (Ireland)	UK	1987	Acquired Bank of America's UK mortgage loan subsidiary
Banque Nationale de Paris (France)	UK	1988	Purchased Chemical Bank's UK mortgage loan subsidiary
Dresdner Bank (West Germany)	UK	1988	Acquired 70% of Thornton Fund Management Group
Deutsche Bank (West Germany)	Italy	1986	Purchased Banca d'America e d'Italia from Bank of America
Banco Santander (Spain)	West Germany	1987	Purchased CC Bank from Bank of America
Barclays (UK)	Spain	1981	Acquired Banco de Valladolid from regulatory authorities

Source: Canals 1993, 230, 231.

**Figure 1**

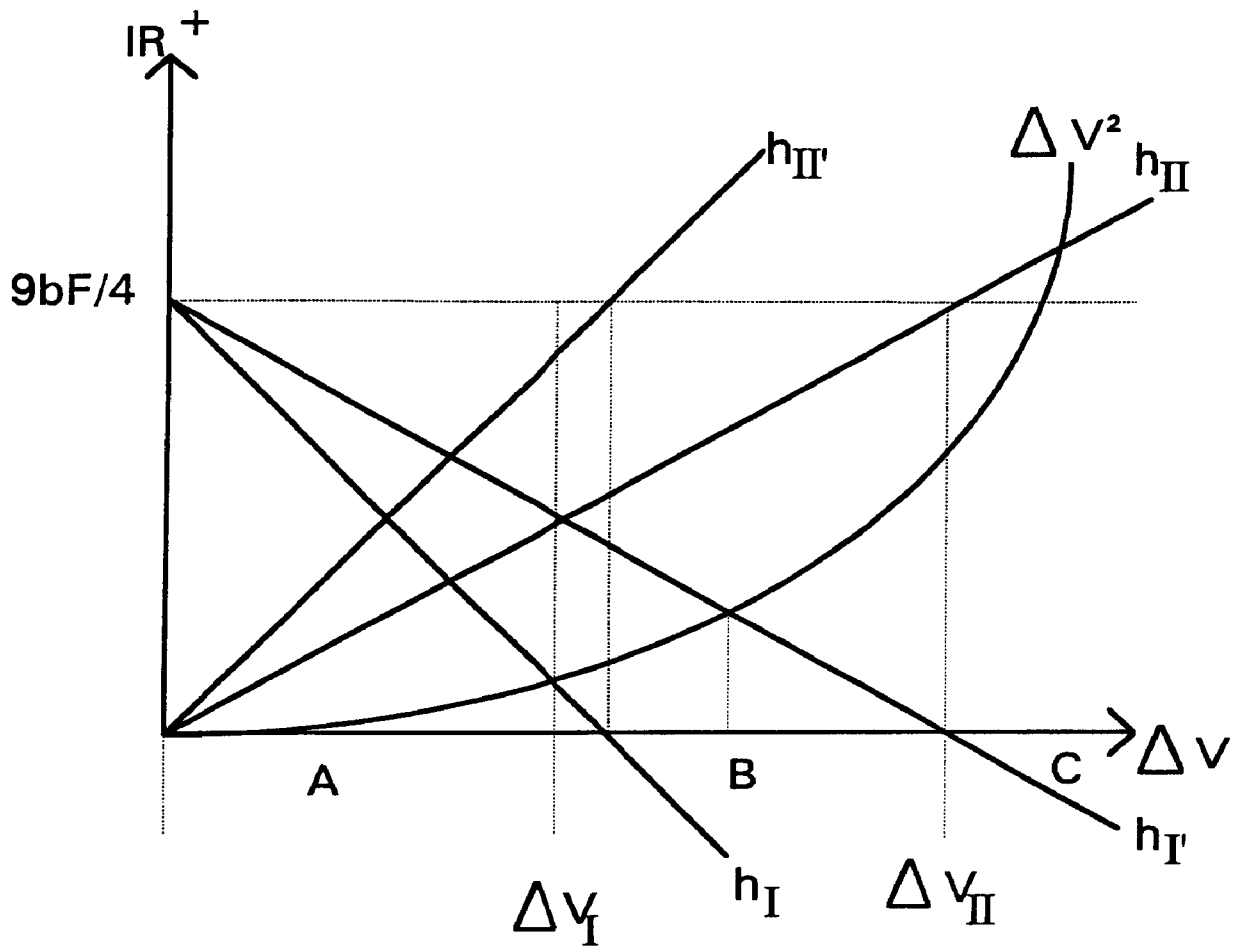


$$h_I = \frac{9bF}{4} - \left[ a + \frac{1}{s_j} - \frac{2}{s_i} - v^N \right] \Delta v$$

$$h_{II} = \left[ a + \frac{1}{s_i} - \frac{2}{s_j} v^N \right] \Delta v$$



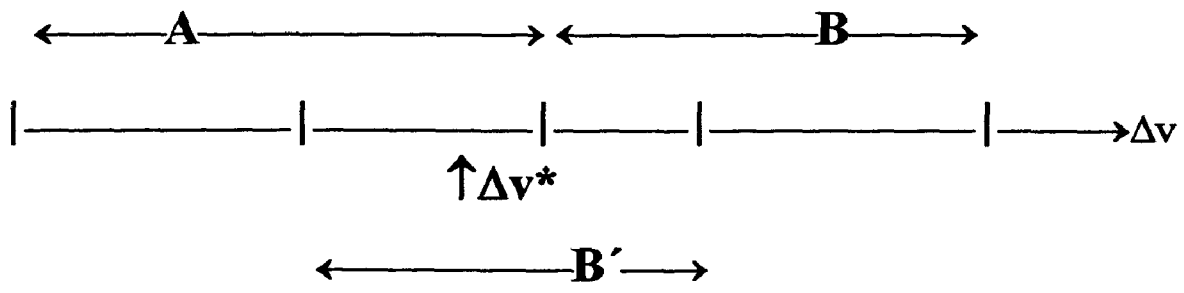
**Figure 2**



$$h_I = \frac{9bF}{4} - \left[ a + \frac{1}{s_j} - \frac{2}{s_i} - v^N \right] \Delta v$$

$$h_{II} = \left[ a + \frac{1}{s_i} - \frac{2}{s_j} v^N \right] \Delta v$$

# Figure 3



The intervals of asymmetric cooperation before (B) and after (B') monetary union.