

**"The Increasing Importance of Non-traditional Activities in the  
Revenues of Canadian Banks"**

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## I – Introduction

In recent years, an increasing portion of bank income has been generated through non-traditional activities. The common feature of these non-traditional activities is that they generate fees or non-interest income. For instance, the fee income has risen from \$1.82 billion in 1981 to \$7.60 billion in 1991 and to \$26.93 billion in 1999. Various researchers have recognized this trend:

“There are some reasons for potential concern with regard to the change currently underway in the structure of sources of income, characterized by increasing reliance on non-interest revenues from commissions and fees on fiduciary and underwriting business, service charges, and bond and foreign exchange trading”. (OECD, 1987)

“Another important trend in the operations of Canadian banks in recent years, in line with developments in other major banks worldwide, has been the shift towards off-balance-sheet activities and fee income.” (C. Freedman, 1998)

“Canadian banks will very likely offer all the traditional banking services in Canada, but may choose quite different strategic paths in providing non-banking financial services.” (C. Freedman & C. Goodlet, 1998)

This past decade has witnessed the spreading of a vast array of new financial instruments and services. Financial innovation has affected practically all segments of banking business. A more recent and potentially important change concerns banks' entry into numerous financial services which by virtue of law or tradition do not belong to “banking” in a narrow sense. A growing number of banks are involved in activities quite outside the traditional sphere of commercial banking or even of investment banking. The most notable example is provided by banks underwriting insurance, while other banks have moved into other service activities such as travel agency or estate agency. Such activities are usually conducted through the medium of affiliated or subsidiary companies.

Banks have become increasingly aware of the profit potentials arising from the packaging of certain services targeted to specific market segments or categories of customers. More generally, a conscious effort has been undertaken to adopt more aggressive marketing policies to improve the pricing of their products, to seek new profitable business areas and to generate additional new sources of income through commissions and fees from a large variety of bank and bank-related services. The move towards new business areas can be highly beneficial in permitting greater diversification of earning sources and a broadening of the range of customers.

This paper highlights the importance of this increasing portion of non-traditional activities in the chartered bank's source of income. The first part of the paper discusses the factors contributing to the change in the income behavior. The second part reviews the related literature. [Although the literature on this subject is very narrow]. The third part offers an empirical analysis of the role of the traditional and non-traditional activities in determining the source of income.

## II – Factors contributing to the change of the income behavior of chartered banks

Changes in consumer demand, technology, the competitive environment, change in regulations and changes in household financial portfolio behavior are all factors contributing to a blurring of the distinctive characteristics of different lines of business in the financial service area towards off-balance-sheet activities. That is to say, there has been a movement in favor of the non-traditional fee income activities generating non-interest income, with the latter including:

- Investment banking and other securities fees
- Service charges on deposits and other retail charges
- Foreign exchange fees
- Credit fees
- Credit card services
- Trust and mutual funds fees

### THE LINK BETWEEN THE CHANGE IN TECHNOLOGY AND THE STRUCTURE OF THE NEW

#### SOURCES OF INCOME

The revolution in the technology of banking has two important aspects.

First, it has lowered the cost of banking operations. Micro-electronic technology has cheapened many traditional banking operations. In particular, it affects the time of many routine clerical tasks that are now computerized, as well as the storage and retrieval of information by making these tasks more efficient and less costly. It has also lowered the labour cost of recruiting professional staff.

An interesting study by Freedman and Goodlet (1998) has mentioned this change:

"A generation ago, most household transactions were carried out in the bank branch, with the teller taking in deposits, paying out cash, and making bill payments, and with a bank officer making loans based on an assessment of the credit worthiness of the potential borrower. "

The new ways to substitute the branches are the cash dispensers, automated teller machines and banking by phone or by Internet. The application of the new technology, as regards to the sharing of automated networks and the possible emergence of home banking facilities, has opened new opportunities for the rekindling of the provision of retail services at different prices with very low associated costs. Also the electronic processing of transactions has increased the efficiency of the backroom operations, allowing them to increase the volume of transactions without increasing the costs. Even a large financial institution can obtain scale economies by merging the backroom activities or by completely using a third party. A Deloitte & Touche study (1995), cited by Freedman and Goodlet (1998), has concluded that banks in different countries will contract out backroom operations to a different extent. Would banks now begin to work on a common system to develop and support internal risk management, i.e., risk modeling, information systems for management, or even with banking globalization, to develop a common industry software to support certain activities? Moreover, will there be a greater standardization or harmonization to support the delivery of products to the customer at a lower cost or with improved quality? (Freedman & Goodlet, 1998)

Second, technology has made it possible for the development of a variety of new products and services with more fees and commissions. Using Internet banking, customers can carry out many types of financial transactions from their homes

twenty-four hours a day. This service channel has not been limited to traditional bank transactions such as transferring funds between accounts or paying bills. New services have been developed in order to allow the customer to search for the highest interest rate on term deposits, to search for the lowest mortgage rate, to choose and invest in mutual funds or equities, and to track the performance of different investments. Also using telephone banking, with a Personal Identification Number, customers can perform transactions 24 hours a day. This service has required only minimal investment in infrastructure by the bank, since it uses existing telephone networks.

An important technological change was the development and spread of the Automated Bank Machines (ABM) or the Automated Teller Machine (ATM), which permitted payments of cash to the customer without access to a teller. An increasing number of functions gradually became available on the ABM, such as depositing, bill paying, transferring funds between accounts, and even investing in certain types of mutual funds. In recent years, customers have received much more in terms of easy access to their accounts; they can access their accounts from anywhere without going to their branches and at anytime twenty-four hours a day. The cost of this new banking technology has been passed on to the customers through extra fees and commissions.

With the recent technological changes, new instruments have been developed and this has led to the restructuring of financial components into a variety of new products, and the delivery of the separate services by different entities. For example, a foreign currency bonds issue by a Canadian resident used to involve an inseparable link between raising funds and taking on foreign exchange exposure.

With the development of the foreign currency swap market, the two elements can now be separated in a very efficient way. Similarly, the use of swap markets or repo markets now allows an investor holding a foreign bond to unbundle foreign exchange risk and interest rate risk.

Another interesting area of development is electronic money and wireless commerce. This form of computer cyber-money serves as on-line medium of exchange. The stored-value card (SVC), or (smart) card, provides a very close substitute for bank notes and coins for small-value face-to-face payments.

A development that has become more important is network money or funds transfer. This involves funds (i.e., the liability of an issuer) held on computer software that could be used to pay for purchases on the Internet. A commercial payments system through the network arranges to transfer funds from business to business, and an inter-bank payment system operates behind the scene to clear and settle inter-bank accounts, using the Automated Clearinghouse System (ACHS), the Large Value Transfer Systems (LVTS) and the Society for Worldwide Inter-bank Financial Telecommunications (SWIFT).

Another important development in the means of payment is the credit card (Fig.a). A credit card is an extremely complex product, serving many different roles; it gives the consumer access to a source of credit and thus serves as a way of borrowing against future income to make purchases today. (K.L.Combs and S.L.Schreft , 1999). The credit card industry has two main features: (a) There is a large number of issuers and an absence of barriers to entry. In fact, many issuers are in the market today and new entry continues. (b) Despite the ease of entry and the large numbers of issuers, there are some non-competitive features such as

features that can differentiate one card from another and which allow the issuer to increase its price. The different prices of the card are determined by the price and non-price components. The major service the card offers is to access a line of credit. Unlike other loans such as car loans or home mortgages, which are secured by the asset being purchased with the loan, the credit card borrowing is unsecured, it is also very flexible in terms of repayment. The amount of dollars being borrowed by the cardholder that is not paid off, or "revolves" to the next billing cycle, is treated as a loan, and the price per dollar borrowed is the interest rate, a monthly finance charge.

The non-interest income of a card is an assortment of fees. There are annual fees, along with penalty fees such as late payment or charging beyond the maximum credit limit, some cards are even subject to up-front fees for cash advances. The price of a credit card is also affected by the card non-price advantages, which include the number and quality of services that cardholders can access with their cards, for example air miles, extended warranties for goods purchased with the card, travel insurance, travel and emergency assistance, and credit insurance. These non-price aspects can attract and retain more customers and earn more income. There are third parties from which issuers can earn revenue; fees imposed on merchants who accept their cards. These fees, known as interchange fees, are a percentage of total card purchases.

The credit line is similar to the credit card. It is a commitment by a bank to loan a certain amount of money. The actual amount and timing is controlled by the borrower who can withdraw as often as he likes for any amount as long as the total borrowed does not exceed the amount agreed upon. Companies often use the line

of credit for the sole purpose of providing a positive signal to the market. When the bank grants the line of credit, the market interprets this as a signal from the bank that the company is financially strong, thereby reducing the information asymmetries. When the bank terminates a line of credit, a negative signal about the borrower is sent to the market.

As technological change has increased the size and scale of operations, thus enabling banks to cope with a wider array of financial markets, it has encouraged innovation and creation of new financial products and services. At the same time, it has also made it easier to charge customers on every transaction and earn more on fees and commissions.

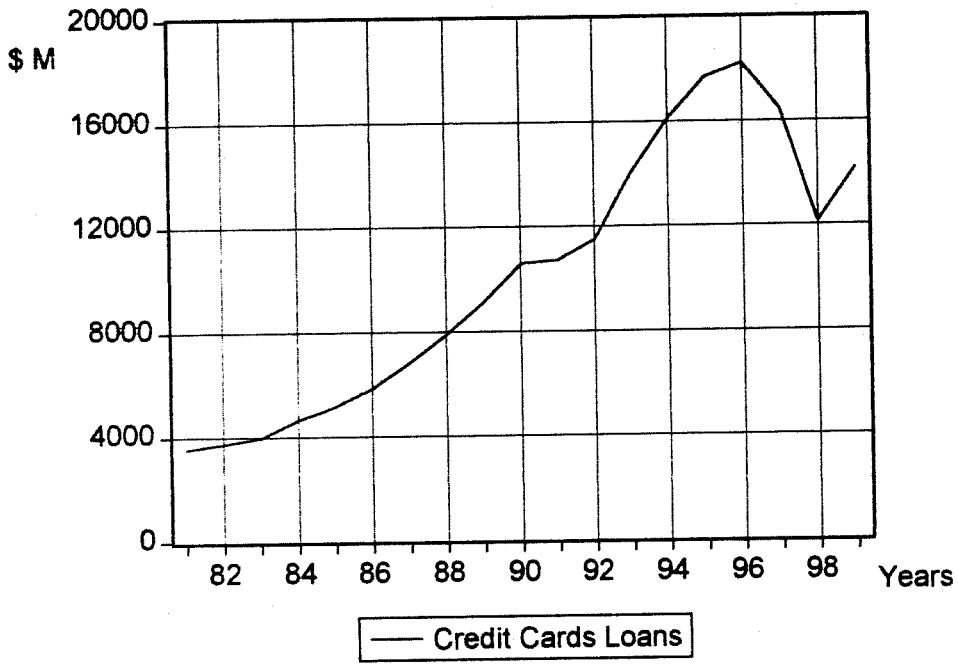


Fig.a

Source: Bank of Canada Review

THE INCREASED COMPETITION IN THE TRADITIONAL ACTIVITIES IS A STRONG INCENTIVE TO  
LOOK FOR NEW SOURCES OF INCOME

For a bank with a large volume of existing deposits at sight or short notice, to compete for new funds by raising interest rates across the board involves a high marginal cost. It must pay the increased rate of interest on existing deposits as well as on new ones. In this situation, it is natural to seek to offer new products designed to attract new funds. One major consequence of this increased competition within the traditional banking area that has risen in Canada since the early 1980s: The opening of the Canadian banking system to foreign competitors. It has provided a strong incentive for commercial banks to look for complementary sources of business and revenues.

There are two different aspects in the drive towards new financial service areas. Some are related to core banking and the others are not. The entry into these sectors has been made sometimes through in-house units but more frequently, by setting up specialized subsidiaries or by establishing links with existing companies operating in the field.

"Since competition in wholesale business tends to be closely linked to the quality and novelty of the products offered to customers, financial innovation has flourished, becoming a primary tool for competing banks" OECD (1985)

The competition takes two different forms:

- 1- Foreign competition or competition with foreign banks.
- 2- Local competition or competition with other domestic banks or non-bank institutions.

The growth of international banking had an important consequence. The opening of foreign branches and subsidiaries, which were established in major market centers,

have become responsible for a large volume of business.

Since the 1960s, with the emergence of the Eurocurrency market, the links between the development of banks' international business have loosened considerably.

Today, a large and growing share of the financial intermediation of Eurobanks is carried out abroad. With the growth of the international portfolio and the increase in country risk, there arose the need to minimize risk through geographic diversification of the portfolio. Intermediation between suppliers and users of funds – savers on one hand, and investors, producers and traders, on the other hand – would appear to be the most important function of international banking.

The international lending activity requires special skills, expertise, reputation or connections, such as the arranging of large syndicated loans or the floating or underwriting of bonds. Banks, that have the capabilities to provide these types of financial intermediation, are rewarded by various fees and commissions.

In addition, banks earn dividends on stock held as well as profits from venture banking. More importantly, banks earn fees and commissions through providing various services and some earn trading profits through the purchase and sale of gold, other precious metals as well as various financial instruments.

Canadian banks earn handsome fees through loan syndication. They have considerable letters of credit business and earn commitment fees. Fee-based and trading services are provided by specialized units that are located in the area where the activity that requires the service is concentrated. Most banks have foreign trade and/or correspondent banking departments that specialize in trade-related services. Most major banks have also an energy or oil and gas department, located in

Calgary. The major banks involved in international activities have indicated that 20-25% of their balance of revenue has arisen from foreign currency operations in recent years. It is exceptional profit performance because nearly 30% of total assets are foreign currency assets.

For the big Canadian banks, international operations proved more profitable than domestic ones. International banking is a highly competitive business in which only highly competitive banks can succeed. Many indigenous banking systems in the past developed a cartel-type structure that generated high intermediation margins in their transactions with their customers. Policy makers in many countries have increasingly taken the view that additional competition in their country's financial sector would be very beneficial for customers and have been dismantling structures that formerly inhibited competition. In part, this change of view has resulted from the fact that it has become increasingly difficult in any case for countries to protect indigenous banking from competition. Customers are finding ways of obtaining these services or products from other suppliers. In part, this change has resulted from the belief that increased competition in the financial services area can lead to increased productivity growth in the economy as a whole, since financial services are an important factor in all sectors. (Freedman & Goodlet, 1998)

In Canada, the legal basis for the traditional compartmentalization of the financial sector into specialized sector groupings has disappeared in recent years. The distinction between the separate sectors had been eroding over the years as each sector started to penetrate the business of other sectors by offering products that competed with their traditional business. However, serious consolidation began to

occur only after the legal prohibitions were eliminated in 1987 (permitting other financial institutions to enter the securities business) and in 1992 (permitting the various regulated financial institutions to enter into each other's business through subsidiaries and, to some extent, through their own balance sheet operations). (Freedman & Goodlet, 1998).

The result thus far has been a very significant involvement of banks in the securities and trust businesses, and the beginnings of a similar movement into life and property and casualty insurance. At the same time, some insurance companies moved into the trust business and into banking. Moreover, the 1980 revision to the Bank Act permitted foreign banks to set up banking subsidiaries, and the Canadian government announced its intention to permit foreign banks to branch directly into Canada.

Recently, there has been a significant increase in the internationalization of the financial services industry. The ability of foreign banks to penetrate domestic markets successfully has been their willingness to compete on both price and non-price terms. The entry of foreign banks into domestic markets has often shaken or broken the prevailing cartel-type arrangements, since the foreign banks had to operate at lower margins than those prevailing in the domestic market in order to gain market share. Gradually, over time, the foreign banks were able to establish themselves as low-cost lenders or high-return borrowers of funds. This is not to say that the indigenous institutions have lost their home markets. They still retain the major share of the business in those markets. But increasingly, foreign banks are gaining market share as well as forcing the indigenous banks to behave more competitively and more efficiently in their previous protected home market.

The increased competition to regulated financial institutions provided by non-banks financial institutions has been another important development in recent years.

First, there is the entry and spread of non-regulated financial entities into a variety of loan/borrowing areas in which they have managed to compete very effectively with traditional regulated lenders. Second, there is the potential for entry of non-financial entities, such as software firms and telecommunication companies, into the delivery of payment services and into fund management activities.

Companies like GE and Newcourt Credit have aimed at becoming highly efficient providers of credit in certain specialized areas, such as the leasing of producer equipment or consumer products.

"Canadian banks will face increasing competition from major global banks, from other international banks that see a niche for themselves in the Canadian market (for example ING in virtual banking, Wells Fargo in small-business lending), and from non-regulated entities like GE Capital and Newcourt that have developed specialized expertise in certain areas of lending. They will also face potential competition from non-regulated entities in attracting funds and in the delivery of payment services" (C.Freedman and C.Goodlet, 1998).

Commercial banks have to struggle with new competitors, new financial institutions, which offer higher interest savings accounts and low transaction fees. Let us list some of these institutions:

- ING Direct (International Netherlands Group)

ING Direct (headquartered in Amsterdam) is the operating name of ING Bank of Canada, a member of ING Group. With worldwide banking and insurance assets, it is one of the largest financial services companies in the world. ING Direct offers high interest on deposits, charges less on loans with no fee or service charge, because customers do everything by Internet, phone, mail or the ABM. Their theme is "we save money, we pass those savings on to you". ING Direct is a member of the Canada Deposit Insurance Corporation (CDIC).

- Altamira Financial Service Ltd.

With a big capital in mutual fund assets under management, Altamira ranks as one of Canada's largest independent providers of mutual funds. They manage money for mutual funds, pension funds, corporations and other major institutions.

For over a quarter century, they have steadily built their track record by providing investment performance and quality service to investors. Altamira provides the customers with an extensive range of products and services, and with the flexibility to choose the products and services that suits their financial objectives. Altamira's experienced investment specialists provide free advice whenever required. When customers buy mutual funds from Altamira, they save commissions through direct access to a complete range of advice and services. However, if they prefer, they can also purchase Altamira mutual funds through a broker or financial planner.

The increased competition from foreign and local banks or even non-bank institutions in the traditional activities has therefore pushed the banks to look for new sources of income.

THE CHANGE IN REGULATIONS HAS PERMITTED THE BANKS TO OFFER A LARGER ARRAY OF NON-TRADITIONAL ACTIVITIES

From the regulatory point of view, decisions as to the range of business offered are subject to:

- The conditions under which banks are allowed to offer new products and services.
- The definition of the scope of activities that may be carried out by banks, and the extent to which newly permitted activities can be conducted by the bank.

Historically, we have witnessed major changes in the regulatory environment. (See C. Freedman 1998)

The 1954 revision of the Bank Act, brought about an unusual large number of significant changes in Canadian banking.

1. Prevented on the basis of the nineteenth-century "Real Bills" doctrine, since the earliest days Canadian banks had not made mortgage loans. The 1954 revision permitted the banks to lend on mortgages issues under the National Housing Act.
2. Before 1954, there was no developed money market in Canada. The new act provided the establishment of the money market.
3. Also, in 1954, a different method of financing inventories was introduced. The chartered banks began to make day-to-day loans to the dealers.

The Bank Act of 1967: The Federal government requires the chartered banks to insure individual customer deposits. The Canadian Deposit Insurance Corporation became operative on April 17, 1967. The insurance scheme improved the competitive position of banks. The Bank Act went a long way to make banks

"department stores of finance". Controls over the assets and liabilities of the banks were changed.

#### Bank Debentures:

In addition to accepting current account and savings account deposits with chequing facilities, and various types of non-chequing savings deposits, the banks were empowered to borrow by the sale of bank debentures. The debentures needed to have a term of at least five years and could not be called for redemption before a five-year period was up.

#### Removal of Maximum Interest rates:

One of the most important changes in the Bank Act was the removal of the restrictions on maximum interest rates that can be charged on loans.

#### Mortgages:

Banks were free to enter the mortgage field. Since 1954, banks had been able to lend in the mortgage market under the provisions of the National Housing Act. The 1967 Bank Act freed banks to enter the general mortgage field.

The 1980 amendments: These amendments allowed the banks to have subsidiaries in different financial areas, including venture capital companies and mortgages loan companies. It allowed foreign banks to establish subsidiaries in Canada, albeit with restrictions on the total size of the business of such banks.

The 1987 amendments: In 1987, changes to the Bank Act and the Ontario legislation eliminated the Canadian equivalent of the U.S. Glass-Steagall Act, which had previously kept banks out of much of the securities business. There were tight restrictions on both upstream and downstream linkages between banks and securities dealers. In June 1987, legislation was passed allowing federally chartered

banks to own securities dealers. Thus from June 1987, there was no limit on investments in securities firms by Canadian financial institutions.

With the passage of the new competition act in June 1986, competition policy provisions were extended to further cover banks.

The 1992 amendments: The legislation continued the process of breaking down the traditional pillars by allowing financial institutions to enter into domains in which they were previously limited or from which they were entirely excluded. This occurred through financial institution subsidiaries, through increased in-house powers, such as portfolio management and investment advice, and to own trust and insurance companies.

The 1997 amendments: These amendments included a number of changes to update and fine-tune the 1992 legislation and were in part a response to minor problems. The amendments also dealt with issues such as consumer privacy and allowed foreign banks to establish a separately capitalized subsidiary to operate in Canada.

As a result of these changes, chartered banks have entered a new era of broader financial services, from mortgage loans to trust and insurance companies to mutual funds market, etc... They now offer a wide range of products and services with more profits coming from commission and fees.

#### List of Chartered Banks' permissible subsidiaries and their activities

- Securities Dealers
- Mortgage loan companies: Lending money on the security of real estate
- Trust Companies: Providing trust services, acting as receiver and liquidator

- Insurance Companies: Developing and marketing insurance products
- Mutual fund corporations: Investing of mutual funds <sup>1</sup>
- Mutual fund distribution corporations: Selling units, shares, or interests in mutual funds.
- Specialized financing corporations: Providing specialized management services, offering merchant banking, offering venture capital investment, providing financing and advisory services.
- Real property corporations: holding, managing, and dealing in real property
- Information services corporations: providing information processing services, designing, developing and marketing computer software, designing, developing, manufacturing and selling ancillary hardware.
- Investment counseling and portfolio management corporations: providing advice on investment, investing with discretion over money, property, deposits, and securities.
- Real property brokerage corporations: Acting as real estate agents, providing consulting and appraisal services.
- Financial leasing corporations: Leasing personal property other than automobiles and personal household property.
- Service Corporations: Providing services to the bank and its financial subsidiaries.
- Factoring Corporations: Financing accounts receivable.

<sup>1</sup>The banks now are offering their clients access to invest in mutual funds companies such as AGF, CI, Fidelity, Mackenzie, Royal Mutual funds, Trimark ... They offer a series of asset allocation products designed for different types of investors, conducted by the bank investment management, providing overall investment management services.

## CHANGES IN HOUSEHOLD FINANCIAL TRENDS:

Freedman & Goodlet (1998), have described this change:

"As the population of North America, Western Europe, and Japan has aged, and as income levels and wealth have increased, there has been a slow but steady shift away from credit products (such as consumer loans and home mortgages) to wealth-management products (such as pension funds and mutual funds). Moreover, the portfolio shift from deposits to mutual funds has been intensified by the movement to a low-inflation, low-interest-rate environment that has caused many savers to search for higher rates of return than are typically offered by deposits."

The change in income and wealth had a number of repercussions on the financial market. New services have been created with more fees to the banks.

First, there has been a rapid growth of pension funds providing wealth-accumulation products for retirement (i.e. RSP). Second, as household portfolios have grown, the demand for investment advice by households has increased. Providing this service to the household has become a profitable part of the banking activity with the commissions that accompany the resulting investment decisions.

Third, with the shift towards mutual funds, a number of banks have bought or developed entities that provide such funds to their customers. It has allowed deposit-taking institutions to hold onto customers' funds that are shifting out of the traditional sphere. By offering a full-service line of products, banks can develop synergies or economies of scope in the delivery process. Most importantly, it has allowed these providers to maintain an ongoing relationship with their customers.

The efforts by banks to increase their involvement in the wealth-management area reflect the fact that banks have profited from the financial demographic change in society by having much of their revenue from being involved in this type of transactions.

THE QUESTION IS: HOW IMPORTANT IS THE SIZE OF THE BANK IN ORDER TO DETERMINE THE RANGE OF SERVICES AND PRODUCTS TO PROVIDE?

Current conventional wisdom suggests that banks must be large in order to survive. This view is based on certain propositions. First, given the technological change, it will be expensive to maintain a competitive infrastructure for delivering the financial services efficiently without huge costs. Only large banks can handle these costs. Second, there are economies of scale that can be realized only by very large entities. Third, a successful bank will have to be large enough to provide most types of services to its customers in a sort of financial supermarket, either to fulfill their demand or to take advantage of economies of scope (or "synergies") as a more diversified array of services can be provided. Fourth, international presence is essential for success, and only large banks can compete outside the domestic market. Fifth, large amounts of capital will be necessary to handle some kind of transactions and services. These propositions imply that the most successful bank must be very large, operating in an international context, and providing most types of services to its customers in a technologically advanced way. These propositions can be challenged to some degree. It appears true that technological changes will be quite expensive. However, the infrastructure for the delivery of some products could be developed jointly with other entities such as telephone or cable companies. Also, not all delivery mechanisms will require large investments, as telephone banking for example. And in addition, the delivery of this technological change could be transferred to the customers in terms of extra fees and commissions, in order for the banks to get this cost back.

As discussed by Freedman and Goodlet (1998), empirical work has provided no evidence that a bank has to be a mega-institution to exploit the economies of scale. Some economies of scale can be exploited by outsourcing or by purchasing certain types of services from specialist institutions, as has happened in the backroom operations of banks.

How universal does a bank have to be in both services and geography? The conglomeration movement in banks, as in other industries, is largely based on the importance of economies of scope, or synergies, and here, too, there is little evidence thus far that such economies are very large or very important. While some customers may want to do all their financial shopping in a single supermarket, others may prefer to shop in separate institutions for different kinds of services. Some may not want to rely on only one supplier.

The analogy with the non-financial industries, which have gone through waves of conglomeration and divestiture over the years, must at least give one pause before arguing that the future lies with the one-stop-shopping supermarket. Some corporations prefer to have independent sources of advice that are totally unconnected to the institutions that will undertake any resulting financial transactions. In summary, while there are many advantages to size, there are some disadvantages.

The importance of the economies of scope and its relation with the provision of a wide range of non-traditional activities is discussed in the following literature review section.

### III - Literature Review

Banks are oligopolistic setters in retail markets while being quantity takers in competitive wholesale financial markets. The revenues of a bank are derived from the prices charged against bank loans. The degree of monopoly or profit margin is reflected in the markup over prime costs or the interest income and in the fees and commissions charged against the other financial activities, the non-interest income. The interest rate spread is simply the margin, or markup, between bank costs and what banks charge for their loans. We would generally expect banks to increase price and non-price terms depending on monetary policy. We also have to point out that the prime rate is the bank administered rate with some borrowers falling below or rising above this reference rate depending on the bank's best guess concerning the probability of repayment. The forces affecting the cost of funds in terms of the interest rates paid on deposits are stable under certain regulation, which set the maximum legal rates payable on different kinds of deposits. Changes in the cost of borrowed funds are attributable to changes in monetary policy. The non-interest income is determined by the bank's nontraditional activities and this flow of revenue is affected by the different prices at which these services are offered. The importance of such activities notwithstanding, researchers tend not to recognize them and rather to refer primarily to the traditional activities. There are two basic views in regards to money and banking. In section (a), we start by briefly introducing these two basic views. In section (b), it is found useful to point to the current monetary policy in regards to banking. In section (c), we shall describe theories that discuss the relation between the non-traditional activities and bank efficiency, and the relation between the non-traditional activities and the economies of scope.

(a) TWO MAIN VIEWS ON CREDIT MONEY AND BANKING

There are two main views in regards to credit money and banking that can be easily grouped under the Verticalist and the Horizontalist positions.

The Verticalist position as described by B. Moore (1988) is that the Central Bank has the power to initiate exogenous changes in the nominal supply of money simply by increasing or reducing the high-powered base so that the money supply function is vertical in the interest-money space.

The high powered base or monetary base can be defined as  $H = R + C$ , where  $R$  is the cash reserve of the banking sector and  $C$  is the currency held by the public.  $H$ , therefore, consists of central bank notes in the hands of the public and in the banks and it is so called because it provides the cash base.

The stock of money supplied is determined by the high-powered base or monetary base, and it is set exogenously via the control of the Central Bank. The money stock = currency + bank deposits, that is  $M = C + D$ , where  $C$  is the currency and  $D$  is the bank deposits held by the general public. The central bank has the power to determine the movements of the high-powered base or monetary base using its T-accounts. It can purchase securities through open market operations to increase the money supply by providing banks with excess reserves and increasing the high-powered base. Conversely, it can sell securities to decrease the money supply by lowering the high-powered base or monetary base.

The banking system operates under rules imposed upon it by the monetary authorities and, as a result, the supply of bank money appears to be a direct function of the high-powered base or monetary base. By open-market sales or purchases,

the central bank is able to reduce or increase the high-powered base.

This high-powered base or monetary base is no longer tied to any exogenous gold stock. The central bank always possesses the ability to increase the base, so as to support any increase in the nominal volume of bank intermediation in providing more loans.

The Horizontalist position as advocated by N. Kaldor (1980) is that the central bank has no direct control over the amount of money held by the public. Its power rests in determining the short rates of interest, either directly through announcing a minimum lending rate, or indirectly through influencing money market rates by open market operations. The money supply function is horizontal and the quantity of money is credit-driven and demand-determined. Hence, it is never true to say that the level of expenditure on goods and services rises in consequence of an increase in the amount of money held by the public. The increase in the supply of money is a consequence of increased loan expenditure, or increased borrowing from the banking system.

The essential features of the horizontalist approach to monetary economics as discussed by M. Lavoie (2000) are that credit and money are demand-led endogenous variables. The Central bank has the ability to set interest rates at a level of its choice. Banks do not wait until they acquire reserves from the central bank to make loans, and, at any moment, they have already granted all the loans that they could make to their credit-worthy borrowers.

## (b) MONETARY POLICY WITH ZERO RESERVE REQUIREMENTS

In the past, the central bank required that each bank held reserves equal to some fraction of the individual bank's deposits or loans. Now, monetary policy requires zero reserve; banks have no reserve requirements at the accounts of the central bank. There are instruments to control the supply of settlement balances as mentioned by K. Clinton (1997), i.e. open market operations, transfers of government deposits and the target rate in the interbank money market.

An open market operation entails the buying and selling of securities. This operation is called Repos or Reverse Repos, which in Canada are known as Special Purchase and Resale Agreements (SPRA) and Sale and Repurchase Agreements (SRA). They are very flexible as to maturity and usually for terms of one or a few days. To increase the supply of funds, the central bank buys securities, and to reduce the supply it sells.

Transfers of government deposits are done between the books of the central bank and those of commercial banks. The central bank uses its power to determine the location of government deposits, from the central bank to commercial banks to increase the availability of funds and vice versa. The allocation of the government deposits is done by auction for terms of one to seven days; the commercial banks bid for these deposits to cover for large withdrawals or even to offer more loans.

It is also necessary to control the demand for the settlement balances in order to control the demand curve respectively. The commercial banks have a determinate demand for these balances on a daily basis. The central bank sets a 50-basis-point between borrowing and deposit rates at the central bank. For example, suppose that the rates on overnight accommodation at the central bank are 4.75% for banks in a surplus position and 5.25 % for those in deficit. So, it is better for the banks to settle

between each other and earn more interest on someone else's overdraft position.

Presently, the central bank has cut rates for a ninth consecutive time, dropping its overnight lending rate by 50 basis points to 2.5 per cent. The move caps a 3.5 percentage-point decline from the start of 2001.

Within this monetary policy, the banks now face no obstacle on the amount of deposits or loans they offer to their credit-worthy customers via central bank base money control. They can control the amount of money or deposits they have between them without the interference of the central bank.

(c) DIFFERENT THEORIES DISCUSSING THE NON-TRADITIONAL ACTIVITIES OF THE BANKS

- 1- Including the non-traditional activities as part of the output of the banks will increase their revenue and efficiency.
- 2- The economies of scope and the non-traditional activities.

Including the non-traditional activities as part of the output of the banks will increase their revenue and efficiency

While there exist much analyses of the traditional activities of banks though their loan/deposit creating ability, theoretical research on the non-traditional source of bank revenues is much more limited and of recent nature.

A model by K.E.Rogers (1998 ) emphasizes the importance of using the nontraditional output in the measurement of efficiency of the banks. These nontraditional activities should be included as part of bank output. It is argued that,

as these outputs are added, the efficiency score of the bank will change. If a bank tends to be more efficient at producing nontraditional output compared to traditional output it will yield a higher efficiency score than the standard model without the non-traditional activities. Conversely, if a bank tends to be less efficient at providing non-traditional output relative to traditional output, then its efficiency score will be smaller. In the Rogers model, the efficiency score ranges over (0,1).

To investigate this, a model including cost, revenue and profit frontiers are estimated, each including non-interest income as a measure of non-traditional output. These three frontiers are considered the most important economic efficiency concepts because they are based on economic optimization in reaction to market prices and competition rather than being based on the use of technology.

The cost frontier is formulated by estimating a cost function, which relates observed cost to output quantities and input prices. Allowing for random error and inefficiency, this frontier can be expressed as:

$$C = c(y, w, U_c, V_c)$$

C is a measure of costs, y vector of output quantities, W vector of input prices,  $U_c$  is a measure of cost inefficiency, and  $V_c$  random error. The  $U_c$  cost inefficiency term, raises costs above the best-practice level. The best practice will have the minimum value of  $U_c$ . Given an estimate of predicted cost for bank  $i$ ,  $C^i$ , the cost efficiency score of bank  $i$  is :  $\text{Cost EFF}^i = C^{\min} / C^i$

The cost efficiency of bank  $i$  is defined as the estimated cost needed to produce bank's  $i$  output vector if the bank were as efficient as the best-practice bank, divided by the actual cost of bank  $i$  adjusted for random error.  $C^{\min}$  is the minimum value of  $C^i$  for all banks in the sample, and cost EFF ranges over (0,1) with the most

efficient bank receiving a score of 1. A score of 0.90 means that a bank is 90% efficient relative to the best practice bank. This estimate of cost efficiency includes both technical efficiency, using too many inputs to produce  $y$ , and allocative efficiency using suboptimal proportions of each of the inputs and outputs given the prevailing market prices.

The revenue frontier is generated by a particular bundle, which is compared to the maximum possible revenue for the same bundle. Cost efficiency measures how cheaply a bank produces its output, while revenue efficiency measures how effectively a bank sells its output. For example, two banks with identical costs, input, and output bundles will have different revenue efficiency scores if one of the two banks generated higher revenue.

Hence, output prices can vary and influence revenues. The revenue frontier can be expressed as,

$$R = R(y, w, U_r, V_r)$$

$R$  is the bank's revenue,  $U_r$  is a measure of revenue inefficiency,  $V_r$  is the random error.  $U_r$  represents how much revenue is produced by efficient production. The best practice bank receives the maximum value of  $U_r$ .

For traditional bank output, such as loans, prices are computed as the ratio of income ( $p \cdot y$ ) to quantity ( $y$ ) where  $p$  is the price of output. For nontraditional output, only income information is available. Without a measure of the quantity of nontraditional output, it is impossible to construct a price for this type of output.

Once an estimate of  $R$  has been constructed, the revenue efficiency score of bank  $i$  is computed as follows,

$$\text{Rev EFF}^i = R^i / R_{\max}^i$$

Where  $R^{\wedge}_{max}$  is the maximum value of  $R^{\wedge i}$ , comparing revenues to the maximum earned. The score Rev EFF is also constructed to range between [0,1] with a score of 1 belonging to the best practice bank.

The profit frontier combines both costs and revenues in the measurement of efficiency, given by the following,

$$P = P ( y , w , U_p , V_p )$$

where P is bank profit,  $U_p$  is a measure of profit inefficiency, and  $V_p$  denotes random error.  $U_p$  represents how much profit is augmented by efficient production.

The most efficient bank will receive the maximum value of  $U_p$ . Given estimates of P, the profit efficiency score for bank  $i$  is computed as follows  $PEFF^i = P^{\wedge i} / P^{\wedge}_{max}$ , where  $P^{\wedge}_{max}$  is the maximum value of  $P^{\wedge i}$  for all banks, PEFF ranges over the [0,1] interval with the best practice bank receiving a profit efficiency score of 1.

To see if the impact of adding non-traditional output is robust, all three frontiers are estimated. Using the exogenous variable: input prices and output quantities and assuming that the inefficiency factors and random errors are multiplicatively separable, the cost, revenue and profit equations can be represented in natural logs as,  $\ln z = f (y,w) + \ln U_z + \ln V_z$

where z equals C for the cost frontier, R for the revenue frontier, and P for the profit frontier. The terms  $U_z$  and  $V_z$  represent inefficiency and random error. Given this formulation,  $Cost\ EFF^i = U^{\wedge}_{c\ min} / U^{\wedge i}_c$ ,  $Rev\ EFF^i = U^{\wedge i}_r / U^{\wedge}_{r\ max}$ ,

$$PEFF^i = U^{\wedge i}_p / U^{\wedge}_{p\ max}$$

Where  $U^{\wedge}_{c\ min}$  is the minimum cost inefficiency factor,  $U^{\wedge}_{r\ max}$  is the maximum revenue inefficiency factor,  $U^{\wedge}_{p\ max}$  is the maximum profit inefficiency factor.

Across all three frontiers, two separate models are estimated; one including the nontraditional activities in the output, and in the other it is excluded.

Results showed that banks tend to be producing and selling non-traditional output better than traditional output. If the addition of an output increases overall efficiency, then the extra output must be produced more efficiently relative to traditional output. The Rogers model demonstrates that it is very important not to neglect using the non-traditional output in calculating the efficiency of the banks. Adding these non-traditional activities will in fact increase overall efficiency at commercial banks. (K. E. Rogers, 1998)

### The economies of scope and the non-traditional activities:

When including the nontraditional activities, J. Jagtiani & A. Khanthavit (1996) studied the cost efficiency of banks. Their results show that banks may have the incentive to shrink somewhat in order to capture scale economies. Accordingly, diseconomies were found suggesting that the banks were too large to be efficient due to cost considerations.

A. N. Berger et al. (1996) have found that the cost economies of scope for expanding banking powers to nontraditional activities to be a small percentage of total costs. The reason for this is that consumers pay for 'one-stop banking'. Banks may increase revenues or lower interest expenses by supplying financial services jointly rather than separately. Synergies are the justification for the formation of 'financial supermarkets', where savings, credit-card and other loans, insurance, real estate, and securities services are all offered jointly. In this case, banks do not experience diseconomies of scope, they can be enjoying the benefits of market power in their pricing by pricing separate outputs independently of the overall mix. Thus, revenue economies of scope do not exist in a competitive environment because competition among banks would eliminate the revenue synergies.

For the non-traditional activities, where profits are from fees and commissions, to maximize profits for given output quantities  $y$  and input prices  $r$  entails choosing output prices  $p$  along with input quantities  $x$ . The associated indirect profit function is derived as the solution to the problem,

$$\text{Max}_{p, x} T = p'y - r'x \quad \text{s.t. } g(p, y, r) = 0, h(y, x) = 0$$

where  $T$  represents profits,  $g(p, y, r)$  represents a bank's pricing opportunity set for transforming given values of  $y$  and  $r$  into output prices. Input prices  $r$  are included in  $g(\cdot)$  since higher input prices may provide market signals regarding the bank's pricing to markup the cost of funds. Focusing on the revenue problem,

$$\text{Max } R = p'y, \text{ s.t. } g(p, y, r) = 0$$

The Lagrangian yields the revenue-max prices as functions of  $y$  and  $r$  so that the indirect revenue function contains output quantities and inputs prices,

$$R = p'y = p(y, r)'y = R(y, r)$$

Note that the function  $R = R(y, r)$  need not to be homogeneous of degree one in output quantities. If output quantities double with input prices unchanged, revenue need not to double because output prices may be a function of the scale of output.

For example, some consumers may prefer larger banks because of greater branch or ATM convenience, so that larger banks may be able to extract higher prices and greater than proportionate revenues. Other consumers may prefer the more personalized service provided by smaller banks.

The overall revenue economies of scope,  $RSCOPE$ , are measured as the percentage increase in revenue received by banks when all financial services are provided jointly as opposed to when each service is produced and provided separately;

$$RSCOPE = [ R(y_1, y_2, \dots, y_m; r) - R(y_1, 0, \dots, 0; r) - R(0, y_2, 0, \dots, 0; r) - \dots - R(0, \dots, 0, y_m; r) ] / R(y_1, y_2, \dots, y_m; r)$$

where  $R(\cdot)$  is a revenue function. Revenue economies of scope exist when the revenues associated with joint production exceed the revenues associated with specialized production of each output.

With banks now offering a variety of different non-traditional outputs, the RSCOPE formula is extended to include points of 'quasi specialized' provision of financial services. For  $m$  outputs, a bank is quasi specialized when, for a positive proportion  $E$ , it provides  $1 - (m-1)E$  of one banking service and  $E$  of all other  $m-1$  services.

$$\begin{aligned} \text{QRSCOPE} = & [ R(y_1, y_2, \dots, y_m; r) - R(\{1 - (m-1)E\}y_1, E y_2, \dots, E y_m; r) \\ & - R(E y_1, \{1 - (m-1)E\}y_2, E y_3, \dots, E y_m; r) - \dots - R(E y_1, E y_2, \dots, \{1 \\ & - (m-1)E\}y_m; r) ] / R(y_1, y_2, \dots, y_m; r) \end{aligned}$$

When  $E = 0$ , QRSCOPE yields the RSCOPE measure. As  $E$  rises from 0 to its maximum of  $1/m$ , we move from complete specialization ( $E = 0$ ), where each of  $m$  hypothetical specialized banks produces all of one of each of the  $m$  outputs, to the case where specialization is exhausted ( $E = 1/m$ ), and each bank produces the proportion  $1/m$  of all the  $m$  outputs jointly. At the limit when  $E = 1/m$ , QRSCOPE compares the revenue from a hypothetical large bank producing all outputs jointly with the revenue from  $m$  smaller banks, each producing the proportion  $1/m$  of each output level of the larger bank. Since all of these banks have the same product mix, QRSCOPE at  $E = 1/m$  becomes a measure of revenue economies of scale.

Therefore, at the extreme values for  $E$  of 0 and 0.5 (for  $m = 2$ ), QRSCOPE represents pure scope and pure scale effects, respectively.

From this analysis, it follows that offering a wide range of non-traditional activities could in fact be beneficial for the banks in terms of economies of scope.

## IV – Empirical research

As discussed above, the growing portion of banks' income coming from non-traditional activities is as significant as the traditional one. Numerous factors have been contributing to the change in the behavior of the banks. Changes in consumer demand, technology, the competitive environment, changes in regulations and changes in household financial portfolio, are all factors that have pushed the banks towards off-balance sheet activities.

On the other hand, different theories have been proposed to analyze this new behavior of banks and to understand how when adding the non-traditional outputs the efficiency level of banks changes. Also, expanding banking operations to non-traditional activities will, in fact, entail a small percentage of the total cost.

Consumers prefer to pay for 'one-stop banking' and therefore, banks benefit from economies of scope.

The following empirical analysis seeks to show how non-traditional activities play an important role in banks' profitability. First, we shall start by presenting the empirical evidence of the above discussion. Second, we shall consider a single equation model to test a precise hypothesis on the behavior of bank profits.

### (a) Framework

The framework embodied in this section shows the empirical evidence of the above discussion. The data used are yearly data collected by the Office of the Superintendent of Financial Institutions "*Chartered Banks Annual Financial Reports*" and published on their web site ([www. osfi-bsif.gc.ca](http://www.osfi-bsif.gc.ca)), and data collected from the Bank of Canada Review, K2 Tables "*Total Chartered Banks: Consolidated Statement of Revenue, Expense and Shareholders Equity*". The graphs on this section (Fig. 1 to Fig. 3) demonstrate the following:

An increase in the non-traditional activities of all banks represented by an increase in the non-interest income as a percentage of total net income from 23% in 1981 to 56% in 1999; with a proportional decline in the traditional activities represented by a decrease in the interest income from 77% in 1981 to 44% in 1999 (See Fig. 3).

The number of the domestic banks in which the non-interest income is more than 50% of their total income is increasing. From 1996, where all domestic banks depended on less than 50% of the total income to the year 2000 where five banks had more than 50% of their income from non-traditional activities: CIBC 72%, Toronto-Dominion 67%, National Bank 64%, Royal Bank 59% and Bank of Montreal 53%. It is important to note that large banks are involved more in these activities (See Table 1). It is also interesting to note that for some of the foreign subsidiaries, a very high volume of non-traditional activities represented more than 50% from their income. (See Table 2)

For the domestic and foreign banks, the average of their total amount of loans is declining, while the average of their non-interest income is increasing. (See Fig. 1 and 2). This phenomenon is explained by the high profitability of the non-traditional activities with low associated cost and due to the high competitive environment with high associated cost in the provision of loans. The cost economies of scope for expanding banking activities is the justification of supplying the non-traditional activities with a small percentage of the total cost. Empirical results show that the non-interest expenses as a percentage of total cost represented 13% in 1981 and 38% in 1991, while the interest expenses as a percentage of total cost represented 87% in 1981 and 62% in 1991 (See Table 3 in Appendix A). Therefore, banks profited from offering the non-traditional activities at a lower cost as well as fulfilling their customers' needs of providing a financial supermarket.

**Table 1: Domestic Banks in Size – The Ratio of the Non-interest Income to Total**

income

**Large Banks**

	1996	1997	1998	1999	2000
<u>Bank of Montreal</u>	40%	44%	44%	47%	53%
<u>CIBC</u>	39%	50%	55%	61%	72%
<u>TD</u>	40%	52%	56%	69%	67%
<u>National Bank</u>	45%	51%	51%	54%	64%
<u>Royal Bank</u>	40%	48%	53%	56%	59%
<u>Bank of Nova Scotia</u>	36%	42%	43%	44%	45%

**Small Banks**

	1996	1997	1998	1999	2000
<u>Laurentien</u>	32%	42%	42%	50%	45%
<u>Western Bank</u>	20%	22%	17%	25%	18%
<u>Manulife</u>	9%	12%	19%	15%	4%
<u>Citizens</u>	–	19%	24%	33%	38%

**Table 2: Foreign Banks - Examples of High Ratio of Non-interest Income to Total**

Income.

	1996	1997	1998	1999	2000
<u>Morgan Bank</u>	0.60	0.89	0.85	0.83	3.86
<u>Bank of America</u>	0.56	0.91	0.54	0.68	1.01
<u>Amex</u>	0.92	0.91	0.89	0.89	0.88

*Note:* The percentage over 100% is due to the losses arising from their loan activities.

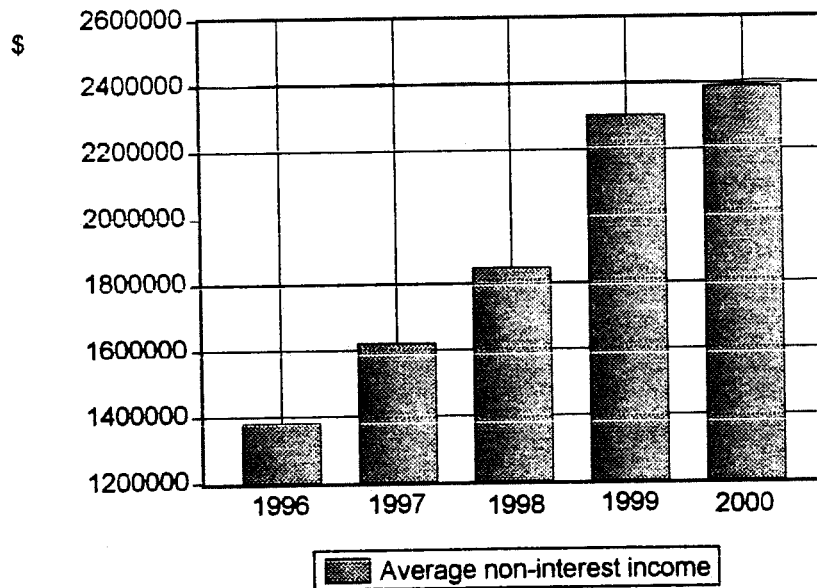
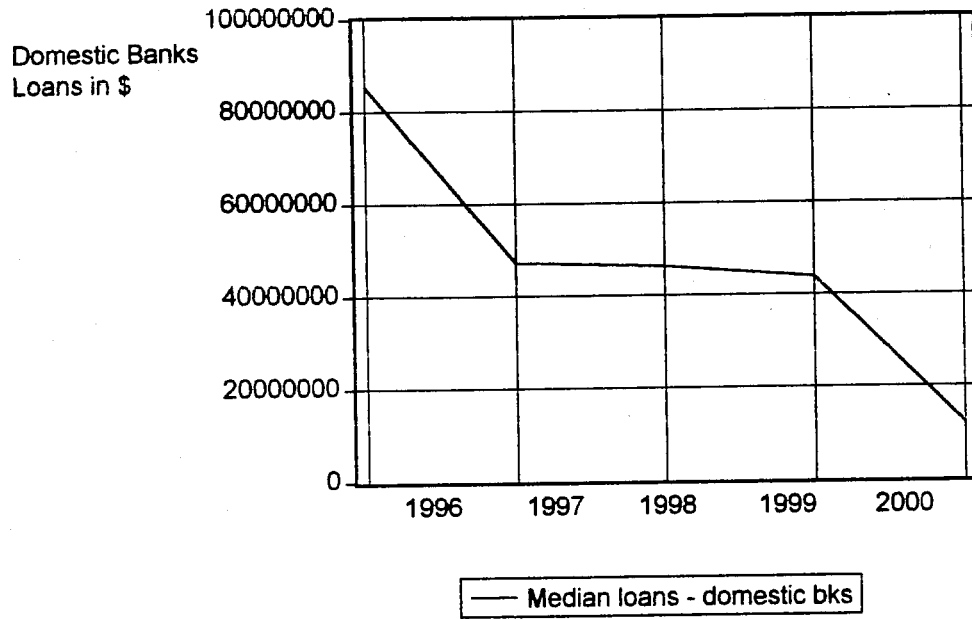


Fig.1 Domestic Canadian Banks - Decrease in the amount of loans. Increase in the non-interest income.

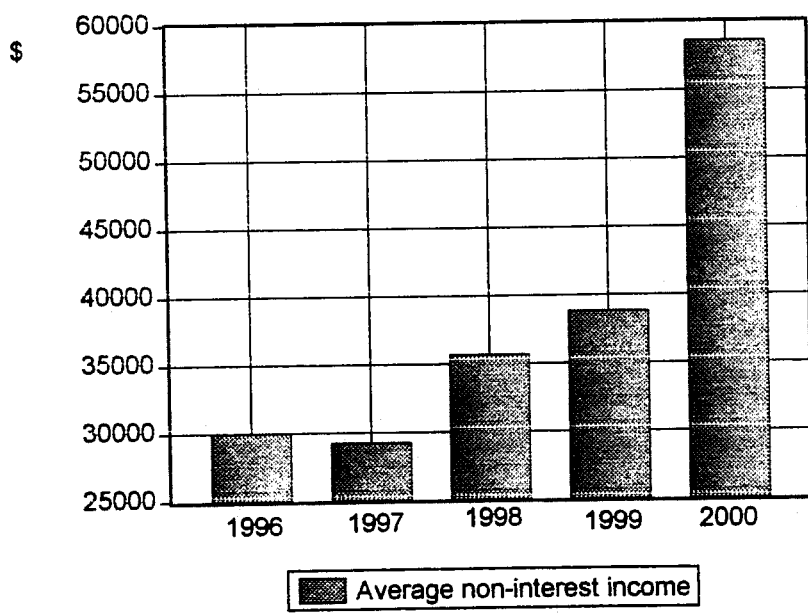
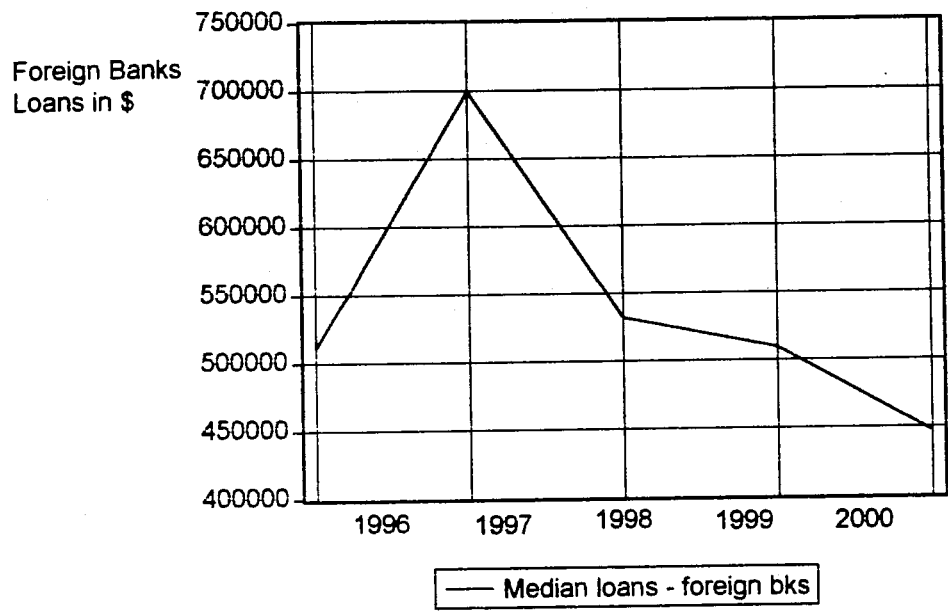


Fig.2 Foreign Banks- Decrease in the amount of loans. Increase in the non-interest income.

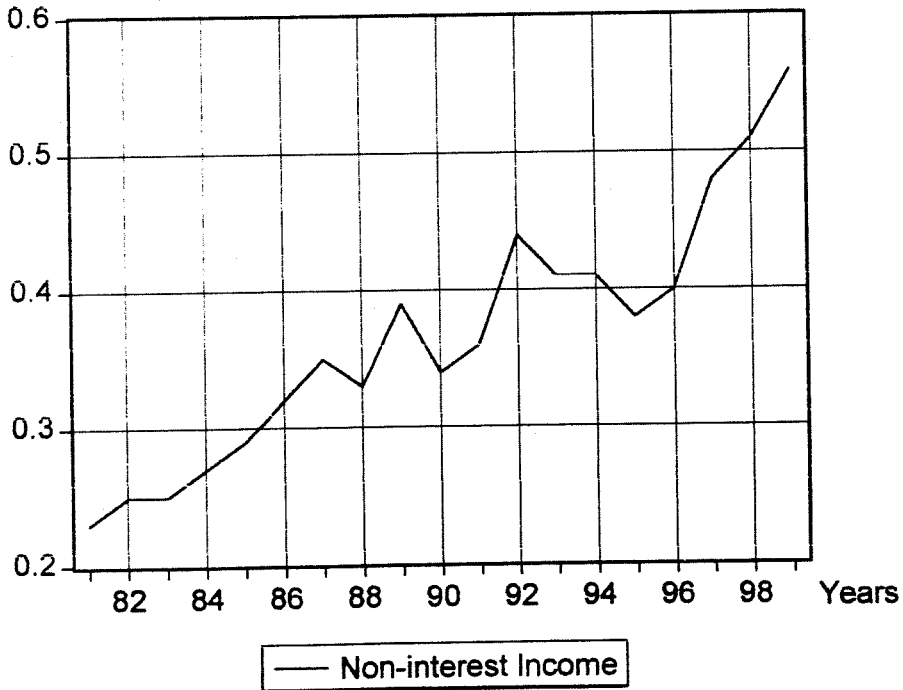
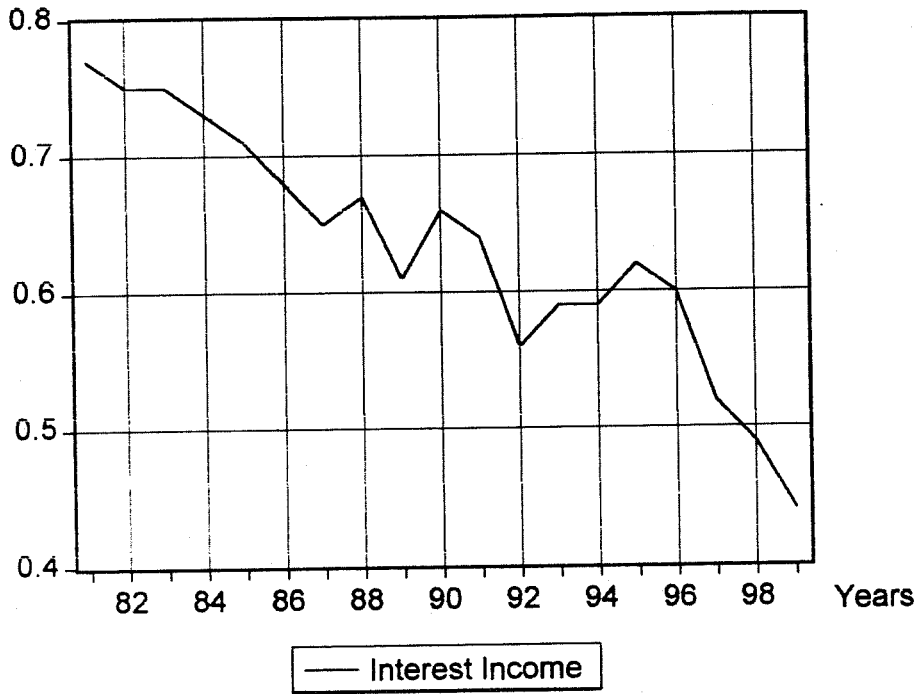


Fig. 3 The interest and the non-interest income as a percentage of total net income of all the banks.

(b) Model Selection

A single equation model was applied on Canadian yearly data extracted from the Web site of the Office of the Superintendent of Financial Institution: *Chartered Banks Annual Financial Reports*. This model is proposed to determine whether the non-traditional activities play an important role in bank profitability. It is hypothesized that bank net revenue depends on a number of important factors:

( i )The degree of monopoly, as can be measured by the Herfindhal index; ( ii ) The volume of traditional activities, as it is reflected in the volume of loans that they accord to their borrowers; ( iii ) Their ability to be engaged into non-traditional activities, and this could be measured by the ratio of non-interest income to interest income. The study utilizes yearly data from 1996 to 2000. The following equation is estimated:

$$\text{Net income of the banks} = f (\text{Herfindhal index, total amount of loans, non-interest income / interest income})$$

The single equation explains the net income of the banks as the dependent variable by the following variables, ( i ) The degree of competition between the banks in setting the prices simply defined by, the ratio of the assets of each bank to the total assets of all banks and measured by an indicator, the Herfindhal index on the basis of their relative market share. ( ii ) The degree of their traditional activities defined by the amount of loans granted by each bank. ( iii ) The degree of their non-traditional activities defined by the ratio of non-interest income to interest income.

The model is considered for two sets of groups. The regression results are included in Tables 4 and 5 in Appendix B. The reported R-squared ranges between 68% and 99%.

In the first set, data has been sorted into two groups. The model is estimated for groups' (a) and (b) separately with the purpose of testing whether the dominance of a specific activity (traditional or non-traditional) may affect the behavior of the net income.

Group (a) contains the banks in which non-interest income exceeds 50% of total income. The regression shows that the coefficient related to the amount of loans is negative for 3 cases out of 5 cases in total. The negative coefficient of the 3 years (majority) indicates that there is a negative correlation between the net income and the traditional activities. On the other hand, the 2 positive coefficients (minority) indicate a positive correlation between the net income and the traditional activities. Therefore this result supports the hypothesis that the non-traditional activities play an important role in the net income of this group.

Group (b) contains the banks in which the non-interest income represents less than 50% of their total income. The regression shows that the coefficient related to the ratio of the non-interest income versus interest income is negative for 4 cases out of 5 in total. The negative coefficient of the 4 years indicates a negative correlation between the net income and the non-traditional activities. The result clearly confirms the hypothesis that the traditional activities play an important role in the net income of this group.

In the second set, data has been sorted into two groups: Group (domestic), Canadian-owned banks and group (foreign), foreign-subidiaries banks. The model is estimated for groups domestic and foreign.

In the group of the domestic banks, the regression shows that the coefficient related to the ratio of the non-interest income versus interest income is negative for 2 cases out of 5 in total. The negative coefficient of the 2 years (minority) indicates that there is a negative correlation between the net income and the non-traditional activities.

And, the 3 positive coefficients (majority) indicate positive correlation between the net income and the non-traditional activities. This result supports the hypothesis that the non-traditional activities play an important role in the net income of this group.

In the group of the foreign banks, the regression shows that the coefficients related to both activities are positive in most of the cases except for 1 case in which the coefficient related to the traditional activities is negative. This result indicates that there is no dominant activity.

#### Main Result:

Cross-sectional data (with an average of 45 observations) are classified into two sets of groups. According to their share of income and to domestic or foreign. The reason for this classification is to see if the involvement in a specific activity has an impact on the net income of a certain tested group of banks.

To investigate the behavior of each group, we considered a single equation model.

Looking first at the results of the first set of groups, we found that the net income is positively correlated with the degree of the non-traditional activities in the group

having more than 50% non-interest income. For the second set of groups, we found that the net income is positively correlated with the non-traditional activities in the group of the domestic banks. As for their degree of monopoly, we found that for these two groups, 3 positive coefficients out of 5 supported the hypothesis that the larger the banks, the bigger their share in the non-traditional activities, the greater the flow of their net revenues.

Our basic approach has sought to consider the significance of the growing role of the non-traditional activities in determining bank profitability. We tested whether the non-traditional activities are important to a certain group of banks and whether the bank has to be large in order to provide a wide range of products and services.

## V – Conclusion

From the evidence provided, banks have evolved greatly during the last century. Unlike the previous era, it appears that bank policy now is devoted to the purpose of achieving a banking system characterized by efficiency and convenience to customers. More efficiency was found according to certain theories when producing non-traditional output in addition to the traditional one. Fulfilling customers' convenience is to be found when expanding bank services by supplying financial services jointly rather than separately. Not only offering a financial supermarket to customers aiming to have a 'one-stop banking' but also profited from the cost economies of scope.

The profitability of banks fluctuated according to certain factors such as changes in consumer demand, technology, the competitive environment, change in regulations and changes in household financial portfolio behavior which have slowly pushed banks towards the off-balance sheet activities. The growing share of non-traditional activities in the profitability of the chartered banks has become remarkable for the recent years because of their higher fees and commissions, as they extend their financial services to meet the customers fashionable requirements and to profit from the economies of scope.

Researchers have not paid much attention to this growing portion of bank activity and theories as well as empirical work on this subject matter tend to be very limited.

This paper is an attempt to push further the frontier of the analysis in this new area. A simple equation model has been proposed to address empirically this question. Unfortunately, because of the scarcity of reliable data, it has not been possible to extend further the empirical analysis so as to better capture the vast array of underlying factors that have impacted on bank profitability.

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**Appendix A**

(Table 3)

Interest and Non-interest Incomes and Expenses of All Banks

Year ending	Net interest income	interest expenses	provision for loan losses	Net Non interest income	non-interest expense	Total net income	The non-interest income % total cost
1981	6128.4	37884.3	864.6	1821.6	5720.5	7950	0.04
1982	6320.7	43094.9	1431	2135.4	6755.9	8456.2	0.04
1983	7437.8	29357.3	1784.4	2415.7	7023.3	9853.5	0.06
1984	7259.5	31486.4	2043.1	2738.2	7425.3	9997.7	0.07
1985	8130.5	30703.7	2390.1	3298.4	8258.9	11428.9	0.08
1986	8278.7	28690.3	3143.7	3824.3	8983.1	12103	0.09
1987	9107.2	26797.5	2993	4800.9	9838.6	13908.1	0.12
1988	11275.1	29729.3	2618.2	5574.7	11012.4	16849.8	0.13
1989	9739.5	39245.8	5263.2	6333.3	12539.6	16072.8	0.11
1990	13037.8	44036.3	1980.1	6832.3	13860.9	19870.2	0.11
1991	13618.9	39351.9	3227.6	7595.8	15205.9	21214.7	0.13
1992	10550.7	30218.7	7098.9	8347.9	16558.7	18898.5	0.15
1993	13229.6	26743.9	5407.9	9301.1	17980.7	22530.7	0.19
1994	16143.5	28167.4	3920.7	10992.8	19805.2	27136.3	0.21
1995	17956.1	40977.8	2826.8	11219.5	20495.6	29175.6	0.17
1996	20368.4	40875.2	2139.4	13300.6	22824.2	33669	0.20
1997	21006.4	41594.9	2079.9	19037.2	27150.9	40043.6	0.27
1998	21020.5	53446.8	2837.1	21629	30866.9	42649.5	0.25
1999	21336	51787.8	3176.9	26930.9	34083.3	48267	0.30

Table 3  
Source Bank of Canada Reviews k2 tables.

total cost	The non-interest income % total net income	The non-interest expenses % of total cost	the interest income % of total income	the interest expenses % of total cost	int income as % of tot cost	total expenses
44,469.40	0.23	0.13	0.77	0.87	0.14	38748.9
51,281.80	0.25	0.13	0.75	0.87	0.12	44525.9
38,165.00	0.25	0.18	0.75	0.82	0.19	31141.7
40,954.80	0.27	0.18	0.73	0.82	0.18	33529.5
41,352.70	0.29	0.20	0.71	0.80	0.20	33093.8
40,817.10	0.32	0.22	0.68	0.78	0.20	31834
39,629.10	0.35	0.25	0.65	0.75	0.23	29790.5
43,359.90	0.33	0.25	0.67	0.75	0.26	32347.5
57,048.60	0.39	0.22	0.61	0.78	0.17	44509
59,877.30	0.34	0.23	0.66	0.77	0.22	48016.4
57,785.40	0.36	0.26	0.64	0.74	0.24	42579.5
53,876.30	0.44	0.31	0.56	0.69	0.20	37317.6
50,132.50	0.41	0.36	0.59	0.64	0.26	32151.8
51,893.30	0.41	0.38	0.59	0.62	0.31	32088.1
64,300.20	0.38	0.32	0.62	0.68	0.28	43804.6
55,838.80	0.40	0.35	0.60	0.65	0.31	43014.6
70,825.70	0.48	0.38	0.52	0.62	0.30	43674.8
87,150.80	0.51	0.35	0.49	0.65	0.24	56263.9
89,048.00	0.56	0.38	0.44	0.62	0.24	54964.7

Table 3  
Source Bank of Canada Reviews k2 tables.

**Appendix B**

(Tables 4 & 5)

Regression Results

## Group a – Non-interest income over 50% of total income

### 1996

Dependent Variable: net income  
Method: Least Squares

Sample: 1 9  
Included observations: 9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2170.346	4951.994	-0.438277	0.6795
Herfindhal index	7489309.	5926792.	1.263636	0.2621
Loans	-0.002806	0.014519	-0.193233	0.8544
Non-interest / interest y	1807.707	663.6356	2.723946	0.0416
R-squared	0.695895	Mean dependent var		8664.333
Adjusted R-squared	0.513433	S.D. dependent var		11408.38
S.E. of regression	7957.846	Akaike info criterion		21.10281
Sum squared resid	3.17E+08	Schwarz criterion		21.19046
Log likelihood	-90.96263	F-statistic		3.813903
Durbin-Watson stat	1.809577	Prob(F-statistic)		0.091843

### 1997

Dependent Variable: net income  
Method: Least Squares

Sample: 1 15  
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2641.226	9246.180	-0.285656	0.7804
Herfindhal index	15798205	2443226.	6.466125	0.0000
Loans	-0.010298	0.003226	-3.192573	0.0086
Non-interest / interest y	109.8153	1713.715	0.064080	0.9501
R-squared	0.998387	Mean dependent var		207084.0
Adjusted R-squared	0.997947	S.D. dependent var		468096.8
S.E. of regression	21211.90	Akaike info criterion		22.98569
Sum squared resid	4.95E+09	Schwarz criterion		23.17450
Log likelihood	-168.3927	F-statistic		2268.913
Durbin-Watson stat	1.840906	Prob(F-statistic)		0.000000

### 1998

Dependent Variable: net income  
Method: Least Squares

Sample: 1 21  
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10229.71	34895.42	-0.293153	0.7730
Herfindhal index	-11651880	5889230.	-1.978507	0.0643
Loans	0.024394	0.007545	3.233052	0.0049
Non-interest / interest y	1285.160	7084.962	0.181393	0.8582
R-squared	0.954366	Mean dependent var		210991.8
Adjusted R-squared	0.946313	S.D. dependent var		493470.0
S.E. of regression	114338.7	Akaike info criterion		26.30136
Sum squared resid	2.22E+11	Schwarz criterion		26.50032
Log likelihood	-272.1643	F-statistic		118.5110
Durbin-Watson stat	1.040672	Prob(F-statistic)		0.000000

## Group a – Non-interest income over 50% of total income

**1999**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 21  
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4459.968	135241.2	-0.032978	0.9741
Herfindhal index	49199768	15456707	3.183069	0.0054
Loans	-0.050592	0.020086	-2.518842	0.0221
Non-interest / interest y	6988.475	43978.68	0.158906	0.8756
R-squared	0.835737	Mean dependent var		297680.1
Adjusted R-squared	0.806750	S.D. dependent var		753465.0
S.E. of regression	331224.8	Akaike info criterion		28.42863
Sum squared resid	1.87E+12	Schwarz criterion		28.62758
Log likelihood	-294.5006	F-statistic		28.83095
Durbin-Watson stat	1.488809	Prob(F-statistic)		0.000001

**2000**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 22  
Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-24020.49	34150.88	-0.703364	0.4908
Herfindhal index	-16080515	5131516.	-3.133677	0.0057
Loans	0.031799	0.006199	5.129486	0.0001
Non-interest / interest y	703.3977	1415.156	0.497046	0.6252
R-squared	0.968629	Mean dependent var		356815.8
Adjusted R-squared	0.963400	S.D. dependent var		736266.9
S.E. of regression	140856.0	Akaike info criterion		26.71183
Sum squared resid	3.57E+11	Schwarz criterion		26.91020
Log likelihood	-289.8301	F-statistic		185.2573
Durbin-Watson stat	1.450389	Prob(F-statistic)		0.000000

## Group b – Non-interest income less than 50% of the total income

**1996**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 33  
Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4408.286	6426.366	-0.685969	0.4982
Herfindhal index	6013288.	845834.6	7.109296	0.0000
Loans	0.001452	0.001305	1.112615	0.2750
Non-interest / interest y	-13170.89	17655.68	-0.745986	0.4617
R-squared	0.998177	Mean dependent var		198035.5
Adjusted R-squared	0.997989	S.D. dependent var		435802.2
S.E. of regression	19545.15	Akaike info criterion		22.71205
Sum squared resid	1.11E+10	Schwarz criterion		22.89345
Log likelihood	-370.7489	F-statistic		5293.430
Durbin-Watson stat	2.064408	Prob(F-statistic)		0.000000

**1997**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 30  
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2411.320	9827.436	-0.245366	0.8081
Herfindhal index	1084608.	1689343.	0.642029	0.5265
Loans	0.009992	0.002253	4.434711	0.0001
Non-interest / interest y	-19363.40	21496.18	-0.900783	0.3760
R-squared	0.994902	Mean dependent var		159727.5
Adjusted R-squared	0.994313	S.D. dependent var		457806.1
S.E. of regression	34522.86	Akaike info criterion		23.86020
Sum squared resid	3.10E+10	Schwarz criterion		24.04702
Log likelihood	-353.9030	F-statistic		1691.245
Durbin-Watson stat	2.271503	Prob(F-statistic)		0.000000

**1998**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 24  
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15641.02	6519.142	-2.399245	0.0263
Herfindhal index	9134227.	1756348.	5.200694	0.0000
Loans	-0.001029	0.002096	-0.491076	0.6287
Non-interest / interest y	21891.67	13694.43	1.598581	0.1256
R-squared	0.997911	Mean dependent var		122497.3
Adjusted R-squared	0.997597	S.D. dependent var		387124.9
S.E. of regression	18975.69	Akaike info criterion		22.69072
Sum squared resid	7.20E+09	Schwarz criterion		22.88706
Log likelihood	-268.2886	F-statistic		3184.239
Durbin-Watson stat	2.080280	Prob(F-statistic)		0.000000

## Group b – Non-interest income less than 50% of the total income

**1999**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 32  
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3457.802	4142.360	0.834742	0.4109
Herfindhal index	-4436809.	919019.0	-4.827766	0.0000
Loans	0.015750	0.001083	14.53830	0.0000
Non-interest / interest y	-35743.50	9698.684	-3.685397	0.0010
R-squared	0.998957	Mean dependent var		100953.1
Adjusted R-squared	0.998845	S.D. dependent var		360191.6
S.E. of regression	12240.71	Akaike info criterion		21.77939
Sum squared resid	4.20E+09	Schwarz criterion		21.96261
Log likelihood	-344.4702	F-statistic		8938.022
Durbin-Watson stat	1.869453	Prob(F-statistic)		0.000000

**2000**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 26  
Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4837.698	4133.309	1.170418	0.2544
Herfindhal index	7157322.	3268994.	2.189457	0.0395
Loans	0.004358	0.003372	1.292318	0.2097
Non-interest / interest y	-29609.44	12002.70	-2.466898	0.0219
R-squared	0.999062	Mean dependent var		85955.27
Adjusted R-squared	0.998934	S.D. dependent var		377301.7
S.E. of regression	12317.69	Akaike info criterion		21.81610
Sum squared resid	3.34E+09	Schwarz criterion		22.00965
Log likelihood	-279.6093	F-statistic		7811.422
Durbin-Watson stat	1.692658	Prob(F-statistic)		0.000000

## Group - domestic banks

### 1996

Dependent Variable: net income  
Method: Least Squares

Sample: 1 9  
Included observations: 9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9814.194	37004.35	0.265217	0.8014
Herfindhal index	5942310.	1795455.	3.309640	0.0212
Loans	0.001719	0.002839	0.605473	0.5713
Non-interest / interest y	-60445.23	85503.60	-0.706932	0.5112
R-squared	0.997236	Mean dependent var		703599.1
Adjusted R-squared	0.995577	S.D. dependent var		602256.3
S.E. of regression	40051.30	Akaike info criterion		24.33481
Sum squared resid	8.02E+09	Schwarz criterion		24.42247
Log likelihood	-105.5067	F-statistic		601.3068
Durbin-Watson stat	1.955929	Prob(F-statistic)		0.000001

### 1997

Dependent Variable: net income  
Method: Least Squares

Sample: 1 11  
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	45877.69	38775.69	1.183156	0.2754
Herfindhal index	1206579.	3009540.	0.400918	0.7004
Loans	0.010612	0.004164	2.548491	0.0382
Non-interest / interest y	-220309.0	84010.07	-2.622412	0.0343
R-squared	0.995016	Mean dependent var		686374.0
Adjusted R-squared	0.992880	S.D. dependent var		731054.3
S.E. of regression	61688.06	Akaike info criterion		25.17286
Sum squared resid	2.66E+10	Schwarz criterion		25.31755
Log likelihood	-134.4507	F-statistic		465.8067
Durbin-Watson stat	2.404576	Prob(F-statistic)		0.000000

### 1998

Dependent Variable: net income  
Method: Least Squares

Sample: 1 11  
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-55172.30	135864.6	-0.406083	0.6968
Herfindhal index	-9433058.	7324765.	-1.287831	0.2387
Loans	0.021840	0.009204	2.372743	0.0494
Non-interest / interest y	81171.12	255319.8	0.317919	0.7598
R-squared	0.954089	Mean dependent var		650085.9
Adjusted R-squared	0.934412	S.D. dependent var		701677.6
S.E. of regression	179700.3	Akaike info criterion		27.31126
Sum squared resid	2.26E+11	Schwarz criterion		27.45595
Log likelihood	-146.2119	F-statistic		48.48921
Durbin-Watson stat	1.404719	Prob(F-statistic)		0.000047

## Group - domestic banks

**1999**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 11  
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-383653.5	353093.7	-1.086549	0.3132
Herfindhal index	331085.2	18684796	0.017719	0.9864
Loans	0.006979	0.023427	0.297917	0.7744
Non-interest / interest y	770783.8	469238.0	1.642629	0.1445
R-squared	0.810638	Mean dependent var		836134.3
Adjusted R-squared	0.729482	S.D. dependent var		991793.9
S.E. of regression	515845.2	Akaike info criterion		29.42029
Sum squared resid	1.86E+12	Schwarz criterion		29.56498
Log likelihood	-157.8116	F-statistic		9.988714
Durbin-Watson stat	2.249034	Prob(F-statistic)		0.006351

**2000**

Dependent Variable: net income  
Method: Least Squares

Sample: 1 13  
Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-35616.96	99629.02	-0.357496	0.7290
Herfindhal index	-7114701.	6390621.	-1.113303	0.2944
Loans	0.020585	0.007471	2.755276	0.0223
Non-interest / interest y	5894.435	33092.26	0.178121	0.8626
R-squared	0.953674	Mean dependent var		751067.6
Adjusted R-squared	0.938232	S.D. dependent var		937868.1
S.E. of regression	233090.7	Akaike info criterion		27.80390
Sum squared resid	4.89E+11	Schwarz criterion		27.97773
Log likelihood	-176.7254	F-statistic		61.75805
Durbin-Watson stat	2.290931	Prob(F-statistic)		0.000003

## Group - foreign banks

### 1996

Dependent Variable: net income  
Method: Least Squares

Sample: 1 38  
Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1549.982	1451.494	-1.067853	0.2931
Herfindhal index	-211161.9	1776648.	-0.118854	0.9061
Loans	0.007859	0.002583	3.042400	0.0045
Non-interest / interest y	1009.320	396.5355	2.545346	0.0156
R-squared	0.880092	Mean dependent var		8269.026
Adjusted R-squared	0.869512	S.D. dependent var		19469.28
S.E. of regression	7032.916	Akaike info criterion		20.65389
Sum squared resid	1.68E+09	Schwarz criterion		20.82627
Log likelihood	-388.4239	F-statistic		83.18358
Durbin-Watson stat	1.966690	Prob(F-statistic)		0.000000

### 1997

Dependent Variable: net income  
Method: Least Squares

Sample: 1 40  
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1479.324	2981.310	-0.496199	0.6228
Herfindhal index	-1465098.	3118464.	-0.469814	0.6413
Loans	0.009639	0.003903	2.469366	0.0184
Non-interest / interest y	1082.616	894.2041	1.210704	0.2339
R-squared	0.682440	Mean dependent var		10089.38
Adjusted R-squared	0.655977	S.D. dependent var		24885.56
S.E. of regression	14596.24	Akaike info criterion		22.10956
Sum squared resid	7.67E+09	Schwarz criterion		22.27844
Log likelihood	-438.1911	F-statistic		25.78817
Durbin-Watson stat	2.094261	Prob(F-statistic)		0.000000

### 1998

Dependent Variable: net income  
Method: Least Squares

Sample: 1 36  
Included observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6363.778	2880.475	-2.209281	0.0344
Herfindhal index	-3846094.	2874273.	-1.338110	0.1903
Loans	0.014417	0.003179	4.534512	0.0001
Non-interest / interest y	663.2475	790.2651	0.839272	0.4075
R-squared	0.848152	Mean dependent var		7400.222
Adjusted R-squared	0.833916	S.D. dependent var		32775.36
S.E. of regression	13357.07	Akaike info criterion		21.94192
Sum squared resid	5.71E+09	Schwarz criterion		22.11786
Log likelihood	-390.9545	F-statistic		59.57897
Durbin-Watson stat	2.042031	Prob(F-statistic)		0.000000

## Group - foreign banks

### 1999

Dependent Variable: net income  
Method: Least Squares

Sample: 1 41  
Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6476.069	3083.122	-2.100491	0.0426
Herfindhal index	1691711.	2210032.	0.765469	0.4488
Loans	0.006348	0.004227	1.501680	0.1417
Non-interest / interest y	1227.795	1438.421	0.853571	0.3988
R-squared	0.773128	Mean dependent var		6925.829
Adjusted R-squared	0.754733	S.D. dependent var		29255.80
S.E. of regression	14488.78	Akaike info criterion		22.09261
Sum squared resid	7.77E+09	Schwarz criterion		22.25978
Log likelihood	-448.8984	F-statistic		42.02909
Durbin-Watson stat	2.214450	Prob(F-statistic)		0.000000

### 2000

Dependent Variable: net income  
Method: Least Squares

Sample: 1 30  
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6021.097	3929.808	-1.532161	0.1376
Herfindhal index	9292938.	3932773.	2.362948	0.0259
Loans	-2.03E-05	0.003984	-0.005101	0.9960
Non-interest / interest y	2666.839	1853.811	1.438571	0.1622
R-squared	0.834842	Mean dependent var		11525.23
Adjusted R-squared	0.815785	S.D. dependent var		38250.06
S.E. of regression	16417.02	Akaike info criterion		22.37359
Sum squared resid	7.01E+09	Schwarz criterion		22.56042
Log likelihood	-331.6039	F-statistic		43.80830
Durbin-Watson stat	2.092103	Prob(F-statistic)		0.000000