The New International Banking *

One of the most striking developments in international finance during the 1970s has been the growth in foreign currency loans and deposits by the banks of almost all major Western countries. In this paper I document as a case study the growth of Canadian banks and analyse the nature, causes and welfare effects of this development. The conclusion will be reached that the growth of international banking was partly in response to technological innovations which enabled banks to provide valuable new services to their customers and to raise incomes for their shareholders. However, it is hypothesized that a significant part of the growth in foreign currency banking is the outcome of efforts to escape domestic taxation and regulation. As such it has resulted in social inefficiencies and waste which will be specified. The study concludes that through the payment of interest on required reserves these inefficiencies and waste can be curtailed.

I. The Growth in Foreign Banking

There are two basic definitions of foreign banking. First, it is defined as all lending and borrowing denominated in foreign currencies. This definition has the virtue of easy measurement, but is deficient in that it neglects Canadian dollar business dealings with foreigners and includes foreign currency dealings with Canadians. The latter is an important component of the analysis below and it will be shown that therefore its inclusion in the statistics is not necessarily a shortcoming. Second, foreign banking may be defined as lending and borrowing by Canadian banks' offices abroad. This definition is quite unambiguous,

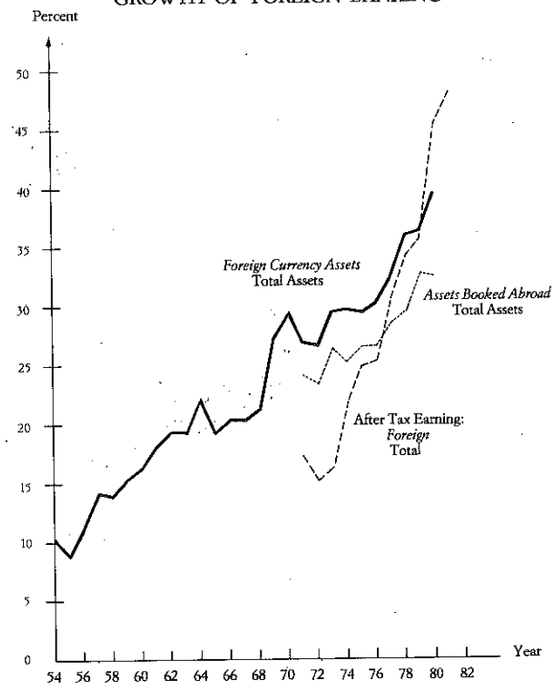
* Some of the basic data used in this study were compiled by Barney Bonekamp when he worked as my research assistant in the summer of 1982 under a grant from the B.C. Youth Summer Employment Program. I also acknowledge gratefully support from the Center for Economic Research at SFU. Philippe Callier and John Chant made valuable comments on an earlier draft.

but it has the disadvantage of including dealings with Canadians and excluding domestic business done with foreigners. As will be seen below, these types of activities are important analytically, but there exists no published information to permit them to be separated from the data on business by offices abroad.

The two definitions of foreign banking are used in Figure 1 to put its growth into perspective and to set the stage for the following analysis. As can be seen, *foreign currency* assets as a proportion of the total have risen from 10 per cent in 1954 to 39 per cent in 1981. On the other hand, *assets booked abroad* as a proportion of total assets rose from 24 per cent in 1971 to 32 per cent in 1981. The after tax earnings data shown in Figure 1 are based on the latter definition of foreign banking. They reveal that during the period foreign relative to domestic earnings rose much more rapidly than foreign to total assets. In the terminal year 1981 for which data are available, foreign profits contributed about 47

FIGURE 1

GROWTH OF FOREIGN BANKING



Source: For asset ratio: *Bank of Canada Review*, various issues.
For earnings and assets: *Bank Profits*, p. 42.

per cent of the total while assets booked abroad amounted to only 32 per cent of the total. Clearly, Canada's foreign banking and its profitability have risen sharply during the 1970s.

By any conceivable standard of comparison the data presented in Figure 1 represent remarkable developments that raise a number of questions about their nature, causes and effects. To answer these questions it is useful to consider two traditional explanations of foreign banking.[1]

First, foreign retail banking has been an historically important activity of Canadian banks. It developed during the interwar period and grew in the post-war period in the Caribbean, basing its success on the exploitation of comparative advantage in managerial and marketing knowledge developed in Canada. However, in recent years this comparative advantage has been eroded by the development of indigenous banks in those countries, partly under the umbrella of nationalistic attitudes and policies. Table 1 presents data on the regional distribution of Canadian bank branches and agencies and it shows clearly that their number is declining in the Caribbean. From a high of 197 branches in 1971-72, the number fell to 159 in 1980. Competition and regulation in these countries have, if anything, reduced the profitability of retail banking per branch, so that it is reasonable to conclude that the observed growth in foreign currency banking and profits cannot be explained by changes in this traditional type of activity.

Second, Canadian banks have historically been servicing Canadian traders, investors and tourists abroad through branches and agencies. Their comparative advantage relative to local banks stems from the intimate knowledge of Canadian customers that is developed in domestic dealings and is readily transferred abroad. The data in Table 2 document that Canada's trade defined as exports plus imports and Canada's direct investment holdings abroad did grow rapidly in dollar value in recent years. Trade grew 8.3 times and capital holdings 9.1 times. Foreign currency assets, on the other hand, grew 100 and 61 times during the periods 1954-80 and 1954-78, respectively. As a result, the foreign currency assets as a percent of trade and investment rose by almost 7 times.

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[1] International banking and Euro-currency markets have resulted in a large and growing literature. A few of the most recent and standard books on the subject are: KHOURY (1980), DONALDSON (1979), MENDELSOHN (1980), DUFEY and GIDDY (1978), JOHNSTON (1982) and KANE (1983). Canadian multinational banking has received relatively little attention except for CLENDENNING (1976), RUGMAN (1979), DEAN and GRUBEL (1976). The taxonomy of types of international banking follows GRUBEL (1977).

TABLE 1

CANADIAN BANKS ABROAD 1961-80

	1961 62	1963 64	1965 66	1967 68	1969 70	1971 72	1973 74	1974 75	1976 77	1978 79	1979 80
A. *Branches & Agencies*											
U.S.A.	10	11	14	11	11	12	10	10	12	16	23
U.K.	10	10	10	10	12	15	15	16	16	14	14
Caribbean	91	112	154	141	172	197	168	165	170	161	159
Latin America	29	28	20	22	24	15	12	11	24	15	15
Europe			2	1	3	5	8	10	15	14	13
Asia			1	1	1	1	1	6	8	11	14
Middle East					1	1	1	5	8	8	8
Total	140	161	201	186	224	246	215	223	253	239	246
minus Caribbean	49	49	47	45	52	49	47	58	83	78	87
B. *Representatives*											
U.S.A.	5	6	6	10	11	13	12	13	18	19	20
Caribbean					1	1					
Latin America			1	1	1	3	5	6	11	13	14
Europe	2	3	3	4	7	9	11	9	10	11	11
Asia		1	1	2	3	7	11	12	16	15	13
Middle East					1	1	1	2	3	4	4
Australia						1	1	2	3	3	2
Total	7	10	11	17	24	35	41	44	51	65	64
C. *Affiliates and Subsidiaries*											
U.S.A.	1	1	1	2	2	2	2	2	2	1	1
Caribbean				1	1	4	5	6	6	7	6
Europe	1	1	1	1	2	4	4	4	5	5	5
Latin America				1	1	1	2	2	2	2	2
Middle East					1	1	1	1	1	1	1
Total	2	2	2	5	7	12	14	15	16	16	15
Overall Total	149	173	214	208	255	293	270	282	320	320	325
minus Caribbean	53	61	60	66	81	91	97	111	144	152	160

Source: *Bankers' Almanac and Yearbook*, various bi-annual issues.
Notes: 1) Caribbean includes: West Indies, Bahamas, U.S. Virgin Islands, Puerto Rico, Dominican Republic, Haiti, Cuba and British Honduras.
2) Europe includes all European countries other than U.K.
3) Middle East includes Egypt.

TABLE 2

CANADA'S GROWTH IN TRADE AND DIRECT FOREIGN INVESTMENT HOLDINGS

Trade ($ billion)	1954	1960	1970	1980
Current Receipts plus Expenditures	11.1	15.6	42.7	92.9
Foreign Currency Assets of Banks	1.1	2.7	13.7	109.9
Foreign Currency Assets as Percent of Trade	9.9	17.3	32.1	118.3
Capital ($ billion)	1954	1960	1970	1978
Direct Foreign Investment Holdings	1.8	2.5	6.2	16.3
Foreign Currency Assets of Banks	1.1	2.7	13.7	67.0
Foreign Currency Assets as Percent of Trade	61.1	108.0	221.0	411.0

From the preceding analysis of traditional foreign banking it can be concluded that the growth noted in Figure 1 is due to new and different types of activities. Table 1 provides a clue about the nature of these activities by showing that in recent years Canadian banks have opened many branches, representative offices and affiliates and subsidiaries in the United States, the United Kingdom, the rest of Europe, Asia and the Middle East, tripling their total number from 53 in 1961-62 to 160 in 1979-80. Closer examination of data on these locations reveals that these branches are concentrated in financial centers that serve as capital markets for rich hinterlands, so-called "paper centers" [2] and that together constitute the world's integrated capital markets.

II. The New International Banking

Appendix Table 1 presents the foreign currency assets and liabilities of Canadian banks by broad categories. One curious aspect of the figures in this table is that there appear simultaneously on the asset and

[2] Paper centers offer only a corporate presence and there are no active markets in the location. Books are kept elsewhere and serve to evade taxes.

liabilities side "bank deposits". Those on the asset side represent deposits Canadian banks made with foreign banks, while those on the liabilities side are deposits foreign banks made with Canadian banks. The data show that these interbank deposits are not just working balances of the sort domestic banks keep with each other. They run into billions of dollars and represent in recent years an average of 45 per cent of all foreign currency assets (bottom half of column 4) and about 55 per cent of all foreign currency liabilities (column 7).

The phenomenon of these large simultaneous deposits with and by foreign banks is curious for the following reason. For the business to be profitable for Canadian banks they have to charge a mark-up between the rate they pay to depositors and what they earn on their own deposits. For example, they may have to pay 9 per cent to attract depositors and earn 10 per cent on deposits with other banks. The question is why these foreign lending and borrowing banks do not get together directly and in effect save the "commission" or mark-up earned by the Canadian banks.

It is true almost by definition that the foreign banks use Canadian banks as intermediaries because they provide services that are worth the cost. Thus, Canadian banks take deposits from smaller banks in different countries and lend out the funds to smaller banks in other countries. In addition, when there are imbalances in this fundamental brokerage business, Canadian banks make deposits with or accept deposits by other large international banks that are engaged in the same types of activities. In addition, Canadian banks offer other banks the opportunity to diversify the risk of lending while at the same time they spread their own deposits among different banks to obtain the benefits of diversified asset holdings.

In Appendix Table 2 the Canadian banks' foreign currency business with other foreign banks is broken down by the location of booking and residency of the entity doing the booking. The data show in column 9 that until 1973 Canadian banks had more deposits with foreign than they attracted from foreign banks. However, thereafter the positions reversed and they became net borrowers by ever increasing amounts. In 1981 they had borrowed from foreign banks $ 78 billion and lent to foreign banks only $ 38 billion. Comparison of columns 4 with 1 and 3 shows that most of the deposits with foreign banks were booked in Canada. On the other hand, in recent years half of the liabilities were booked abroad, as can be seen from columns 5, 7 and 8. The data imply that during the 1970s Canadian banks through their

offices abroad have tended to attract deposits which they relent to foreign banks through the books of their home offices, but that the amount relent in this manner became a continuously smaller fraction of the sums borrowed. Where did the excess of borrowing over lending to foreign banks go?

Appendix Table 3 shows the size of foreign currency assets and liabilities booked by other than banks. These assets consists overwhelmingly of "other loans" (see column 2 to Appendix Table 1) and represent to a large extent the loans made through the Euro-currency consortia to foreign governments and their agencies and private corporations, including Canadian. As can be seen from Table 3 in column 11, after 1976 the excess of such loans over non-bank deposit liabilities grew substantially every year. A comparison of the last columns in Appendix Tables 2 and 3 reveals that over two thirds of the growth in the excess of liabilities over assets in dealings with banks in recent years were matched by the growth in the excess of assets over liabilities in dealings with non-banks. This implies that Canadian banks in their foreign currency denominated business have become increasingly intermediaries between foreign banks as net lenders and others as net borrowers.

Appendix Table 3 in column 3 shows the magnitude of bank loans denominated in foreign currencies taken out by Canadian residents. As can be seen, these loans have risen steadily in recent years and reached $ 25.3 billion, or 23 per cent of all non-bank foreign currency loans in 1981. The foreign currency deposits by non-bank Canadian residents (column 8) do not show a trend, fluctuating around $ 9 - $ 11 billion, with a sharp drop to $ 6.8 billion in 1981.

The foreign currency deposits and loans by Canadians must be seen in the perspective of the overall bank business carried out in Canadian dollars. Thus, Appendix Table 4 reveals that after 1976 foreign currency loans to Canadians have become an ever growing percentage of regular Canadian dollar loans, rising from 6.3 per cent in 1976 to 21.1 per cent in 1981. On the other hand, foreign currency deposits by Canadians have remained around 8 per cent of total Canadian dollar deposits, with 1978 at 10.9 per cent above and 1981 at 4 per cent below the average.

The data in Appendix Tables 3 and 4 suggest that a significant and growing share of the foreign currency business of Canadian banks involves dealing with Canadian residents as both lenders and borrowers. In addition, it involves obtaining foreign currency deposits from foreign banks and lending them to Canadian residents.

In sum, the data in Appendix Tables 1-4 suggest that there has taken place a rapid expansion in foreign currency banking that may be called the new international banking. It involves Canadian banks as participants in a global interbank market and capital market as intermediaries, channelling funds across borders and offering opportunities for risk diversification. The second part of the new international banking involves Canadian residents as depositors and borrowers with the banks serving their traditional domestic intermediation role, but also providing a conduit for foreign currencies funds from foreigners to Canadians. The welfare effects of the growth of these types of the new international banking will be examined next.

III. Welfare Effects of the New International Banking

The welfare effects of the growth of the global interbank and capital market have been studied widely.[3] The benefits are increased allocative efficiency of capital throughout the world.[4] Through diversified loan portfolios and consortia international banks have been able to channel large loans to a wide range of borrowers at a scale that would have been unthinkable a decade earlier. The new international banking has been credited with the efficient redistribution of OPEC countries' balance of payments surpluses to deficit countries plagued by high costs of oil imports, thus preventing the development of great hardships for deficit countries and of a serious shrinkage of trade or the erection of trade barriers.

The welfare costs of this banking appear to consist of currency instability as large amounts of volatile funds seek to profit from expected exchange rate changes. In addition, there exists the threat of a global liquidity crisis and default risks. While it may be too early to know with certainty the magnitude of these latter risks, there is growing evidence that cooperation among banks and the assistance of governments and international organizations can prevent a major collapse of the system.

[3] See the literature cited in footnote 1.

[4] KINDLEBERGER (1974) has suggested that national central capital markets traditionally have served to break the monopoly of regional lenders and borrowers by bringing them together in a broad, competitive market. By analogy international centers reduce the market strength of national lenders and borrowers.

The main purpose of this paper is to call attention to two new and different sources of welfare costs associated with the new international banking. These costs have their origin in the fact that international banking represents an avenue of escape from domestic regulation and taxation.

The Escape from Regulation and Taxation

The literature on Euro-currency banking is in almost total agreement that the escape from domestic regulation and taxation has been a major driving force behind the growth of this business. This escape has contributed greatly to the reduction in the cost of intermediation so that the new international banking can pay higher interest rates on deposits and charge lower rates on loans than they can on domestic business.[5] The large average size of loans and deposits and the absence of costly retail banking services in Euro-currency markets also is responsible for lower operating costs. Unfortunately, it has not been possible to assess the relative importance of these two sources of lower foreign bank operations. However, we may consider two arguments in support of the proposition that the escape from regulation and taxation has been the major of the two causes of the new international banking.

First, the drastic reduction in the cost of communications and travel that has taken place in recent years would have made possible the global integration of national capital markets and the formation of loan consortia without the need for banks to have a physical presence abroad or even to establish separate corporate entities at home for foreign operations. In the United States the independent banks in different states are most effectively integrated into a national capital market without having offices accepting deposits and making loans in the major financial centers such as New York, Chicago and San Francisco.

Second, the seemingly minor cost of reserve requirements represents a really significant tax on the value-added of the banks' intermediation activity, as may be seen from the following analysis.

[5] See especially DUFEY and GIDDY (1978) and JOHNSTON (1982). The latter states: "...The necessary conditions for the development of a London market for Euro-dollar bank deposits and loans is that the sum of borrowers', depositors' and intermediaries' transactions costs should be less for at least some transactors in London than in New York". (p. 107).

Required Reserves and Taxation of Value-Added

Consider a simple model of a bank where value-added in the absence of reserve requirements V is equal to income from A dollars earning assets yielding r per cent minus the cost of servicing D dollars of deposits at the interest rate i.

$$V = Ar - Di \tag{1}$$

In the presence of reserve requirements of q per cent on deposits the earnings assets are reduced to

$$A' = D(1-q) \tag{2}$$

and value added becomes

$$V' = A'r - Di \tag{3}$$

which after substitution and division by D gives value-added per unit of deposit with reserve requirements:

$$v' = r - qr - i \tag{4}$$

From equation (1) and under the simplifying assumption that A=D, in the absence of reserve requirements, the value added per unit of deposit is

$$v = r - i \tag{5}$$

Defining the effective rate of taxation of value-added implicit in the reserve requirement as [6]

$$t = (v - v')/v' \tag{6}$$

after substitution it becomes

$$t = rq/(r - rq - i) \tag{7}$$

In this simple model, if r = .10, i = .08 and q = .04, t = .25 or a tax rate of 25 per cent. In absolute values, a $ 100 deposit costs $ 8 in

[6] This particular formulation was chosen with the taxed value-added as a base in order to show the percentage gain available from escaping the taxation. The reason will become obvious below where it is assumed that the domestic value-added assures a normal return to capital.

It should be noted that the net gain of operating in foreign currencies in turn is constrained by the spreads prevailing for them, which in turn are determined by the respective domestic taxation. Furthermore, competition among international banks has tended to reduce spreads in Euro-currency banking such that they yield only normal returns. The resultant large interest advantages accruing to lenders and borrowers abroad represent essentially a disequilibrium situation which is slowly being eliminated by the much faster growth of Euro-currency relative to domestic banking for banks from Canada and other countries. In the discussion in the text these arguments were omitted to keep the analysis manageable and concentrating on the main point.

interest. In the absence of the reserve requirement it brings $ 10 as income for a value-added of $ 2. In the presence of the reserve requirement income is only $ 9.60 and value-added $ 1.60. The value-added per hundred dollar deposit therefore in the absence of reserve requirements is $ .40 in excess of the value-added in the presence of the reserves requirement $ 1.60. This means the tax a bank can escape by moving abroad is 25 per cent.

It is interesting to note that if *profits* constitute 10 per cent of the value-added, or $ .16 per $ 100 of deposits under reserve requirements, and if remaining components of value-added are the same in the presence and absence of these requirements, then escaping the reserve requirement raises profits from $ .16 to $ .56 or by 350 per cent. We may also note that the rate of taxation of either value-added or profits is an increasing function of the level of interest rates, given the reserve requirement q and the spread of interest rates c = r−i. This is intuitively obvious, but also follows from differentiating equation 7 with the result that $dt/dr = cq/(c-rq)^2 > 0$.

In support of the preceding theoretical analysis, I present Table 3 which contains evidence assembled for a 1981 Canadian parliamentary committe charged with the investigation of bank profits. It shows in the top half for the years 1977-81 the annual average prime rate, which reflects the income from short term bank loans to the banks' best clients. It is equivalent to r in the above example. The table also shows the average rate of interest paid by the banks on 90 days deposits, which is i in the above example. The difference between the two rates is shown in row three and is equal to v in the example. The implicit reserve cost is shown in row four, while the value-added after tax appears (v') in the last row. Using the definition of the implicit rate of taxation in equation (6), the value for 1981 is (1.10-.38)/(.38) = 1.89, or 189 per cent. Other years and types of loan-deposit business shown in Table 3 produce similar results.

Locational and Currency Diversion Costs

The preceding analysis of the magnitude of the effective rate of taxation of domestic value-added in banking brought about by statutory reserve requirements establishes a strong presumption, but does not prove conclusively, that a domestic distortion is responsible for a large part of the observed growth of Canadian international banking in the

TABLE 3

SEGMENTED BANK DOMESTIC INTEREST RATE SPREADS

	Prime-Related Years ended October 31				
	1977	1978	1979	1980	1981
Average Prime Rate	8.70%	9.14%	12.31%	14.08%	19.08%
Average 90-Day Deposit Rate	7.73%	8.25%	11.47%	12.64%	17.98%
Difference	0.97%	0.89%	0.84%	1.44%	1.10%
Reserve Cost [1]	(0.31%)	(0.33%)	(0.46%)	(0.51%)	(0.72%)
Net Spread	0.66%	0.56%	0.38%	0.93%	0.38%
	Consumer Years ended October 31				
	1977	1978	1979	1980	1981
Average Yield on Consumer Assets [2]	11.55%	11.24%	11.77%	12.59%	14.26%
Average Non-Chequable Savings Deposit Rate	6.53%	6.50%	9.63%	11.19%	15.13%
Difference	5.22%	4.74%	2.14%	1.40%	(0.87%)
Reserve Cost [1]	(0.25%)	(0.26%)	(0.39%)	(0.45%)	(0.61%)
Net Spread	4.97%	4.48%	1.75%	0.95%	(1.48%)

Source: *Bank of Canada Review* and ROYAL BANK OF CANADA, *Bank Profits* (1982).
[1] Cost of maintaining reserves with the Bank of Canada is based on the interest "give-up" on the 4% reserve required (under the old Bank Act) on these deposits. The reserve has been calculated based on the average 90-day deposit rate for prime-related and the average savings deposit rate for consumers.
[2] Royal Bank of Canada includes personal installment loans, credit card balance and mortgages.

post-war years. This distortion has resulted in the condition that there is a wedge between private and social benefits of foreign banking. There is no doubt that this new activity is privately profitable, but to the extent that it has been motivated by the taxation, it has resulted in social costs in the form of locational and currency diversion of lending and borrowing activities.[7]

The *locational diversion* arises as Canadian banks offer domestic and foreign customers special incentives to book their business abroad. Such foreign locations cause all parties to incur extra costs of travel and communication. It is highly likely that in the absence of the tax Canadian banks would have fewer branches and other offices abroad

[7] A general theory of the cost of such locational diversion is in GRUBEL (1982).

and that therefore they would have lower operating costs. In cases where business is simply carried on at headquarters in Canada through the books of largely fictitious branches in so-called "paper" centers, such as the Bahamas, there are wasteful book-keeping and legal expenses.

The *currency diversion* costs arise as lenders and borrowers are induced to denominate their business in foreign currencies which in the absence of the tax they would have denominated in Canadian dollars. The result is a greater amount of risk taking by some wealthholders and of forward exchange transactions to cover exchange risk by others than would exist in the absence of minimum reserve requirements.

In addition to these costs of locational and currency diversion, there are costs due to induced instability and growth of substitutes for Canadian dollar credit and demand deposits. Above we noted that Canadians have taken out increasingly large amounts of foreign currency loans which in 1981 came to 21.1 per cent of domestic currency loans. There are students of money and banking who believe that the proper management of aggregate demand should focus on managing the growth of credit. If this view is correct and foreign and domestic currency credit are close substitutes, then the growth in foreign currency credit complicates and adds to the cost of creating a stable credit environment in Canada.

By analogy, as Appendix Table 4 shows , foreign currency deposits by Canadians have averaged 9 per cent of domestic currency deposits in recent years and they have been very unstable. The Bank of Canada acknowledges that these deposits are close substitutes for domestic currency deposits by including them in the measurement of M2, along with fixed time deposits. Therefore, these foreign currency deposits influence the level and stability of the liquidity of Canadian wealthholders and complicate the task of the Bank of Canada to assure the stable growth of this liquidity.

Unfortunately, it is not possible to measure the cost of locational and currency diversion and of monetary instability caused by the new international banking, just as it is not possible to measure the benefits it has created through the global integration of capital markets and the narrowing of spreads between lending and borrowing rates for many customers. It should be mentioned, though, that just as in the case of economic integration, it is theoretically possible for the costs of diversion to exceed the efficiency gains from the partial movement to untaxed banking.

IV. Policy Implications - Interest Payments on Required Reserves

Whatever may be in practice the size of the social cost created by the discriminatory taxation of domestic and foreign banking, it seems reasonable to consider available methods for eliminating the discrimination. If the cost of such elimination is low or has other benefits, it is worth undertaking even if the costs of discriminatory policies themselves are low.

The first best solution to the problem clearly is the elimination of domestic reserve requirements. There are economists in favour of this policy in order to improve the operation of the domestic monetary system.[8] However, such a step remains highly controversial and risky because of the largely unknown consequences. It does not appear to be a realistic approach to the problems of the new international banking discussed here.

The second approach involves extending reserve requirements to all international activities of Canadian banks. One step in this direction has already been undertaken in the Bank Act of 1980 through the imposition of reserve requirements on foreign currency deposits in Canada held by Canadian residents. This policy can easily be circumvented by simply shifting these deposits to foreign subsidiaries and there are good reasons for believing that it will fail in its aim to curb the new international banking.

There have been no attempts to impose reserve requirements on foreign currency deposits in Canada held by foreigners. As Germany had experienced with such a policy, it simply leads to the flight of Euro-currency business from the country. Similarly, there have been no attempts to impose reserve requirements on deposits of Canadian banks abroad. Such a policy involves an extension of Canadian jurisdiction into foreign countries that would probably be resented and would be difficult to enforce. Moreover, it would simply put Canadian banks at a disadvantage relative to other banks and in all likelihood would force them to terminate their participation in the new international banking. U.S. government attempts to reach international agreement on the universal imposition of reserve requirements on foreign currency

[8] See HAYEK (1976) and HALL (1982). For a general review of the literature on private versus public money supply systems see GRUBEL (forthcoming).

deposits failed in 1980.[9] Incentives for individual, perhaps developing countries, to stay out of such an agreement are too large and if they did, locational diversion effects would become even larger.

The most rational solution to the problems raised by the new international banking involves the payment of interest on required reserves of chartered banks. It can readily be seen that under these conditions in the model above the taxation implicit in the reserve requirement would be zero or dramatically lowered, depending on the relationship between the interest rate on the reserves and investments of equal risk and liquidity. This simple policy would therefore eliminate the artificial wedge between the private and social profitability of foreign currency banking, resulting in a socially optimal level of international banking by Canadian banks. The great advantage of this policy over any other is that it can be introduced unilaterally and without the need for international agreements. In addition, Canadian banks would not oppose such a policy and some theorists have suggested that it would increase the effectiveness of monetary policy.[10]

The biggest problem associated with the proposed payment of interest on required reserves is its cost, which occurs as reduced profits of the Bank of Canada and, since they are part of general government revenue, lower tax income. At the end of 1981 the deposits of the chartered Banks with the Bank of Canada came to $ 5.3 billion, when the yield on 3-month treasury bills was about 15 per cent. Assuming that the interest rate on reserves was set at 80 per cent of treasury bill yields, the rate would have been 12 per cent and the cost for the year about $ 636 million. In that year federal government expenditures were $ 71.5 billion and the deficit was $ 7.5 billion, making the proposed tax reduction equal to .89 per cent of expenditures and 8.5 per cent of the deficit. The short run impact costs of the reduction would be reduced by temporarily increased bank profits, which taxed at the 50 per cent corporate tax rate would reduce the total revenue loss by one half. In the longer run, the excess bank profits and resultant tax revenues would be eliminated by competition through the narrowing of lending and borrowing rate spreads, but the reduced incentives to foreign banking

[9] See JEC hearings.

[10] See TOBIN (1960) and MITCHELL (1982). We should also note that the same incentives that reserve requirements give to foreign banking they also provide for the development of substitutes for demand deposits. Interest payments on reserves would thus also cut sharply the incentives to develop such substitutes and might result in a great stability of other monetary aggregates such as M2 and M3 and in the velocity of M1.

would result in the return of bank employees and capital from abroad and into the tax jurisdiction of the Canadian government. Lower interest rates would also reduce the loss of revenue.

There exists a political cost for any government which proposes to give a windfall gain to Canadian banks through the payment of interest on required reserves.[11] This cost can be minimized by the gradual phasing in of the payments at such a rate that the narrowing of spreads is likely to keep pace and profit rates remain normal. In addition, a publicity campaign documenting the narrowing of the spreads and resultant benefits to consumers should help lower the political cost of the policy.

It should be noted that the payment of interest on required reserves does not reduce incentives for Canadian banks to continue operating internationally in their traditional business as well as the new international banking that involves genuine economies and comparative advantage. The only and intended effect would be the elimination of inefficient incentives for the *overexpansion* of foreign currency lending and borrowing.

V. Summary and Conclusions

There are good taxes and bad taxes. Taxes are bad if taxpayers can avoid them through the incurrence of private costs that constitute social waste. Through the exogenous revolution in communications and travel technology in recent years the tax implicit in minimum reserve requirements for chartered banks in Canada has become a bad tax. The new international banking represents an innovation that permits tax evasion at great private and social cost. It has become akin to the tax on ships based on the length of the keel which Venice has imposed in the 15th century. The result of this bad tax had been changes in ship design which made them shorter and wider. While these changes saved taxes and were privately profitable they raised the social cost of transportation as ships took longer in transit, they became less sea-worthy and fell prey to pirates more readily.[12]

[11] In 1981 the government was required to launch an inquiry into banking by NDP claims of excessive profits. *Bank Profits* (1982) exonerated the banks from wrong-doing but bank profits are likely to remain a politically sensitive issue to be exploited by populist politicians at every opportunity.

The analysis of the growth of Canadian foreign currency banking in recent years showed that it exceeded by far the growth in its traditional, efficient determinants. The new international banking was shown to have been encouraged by very heavy rates of taxation implicit in minimum reserve requirements. From this it was concluded that it probably has grown much more than efficient participation in global integrated interbank and capital markets would have warranted. The result has been the development of locational and currency diversion costs, which are likely to be large and to be continuing to grow in the future.

The policy conclusion from the analysis of these costs is that interest should be paid on required chartered bank reserves. This policy would induce return of the new international banking to an efficient level at low financial and political costs, promising to lead therefore to valuable net social gains. While the preceding analysis was formulated in the context of Canadian banks, there is little doubt that analogous conditions hold for banks in most industrial countries and that interest payments on reserves would serve them well also and benefit the world as a whole.

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[12] For a price-theoretic analysis of adjustments to taxation see BARZEL (1976).

APPENDIX

TABLE 1

ASSET AND LIABILITIES BY TYPE, CANADIAN BANKS FOREIGN CURRENCIES

	Assets						Liabilities				
	(1) Call Loans	(2) Other Loans	(3) Secu-rities	(4) Dep. with Bks.	(5) Other Assets	(6) Total Assets	(7) Dep. of Bks.	(8) Other Deps.	(9) Other Liab.	(10) Total Liab.	(11) Net F.C.A.
1964	1.0	2.0	.6	1.6		5.2	.9	4.3		5.2	
65	.7	2.3	.6	1.4		5.0	1.3	3.8		5.1	– .1
66	.9	2.6	.6	1.5		5.6	1.3	4.3		5.6	
67	.7	2.7	.8	2.3		6.5	1.5	4.8		6.3	.2
68	.7	2.9	.8	3.4		7.8	2.1	5.3		7.4	.4
69	.7	3.8	.9	6.2		11.6	3.2	8.4		11.6	0
70	.6	4.7	.7	7.6	.1	13.7	4.9	8.6		13.5	.2
71	.7	5.3	.5	7.7	.3	14.5	6.4	7.8		14.2	.3
72	1.0	5.5	.6	9.5	0	16.6	8.4	8.6		17.0	– .4
73	.5	7.1	.5	14.8	.4	23.3	13.3	11.3		24.6	–1.3
74	.5	11.7	.7	14.9	.7	28.5	15.2	14.2		29.4	– .9
75	.4	14.4	.6	15.5	.3	31.2	16.3	15.1	.1	31.5	– .3
76	.5	16.5	.6	19.3	.7	37.6	20.8	17.5	0	38.3	– .7
77	.9	21.8	2.2	21.8	1.0	47.7	27.4	21.2	.1	48.7	–1.0
78	1.1	30.0	5.5	28.6	1.8	67.0	37.8	30.6	.3	68.7	–1.7
79	1.0	37.4	5.8	35.3	2.4	81.9	48.3	36.6	.3	85.2	–3.3
80	1.0	54.9	5.8	45.4	2.9	110.0	65.4	45.8	1.8	113.0	–3.0
81	1.0	94.0	6.5	38.2	7.7	147.4	78.4	65.6	8.7	152.7	–5.3
	Percentages of Total Assets						Percentages of Total Liabilities				
64	19.2	38.5	11.5	30.8		100	17.3	82.7		100	0
65	14.0	46.0	12.0	28.0		100	25.4	74.6		100	0
66	16.1	46.4	10.7	26.8		100	23.2	76.8		100	0
67	10.8	41.5	12.3	35.4		100	23.8	76.2		100	3.2
68	9.0	37.2	10.3	43.5		100	28.3	71.7		100	5.4
69	6.0	32.8	7.8	53.4		100	27.6	72.4		100	0
70	4.4	34.2	5.1	54.6	.7	100	36.3	63.7		100	1.5
71	4.8	36.6	3.4	53.1	2.1	100	45.1	54.9		100	2.1
72	6.0	33.1	3.6	57.3		100	49.4	50.6		100	–2.4
73	2.1	30.5	2.1	63.6	1.7	100	54.1	45.9		100	–5.3
74	1.8	41.0	2.5	52.2	2.5	100	52.0	48.0		100	–2.7
75	1.3	46.2	1.9	49.6	1.0	100	51.7	47.9	.3	100	–1.0
76	1.3	43.9	1.6	51.3	1.9	100	54.3	45.7		100	–1.8
77	1.9	45.7	4.6	45.7	2.1	100	56.3	43.5	.2	100	–2.1
78	1.6	44.8	8.2	42.7	2.7	100	55.0	44.5	.4	100	–2.5
79	1.2	45.8	7.1	43.0	2.9	100	56.7	43.0	.4	100	–3.9
80	0.9	49.9	5.3	41.3	2.6	100	57.8	40.5	1.6	100	–2.7
81	0.7	63.8	4.4	25.9	5.2	100	51.3	43.0	5.7	100	–3.5

Source: *Bank of Canada Review*, various issues, Table 15 and CLENDENNING (1976).
Note: Percentages may not total 100 because of rounding.

TABLE 2

FOREIGN CURRENCY DEPOSITS WITH AND BY FOREIGN BANKS BY BOOKING LOCATION AND RESIDENCE

	Assets = Deposits with Banks $ billion				*Liabilities* = Deposits of Banks $ billion				
	Booked in Canada		Booked Abroad	Total	Booked in Canada		Booked Abroad	Total	Net Position
	Total With Non-Residents				Total With Non-Residents				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1966	1.5	1.5	0	1.5	1.1	1.1	.2	1.3	.2
67	2.3	2.3	0	2.3	1.1	1.1	.4	1.5	.8
68	2.6	2.6	.7	3.3	1.5	1.5	.6	2.1	1.2
69	6.2	6.2	.2	6.4	2.3	2.3	.9	3.2	3.2
70	7.1	7.1	.4	7.5	3.4	3.4	1.5	4.9	3.6
71	6.2	6.2	1.5	7.7	4.0	4.0	2.4	6.4	1.3
72	7.3	7.3	2.3	9.5	5.7	5.6	2.7	8.4	1.1
73	10.7	10.7	4.1	14.8	8.4	8.4	4.9	13.3	1.5
74	11.9	11.6	3.0	14.9	7.5	7.2	7.8	15.3	– .4
75	11.4	11.2	4.1	15.5	7.2	7.0	9.1	16.3	– .8
76	14.0	13.7	5.3	19.3	9.4	9.1	11.4	20.8	– 1.5
77	15.7	15.3	6.1	21.8	12.6	12.2	14.8	27.4	– 5.6
78	21.1	20.4	7.5	28.6	15.8	15.0	22.0	37.8	– 9.2
79	23.8	23.3	11.4	35.2	28.3	18.8	20.0	48.3	–13.1
80	34.8	33.0	10.6	45.4	30.1	28.7	35.2	65.3	–19.9
81	35.1	33.1	3.1	38.2	45.6	43.5	32.8	78.4	–40.2

Source: *Bank of Canada Review*, various issues, Tables 15 and 16.
Note: (4) = (1) + (3)
(8) = (5) + (7).

TABLE 3

NON BANK LENDING AND BORROWING IN FOREIGN CURRENCIES

	Assets – Other than Bank Deposits					Liabilities – Other than Bank Deposits					
	(1) Booked in Canada		(3)	(4)	(5)	(6) Booked in Canada		(8)	(9)	(10)	(11)
	Total	(2) With Non Res.	Res.	Booked Abroad	Total	Total	(7) With Non Res.	Res.	Booked Abroad	Total	Net Pos.
1966	1.6	.5	1.0	2.5	4.1	2.9	1.3	1.6	1.4	4.3	– .2
67	1.3	.4	.9	2.9	4.2	3.4	1.4	2.0	1.4	4.8	– .6
68	1.4	.5	.9	3.1	4.5	3.4	1.4	2.0	1.8	5.2	– .7
69	1.6	.6	1.0	3.6	5.2	5.6	2.3	3.3	2.8	8.4	– 3.2
70	1.8	.6	1.2	4.4	6.2	5.4	2.2	3.2	3.2	8.6	– 2.4
71	2.0	.8	1.1	4.8	6.8	4.0	2.3	1.7	3.7	7.7	– .9
72	2.0	.9	1.0	5.1	7.1	4.1	2.5	1.6	4.5	8.6	– 1.5
73	2.4	1.2	1.2	6.1	8.5	6.1	3.1	3.0	5.2	11.3	– 2.8
74	3.9	1.8	2.1	9.7	13.6	9.2	4.4	4.8	5.0	14.2	– .6
75	5.2	2.4	2.8	10.5	15.7	9.7	5.3	4.4	5.5	15.2	.5
76	6.4	3.3	3.1	11.9	18.3	11.8	5.6	6.2	5.8	17.6	.7
77	9.8	4.1	5.7	16.1	25.9	13.6	6.1	7.5	7.7	21.3	4.6
78	16.1	4.9	11.2	22.2	38.3	22.9	11.7	11.2	8.0	30.9	7.4
79	17.5	5.9	11.6	29.1	46.6	25.7	15.8	9.9	11.1	36.8	9.8
80	22.8	8.6	14.2	41.7	64.5	30.6	19.8	10.8	17.1	47.7	16.8
81	35.9	10.6	25.3	73.2	109.1	32.1	25.3	6.8	42.2	74.3	34.8

Source: *Bank of Canada Review*, various issues, Tables 15 and 16.
Columns: 1: B3502; 2: B3509; 3: B3506; 4: (5)-(1); 5: B1800 - B1804; 6: B3602; 7: B3609; 8: B3606; 9: (10)-(6); 10: B1808; 11: (5)-(10).

Note: (5) = (1) + (4)
(1) = (2) + (3)
(10) = (6) + (9)
(6) = (7) + (8)
Totals may not equal sums precisely because of rounding.

TABLE 4

LOANS AND DEPOSITS OF BANKS DEALING WITH RESIDENTS

	(1) Can $ Loans	(2) Frgn Curr. Loans	(3) $\frac{(2)}{(1)} \cdot 100$	(4) Can $ Deposits	(5) Frgn Curr. Deposits	(6) $\frac{(5)}{(4)} \cdot 100$
1966	10.5	1.0	9.5	20.0	1.6	8.0
67	11.8	.9	7.6	22.7	2.0	8.8
68	13.3	.8	6.0	26.4	2.0	7.7
69	14.9	1.1	7.4	27.3	3.3	12.1
70	15.7	1.2	7.6	29.9	3.2	10.7
71	19.3	1.1	5.7	35.6	1.7	4.8
72	23.4	1.0	4.3	40.7	1.6	3.9
73	29.4	1.2	4.1	48.6	3.0	6.2
74	35.0	2.1	6.0	58.8	4.8	8.2
75	40.4	2.8	6.9	66.9	4.4	6.6
76	49.2	3.1	6.3	76.8	6.2	8.1
77	55.3	5.7	10.3	88.7	7.5	8.5
78	62.4	11.2	17.9	103.1	11.2	10.9
79	77.9	11.6	14.9	120.7	9.9	8.2
80	93.3	14.2	15.2	134.1	10.8	8.1
81	120.1	25.3	21.1	168.1	6.8	4.0

Source: *Bank of Canada Review*, various issues, Tables 6 and 7.
Column: 1 = B627; 4 = B651; 2 = B3506; 5 = B3606.

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