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Research Department

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Method of Compensation of Intra-European
Balances under Payments Agreements

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Summary

A number of European countries concluded, toward the end of 1947, certain agreements on circular compensation of bilateral balances accumulated under mutual payments agreements. The BIS provides the required administrative service. Background and analysis of recent practice will be found in RD-465 and RD-525.

Complete compensation of bilateral credit and debit balances would reduce the sum of each country's debit or credit balances, whichever is the smaller, to zero. Such normal, multilateral compensation, however, is possible only if each currency involved is freely convertible into any other currency. Compensation as envisaged in the agreements referred to above and as actually carried out in January and February of this year is restricted by the requirements with respect to specific amounts and specific currencies of the several countries.

In order that circular compensation of bilateral debit and credit balances may actually be effected, certain methods have been developed by which it is possible to calculate the maximum amount that may be cleared circularly at any point of time:

- (1) If all participating countries are willing to accept the compensation possibilities advised by the BIS and if no priorities are assigned to the compensation of any balances
- (2) If priorities are assigned to the compensation of balances according to the degree to which their values approach those of the corresponding credit ceilings
- (3) If specified countries are willing to accept only fractional compensation compared with the total amounts that could be cleared.

All these maximum amounts apply to systems of compensation under which all compensable balances are reduced as a result of the process of compensation, the so-called first category type. Hence, no cases will occur where a country, in exchange for having some of its credit (or debit) balances

reduced, accepts an increase in one or more of any of its other credit (or debit) balances.

For purposes of the Fund, the method by which the maximum compensable amount, regardless of any priorities, can be calculated, would appear to be relatively significant.

In this note, attention has been concentrated on the technical processes of calculation rather than on the economic implications of actual clearing operations, or the institutional handicaps that may from time to time be encountered in such operations. The compensation possibilities calculated for each country show (a) the maximum amount by which its credit and debit balances may be reduced, and (b) the paths and values of the separate closed compensation circuits. Except for the final section on the determination of actual circuits of compensation, the method explained and applied in this note follows closely one of the methods developed for the BIS by M. H. Ekker, member of the Dutch Delegation at the BIS, and used by that institution since the autumn of 1947.

1. Complete and Restricted Compensation

(1) The maximum reductions that may be achieved in a country's gross deficit (sum of all debit balances) and gross surplus (sum of all credit balances) on mutual credit account through the compensation methods used by the BIS must be distinguished from the maximum reduction which could be accomplished through complete multilateralization of all balances. The latter reduction requires complete transferability of all currencies involved and would simply reduce each country's position on mutual credit account to its net deficit (or surplus) vis-a-vis the rest of the countries within the group. The maximum amount that may be cleared on the basis of the recent Intra-European agreements is limited by the pattern of each of the participating countries' bilateral credit and debit balances. A given country will therefore accept a reduction in any of the bilateral credit positions only if it can use the balance received to settle any of its own debit balances. Whether or not it can so use the new balance depends in turn on the needs of its creditors, and so forth.

(2) Compensation, whether complete, which is possible only under full currency transferability throughout the system, or limited in the manner described above, always implies that a given country uses its gross surplus to offset all or part of its gross deficit on mutual credit account. If the gross surplus is greater than the gross deficit, the country will emerge as a net creditor. If the gross deficit is greater than the gross surplus, the country will emerge as a net debtor. In both cases, of course, the reduction, as a result of compensation, in the gross deficit will be equal to the reduction in the gross surplus. And this will be true whether compensation is carried as far as reducing either the gross deficit or the gross surplus, whichever is the smaller, to zero, or, as under the system used by the BIS, only as far as reducing the balances below their value before compensation. This equality in the reduction of gross deficit and gross surplus requires

that each separate process of compensation represents a closed circuit. The country in which the circuit starts repays a debt to a second country which is willing to accept a balance in the first country because a third country, creditor vis-a-vis the second, is in turn willing to accept a balance in the first country since it is a debtor vis-a-vis that country. When this last debt is settled, the circuit is closed. In practice, after ascertaining that a circuit to offset the debit and credit balances of the three countries can be operated, the BIS would cable (a) the first country to debit the National Bank of the second country on its own books, and to instruct the National Bank of the third country to debit the account of the first country on its books; (b) the second country to debit the National Bank of the third country on its own books, and to instruct the National Bank of the first country to debit the account of the second country on its books; (c) the third country to debit the account of the National Bank of the first country on its own books, and to instruct the National Bank of the second country to debit the account of the third country on its books.

2. Actual Compensation at End of 1947 and Theoretical Possibilities

The amount which could have been cleared multilaterally at the end of 1947, had all currencies involved possessed complete transferability, may easily be derived by comparing the gross surplus (or deficit) and the net surplus (or deficit) for the participating countries with the maximum under restricted compensation. Table 1 shows a gross deficit (or surplus) of \$761.7 million and a net deficit (or surplus) of \$483.3 million. An amount equal to \$278.4 million was therefore capable of multilateral compensation. But the maximum compensable amount under specific requirements with respect to currencies and amounts may be shown to have equaled \$45.9 million; therefore the maximum under complete transferability was reduced by about \$232.5 million, or 84 per cent of the total. Actual compensation amounted to only \$1.7 million since some countries refused to clear their balances to the full extent technically possible.

3. Calculation of Maximum Compensation Possibilities

(1) While the general principles of compensation are familiar enough, a systematic method of finding compensation circuits is required as soon as the number of countries exceeds three, and also as soon as it is required to choose from among a large number of possible circuits those that will maximize the total amount that may be cleared.

Two methods of calculating maximum compensable amounts have been outlined in a number of documents issued by the BIS. Of these methods, the less mechanical and, therefore, perhaps somewhat more complicated of the two will be outlined in this note. Its main advantages over the more mechanical method lie in the shorter time required to arrive at the final solution and in the greater chance of avoiding cumulative errors. The maximum compensable amount will be calculated, regardless of any priorities that may actually be assigned to the compensation of balances close to mutual credit limits and regardless

of any possible refusal on the part of some countries to accept compensation of part or all of certain balances.^{1/}

(2) The first step in determining maximum compensation possibilities involves finding the limits to the maximum amounts that may be cleared for each country through operating all possible compensation circuits among the participating countries. While some of these circuits will be applicable simultaneously, not all of them will, in this sense, be compatible with each other. The total reductions that would result from operating such separate circuits are therefore not additive. The second main step of the method involves choosing from among all possible circuits those compatible circuits which will result in a maximum total reduction of existing balances.

(3) In order to fix limits to the values of the links of all possible circuits passing through the accounts of a given country, the maximum amount which can be cleared for each country must first be determined. The following rule applies:

For any country the maximum amount compensable under any conditions is limited to the sum of that country's credit or debit balances, whichever is the smaller.

(1)

For this purpose it is best to arrange all participating countries, not in the usual matrix, but by their credit and debit positions with each member of the group. Thus, in Table 2, each column shows the credit balances of the country heading a column while each row shows the debit balances of the country beginning a row. The figures show the status of each bilateral account as of December 31, 1947. From such an arrangement it may be seen immediately that the maximum amount compensable for Sweden, for example, is equal to \$15.7 million (sum of that country's debit balances) and for Denmark \$3.9 million (sum of that country's credit balances); at this stage, none of the compensation circuits passing through Swedish or Danish accounts may consist of links of a value of more than \$15.7 million and \$3.9 million, respectively. In order to show the maximum reductions in bilateral balances that are possible, before any other corrections are made, all balances found in the Swedish column and row have to be reduced to \$15.7 million, such as, for example, the original Swedish credit balance with the U.K. of \$38.9 million; and all balances found in the Danish column and row, have to be reduced to \$3.9 million, such as Denmark's debit balance with the U.K. of \$130.7 million, and its debit balance with Belgium of \$8.2 million. It will be found convenient to begin these adjustments with the smallest of all debit and credit balances and then to continue in the direction of the highest. When all adjustments have been made, the adjusted table will show at the right end of each row and the bottom of each column the maximum amount of compensation if

^{1/} See RD-525 for explanation of the principles of calculation involved when priorities are assigned or refusals taken into account. In a BIS document issued after this memorandum was written, it is recommended that future BIS calculations be limited to determining the maximum amount compensable without assigning priorities to balances that have reached a level close to the corresponding credit ceilings.

all possible circuits could be applied simultaneously. Table 3 shows the process of gradual reduction of original balances to the bilateral maxima and of countries' total credit or debit balances to the total maximum compensable for each country. Table 4 shows the results after these preliminary adjustments have been made.

(4) Examination of the adjusted figures in Table 4 will show that the following condition holds:

The maximum amount compensable for any pair of countries (bilateral maximum) is limited to the smaller of the adjusted maxima of total compensation (country maxima) of either country. (2)

From the procedure employed in determining country maxima, if all circuits could be applied simultaneously, it follows that each country maximum will be equal either to the sum of the bilateral maxima of that country with all its creditors or to the sum of the bilateral maxima of that country with all its debtors, depending on whether the country maximum was originally determined by the sum of the credit or the debit balances of that country. In order that, at a later stage, elimination of possible but incompatible circuits may be accomplished speedily and with least chance of error, it will be advisable at this stage to note for each country whether its total maximum is determined by the sum of its adjusted credit or its adjusted debit balances. Thus, on Table 4, all countries whose total maxima are determined by the sum of their adjusted bilateral debit balances are marked "I", and all countries whose total maxima are determined by the sum of their adjusted bilateral credit balances are marked "U". All bilateral balances determining at least one country maximum are underlined. For example, Belgium's country maximum of \$5.2 million is equal to the sum of its adjusted bilateral debit balances of \$5.1 million with Sweden and \$.1 million with the French Zone (Germany); France's country maximum of \$7.8 million is equal to the sum of its adjusted bilateral credit balances of \$3.9 million with Denmark and \$3.9 million with the U.K.

(5) In the final result the following condition must hold:

For any country, the sum of compatible bilateral maxima is equal to the country maximum of that country. (3)

The maximum amount that may be cleared simultaneously for all countries depends on the sum of all country maxima before the elimination of incompatible circuits. It follows that the elimination must proceed in a manner that reduces as little as possible the country maxima established so far. Since the country maxima are, in turn, determined either by the sum of underlined bilateral maxima in the credit columns (U-countries) or the sum of underlined bilateral maxima in the debit rows (I-countries), it follows further that the process of elimination must reduce underlined bilateral maxima also by as little as possible. Reduction, during the same process of elimination, of bilateral maxima which are not underlined (henceforth called free balances) will not necessarily reduce country maxima since the sum of a country's free balances may, at the present stage, still exceed its country maximum. Reduction of free balances will reduce a country maximum only if the reduction

decreases the sum of all bilateral maxima of the country below the sum that remains after the reduction, in accordance with rule (3), of the underlined bilateral maxima.

(6) Since the reduction of any underlined bilateral maximum will automatically reduce at least one country maximum, the process of elimination of incompatible maxima must begin with a comparison of country maxima established so far and the sum of those underlined bilateral maxima, either in the credit column or the debit row, which do not determine the maxima of such countries.

Examination of Table 4 shows that

- (a) the sum of the underlined bilateral maxima in the credit columns of I-countries may exceed the country maxima of I-countries, and
- (b) the sum of the underlined bilateral maxima in the debit rows of U-countries may exceed the country maxima of U-countries.

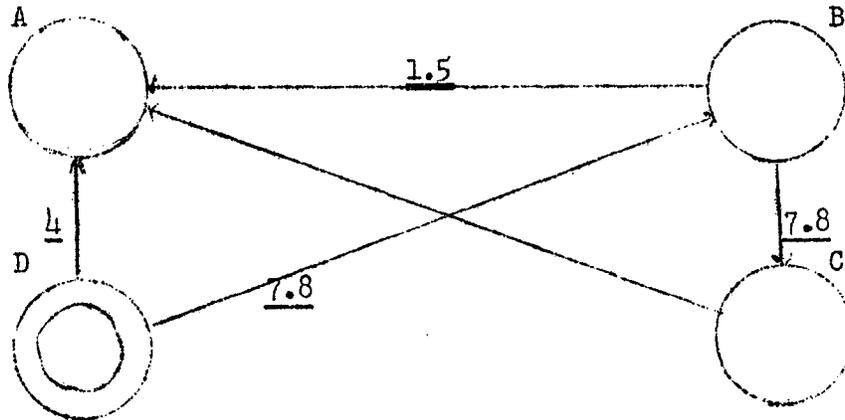
Before reducing the underlined balances, it will be well first to note the countries for which such inequalities exist. On Tables 4 through 9 these countries are marked with an asterisk. They will be called closed countries; those without an asterisk, open countries. Thus, Belgium is called a closed country because the sum of its underlined bilateral maxima in its credit column is equal to \$7 million (\$1.8 million with Italy plus \$5.2 million with Norway) while its country maximum is limited to \$5.2 million. The Netherlands, on the other hand, is called an open country since the sum of its underlined bilateral maxima in its debit row is equal to 0, and its country maximum equal to \$13 million.

(7) When the sum of the underlined bilateral maxima of a given country are being reduced to the total maximum of that country, the following three choices may present themselves:

- (a) Choice of lowering an underlined bilateral balance with either a closed or an open country. The reduction or elimination should be applied to the open country. For I-countries, the reduction or elimination of bilateral maxima will affect credit balances. Now, any such underlined bilateral maxima are, of course, bilateral maxima determining the country maxima of other I-countries, either closed or free. For closed I-countries the horizontal sums of such underlined bilateral maxima are smaller than the sums of their underlined bilateral maxima in their credit columns. The latter will have to be reduced, in any case, in order to make their sums equal to the horizontal sums of the bilateral maxima in the debit rows. Hence, if any of a closed I-country's underlined horizontal bilateral maxima are lowered at this stage, the later reduction in its vertical bilateral maxima would necessarily have to be greater. For open I-countries the sums of the underlined horizontal bilateral maxima are equal to or greater than the sums of the underlined vertical bilateral maxima. Any reduction of a horizontal bilateral maximum of an open I-country will therefore not necessarily lead to any further reduction in its underlined vertical maxima which are the determining maxima of other I-countries. The same reasoning may be applied to U-countries.

(b) Choice of lowering the underlined bilateral balance with one or another of two open countries. In this case, the distribution of the total required reduction between the two existing bilateral maxima must be postponed until the present and certain other adjustment processes have been completed. For the time being one of the bilateral maxima will be reduced by x , and the other by: total required reduction minus x .

(c) Choice of lowering the underlined bilateral balance with one or another of two closed countries. For the balances as reported for December 31, 1947, this situation does not arise. If it had arisen, the procedure outlined below would have had to be followed. If the choice lies between two underlined maxima, both of which are with closed countries, the reduction is applied to the credit (or debit) relation through which leads the shortest route to an open country. In this way the reduction will affect the least number of links of a possible circuit. An example may be taken from the status of certain bilateral balances of June 31, 1947:



The sum of closed U-country A's bilateral maxima (debit row) exceeds its country maximum by \$5.5 million. Of the required reduction, \$4.0 million may be applied to the underlined bilateral maximum with open country D. The remaining \$1.5 million will be applied to the underlined bilateral maximum of \$1.5 million with closed country B rather than to that of \$7.8 million with closed country C. The circuit passing through D - B - A is shorter than the circuit passing through D - B - C - A.

Some examples may now be given to illustrate the choices described above.

Choice (a): In Table 5, for Denmark the sum of the underlined maxima, before adjustment, (debit row) is \$9.9 million, and the country maximum is \$3.9 million. A reduction of \$6 million is therefore required. One of the two bilateral maxima, i.e., \$3.9 million with the United Kingdom is with a closed country; two of them, i.e., \$2.1 million with the Netherlands and \$3.9 million with France, are with open countries. The required reduction of \$6 million will be applied to the two open countries. Denmark's bilateral maxima (debit rows) with the Netherlands

and with France will be reduced to 0 and its bilateral maximum with the U.K. will be retained.

Choice (b): In Table 5, for Belgium the sum of the underlined bilateral maxima, before adjustment, (credit column) is \$7.0 million, the country maximum is \$5.2 million. Both underlined bilateral maxima are with open countries. The bilateral maximum (credit column) with Italy is reduced by x , resulting in an adjusted bilateral maximum of \$1.8 million $-x$, and the bilateral maximum (credit column) with Norway by \$1.8 million $-x$, resulting in an adjusted bilateral maximum of \$5.2 million $- \$1.8$ million $- x$, or \$3.4 million $- x$.

When all required reductions have been made, a new set of bilateral and country maxima emerges. As may be seen from Table 6, all incompatibilities arising from an excess of the sum of underlined bilateral maxima over corresponding country maxima have now either been eliminated or alternative ways of eliminating them have been indicated by the introduction of x and y .

(8) It remains now (a) to reduce the free bilateral maxima of all closed countries in such a way that the reductions affect country maxima of open countries as little as possible, and (b) to adjust free bilateral maxima of open countries so as to assure equality between the sum of the adjusted bilateral maxima and the country maxima of these countries.

(9) We begin with the reduction of the free bilateral maxima of the closed countries. Table 7 shows the process of reduction. Thus, for Denmark the free bilateral maxima with the French Zone, Belgium, Italy, and Norway may all be reduced to zero; none of the reductions will reduce the country maximum of any country. The same is true of the free balances of Belgium, all of which, since Belgium is an I-country^{2/} will be found in its credit column; and of the free balances of the U.K., all of which, since the U.K. is a U-country^{2/} will be found in its debit row. Except for final values for x and y , the result of the process of equating the country maxima of closed countries to the sum of their bilateral maxima is shown in Table 8.

(10) Values for x and y must now be found in order that the equilibrium positions for all bilateral and country maxima containing the unknowns can be fixed. It will be seen presently that the value of y may vary within certain limits, but that, once y has been chosen, there is one determinate value for x .

(11) The first step, then, is to find a value for y . The unknown, y , occurs (a) in relations which determine a country maximum: France-U.K., Netherlands-U.K.; and (b) in relations which do not determine a country maximum: Sweden-Netherlands, Sweden-France. Since no balance may be increased, y cannot be larger than \$0.8 million. Raising y beyond \$0.8 million would increase the Sweden-Netherlands bilateral maximum beyond the original balance of \$7.8 million. Nor may y be reduced below zero, since a negative value for y would raise the France-U.K. bilateral maximum beyond the country maximum of the U.K. But any value between zero and \$0.8 million will be consistent with

^{2/} See Section 3.(4) for definition.

the original restrictions. Nor will the choice of a value for y between these values affect the total maximum reduction in all balances. The choice, however, will affect the country maxima of France, Netherlands, and the U.K. For purposes of the present calculations, y has been fixed at zero.

(12) Substituting, in Table 9, we obtain preliminary values for the bilateral maxima Sweden-Netherlands, (\$7.0 million), Sweden-France (\$3.9 million), Netherlands-U.K. (0), France-U.K. (\$3.9 million); and for the country maxima of the Netherlands (\$7.0 millions) and France (\$3.9 million). All changes arising directly from $y = 0$ have now been made.

(13) In order to find a value for x , we proceed according to (8)(b).

Sweden: Since the equation $3.9 \neq 7.4 \neq x = 11.3 \neq x$ does not help us to determine x , no changes may at this stage be made in the free bilateral maxima in Sweden's credit column.

French Zone: There is disequilibrium in the credit column since the country maximum exceeds the sum of the bilateral maxima. A reduction of the country maximum from \$.2 million to \$0.1 million affects the bilateral maximum, Netherlands-French Zone, hence, the country maximum of the Netherlands, hence the bilateral maximum, Sweden-Netherlands. Each is reduced by \$0.1 million.

Netherlands: There is disequilibrium in the debit row since the sum of the bilateral maxima exceeds the country maximum of \$6.9 million by \$1.0 million. By rule (3), the country maxima of Sweden and Italy will have to be reduced ultimately. If the reduction is applied to the bilateral maximum, Italy-Netherlands, that bilateral maximum will become zero.

France: There is disequilibrium in the debit row. The sum of the bilateral maxima (debit row) must be equated to the country maximum; for this, a total reduction of \$7.5 million is required. Reduction of the bilateral maximum, Norway-France, from \$2.6 million to zero does not affect Norway's country maximum. A further reduction of \$4.9 million is required, and it must be applied to the free bilateral maxima of \$3.9 million (Sweden) and \$1.8 million (Italy). Both country maxima will necessarily be affected. If the bilateral maximum, Italy-France, is reduced to zero, leaving a reduction of \$3.1 million to be applied to the bilateral maximum, Sweden-France, the only consistent value for x may be found from an equation derived from Italy's bilateral maxima in its credit column and its country maximum containing x . The equation may be written:

$$0.3 = 1.8 - x$$

$$x = 1.5$$

(14) Substituting, in Table 9, will give equilibrium positions for all countries still in disequilibrium.

(15) The final result of the process of calculation, in the form of compatible bilateral and country maxima, is shown in Table 10.

4. The Compensation Circuits

The method described in the preceding section does not require the actual operation of separate compensation circuits. Each country needs to be advised only of its total identical reduction in its credit and debit balances. However, if any of the countries for which maximum simultaneous compensation possibilities have been calculated should refuse to participate, the system and thereby the maximum compensable amount will be affected according to the length and value of the particular circuit or circuits broken by the refusal. The quickest way of showing the effects, in all their ramifications, of such failure to take advantage of the compensation possibilities offered, is to observe them in their influence on the implied compensation circuits. It remains, therefore, to determine (a) the paths and (b) the values of the links of the actual circuits capable of accomplishing the final result of all compatible compensations as shown in Table 10.

It will probably be found helpful to arrange all countries along the lines of Chart 1, and to connect them with each other by arrows in the direction of net bilateral indebtedness. In order that bilateral and country maxima are not exceeded when the various compensation circuits are determined, it will be well to note the value of each bilateral maximum alongside the corresponding arrows, and to note the country maximum for each country. Subsequently it will be found convenient to begin the determination of compensation circuits with countries showing only one debit and one credit relationship on Table 10. The problem now is to find the longest possible circuits without exhausting bilateral maxima by circuits that have a total value smaller than the circuits that can be operated along the same routes. Such premature exhaustion of bilateral maxima may be avoided by passing the circuit, whenever possible, through a bilateral relation just high enough to cover the value of the links of that circuit.

Beginning, then, with the smallest of the bilateral maxima of countries with only one debtor and one creditor, we find that the country maximum and the bilateral maxima of the French Zone can be exhausted by a circuit, the links of which are equal to \$0.1 million, and the route of which is as follows: French Zone - Belgium - Italy - Norway - Sweden - Netherlands - French Zone. Operating this circuit implies: (a) maximum compensation for the French Zone has been accomplished, (b) all bilateral maxima found along the route have been reduced by \$0.1 million, (c) any other circuits may now be operated through the same bilateral maxima only if the original value of such bilateral maxima was greater than \$0.1 million. The process can be continued in this manner until all bilateral maxima and hence all country maxima are exhausted. When this has been done, the following equality must hold:

The sum of the values of each circuit (value of the corresponding circuit link multiplied by the number of links) must be equal to the sum of the country maxima. (4)

Chart 1 shows the compensation circuits associated with a maximum reduction of bilateral balances. The tables on Chart 1 show the values of the circuits (value of individual links multiplied by the number of links) and also the country maxima found in Table 10.

Table 1. Status of Balances,
Intra-European Payments Agreements
December 31, 1947

(in millions of dollars)

	Sweden	French Zone	Denmark	Nether- lands	Belgium	United Kingdom	France	Italy	Norway	Total
Sweden	--	+0.0	+3.9	-7.8	-5.1	-38.9	-8.9	--	+11.8	
French Zone	0.0	--	-0.3	+0.2	-0.1	--	--	--	--	
Denmark	-3.9	+0.3	--	+2.1	+8.2	+130.7	+6.5	+0.1	+4.3	
Nether- lands	+7.8	-0.2	-2.1	--	+35.2	-63.0	-3.1	+1.0	-3.7	
Belgium	+5.1	+0.1	-8.2	-35.2	--	-111.7	-44.5	-1.8	-11.7	
United Kingdom	+38.9	--	-130.7	+63.0	+111.7	--	+207.5	+9.9	+34.7	
France	+8.9	--	-6.5	+3.1	+44.5	-207.5	--	+2.1	+2.6	
Italy	--	--	-0.1	-1.0	+1.8	-9.9	-2.1	--	-0.3	
Norway	-11.8	--	-4.3	+3.7	+11.7	-34.7	-2.6	+0.3	--	
Gross +	+60.7	+0.4	+3.9	+72.1	+213.1	+130.7	+214.0	+13.4	+53.4	+761.7
Gross -	-15.7	-0.2	-152.2	-44.0	-5.2	-465.7	-61.2	-1.8	-15.7	-761.7
Net	+45.0	+0.2	-148.3	+28.1	+207.9	-335.0	+152.8	+11.6	+37.7	+483.3

Table 2. Status of Balances, Intra-European Payments Agreements
December 31, 1947

(in millions of dollars)

Debtor	Creditor									Total
	Sweden	French Zone	Denmark	Netherlands	Belgium	United Kingdom	France	Italy	Norway	
Sweden			3.9						11.8	15.7
French Zone				0.2						0.2
Denmark		0.3		2.1	8.2	130.7	6.5	0.1	4.3	152.2
Netherlands	7.8				35.2			1.0		44.0
Belgium	5.1	0.1								5.2
United Kingdom	38.9			63.0	111.7		207.5	9.9	34.7	465.7
France	8.9			3.1	44.5			2.1	2.6	61.2
Italy					1.8					1.8
Norway				3.7	11.7			0.3		15.7
Total	60.7	0.4	3.9	72.1	213.1	130.7	214.0	13.4	53.4	761.1

Table 3. Bilateral and Country Maxima of Compensation of
 Intra-European Balances under Payments Agreements: Intermediate Position 1.
 Status as of December 31, 1947

(in millions of dollars)

Creditor										
Debtor	Sweden	French Zone	Denmark	Netherlands	Belgium	United Kingdom	France	Italy	Norway	Total
Sweden			3.9						11.8 9.2	15.7 13.1
French Zone				0.2						0.2
Denmark		0.3 0.2		2.1	8.2 3.9	130.7 3.9	6.5 3.9	0.1	4.3 3.9	152.2 3.9
Netherlands	7.8				35.2 5.2			1.0		44.0 13.0
Belgium	5.1	0.1								5.2
United Kingdom	38.9 15.7 3.9			63.0 44.0 3.9	111.7 5.2 3.9		207.5 61.2 3.9	9.9 1.8	34.7 15.7 3.9	465.7 3.9
France	8.9 7.8			3.1	44.5 5.2			2.1 1.8	2.6	61.2 7.8
Italy					1.8					1.8
Norway				3.7	11.7 5.2			0.3		15.7 9.2
Total	60.7 15.7 13.1	0.4 0.2	3.9	72.1 44.0 13.0	213.1 5.2	130.7 3.9	214.0 61.2 7.8	13.4 1.8	53.4 15.7 9.2	761.7 58.1

Table 4. Bilateral and Country Maxima of Compensation
of Intra-European Balances under Payments Agreements: Non-additive
Status as of December 31, 1947

(in millions of dollars)

Debtor	Creditor									Total
	I Sweden	I French Zone	U Denmark*	U Nether- lands	I Belgium*	U United Kingdom*	U France	I Italy	I Norway	
I Sweden			<u>3.9</u>						<u>9.2</u>	<u>13.1</u>
I French Zone				<u>0.2</u>						<u>0.2</u>
U Denmark*		0.2		<u>2.1</u>	3.9	<u>3.9</u>	<u>3.9</u>	0.1	3.9	3.9
U Nether- lands	7.8				5.2			1.0		13.0
I Belgium*	<u>5.1</u>	<u>0.1</u>								<u>5.2</u>
U United Kingdom*	3.9			<u>3.9</u>	3.9		<u>3.9</u>	1.8	3.9	3.9
U France	7.8			<u>3.1</u>	5.2			1.8	2.6	7.8
I Italy					<u>1.8</u>					<u>1.8</u>
I Norway				<u>3.7</u>	<u>5.2</u>			<u>0.3</u>		<u>9.2</u>
Total	13.1	0.2	<u>3.9</u>	<u>13.0</u>	5.2	<u>3.9</u>	<u>7.8</u>	1.8	9.2	58.1

Table 5. Bilateral and Country Maxima of Compensation
of Intra-European Balances under Payments Agreements: Intermediate position 2.
Status as of December 31, 1947

(in millions of dollars)

Debtor	Creditor									Total	
	I Sweden	I French Zone	U Denmark*	U Nether- lands	I Belgium*	U United Kingdom*	U France	I Italy	I Norway		
I Sweden			<u>3.9</u>							<u>9.2</u> <u>7.4/x</u>	<u>13.1</u> <u>11.3/x</u>
I French Zone				<u>0.2</u>							<u>0.2</u>
U Denmark*		0.2		<u>2.1</u> 0	3.9	<u>3.9</u>	<u>3.9</u> 0	0.1	3.9		3.9
U Nether- lands	7.8 7.0/y				5.2			1.0			13.0 7.0/y
I Belgium*	<u>5.1</u>	<u>0.1</u>									<u>5.2</u>
U United Kingdom*	3.9			<u>3.9</u> -3.9/y	3.9		<u>3.9-y</u>	1.8	3.9		3.9
U France	7.8 3.9-y			<u>3.1</u>	5.2 3.9-y			1.8	2.6		7.8 3.9-y
I Italy						<u>1.8-x</u>					<u>1.8-x</u>
I Norway				<u>3.7</u>	<u>5.2</u> <u>3.4/x</u>			<u>0.3</u>			<u>9.2</u> <u>7.4/x</u>
Total	13.1 11.3/x	0.2	3.9	<u>13.0</u> <u>7.0/y</u>	5.2	<u>3.9</u>	<u>7.8</u> <u>3.9-v</u>	1.8-x	9.2 7.4/x		

Table 6. Bilateral and Country Maxima of Compensation
of Intra-European Balances under Payments Agreements: Intermediate position 3.
Status as of December 31, 1947

(in millions of dollars)

Debtor	Creditor									Total
	I Sweden	I French Zone	U Denmark*	U Nether- lands	I Belgium*	U United Kingdom*	U France	I Italy	I Norway	
I Sweden			3.9						7.4/x	11.3/x
I French Zone				0.2						0.2
U Denmark*		0.2			3.9	3.9		0.1	3.9	3.9
U Nether- lands	7.0/y				5.2			1.0		7.0/y
I Belgium*	5.1	0.1								5.2
U United Kingdom*	3.9			y	3.9		3.9-y	1.8	3.9	3.9
U France	3.9-y			3.1	3.9-y			1.8	2.6	3.9-y
I Italy					1.8-x					1.8-x
I Norway				3.7	3.4/x			0.3		7.4/x
Total	11.3/x	0.2	3.9	7.0/y	5.2	3.9	3.9-y	1.8 -x	7.4/x	

Table 7. Bilateral and Country Maxima of Compensation
of Intra-European Balances under Payments Agreements; Intermediate position 4.
Status as of December 31, 1947

(in millions of dollars)

Debtor	Creditor									Total
	I Sweden	I French Zone	U Denmark*	U Nether- lands	I Belgium*	U United Kingdom*	U France	I Italy	I Norway	
I Sweden			<u>3.9</u>						<u>7.4/x</u>	<u>11.3/x</u>
I French Zone				<u>0.2</u>						<u>0.2</u>
U Denmark*		0.2 0			3.9 0	<u>3.9</u>		0.1 0	3.9 0	3.9
U Nether- lands	7.0/y				5.2 0			1.0		7.0/y
I Belgium*	<u>5.1</u>	<u>0.1</u>								<u>5.2</u>
U United Kingdom*	3.9 0			y	3.9 0		<u>3.9-y</u>	1.8 0	3.9 0	3.9
U France	3.9-y			<u>3.1</u>	3.9-y 0			1.8	2.6	3.9-y
I Italy										<u>1.8-x</u>
I Norway				<u>3.7</u>	<u>3.4/x</u>			<u>0.3</u>		<u>7.4/x</u>
Total	<u>11.3/x</u>	0.2	<u>3.9</u>	<u>7.0/y</u>	5.2	<u>3.9</u>	<u>3.9-y</u>	1.8-x	<u>7.4/x</u>	

Table 8. Bilateral and Country Maxima of Compensation
of Intra-European Balances under Payments Agreements; Intermediate position 5.
Status as of December 31, 1947

(in millions of dollars)

Debtor	Creditor									Total
	I Sweden	I French Zone	U Denmark*	U Nether- lands	I Belgium*	U United Kingdom*	U France	I Italy	I Norway	
I Sweden			<u>3.9</u>						<u>7.4/x</u>	<u>11.3/x</u>
I French Zone				<u>0.2</u>						<u>0.2</u>
U Denmark*						<u>3.9</u>				<u>3.9</u>
U Nether- lands	<u>7.0/y</u>							<u>1.0</u>		<u>7.0/y</u>
I Belgium*	<u>5.1</u>	<u>0.1</u>								<u>5.2</u>
U United Kingdom*							<u>3.9-x</u>			<u>3.9</u>
U France	<u>3.9-y</u>			<u>3.1</u>				<u>1.8</u>	<u>2.6</u>	<u>3.9-y</u>
I Italy						<u>1.8-x</u>				<u>1.8-x</u>
I Norway				<u>3.7</u>	<u>3.4/x</u>			<u>0.3</u>		<u>7.4/x</u>
Total	<u>11.3/x</u>	<u>0.2</u>	<u>3.9</u>	<u>7.0/y</u>	<u>5.2</u>	<u>3.9</u>	<u>3.9-y</u>	<u>1.8-x</u>	<u>7.4/x</u>	

Table 9. Bilateral and Country Maxima of Compensation
of Intra-European Balances under Payments Agreements; Intermediate position 6.
Status as of December 31, 1947

(in millions of dollars)

Debtor	Creditor									Total
	I Sweden	I French Zone	U Denmark*	U Nether- lands	I Belgium*	U United Kingdom*	U France	I Italy	I Norway	
I Sweden			3.9						<u>7.4/x</u> 8.9	<u>11.3/x</u> 12.8
I French Zone				<u>0.2</u> <u>0.1</u>						<u>0.2</u> <u>0.1</u>
U Denmark*						3.9				3.9
U Nether- lands	7.0/y 6.9/0							1.0 0		7.0/y 6.9/0
I Belgium*	<u>5.1</u>	<u>0.1</u>								<u>5.2</u>
United Kingdom*				y 0			3.9-y 3.9-0			3.9
U France	3.9-y 3.9-0 .8			3.1				1.8 0	2.6 0	3.9-y 3.9-0
I Italy					<u>1.8-x</u> <u>0.3</u>					<u>1.8-x</u> <u>0.3</u>
I Norway				3.7	<u>3.4/x</u> <u>4.9</u>			0.3		<u>7.4/x</u> <u>8.9</u>
Total	11.3/x 12.8	0.2 0.1	3.9	7.0/y 6.9 0	5.2	3.9	3.9-y 3.9-0	1.8-x -0.3	7.4/x 8.9	58.1 45.9

Table 10. Bilateral and Country Maxima of Compensation
of Intra-European Balances under Payments Agreements; Final position, additive.
Status as of December 31, 1947

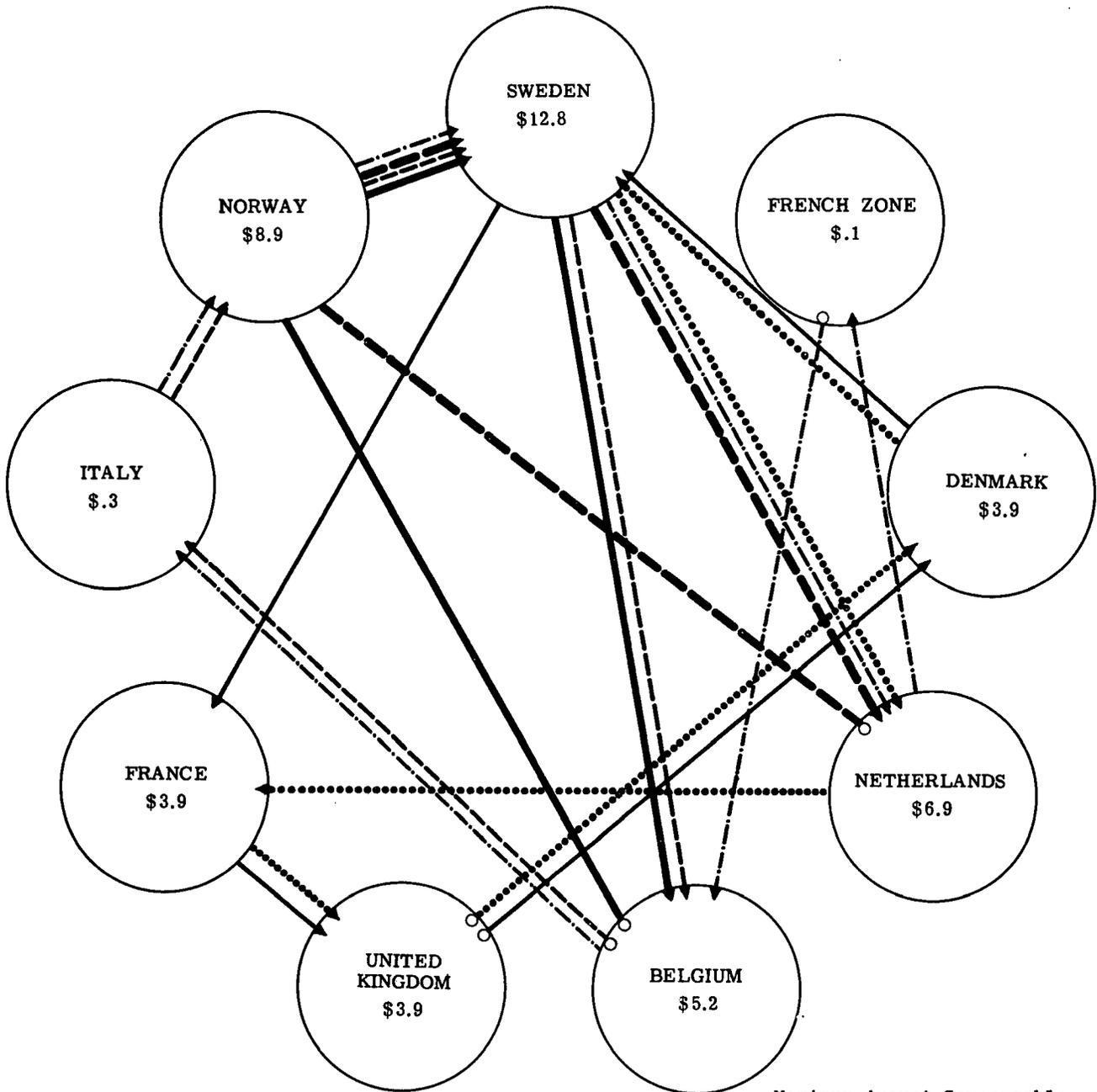
(in millions of dollars)

Creditor										
Debtor	Sweden	French Zone	Denmark	Netherlands	Belgium	United Kingdom	France	Italy	Norway	Total
Sweden			3.9						8.9	12.8
French Zone				0.1						0.1
Denmark						3.9				3.9
Netherlands	6.9									6.9
Belgium	5.1	0.1								5.2
United Kingdom							3.9			3.9
France	.8			3.1						3.9
Italy					0.3					0.3
Norway				3.7	4.9			0.3		8.9
Total	12.8	0.1	3.9	6.9	5.2	3.9	3.9	0.3	8.9	45.9

CHART I

INTRA-EUROPEAN COMPENSATION OF CREDITS
AND DEBITS ON PAYMENTS AGREEMENTS ACCOUNTS

Maximum amount compensable for balances as of 31, December 1947
(in millions of dollars)



Circuits	Value	Number of Links	Total Compensated
	\$4.9	3	\$14.7
	3.7	3	11.1
	3.1	5	15.5
	.8	4	3.2
	.2	4	.8
	.1	6	.6
		Total	\$45.9

Maximum Amount Compensable By Country	
Sweden	\$12.8
French Zone	.1
Denmark	3.9
Netherlands	6.9
Belgium	5.2
United Kingdom	3.9
France	3.9
Italy	.3
Norway	8.9
Total	\$45.9