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**ECONOMIC INTEGRATION
IN NORTH AMERICA:
TRENDS IN FOREIGN
DIRECT INVESTMENT AND
THE TOP 1,000 FIRMS**

*Working Paper Number 1
January 1994*



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ECONOMIC INTEGRATION IN NORTH AMERICA: TRENDS IN FOREIGN DIRECT INVESTMENT AND THE TOP 1,000 FIRMS

*by Industry Canada, Micro-Economic Policy Analysis staff, including
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EXECUTIVE SUMMARY

The North American Free Trade Agreement (NAFTA) will further increase economic integration among Canada, the United States and Mexico. The increased economic integration in turn could result in significant restructuring of the three NAFTA economies, brought on by the increased specialization and locational decisions of intra-regional (North American) firms as well as the MNEs from outside North America.

Nevertheless, the restructuring and specialization effects of NAFTA in the three countries will be mainly influenced by the current comparative advantage position and competitiveness of the three countries and government market framework laws and policies and savings and investment incentives. However, the relative strengths and weaknesses of the three countries will, in turn, be largely influenced by the structure, characteristics, activities and performance of top firms in the three NAFTA countries for two reasons: first, they command huge sums of productive resources and, second, they possess superior knowledge about global markets and marketing practices and new and state-of-the-art technologies.

The objective of this paper is two-fold. First, it provides background information on the trade and investment linkages among the three countries and their industrial structure. Second, it identifies and analyzes the structure, performance and characteristics of the top 1,000 North American-based firms. The focus of analysis is productivity performance of the top firms, with the aim of a better understanding of the competitive position of the three North American economies.

Toward this objective, using sales criterion, a consistent database is developed on top 1,000 North American firms, using the existing micro databases. These sources did not, however, capture all of the top Mexican firms. To correct this problem, eight additional firms were identified and added to the list, based upon information from Expansion. The sample of the top 1,008 firms, then, consists of 823 American corporations, 158 Canadian-based firms and 27 Mexican companies. Of the 158 Canadian-based companies, 39 are foreign-controlled (more than 50 percent of their shares are owned and controlled by foreigners).

The major findings of the paper include:

North American Integration:

- Outward direct investments by multinational organizations grew at an average annual rate of 34 percent from 1985 to 1990, more than double the rate of growth of world trade or world output.

- Over the last decade, the United States was transformed from the traditional source country of worldwide investment to a major recipient country of international FDI.
- Between 1989 and 1992, Canada attracted a total of \$19.8 billion of net FDI flows, or an average of \$5.0 billion per year. In addition, globalization has led to a diversification in the origins of FDI.
- Furthermore, faster growth in CDIA relative to FDI stock in the 1980s resulted in a better balance between Canada's inward and outward investment activity.
- Like FDI, CDIA has gradually diversified away from the traditional U.S. market and into Europe.
- The industrial distribution of trade flows, direct investment stock and the activities of the top firms suggest that Canada has a comparative advantage in resources and resource-intensive manufacturing and financial services. On the other hand, the U.S. specializes in technology-intensive manufacturing and commercial services. Both the United States and Canada are similar in that they are leading industrialized economies, and this reflects their comparable levels of national income.
- Mexico concentrates on the production of resources and low skill-intensive and low value-added resource- and technology-intensive manufacturing. While this industrial composition reflects Mexico's status as a newly-industrializing economy, there is still a relatively high proportion of technology-intensive production. This is due to the strong linkages with the United States and intra-firm trade. Relative to Canada and the United States, Mexico's production is concentrated in low value-added goods.

Top North American Firms

- The top firms play a major role in the North American economy. Their combined total assets and sales in 1991 were US\$ 9.2 and US\$ 4.4 trillion, respectively. They employed over 30 million people. The top Canadian and American companies account for over 50 percent of the gross output and at least 25 percent of the GDP of Canada and the United States.
- Moreover, the three largest firms in each industry command a substantial share of the total sales, assets and employment of all the top North American firms.
- The industrial distribution of the top firms in all industries is consistent with the aggregate industrial distribution of each country's trade flows and direct investment stock.
- The trade, outward investment and sales indicators of specialization all demonstrate that Canada has a revealed comparative advantage in resources, resource-based

manufacturing and financial services vis-à-vis the United States. The U.S., on the other hand, has a comparative advantage in technology-intensive manufacturing, trade and service industries.

- Relatively high labour productivity of the top foreign-controlled Canadian firms mainly reflects substantial intra-firm trade in the Canadian manufacturing sector, especially in the technology-intensive industries.
- Labour productivity of Canadian-controlled firms is well above the U.S. level in construction, utilities, trade and financial services. As a result, the labour productivity of the top Canadian-controlled firms in all industries exceeds American firms' productivity by 23 percent. However, total productivity (TP) -- productivity of both labour and capital inputs -- of all the top Canadian firms is 3 percent to 5 percent below the productivity of the top American firms.
- However, similar to recent analysis regarding the aggregate productivity trends in the United States and Canada, labour productivity (sales per employee) of the top domestically controlled Canadian manufacturing firms is, on average, 20 percent to 30 percent below the productivity of the top American manufacturing firms in 1991. Stronger sales growth of the top U.S. firms likely contributed significantly to the productivity gap during the 1986 - 1991 period.
- The combined productivity of capital and labour inputs of the top Canadian-controlled manufacturing firms is only five percent to ten percent below the total productivity of top American firms.
- Labour productivity of the top Mexican firms is well below that of the Canadian firms in all the industries (between 20 percent and 80 percent).
- Employment growth in Canadian manufacturing compared favourably with the experience of U.S. manufacturers during the 1986 - 1991 period.
- The top non-manufacturing American firms' R&D intensity compares favourably with the intensity of the technology-intensive manufacturing firms. On average, the R&D/sales ratio of the top Canadian firms is considerably lower than the top U.S. firms. However, Canadian firms' R&D performance is significantly better than their U.S. counterparts in mining and labour-intensive manufacturing industries.
- The average size of the top American firms is over twice the size of Canadian firms in most of the industries. Nevertheless, the average size of top Canadian firms compares favourably with their American counterparts in the labour-intensive manufacturing, utilities and financial services industries. The size disadvantage for Canadian-based forms is marked in mining, construction, technology-intensive manufacturing and communications industries.

- Aside from the resource-intensive manufacturing and construction industries, the average size of the top 27 Mexican firms is significantly smaller than the Canadian firm size.
- Many of the top Canadian and American firms are global in their outlook, strategies and activities. For instance, foreign assets account for over 25 percent of the total assets of 217 of the top 1,008 corporations and over 400 firms reported foreign assets. In addition, the outward orientation of the top Canadian companies is considerably higher than their American counterparts, which is not surprising, given Canada's small domestic market.
- These firm-specific findings strongly demonstrate the importance of top firms in shaping the structure and competitive position of the three North American economies in the future. Hence, a better understanding of the working and locational decisions of these large firms is crucial for formulating public policy.

INTRODUCTION

During the post-war period, economic integration among the world economies has increased dramatically. The rapid growth of world trade, direct investment stock and the recent explosion of direct investments and of various co-operative arrangements among MNEs are both the cause and the result of increased economic interdependence among firms and nations.¹

Along with global economic integration and the changing role of multinational enterprises (MNEs), there has been a significant increase in intra-regional trade and direct investment flows in the TRIAD countries. The increased trade and investment linkages complement each other and create a cycle of increased economic interdependence among the trading partners.² The MNEs are the main instruments carrying out this trade and investment.

Through trade and direct investments large firms have directly contributed to the integration of the three North American economies and increased their linkages with the overseas economies. They command huge amounts of productive resources and play a critical role in the creation and dissemination of new processes and product innovations which are fundamental to the improvements in living standards. They provide benefits in the form of technology transfer, marketing or distribution networks, and management skills (in more technical terms, "positive spillovers"). In short, large firms shape the pattern of trade and direct investment flows and the competitive position of the three countries.

The objective of this paper is two-fold. First, it provides background information on trends in foreign direct investment (FDI) and trade which contribute to North American economic integration. Second, it identifies and discusses the structure, performance and characteristics of the top 1,000 North American-based firms. A shorter version of this paper is published in the Industry Canada volume on Multinationals in North America.

The paper is organized as follows. The first part analyzes the trade and investment linkages among the three North American countries and their commercial relations with Japan and Europe. Briefly it also examines the recent trends in Canadian inward and outward direct investment stock. Finally, it discusses the industrial structure of trade and outward direct investment of the three countries.

The second part examines in detail the structure, performance and characteristics of the top North American firms. It identifies the significance of the top firms in each of the three economies and reviews the industrial distribution of the top firms' activities. This distribution is then used to create an index of revealed comparative advantage to identify the relative strengths and weaknesses of each country's economy. It then turns to a detailed examination of the productivity performance (capital and labour) of the top firms as well as

its determinants (growth, and research and development [R&D]). Finally, it concludes with a description of the characteristics (average size and outward orientation) of the top firms.

The third and last part of this paper summarizes the main findings and examines their policy implications.

The focus of analysis is the productivity performance of the top firms, with the purpose of reaching a better understanding of the competitive position of the three North American economies. The productivity performance of the top North American firms is crucial for the longer term international competitive position and profitability of the three nations. Firm size, outward orientation, R&D intensity, and the type of activity are some of the key determinants of productivity and growth performance.

Total factor productivity (TFP) -- the efficiency with which all productive resources are used in the production process -- is the fundamental, long-term determinant of living standards. In addition, a country's relative productivity performance determines its international competitive position over the longer term. This involves a nation's ability to compete in international markets in terms of price, quality, variety and service, while maintaining and improving its real, per-capita income.

Total factor productivity at the aggregate level is mainly determined by two key factors: the productive efficiency of individual firms and the allocation of productive resources across firms and industries. As for nations, the relative productivity performance of firms determines their long term competitive position internationally. Superior productivity performance enables a firm to compete with other firms internationally on the basis of price, quality, product choice and service, while paying high wages to its employees and earning adequate return on its investments.

This study concludes that the top firms, through foreign direct investment and trade, have played crucial roles in determining the comparative advantages and the competitive positions of the three countries. On the assumption that further specialization will result from increased economic integration among the three North American Free Trade Agreement (NAFTA) countries, the study suggests:

- the United States will become more specialized in technology-intensive manufacturing and commercial services industries.
- Canada will likely become increasingly active in resources, resource-intensive manufacturing and the financial services industry.³
- Mexican firms will concentrate in the low to middle parts of the value-added chain in the manufacturing sector.

These results are not surprising. Rather, they confirm -- with reference to aggregate and firm-specific data -- the traditional economic patterns and structures in place in the three countries. They also underline the scope of economic integration in North America and the changing, but nonetheless essential, role of MNEs.

NORTH AMERICAN INTEGRATION AND TRENDS IN FDI

This part of the paper sets out the facts behind the integration of industrialized countries, particularly through foreign direct investments and their corresponding trade linkages. Global integration is described through the examination of the recent growth of the world's stock of foreign direct investment. Similarly, the regional integration of trade and investment within North America is examined, as are North American linkages with other industrialized countries, notably the TRIAD economies.

This part also considers the industrial structure of the Canadian, U.S. and Mexican economies, and identifies the strengths of each region in relation to the North American economy. Finally, Canada's inward and outward investment performance is summarized, taking into account the implications of the Canada-U.S. Free Trade Agreement.

FDI and Multinationals

Over the last decade, a marked rise in foreign direct investment (FDI) by multinational enterprises has demonstrated the central role these business organizations play in the international economy. The emergence of MNEs and the significant growth of FDI are the products of globalization.

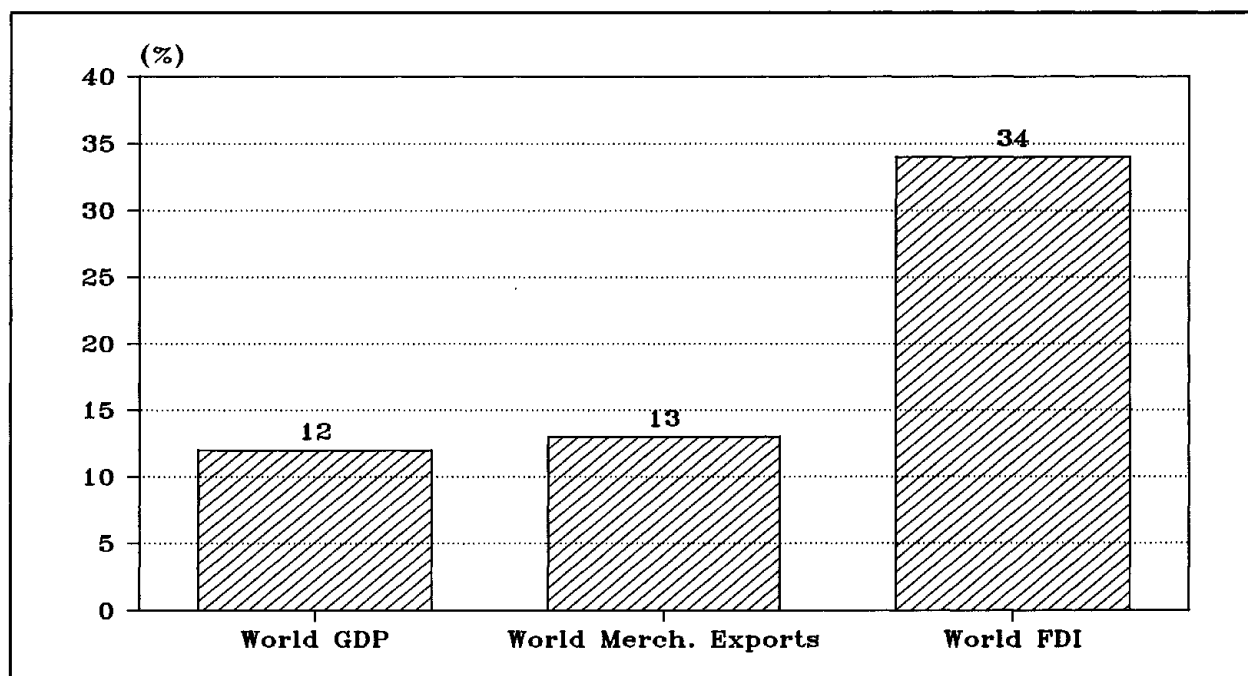
The rapid growth in world foreign direct investment enhances trade linkages among nations. Direct investments by MNEs have become the main engines of trade among nations through their positive impact on intra-firm trade. For instance, much of the trade in manufactured goods between Canada and the United States is of the intra-firm type, especially the automotive industry. Similarly, the considerable increase in trade within the European Community can be attributed to the rise in intra-firm trade, resulting primarily from the greater investment linkages among the member countries.⁴

Among other factors, the significant liberalization of foreign investment in both developed and developing economies has played an important role in increasing international capital flows. The worldwide trend toward more liberal foreign investment regimes reflects a growing consensus among policy makers that MNEs, as major vehicles for transferring capital, technology and management skills across borders, and for stimulating competition, make important contributions to economic growth and rising standards of living in both home and host countries.

The importance of multinationals in relation to international economic activity can be gauged from the following estimates by the United Nations⁵:

- By the early 1990s, the total number of multinational corporations exceeded 37,000, with more than 170,000 foreign affiliates;
- The proliferation in the number of MNEs since the mid-1980s was accompanied by a sizable expansion of FDI flows. Global outflows of FDI reached a high of US\$ 234 billion in 1990. World-wide outflows grew at an average annual rate of 34 percent from 1985 to 1990, exceeding the growth of global merchandise exports (13 per cent) and global output (12 per cent) (see Chart 1).
- By the end of the 1980s, the value of goods and services sold by foreign affiliates totalled an estimated US\$ 4.4 trillion, far greater than world exports, estimated at only \$2.5 trillion (including a substantial volume of intra-firm trade). In other words, production by foreign affiliates is of greater importance than exports in delivering goods and services to markets world wide.

Chart 1
Growth of World GDP, World Merchandise Exports and World Foreign Direct Investment Outflows, Average Annual Growth Rate (Percent, 1985-1990)



Source: World Investment Report, UNCTC (1992).

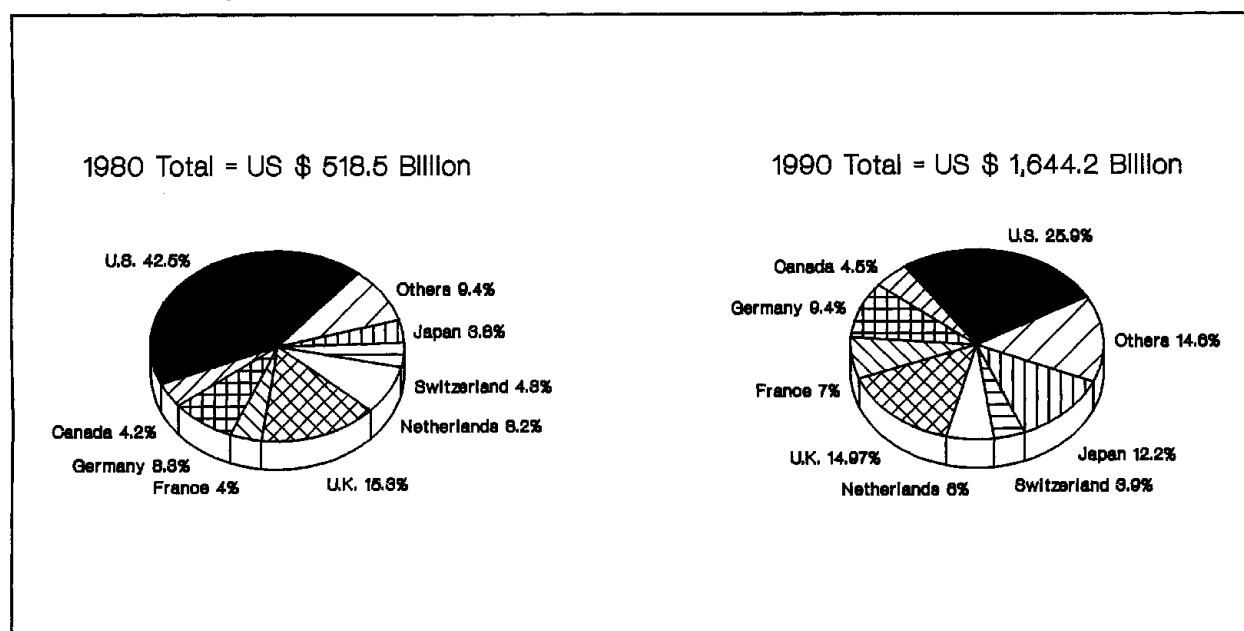
The growth of intra-firm cross-border trade resulting from MNE investments has significantly contributed to the integration of the industrialized and newly industrialized economies. These factors have also strengthened the regional economic linkages within each of the TRIAD communities.

This increased economic integration is necessitated and facilitated by several interrelated developments in the world economy. These include: rapid shifts in the comparative advantage position of firms and nations; dramatic reductions in transportation and communication costs; shorter product cycles, the result of rapid changes in technology; the reduction of barriers to trade, investment and financial flows; the formation of regional trading blocks; convergence of real incomes and tastes around the world; and fierce and growing competition among firms and nations for markets, technology, skilled labour and capital.

World Stock of Foreign Direct Investment

The last decade witnessed an explosion in the growth of foreign direct investment activity among industrialized countries. The stock of world direct investment abroad increased threefold from US\$ 518 billion in 1980 to US\$ 1,644 billion in 1990 (see Chart 2). This growth of FDI activity was accompanied by a significant realignment of the distribution of international direct investment among home and host countries.

Chart 2
World Stock of Direct Investment Abroad (Outward),
Distribution by Source Countries (Percent of total and billions of \$US, 1980 and 1990)

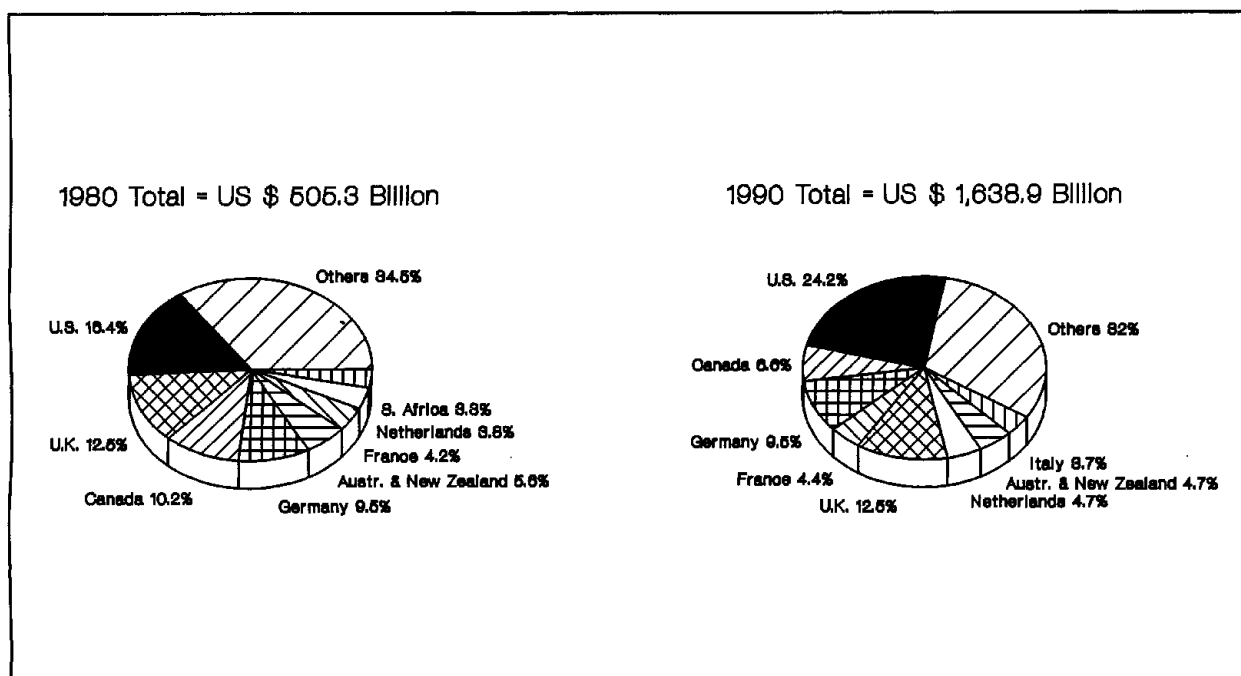


Source: Estimates based on data from U.S. Department of Commerce.

The most notable development was the transformation of the United States from the traditional source country of worldwide direct investment to a major recipient country of international FDI. In 1980, the U.S. accounted for 42.5 percent of world's outward direct investment stock and 16.4 percent of inward direct investment stock. By 1990, however, the U.S. share of outward direct investment stock had fallen to 25.9 percent while its share of inward world direct investment stock rose to 24.2 percent (see Charts 2 and 3).

A second trend over the past decade has been the significant increase in Japan's share of outward direct investment stock. By 1990, Japan's outward investments accounted for 12.2 percent of total world direct investments abroad -- a three-fold increase of its 1980 share of 3.8 percent. Similarly, Germany, France, and the category "other countries" increased their outward share of the world's direct outward investments over the same period by 1.1 percent, 3.0 percent, 5.2 percent respectively.

Chart 3
World Stock of Direct Investment (Inward),
Distribution by Recipient Countries (Percent of total and billions of \$US, 1980 and 1990)



Source: Estimates based on data from U.S. Department of Commerce.

North America and the World Economy

The TRIAD countries account for between 70 percent and 80 percent of total world output, trade and direct investment stock. In 1991 the North American share of world output (GDP) and direct investment stock was just below 30 percent (see Table 1). This makes North America the largest trade and investment block in the TRIAD. Although the role of the Pacific Rim in the world economy is considerably smaller than that of the European Community and North America, its importance has been growing rapidly and this trend is expected to continue. The economies of the Pacific Rim are anticipated to grow at a much faster pace than those of Europe and North America.⁶

Although the NAFTA countries accounted for only about 18 percent of world trade in 1991, they accounted for 28 percent of world direct investment. There has been a dramatic increase in foreign direct investment in the U.S. in the 1980s, largely from Japan, Canada and Europe (particularly the U.K.). The new investment linkages will likely lead to more North American intra-firm trade with the other two trading blocks, thereby raising its share of world trade.

Table 1
Shares of and Total World GDP, Trade and Investment
1991

Indicator	North America (%)	European Community (%)	Asia Pacific (%)	Rest of World (%)	Total World (US \$ Billion)
GDP	29	23	17	31	22,300
Trade (Exports plus Imports)	18	38	18	26	7,000
FDI Stock (Outward plus Inward)	28	41	10	21	3,800

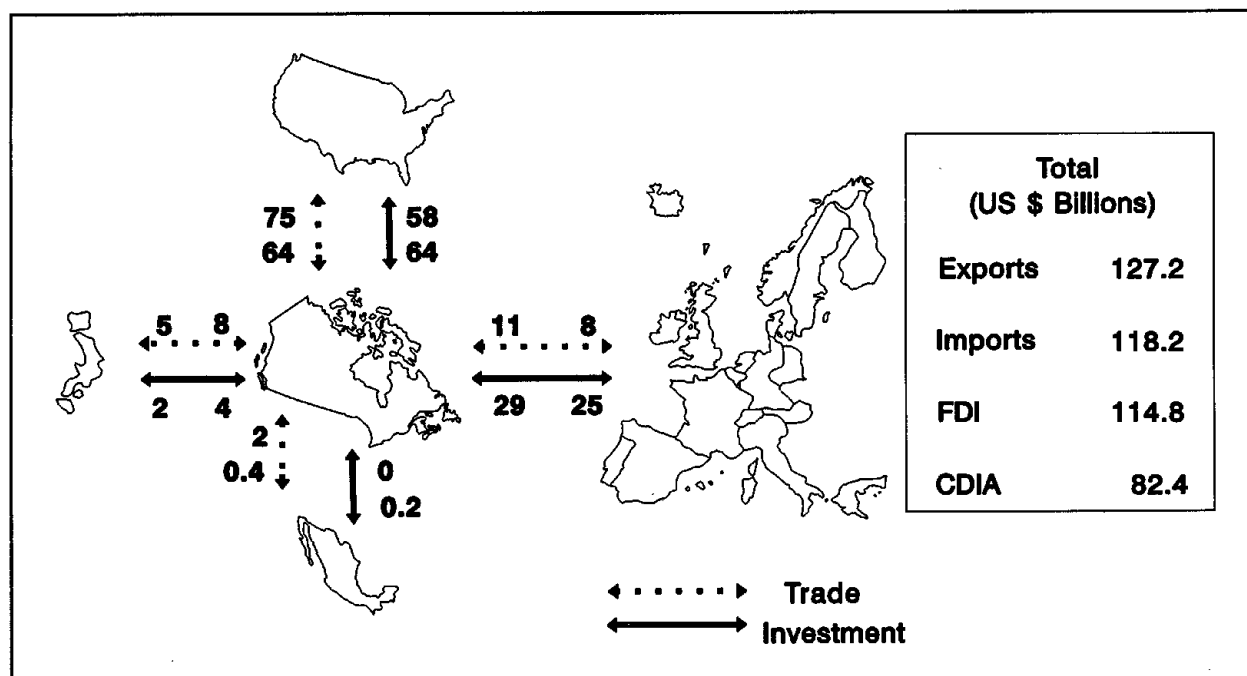
Source: Estimates based on data from UNCTC (1993) and U.S. Department of Commerce.

The United States accounts for the lion's share of North American GDP at 88 percent. Canada at 9 percent and Mexico at 3 percent contribute the rest. Both Canada and the U.S. are developed economies and members of the G-7. In contrast, Mexico is a newly industrializing economy, positioned to achieve rapid growth if it can integrate fully into the U.S. and Canadian industrialized economies.

The trade and investment linkages among the three countries are strong and growing. This is shown by changes in both intra-regional trade and intra-regional investment. In 1991 intra-regional trade between the 3 countries accounted for 19 percent of total North American trade (US \$ 1,260 billion). The investment linkages are not as strong as the trade linkages, with intra-regional direct investment being 11 percent of the total North American foreign direct investment stock (US \$ 1,064 billion). However, these linkages are becoming stronger. For instance, Canadian direct investment in the U.S. has increased substantially in the last 20 years, while it has grown significantly in Mexico (but) from a small base. At the same time, U.S. direct investment in Mexico and Canada continues to grow from a very solid foundation.

The United States is the largest commercial partner of both Canada and Mexico. In the case of Canada, 75 percent of total Canadian merchandise exports in 1991 went to the U.S. and imports from the U.S. accounted for almost two-thirds of its total merchandise imports. Similarly, Canada's investment linkages with the U.S. are very strong and growing. Sixty four percent of the stock of foreign investment in Canada is from the U.S. and 58 percent of Canadian direct investment abroad (CDIA) is located in the United States. On the other hand, its trade and investment linkages with Mexico are relatively weak (see Chart 4).

Chart 4
Geographic Distribution of Canadian Trade and Direct Investment Stock
(Percent of Total and Billions of \$US, 1991)

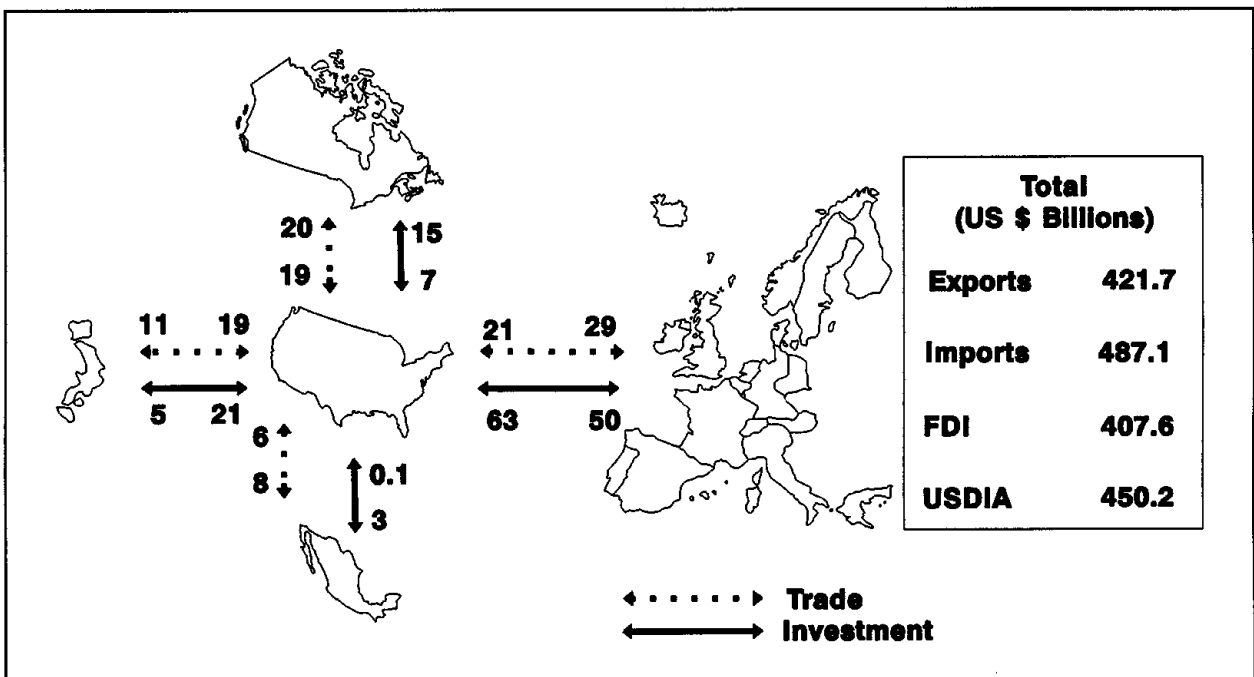


Source: Estimates based on data from Statistics Canada.

Canadian investment relations with Europe are much stronger than its trade linkages. Europe (mostly the U.K., Netherlands and Germany) accounts for between 25 percent and 30 percent of Canada's total direct investment stock, but its share in total Canadian merchandise trade is only about 10 percent. The large amount of intra-regional trade within the European Community (at almost 60 percent of all trade) likely explains this weak correspondence between Canada's trade and investment linkages with Europe.

Canada's commercial relations with Japan, the economic leader of the Asia Pacific Rim, are significant and growing.⁷ With respect to trade, the relationship is balanced, with Japan shipping manufactured goods to Canada and Canada shipping natural resources to Japan. In the case of investment, the relationship is one-sided with Canadian investment in Japan relatively small. However, during the late 1980s and early 1990s, both Canadian investments in Japan and Japanese investment in Canada have grown substantially.

Chart 5
Geographic Distribution of U.S. Trade and Direct Investment Stock
(Percent of Total and Billions of \$US, 1991)



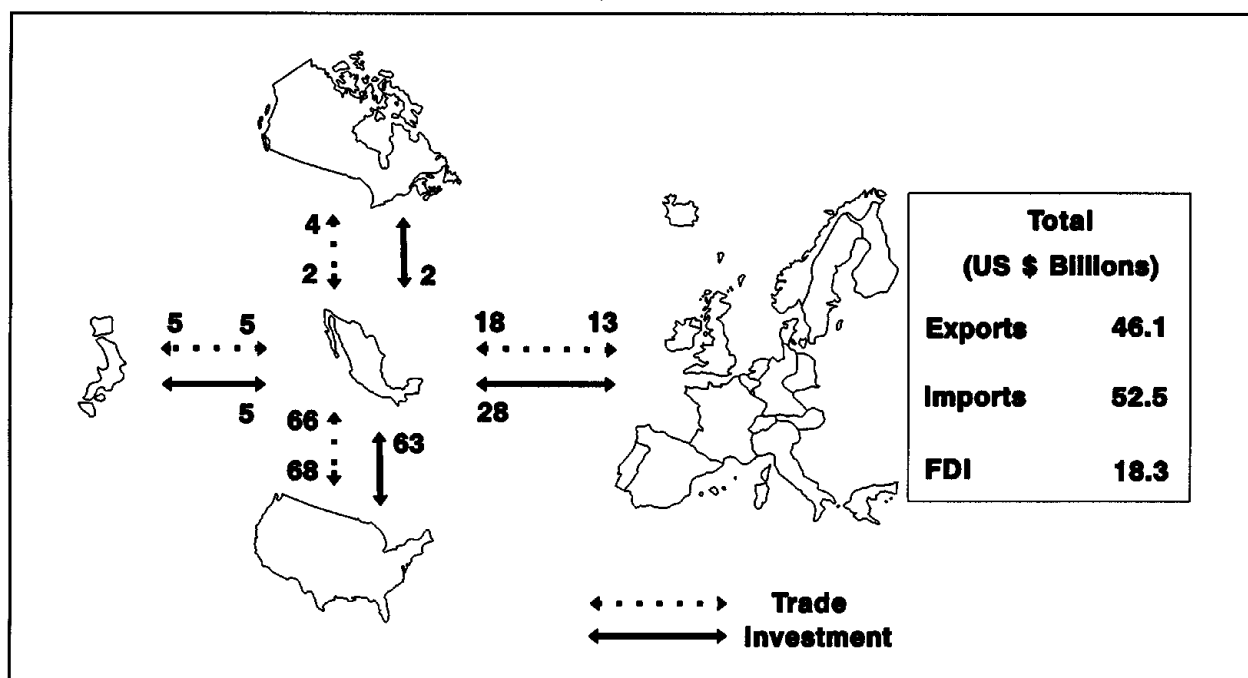
Source: Estimates based on data from U.S. Department of Commerce.

Europe (mainly Germany, France and U.K.), Canada and Japan are the most important commercial partners of the United States. Canada accounted for about 20 percent of total U.S. merchandise trade in 1991 and between 7 and 15 percent of its total direct

investment (inward [FDI] plus outward [USDIA]) stock. Like Canada, the U.S. investment linkages with Europe are considerably stronger than its trade linkages (see Chart 5).

The United States trade and investment relations with Mexico are fairly sizeable and have been growing steadily. Since Mexico is expected to grow much faster than Canada and the United States, due to the catch-up process of a newly industrializing economy, Mexico's future shares in the North American economy, and in total U.S. trade and direct investment, are expected to increase significantly in the future.

Chart 6
Geographic Distribution of Mexican Trade and Direct Investment Stock
(Percent of Total and Billions of \$US, 1991)



Source: Estimates based on data from Banco de Mexico (1992) and U.S. Department of Commerce.

Mexico's largest and most important commercial partner is the United States: two-thirds of all its trade and direct investment is with the United States (see Chart 6). It also has important commercial relations with Europe and Japan. On the other hand, Canada does not currently play a significant role in Mexican trade and foreign direct investment.

In sum, North America plays a major role in the world economy. Intra-regional movements within the three countries account for a significant share of total North American trade and investment stock, and these linkages are growing and expected to strengthen in the post-NAFTA period. The three North American economies also have important commercial

relations with Europe and Japan. This implies that the locational and organizational decisions of intra- and extra-regional MNEs could play an even larger role in the future restructuring of the North American economies.

Canada's Investment Performance

The following section examines in some detail the recent trends in Canada's inward and outward direct investment stocks.

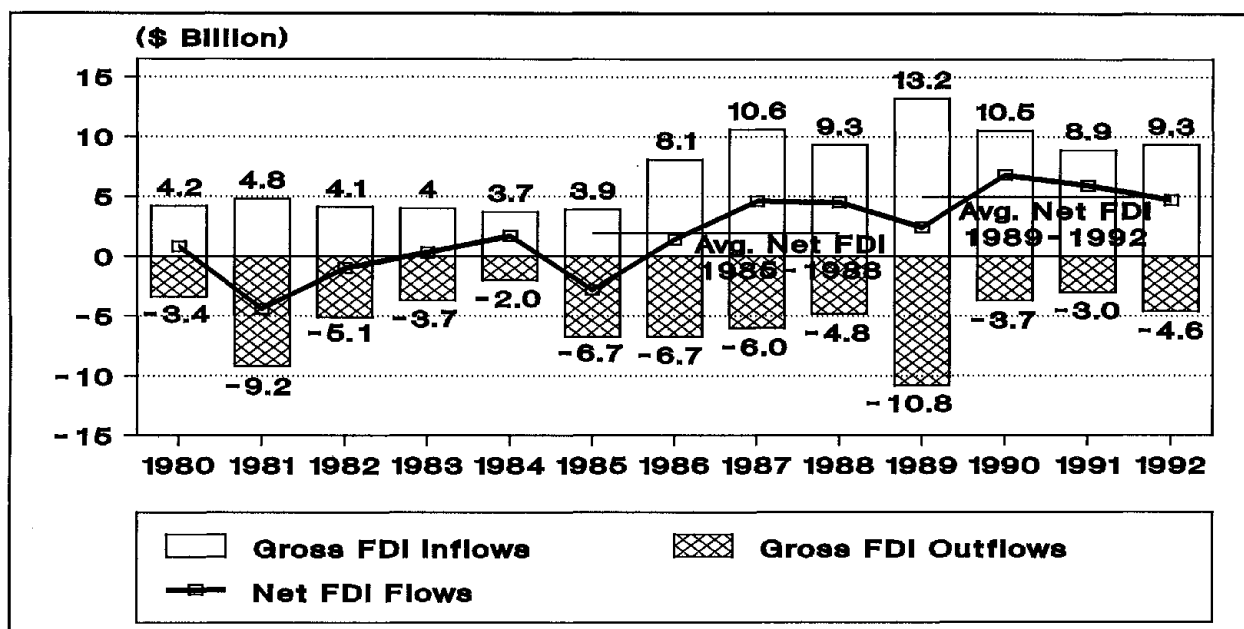
Foreign Direct Investment

In the late 1980s, Canada embarked upon a policy of trade and investment liberalization with the U.S. which included dismantling the National Energy Program and changing the Foreign Investment Review Agency to Investment Canada, and which culminated in the Canada-United States Free Trade Agreement (FTA). Since the inception of the FTA in 1989, foreign investors have shown a significant interest in Canada as reflected in a sharp rise in cross-border capital flows. Underlying this development is the confidence in the business opportunities that have been created in both Canada and the U.S. by the FTA and the security of U.S. market access that has been provided to foreign investors locating production in Canada.

From 1989 to 1992, Canada attracted a total of \$19.8 billion of net FDI flows, or on average about \$5.0 billion a year. This compares with cumulative FDI of \$7.6 billion in the four preceding years (1985-1988), or on average roughly \$2.0 billion a year (see Chart 7). Almost 40 percent of these flows in the post-FTA years originated in the United States.

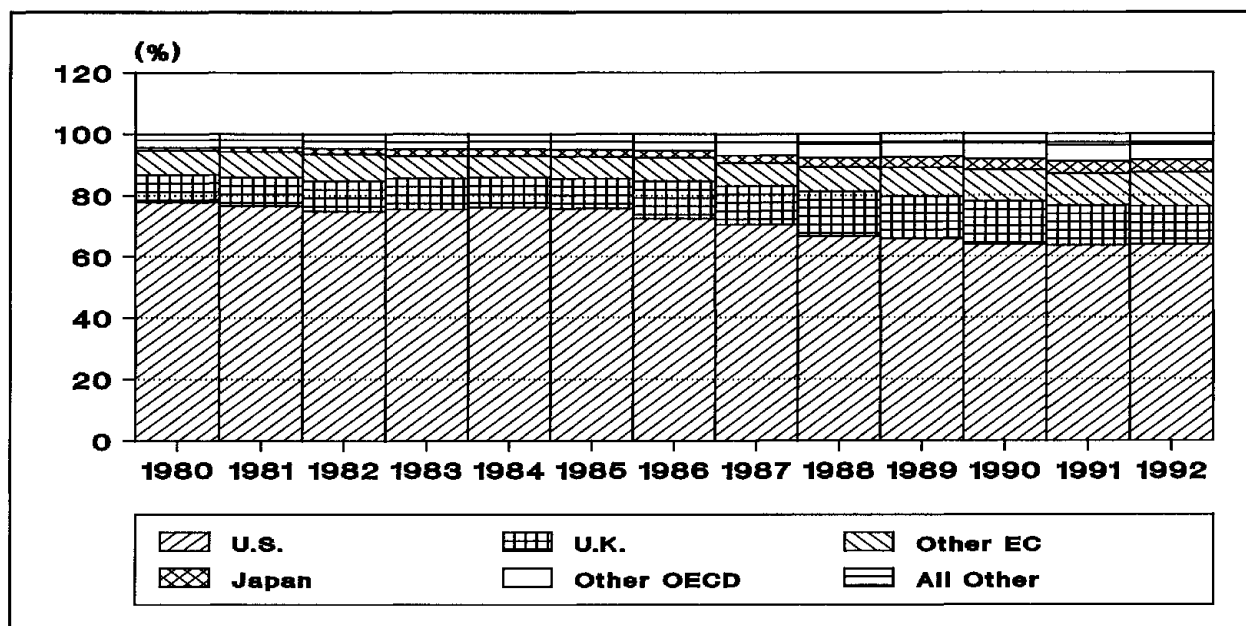
At year-end 1992, the stock or book value of FDI in Canada stood at \$136.6 billion; up from \$131.6 billion in the previous year. Globalization has led to a diversification in the origins of FDI. While the U.S. continues to account for the bulk of FDI assets in Canada, its relative share of FDI stock has diminished since the early 1980s, from a high of 77.8 percent in 1980 to 66.7 percent in 1988. Strong capital inflows from the U.S. since the FTA have slowed the decline in the U.S. share of FDI stock, even showing a slight upturn in 1992 (see Chart 8).

Chart 7
Gross and Net Foreign Direct Investment Flows to Canada
 (\$ Billions, 1980 to 1992)



Source: Estimates based on data from Statistics Canada.

Chart 8
Composition of FDI Stock by Home Country
 (Percent of Total, 1980 to 1992)



Source: Estimates based on data from Statistics Canada.

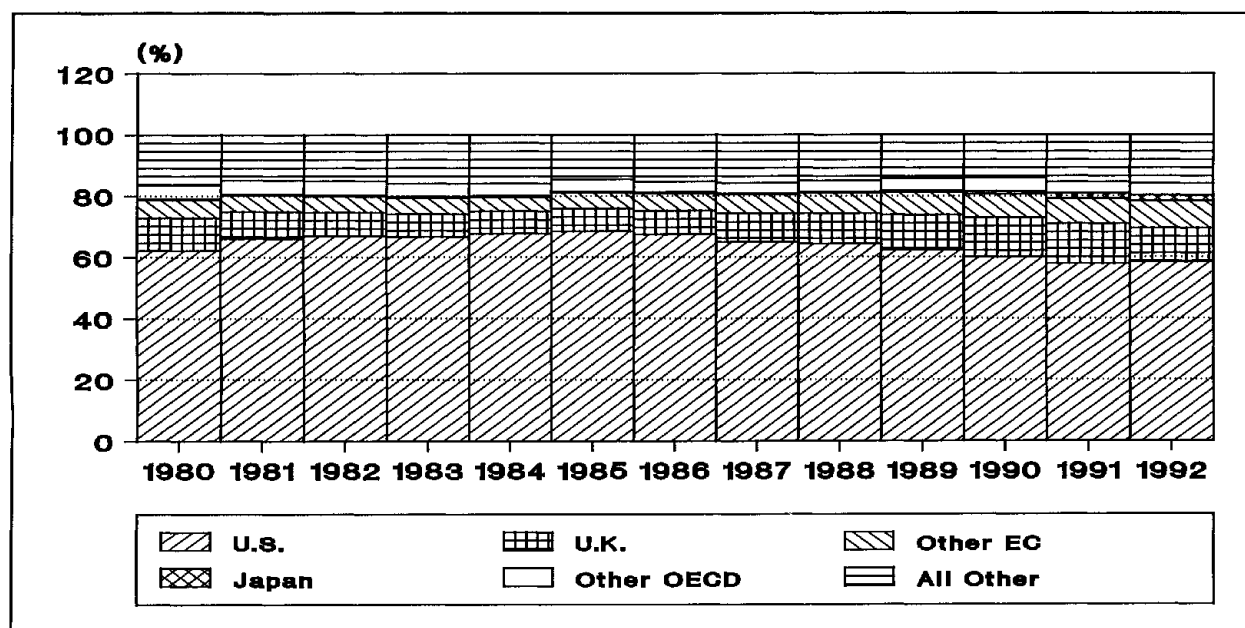
In the interim, members of the European Community raised their stake in FDI in Canada, from 16.9 percent in 1980 to 23.5 percent in 1992. The most impressive gains, however, were made by Japan, which more than quadrupled its relative share of FDI stock, from 0.9 percent in 1980 to 4.1 percent in 1992. The Pacific Rim, including Japan, has emerged as a significant source of foreign capital with 7.0 percent of FDI assets in 1991.

Canadian Direct Investment Abroad

Attracting investment to Canada is only part of Canada's total investment effort. For Canadian companies to remain competitive, they must invest abroad. They need the benefits of economies of scale, access to new markets, and the alliances that international investment brings. Particularly in light of Canada's relatively small domestic economy, Canadian outward direct investment is an important strategy for Canadian MNEs who intend to compete globally.

At the end of 1992, the stock of Canadian direct investment abroad stood at \$99.0 billion, up 4.8 percent from the previous year (see Chart 9). Over the past decade, faster growth of CDIA relative to FDI stock has resulted in bringing about a better balance between Canada's inward and outward direct investment activity. CDIA stock accounted for over 70 percent of Canadian FDI stock in 1992, compared to about 50 percent in 1982.

Chart 9
Composition of CDIA Stock by Host Country
(Percent of Total, 1980 to 1992)



Source: Estimates based on data from Statistics Canada.

Since the mid-1980s, CDIA has gradually diversified, moving away from the traditional U.S. market and into Europe. While the U.S. has continued to account for the bulk of CDIA in 1992 (58.4 percent), its relative share of these assets has dropped about 10 percentage points since 1985. During this period, much of Canada's overseas direct investment was destined for the European Community, whose share of CDIA rose by 7.5 percent. In 1992 the U.K. (which in the past has served Canadian investors as a springboard to Europe) accounted for only one-half that gain.

In 1991, Canada's direct investment in Japan rose almost 125 percent to reach \$1.7 billion or 1.8 percent of total CDIA stock. In 1980, less than one-half of one percent of CDIA was located in Japan. Today Japan and France are tied as the seventh largest destination(s) of CDIA.

North America and its Industrial Structure

An important objective of this study is to relate the industrial composition of trade flows and direct investment stock among the three countries to the structure, performance and characteristics of the top North American based firms. Toward this goal, we examine the industrial distribution of trade and investment linkages among the three NAFTA countries. First, the Canada-U.S. linkages are considered, followed by the Mexican trade and investment relations.

Canada and the U.S.

Between Canada and the U.S., the industrial distribution of merchandise exports to and imports from each country is very similar, implying large intra-industry and intra-firm trade between the two countries. This also underscores the fact that they are both industrialized economies. The convergence is particularly strong in chemicals and machinery and equipment manufacturing industries, a reflection of substantial amount of intra-firm trade, especially in the transportation equipment industry (see Table 2). However, Canadian exports to the United States are more concentrated in resources, resource-based manufacturing, and transportation equipment. U.S. exports to Canada, on the other hand, are more in chemicals and chemical products, electrical and non-electrical machinery and transportation equipment industries (see Table 2).

The industrial distribution of Canadian direct investment stock in the United States and the distribution of U.S. direct investment stock in Canada are similar to the distribution of trade flows between the two countries. Canadian direct investment in the United States is, however, more concentrated in resource and resource-based manufacturing and in financial service industries [banking, finance, insurance and real estate] (see Table 3). In contrast, the U.S. direct investment stock is found more in chemicals and chemical products, petroleum, transportation equipment, wholesale trade and finance industries.

Table 2
Industrial Distribution of Canadian Merchandise Exports to and
Imports from the United States
(Percent of Total, 1989)

Industry	Exports	Imports
Primary Industries	15.6	16.0
Manufacturing	84.4	84.0
Distribution of Manufacturing Exports and Imports		
Food, beverages and tobacco	2.6	2.2
Paper and publishing	12.5	3.8
Lumber and furniture	6.6	1.8
Primary metals	7.4	3.3
Fabricated metals	2.0	2.6
Nonmetallic mineral products	1.0	1.2
Rubber and plastic products	1.8	2.4
Petroleum refining	2.0	1.1
Textiles, leather and clothing	1.1	2.2
Chemical products	5.4	7.3
Non-electrical machinery	9.5	16.5
Electrical machinery	7.3	17.1
Transportation equipment	39.0	32.7
Miscellaneous manufacturing	1.9	5.8

Source: Estimates by Rao and Lemprière (1992).

Table 3
Industrial Distribution of the Stock of U.S. Direct Investment in Canada
and Canadian Direct Investment in the United States
(Percent of Total, 1991)

Industry	USDIA in Canada	CDIA in the U.S.
Petroleum	15.8	3.0
Primary Industries	8.0	14.7
Total Manufacturing	47.2	32.2
Food	3.3	3.2
Chemicals	9.8	2.2
Metals	4.9	6.1
Machinery	4.0	6.4
Other Manufacturing	3.5	14.4
Trade	9.3	0.9
Banking	12.2	6.6
Finance	6.4	8.2
Insurance	1.5	17.7
Real Estate	17.8	13.6
Services	3.2	3.0
Total	100.0	100.0

Source: Estimates based on data from U.S. Department of Commerce.

The complementarity of the industrial composition of trade flows and direct investment stock between the two countries, especially in manufacturing, strongly suggests that Canadian and U.S. firms are exploiting their respective positions of comparative advantage through both trade as well as direct production in each other's countries. (The comparative advantage of the two countries is discussed in some detail later.)

Mexico

Primary industries accounted for over 38 percent of total Mexican merchandise exports in 1991; the rest were in manufactured products. Surprisingly, chemicals and chemical products and machinery and equipment industries, usually classified as technology-

intensive manufacturing industries, accounted for almost two-thirds of Mexico's total manufactured exports. Autos and auto parts contributed about 60 percent of all of its machinery and equipment exports (see Table 4).

Table 4
Industrial Distribution of Mexican Exports, Imports and
U.S. Direct Investment (Stock) in Mexico
(Percent of Total, 1991)

Industry	Total Exports	Total Imports	USDIA in Mexico
Petroleum	38.1	7.1	0.0
Other Industries			14.2
Total Manufacturing	61.9	92.9	73.4
Food and Beverages	7.2	7.3	8.1
Chemicals and Chemical Products	11.7	9.5	17.1
Primary Metals	10.7	7.6	2.9
Fabricated Metal Products	53.1	58.1	
Machinery and equipment			
Electrical Products			
Transportation Equipment			
Other Manufacturing	17.9	17.5	16.7
Wholesale Trade			7.2
Banking			0.0
Finance			3.4
Services			1.6

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Banco de Mexico (1992), Unger (1993) and U.S. Dept. of Commerce.

The large share of technology-intensive exports are mainly the result of large intra-firm exports of foreign subsidiaries, especially the U.S. affiliates. The foreign subsidiaries are taking advantage of the low labour costs and are producing the low value-added and low skill-intensive components of technology-intensive industries in Mexico. In turn, much of the

output of these industries is exported back to their parents and other countries. The industrial distribution of U.S. direct investment stock in Mexico and the composition of sales and employment of top Mexican firms by industry and by foreign control, presented in the next part, support this view.

Not surprisingly, manufactured products account for almost 93 percent of total Mexican merchandise imports. Like exports, machinery and equipment and chemicals and chemical products contributed over two-thirds of its total manufactured imports (see Table 4). The similarity of industrial distribution of Mexican manufactured exports and imports, again, strongly indicates the important role of intra-firm trade in its merchandise trade.

The manufacturing sector's share in U.S. direct investment stock in Mexico was 75 percent in 1991. Furthermore, chemicals and chemical products, transportation equipment and light machinery industries largely accounted for the U.S. direct investment stock in manufacturing at about 60 percent (see Table 4). As mentioned above, the industrial distribution of U.S. direct investment stock strongly suggests that intra-firm trade has played a major role in the determination of the industrial composition of Mexican trade flows.

STRUCTURE, PERFORMANCE AND CHARACTERISTICS OF THE TOP NORTH AMERICAN FIRMS

The objective of this part of our study is to identify and provide an overview of the structure, performance and characteristics of the top North American-based enterprises. The activities of these large firms are related to aggregate data bearing on the country-specific features of the three signatories to the NAFTA. Simply put, this part aims to set out how the main economic strengths and weaknesses of the U.S., Canada and Mexico are shaped by their largest firms.

The selection process identifying the top 1,000 North American-based firms is neither straightforward nor easy. Selection could be based on any one of a number of criteria, including total sales, total assets, employment, profits, growth of sales, etc. Applying each criterion independently leads to a different list of top firms.

The process used to select the top 1,000 North American-based firms for this study uses the sales criterion. This method introduces less bias toward any particular industrial grouping, thereby permitting the sample of firms to be distributed across all industries. For instance, the asset criterion results in the selection of a disproportionately larger share of firms from capital intensive and financial industries whereas the sales criterion ensures that the sample of firms more appropriately reflects the industrial strength of the three economies.

The sample of the 1,000 largest North American firms consists of 823 U.S.-based companies, 158 Canadian-based enterprises and 19 Mexican-based firms. The sample is taken for 1991 only, so it represents a snapshot of one point in time. Data related to the firms' growth are available for a five-year period from 1986 to 1991.

The firms were selected from the Disclosure/Worldscope Global Database. The information on Canadian and U.S. firms was verified and, as required, supplemented with information from Compact Disclosure Canada, Financial Post 500, the Fortune 500 and Moody's International. These sources did not, however, capture all of the top Mexican firms. To correct this, eight additional Mexican firms were identified and added to the list based upon information from Expansión. As a result the sample is extended to 1,008 firms.

The structure of the top firms is first considered in geographic and sectoral terms; then, Second, the performance of the top firms is examined in terms of productivity, growth and R&D. Finally, the characteristics of the top North American firms are analyzed, including such factors as average firm size and degree of globalization.

Structure

The Top North American Firms

Virtually all the top firms play a major role in the North American economy. Total sales of the top firms varied between US\$ 0.74 and US\$ 122 billion. Their combined total assets and sales in 1991 were US\$ 9.2 and US\$ 4.4 trillion respectively. They employed over 30 million people.

The distribution of the top 1,008 firms by country corresponds to the relative contribution of each country to the North American economy. There are 823 American companies, 82 percent of the sample, which is similar to the 88 percent U.S. share of North American GDP.

One hundred and fifty-eight Canadian-based companies, or 15.7 percent of the sample, exceeds Canada's 9 percent share of North American GDP. Their 10 percent sales and 14 percent asset shares also exceed the 9 percent contribution of Canada's share in North American GDP (see Chart 10).

Of the 158 Canadian-based companies listed, 39 are foreign-controlled. Ergo, 119 of the top North American firms in Canada, or 11.8 percent of the total number, are domestically controlled.

Table 5
Summary of Characteristics of Sample of Top Firms
(Percent)

Country	Top Firms' Sales as a % of Total Gross Output	Top Firms' Employment as a % of Total Employment
Canada	52	19
United States	50	25
Mexico	19	2

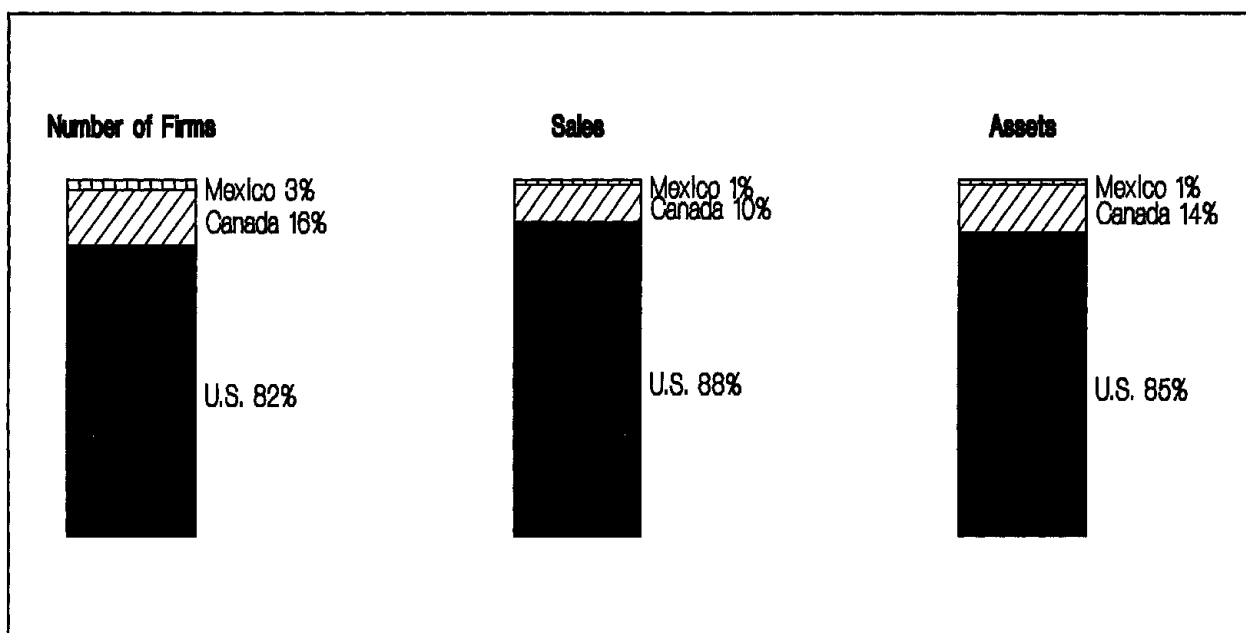
Source: Estimates based on data from Disclosure Inc., Statistics Canada, and Expansión.

There are 27 Mexican companies listed, representing 2.7 percent of the sample, or slightly less than its 3 percent share of GDP. Many of them are American subsidiaries. Moreover, the UNCTC data shows that in 1992 there were no Mexican MNEs, compared to over 1,300 Canadian and almost 3,000 U.S. MNEs.

Not all of the top North American firms are necessarily MNEs. However, 400 firms reported assets and sales in more than one country. In addition, as will be discussed later in more detail, foreign assets account for over 25 percent of the total assets of 217 of the top 1,008 corporations. The status of the remainder is not known.

The shares of the top U.S. firms in total U.S. gross output (value-added plus intermediate inputs) and employment were 50 percent and 25 percent respectively (see Table 5). The top 158 Canadian-based firms accounted for 52 percent of total Canadian gross output and 19 percent of employment. These results in turn suggest that the top U.S. and Canadian firms account for at least 25 percent of GDP of the two countries, because the share of GDP in the aggregate gross output is over 50 percent.

Chart 10
Distribution of Top Firms by Number of Firms, Sales and Assets
(Percent of Total)



Source: Estimates based on data from Disclosure Inc. and Expansión.

In contrast, the top 27 Mexican firms account for only 19 percent of Mexico's total gross output and 2 percent of its total employment. This distribution of the sales and assets of the top North American firms by country further underlines the limited representation Mexico has in the sample (see Chart 10). This limited role of the top Mexican firms in the Mexican economy strongly suggests that the main characteristics of the Mexican economy are largely shaped by its small and medium-sized firms.

Table 6
Top 20 U.S. Firms

Rank by Sales	Rank by Assets	Company Name	Industry	Sales (\$US Million)
1	2	GENERAL MOTORS CORPORATION	Motor Vehicles & Equipment	122,081
2	19	EXXON CORPORATION	Mining	102,847
3	3	FORD MOTOR COMPANY	Motor Vehicles & Equipment	88,286
4	16	INTERNATIONAL BUSINESS MACHINE	Computer & Office	64,792
5	31	AMERICAN TELEPHONE & TELEGRAPH	Communications	63,089
6	4	GENERAL ELECTRIC COMPANY	Electrical Products	59,379
7	12	SEARS, ROEBUCK AND COMPANY	Retail Trade	57,242
8	46	MOBIL CORPORATION	Mining	56,042
9	35	PHILIP MORRIS COMPANIES, INC.	Tobacco	48,064
10	130	WAL-MART STORES, INC.	Retail Trade	43,886
11	54	DU PONT (E.I.) DE NEMOURS AND	Petroleum Refining	38,695
12	82	TEXACO INC.	Mining	37,271
13	58	CHEVRON CORPORATION	Mining	36,461
14	125	K MART CORPORATION	Retail Trade	34,580
15	1	CITICORP	Depository Institution	31,839
16	44	CHRYSLER CORPORATION	Motor Vehicles & Equipment	29,370
17	90	PROCTER & GAMBLE COMPANY (THE)	Chemicals & Allied	29,362
18	128	BOEING COMPANY (THE)	Aircraft & Parts	29,314
19	6	AMERICAN EXPRESS COMPANY	Securities & Brokers	25,763
20	72	AMOCO CORPORATION	Mining	25,325

Source: Estimates based on data from Disclosure Inc.

Tables 6, 7 and 8 set out the names, ranking, industry and sales of the largest 20 U.S., Canadian and Mexican firms from the database. The top 20 U.S. firms are very large in terms of sales, assets and employment. Their combined assets were almost US\$ 1.6 trillion in 1991. Their sales (US\$ 1 trillion) accounted for over 23 percent of the total sales of all top American firms and 13 percent of all U.S. gross output. They employed more than 4 million people or approximately 4 percent of the U.S. workforce.

Table 7
Top 20 Canadian Firms

Rank by Sales	Rank by Assets	Company Name	Industry	Sales (\$US Million)
36	48	BCE INC.	Communications	17,200
38	327	GENERAL MOTORS OF CANADA LTD.	Motor Vehicles & Equipment	16,847
60	8	ROYAL BANK OF CANADA	Depository Institution	12,414
84	462	FORD MOTOR CO. OF CANADA LTD.	Motor Vehicles & Equipment	10,531
101	433	GEORGE WESTON LTD.	Wholesale Trade	9,316
105	11	CANADIAN IMPERIAL BANK OF COMMERCE	Depository Institution	9,176
111	18	BANK OF MONTREAL	Depository Institution	8,861
114	116	CANADIAN PACIFIC LTD.	Transportation	8,711
123	21	THE BANK OF NOVA SCOTIA	Depository Institution	8,287
124	231	NORTHERN TELECOM LTD.	Communications Equipment	8,182
126	175	IMPERIAL OIL LTD.	Mining	7,994
127	362	BRASCAN LTD.	Mining	7,979
132	198	ALCAN ALUMINIUM LTD.	Primary Metals	7,748
141	584	LOBLAW COMPANIES LTD.	Retail Trade	7,381
143	492	CHRYSLER CANADA LTD	Motor Vehicles & Equipment	7,157
144	160	NORANDA INC.	Lumber and Wood	7,118
152	70	SUN LIFE ASSURANCE CO. OF CANADA	Insurance	6,856
171	176	SEAGRAM CO. LTD.	Food & Products	6,242
174	52	ONTARIO HYDRO	Utilities	6,179
185	78	MANUFACTURERS LIFE INSURANCE COMPANY	Insurance	5,845

Source: Estimates based on data from Disclosure Inc.

The sales of top 20 Canadian firms vary between US\$ 5.8 billion for Manufacturers Life Insurance Company to US\$ 17.2 billion for BCE Inc. The sales of top 20 Canadian firms accounted for 40 percent of the sales of all 158 top Canadian-based firms. This corresponds to 21 percent of total gross output in Canada. Similarly, they commanded over 50 percent of total assets and more than one-third of total employment (2 million) of all the top Canadian-based firms. The top 20 firms also accounted for over 6 percent of Canadian employment.

Table 8
Top 20 Mexican Firms

Rank by Sales	Rank by Assets	Company Name	Industry	Sales (\$US Million)
30	37	PETROLEOS MEXICANOS	Petroleum Refining	18,884
206	168	TELEFONOS DE MEXICO	Communications	5,268
280	127	BANCA SERFIN	Depository Institution	3,796
351	372	VITRO SOCIEDAD ANOMINA	Non-Metallic Minerals	3,004
380	655	CIFRA	Retail Trade	2,754
417	609	GENERAL MOTORS DE MEXICO	Motor Vehicles & Equipment	2,502
432	408	GRUPO INDUSTRIAL ALFA	Primary Metals	2,435
451	747	CHRYSLER DE MEXICO	Motor Vehicles & Equipment	2,322
532	521	FOMENTO ECONOMICO MEXICANO	Food & Products	1,785
535	761	VOLKSWAGEN DE MEXICO	Motor Vehicles & Equipment	1,777
554	398	CEMEX	Non-Metallic Min.	1,704
576	527	VALORES INDUSTRIALES	Food & Products	1,652
637	643	DESC SOCIEDAD DE FOMENTO INDUSTRIAL	Other Financial Services	1,467
699	555	EMPRESAS ICA SOCIEDAD CONTROLADORA	Construction	1,263
718	806	GRUPO INDUSTRIAL BIMBO	Food & Products	1,224
841	741	CORPORACION MEXICANA DE AVIACI	Transportation	978
855	734	CELANESE MEXICANA	Chemicals & Allied	939
880	232	FERROCARRILES NACIONALES DE MEXICO	Other Transportation Equipment	914
910	457	GRUPO INDUSTRIAL MINERA MEXICO	Mining	869
923	756	HYLSA	Primary Metals	852

Source: Estimates based on data from Disclosure Inc. and Expansión.

Total sales of the top 20 Mexican firms varied from a low of US\$.85 billion for Hylsa (primary metals) to a high of US\$ 18.9 billion for Petroleos Mexicanos (petroleum refining). The combined assets and sales of the top 20 Mexican firms were over US\$ 118 billion and US\$ 56 billion respectively. The employed about 507,000 people.

Industrial Distribution of the Top Firms

The following describes the industrial distribution of the top North American firms. Using the four-digit SIC code, the top North American firms were grouped according to their primary activity into about 40 industries. Of these, 25 are manufacturing industries. The individual manufacturing industries have been further arranged into three major groupings: labour-intensive, resource-intensive and technology-intensive industries, which are defined in Table 9.⁸

One third of all top Canadian firms are in mining (13 percent) and resource-intensive manufacturing (20 percent) industries. These firms account for over 25 percent of the total sales of all top Canadian firms. Similarly, the American top firms in these industries account for about 24 percent of sales of the top U.S. firms. Furthermore, over half of the sales of the Mexican top firms are in the resource-intensive manufacturing and mining industries (see Table 10). Table 5-1 in Appendix 5 provides a more detailed disaggregation for the American and Canadian firms.

Table 9
Components of Major Industry Groupings

Grouping	Industry
Agriculture & Fishing	
Mining	
Construction	
Labour-Intensive Manufacturing	Textiles Clothing Furniture and Fixtures Printing & Publishing Leather and Products Miscellaneous Manufactured Goods
Resource-Intensive Manufacturing	Food & Products Tobacco Lumber and Wood Paper & Allied Petroleum Refining Non-Metallic Minerals Primary Metals Fabricated Metals

Grouping	Industry
Technology-Intensive Manufacturing	Chemicals & Allied Rubber & Products Machinery excl. Electrical Computer & Office Electrical Products Communications Equipment Miscellaneous Electrical Products Motor Vehicles & Equipment Aircraft & Parts Other Transportation Equipment Light Machinery
Transportation	
Communications	
Utilities	
Trade	Wholesale Trade Retail Trade
Finance	Depository Instit. Non-Depository Institutions Securities & Brokers Insurance Other Fin. Services
Services	Commercial Services Health Services Other Services

Table 10
Industrial Distribution of the Top U.S., Canadian and Mexican Firms
(Percent of Total)

Industry	United States			Canada			Mexico		
	No. of Firms	Assets	Sales	Employees	No. of Firms	Assets	Sales	Employees	No. of Firms
Agriculture & Fishing	3	0.07	0.21	0.27	0				0
Mining	25	4.06	8.52	2.07	20	5.05	10.55	6.17	1
Construction	9	0.32	0.76	0.58	2	0.10	0.56	0.50	1
Labour-Intensive Manufacturing	44	1.18	2.23	2.35	7	1.39	3.15	5.20	0
Resource-Intensive Manufacturing	109	5.95	13.09	8.96	31	7.07	14.78	18.34	10
Technology-Intensive Manufacturing	193	17.55	28.45	24.21	17	3.08	14.71	10.89	7
Transportation	23	1.59	2.81	3.07	9	3.27	5.88	10.45	1
Communications	19	4.30	5.19	4.34	5	4.18	4.95	6.55	2
Utilities	86	6.81	6.00	2.89	12	8.71	5.54	3.42	0
Trade	119	4.76	15.41	41.18	30	3.46	16.51	24.86	3
Finance	145	51.99	15.00	6.94	25	63.69	23.37	13.61	2
Services	48	1.42	2.32	3.15	0				0
Total*	823	7,806	3,874	27,329	158	1,241	457	2,382	27
						125	62	520	

Note: Blank cells indicate data is not available.

* Sales and assets are denominated in US \$ billions and employment in thousands.

Source: Estimates based on data from Disclosure Inc. and Expansion.

On the other hand, over 28 percent of the sales of U.S. top firms are in the technology-intensive manufacturing industries, compared to only 15 percent in Canada. In addition, 13 of the 17 top technology-intensive manufacturing firms in Canada are foreign controlled. Similarly, the activity of foreign-controlled firms is also prevalent in the mining sector. Of the 20 Canadian-based mining firms, 10 are foreign-controlled (see Table 11). For more detailed industry information, see Table 5-2 in Appendix 5. In Mexico, 16 percent of the sales of the top firms are in the technology-intensive manufacturing industries. The large share of technology-intensive industries in Mexico is mainly a reflection of the activities of foreign controlled firms, particularly in the motor vehicle and equipment industry.

Table 11
Industrial Distribution of Domestic- and Foreign-controlled Canadian Firms
(Percent of Total)

Industry	Domestically-controlled				Foreign-controlled			
	No. of Firms	Assets	Sales	Employees	No. of Firms	Assets	Sales	Employees
Mining	10	2.42	6.00	5.15	10	41.83	23.38	8.51
Construction	2	0.10	0.66	0.59	0			
Labour-Intensive Manufacturing	7	1.43	3.69	6.05	0			
Resource-Intensive Manufacturing	26	10.79	26.25	27.78	5	5.04	4.33	4.53
Technology-Intensive Manufacturing	4	1.19	3.44	5.30	13	29.75	50.69	30.83
Transportation	8	3.25	6.47	12.08	1	1.69	1.52	0.35
Communications	5	4.29	5.79	7.63	0			
Utilities	11	8.77	6.13	3.81	1	2.71	1.30	0.73
Trade	22	2.32	14.50	15.82	8	18.57	17.77	54.81
Finance	24	65.44	27.08	15.79	1	0.41	1.00	0.24
Total	119	100.00	100.00	100.00	39	100.00	100.00	100.00

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

The service industries account for a larger share of the activities of top firms in Canada than in the United States and Mexico. Within the service industries, the top firms' sales, employment and assets are more concentrated in financial services and transportation in Canada than in the United States. In contrast, the top American service firms are more concentrated in the communications industry (see Table 10).

In short, the industrial distribution of the top firms in all three countries included in this analysis, especially in Canada and the United States, is consistent with the aggregate industrial distribution of their trade flows and outward direct investment stock. These broad

trends underline the relative strengths and weaknesses of the three economies, which are examined further in the next section.

Revealed Comparative Advantage

This section considers the revealed comparative advantage of Canada and the U.S. only, with reference to aggregate industry data and firm-specific data. The limitations of Mexican data, particularly for the top firms, make this type of analysis difficult, and therefore, analysis of the revealed comparative advantage of Mexico has not been included in this study.

Over the long term, firms and nations tend to specialize in products and services that they produce relatively more efficiently than their competitors and trading partners. Similarly, they buy those products and services which their trading partners produce relatively more efficiently. Thus, the commodity/industry composition of exports (sales) and imports (purchases) of firms and nations should reveal their comparative advantage position, provided there is a strong competition in international markets and relatively little government intervention in the marketplace.⁹

In the past, economists have computed the comparative advantage indicator of countries based on either commodity or industrial distribution of their merchandise exports. Using similar methods, three indicators of the comparative advantage position of Canada vis-à-vis the United States were estimated: trade, direct investment stocks, and the sales of the top firms. The first two measures are based on aggregate industry data. The last indicator, was developed using individual firm data.

The trade-based measure for a particular industry is calculated as the ratio of that industry's share in total Canadian merchandise exports to the U.S. to its share in total merchandise imports from the U.S. If the ratio is greater than 1, it indicates a comparative advantage for Canada vis-à-vis the U.S. in that industry. On the other hand, a ratio of less than 1 implies a comparative advantage for the U.S. Using similar procedures, indicators of comparative advantage were computed for investment and firm sales.

All three indicators of specialization demonstrate that Canada has a revealed comparative advantage in resources, resource-based manufacturing and financial services vis-à-vis the United States. The comparative advantages shown through the trade statistics indicates that Canada has a significant advantage in paper and publishing, lumber and furniture and primary metals industries. Similarly, the direct investment statistics and the sales of top firms exhibit advantages in Canadian resource based-manufacturing. These last two indicators also show significant comparative advantages for Canada in banking, finance, insurance and real estate industries (see Table 12).

The U.S., on the other hand, has a comparative advantage in technology-intensive manufacturing, trade, and service industries. The trade statistics also demonstrate the U.S. advantages in labour-intensive manufacturing industries -- specifically, textiles, leather, clothing, and miscellaneous manufacturing industries. Direct investments and sales of top firms confirm the U.S. advantages in technology-intensive industries such as chemicals and chemical products and machinery and equipment manufacturing industries

Table 12
Canada's Revealed Comparative Advantage vis-à-vis the United States
1991

Industry	Trade	Direct Investment	Sales of Top Firms
Primary Industries	1.0		1.2
Food, Beverages and Tobacco	1.2	1.0	1.0
Paper and Publishing	3.3	1.2	1.6
Lumber and Furniture	1.7		
Primary Metals	2.2	1.2	1.7
Fabricated Metals	0.8		
Nonmetal Mineral Products	0.8		
Rubber and Plastic Products	0.8		
Textiles, Leather and Clothing	0.5		
Chemical Products	0.7	0.2	0.1
Non-electrical Machinery	0.6	0.4	0.5
Electrical Machinery	0.4		0.5
Transportation Equipment	1.2		0.9
Misc. Manufacturing	0.3		0.1
Trade		0.1	1.1
Banking		4.4	2.0
Finance, Insurance and Real Estate		2.2	1.6
Services		0.9	

Note: Blank cells indicate data is not available.

Source: Estimates based on data from U.S. Department of Commerce, Statistics Canada and Disclosure Inc.

The trade and sales statistics demonstrate clearly that the Canadian and U.S. economies have minimal advantages with respect to one another in primary industries and transportation equipment industries. In the case of transportation, the indices of revealed comparative advantage may be less significant given the large amounts of intra-firm trade (see Table 12).¹⁰

The similarity of all three indicators of revealed comparative advantage suggest that the structure and activities of the top firms in the two countries play a major role in shaping the patterns of aggregate direct investment stock and trade flows between the two countries. These results also imply that firms in the two countries generally use direct investment as an additional vehicle, in conjunction with exports, to exploit their broad areas of comparative advantage to the fullest, rather than to specialize in new areas. It is important to note, however, that factors other than comparative advantage contribute to a firms's use of direct investments. These factors include: problems with market access; risk diversification; product specialization; and, relative conditions in product and factor markets of the two countries.

Fastest Growing Canadian Companies

A number of industry observers in Canada have suggested that many small and medium-sized domestic companies have found niches in the technology-intensive and knowledge-intensive areas and are experiencing rapid sales and export growth. This might appear to be inconsistent with the results of the revealed comparative advantage analysis. To capture the dynamism of these companies, and their possible impact on future comparative advantage position of Canada, we analyzed the characteristics of the 100 fastest growing Canadian firms listed in the Profit survey (June 1992) .

According to this survey, the fastest-growing companies are relatively small and new. Most were established in the first half of the 1980s. In 1991 their revenue ranged between \$1 million and \$ 70 million, and a majority of them had sales under \$10 million. Their employment varied between 500 and 600 people. A large number of these firms are engaged in technology and knowledge-intensive activities such as software development and marketing, software and computer consulting, CAD/CAM services, industrial and telecommunication equipment manufacturing, cellular phone sales and service, environmental and engineering consulting, and so forth.

Between 1986 and 1991, revenue of the 100 fastest growing Canadian companies increased from a low of 229 percent to a high of 9,738 percent. Similarly, the employment of these firms increased by between 44 percent and 6,500 percent. In addition, exports accounted for a significant share (between 10 percent and 99 percent) for 30 of the 100 firms. Furthermore, more than half of the fastest growing firms invested between 1 percent and 25 percent of their total revenues in R&D.

While there is no doubt that these dynamic small and medium-size firms in Canada are of significance, the fact remains that the larger firms, because of their size and dominance, define the composition of industry in each country.

Performance

Productivity Performance

At the outset, as background to the findings of this study, it is useful to recall a report on Canada's competitive position published by the Economic Council of Canada in 1992. *Pulling Together* compared Canada's aggregate trade, productivity and innovation performance with the performance of other G-7 countries. Some of its major findings concerning Canada's productivity record include the following:

- Along with other industrialized countries, Canada has experienced a deep and pervasive decline in productivity growth since the oil-price shock of 1973.
- The longstanding aggregate U.S./Canada manufacturing labour productivity gap narrowed substantially between 1950 and 1985. The decline was from 85 percent in 1950 to 23 percent in 1985.
- However, the gap widened again between 1985 and 1990 -- falling back to 41 percent in 1990. In addition, Canada lost considerable ground to other G-7 countries during this period.
- Canadian problems with respect to manufacturing productivity are not confined to just a few industries; they are rather more broadly based.
- Better labour productivity performance (level as well as growth) in the non-manufacturing industries more than offset the weak manufacturing performance, thereby closing the gaps between aggregate U.S./Canada labour productivity and real income in the post-war period, especially in the 1980s.

In general, the relative productivity performance of the top Canadian and American firms, reported below, reflects these findings.

Productivity Levels of the Top North American Firms

For purposes of assessing the productivity performance of the top firms, two indicators of productivity for each of the top firms were computed: sales per employee, and the sales/assets ratio. Sales and assets in the countries are expressed in a common currency, the U.S. dollar. These indicators are proxies for labour and capital productivity measures, respectively.

The productivity of only the top domestically controlled Canadian firms is compared with the productivity of U.S. firms, disaggregated by industry because the use of sales as a proxy for output can bias upward the estimates of labour and capital productivity of firms and industries with a significant amount of intra-firm sales. This problem is particularly acute when comparing the productivity levels of domestically controlled firms with those of foreign-controlled firms -- the sales figures of foreign-controlled firms often include large amounts of imports from their parents. Much of the intra-firm import activity of foreign affiliates is therefore not related to their production activities. Instead, they are acting mainly as distribution networks for their parent companies. Consequently, since foreign-controlled firms account for over 20 percent of the top Canadian-based firms, the productivity measures considerably bias upward the productivity estimates for the top Canadian firms in relation to their U.S. counterparts.

Findings

Labour productivity of the top Canadian-controlled firms in the manufacturing sector is on average 20 percent to 30 percent below the productivity levels of U.S. firms, but, the productivity of the top Canadian-controlled firms is well above the U.S. levels in the construction, utilities, trade and financial services industries. These measures more than offset the Canadian disadvantage in manufacturing and certain other industries. Consequently, the labour productivity of the top Canadian-controlled firms in all industries exceeds American productivity by 23 percent.

Labour productivity (sales per employee, measured in US\$) of the top U.S. manufacturing firms is, on average, about 20 percent higher than the productivity of the top domestically controlled Canadian firms (see Table 13 and Appendix 5, Table 5-3). The tables clearly show labour productivity to be lower in Canada in the three manufacturing sub-sectors. In terms of the purchasing power parity (PPP) exchange rate used in the Economic Councils' recent productivity research, the productivity of top U.S. firms is about 30 percent higher than the productivity of Canadian firms.

Labour productivity of the top domestically controlled Canadian firms in the resource-intensive manufacturing industries is on average 14 percent below that of the top American firms. In the technology-intensive manufacturing industries, labour productivity of the top domestically controlled Canadian firms is almost 35 percent below the level of top U.S. firms. Like manufacturing, labour productivity of the top American firms is considerably above the productivity of the Canadian-controlled firms in mining, transportation and communications industries.

In contrast, labour productivity of the top Canadian-controlled firms in the construction, utilities, trade and financial services industries are well above the American productivity levels. Note that the average size of the top Canadian-based firms also compares favourably with the average size of the American firms in the utilities, trade and financial

services industries. These findings are consistent with the conclusions of the Economic Council's recent work on aggregate industrial productivity.

The relative performance of capital productivity of the top Canadian-controlled firms vis-à-vis the U.S. firms is the opposite of the findings on labour productivity (see Table 13 and Appendix 5, Table 5-3). Unlike the case of labour productivity, the capital productivity of domestically controlled Canadian manufacturing firms is superior to the performance of the American firms. On the other hand, the capital productivity of the top U.S. firms in utilities is higher than the productivity of the Canadian-controlled firms. On average, the capital productivity of U.S. firms is well above the Canadian level, at 56 percent.

Table 13
Productivity Performance of Top U.S., Domestically Controlled Canadian and Mexican Firms

Industry	United States			Domestically-controlled Canadian firms			Mexico	
	No. of Firms	Sales Employment Ratio	Sales Asset Ratio	No. of Firms	Sales Employment Ratio	Sales Asset Ratio	No. of Firms	Sales Employment Ratio
Agriculture & Fishing	3	110.72	1.49	0			0	
Mining	25	537.19	1.04	10	222.25	0.80	1	46.05
Construction	9	186.29	1.17	2	215.17	2.15	1	
Labour-Intensive Manufacturing	44	134.65	0.94	7	116.27	0.83	0	
Resource-Intensive Manufacturing	109	207.16	1.09	26	180.22	1.59	10	68.55
Technology-Intensive Manufacturing	193	166.64	0.80	4	123.72	0.93	7	49.79
Transportation	23	129.70	0.88	8	102.20	0.64	1	81.06
Communications	19	160.56	0.60	5	144.80	0.44	2	82.86
Utilities	86	276.68	0.44	11	306.78	0.23	0	
Trade	119	53.06	1.61	22	174.85	2.02	3	80.59
Finance	145	306.68	0.14	24	327.15	0.13	2	170.99
Services	48	104.69	0.81	0				
Total	823	141.77	0.50	119	190.77	0.32	27	68.21

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc. and Expansión.

In sum, labour productivity of the top Canadian-controlled firms in all industries exceeds, on average, the productivity of the top American firms by 23 percent. However, their capital productivity is 56 percent below the productivity of American firms. These divergent results imply that the productivity of both labour and capital inputs -- total productivity (TP) -- of the Canadian firms is about 3 percent to 5 percent below the productivity of American firms.

In contrast, labour productivity of the top Canadian-controlled manufacturing firms is on average 20 percent to 30 percent below the productivity of U.S. firms. However, capital productivity of the Canadian firms is 20 percent to 50 percent above the productivity of U.S. manufacturing firms. These results in turn suggest that the productivity of both labour and capital inputs -- (TP) of the Canadian-controlled manufacturing firms -- is, on average, only 5 percent to 10 percent below the U.S. productivity in manufacturing. (Note that the labour share in gross output is about twice the capital share.)

The labour productivity level of the top Mexican firms is considerably lower than the productivity levels of the top U.S. and the domestically controlled Canadian firms in all industries. For instance, labour productivity of the top Mexican firms varies between 20 percent to 80 percent of the top Canadian controlled firms' productivity levels.

The Mexican manufacturing wages, however, are only 20 percent to 25 percent of the Canadian wages, implying substantial unit labour cost advantage for the top Mexican firms. But competition from the Mexican firms for the top Canadian and American companies will likely be very limited in the medium to long term for two reasons. First, labour costs account for less than 20 percent of the total costs in manufacturing and their importance has been steadily declining. Second, as discussed earlier, the top Mexican firms account for a very small share the total Mexican employment.

Growth Performance

Given that the growth of sales, employment and capital are important determinants of productivity growth, this section examines the growth of the top Canadian and U.S. firms over a five-year period. Detailed data for Mexican firms was not available from the database.

Between 1986 and 1991, the sales of top American firms increased at a considerably faster pace than their Canadian counterparts in all the major industries, except the financial services industry (see Table 14). For instance, the sales of the top American firms in the resource-intensive manufacturing industries grew by 9.3 percent per year, compared to only 5.4 percent growth for the Canadian firms. Similarly, in the technology-intensive industries, the growth of the top American firms exceeded the Canadian sales growth by 4.5 percentage points per year.

The relatively weak performance of the top Canadian manufacturing firms could be due largely to two important developments: the deterioration of the cost performance of

Canadian manufacturers in relation to the American firms during the period; and the increased competitive position of U.S. firms vis-à-vis their overseas competitors. In turn, the weak growth performance of the Canadian manufacturing sector likely spilled over to the Canadian service industries because of the strong interdependence between the two sectors.

Table 14
Five Year Growth Performance
Average Annual Growth (Percent)

Industry	Sales Growth		Asset Growth		Employment Growth	
	U.S.	Canada	U.S.	Canada	U.S.	Canada
Agriculture & Fishing	5.27		15.99		1.85	
Mining	6.59	5.04	2.17	5.37	(0.14)	(2.62)
Construction	10.66	0.80	21.08	(8.42)	2.24	(0.19)
Labour-Intensive Manufacturing	12.96	11.73	20.26	20.53	2.36	6.39
Resource-Intensive Manufacturing	9.31	5.35	12.15	9.91	2.33	(1.84)
Technology-Intensive Manufacturing	8.34	3.75	19.26	11.45	1.19	1.29
Transportation	9.85	5.93	6.28	6.53	6.76	1.69
Communications	9.14	7.45	6.64	12.85	0.94	1.79
Utilities	6.06	4.10	5.35	5.79	3.83	0.80
Trade	11.52	3.22	12.92	5.35	0.39	(0.30)
Finance	4.73	17.63	5.03	15.73	0.93	0.54
Services	17.15		19.62		4.06	

Notes: Blank cells indicate data is not available.

Brackets indicate negative growth.

Source: Estimates based on data from Disclosure Inc.

Despite the strong growth performance in sales, employment of the top American firms experienced slower growth in the manufacturing industries between 1986 and 1991. These two developments imply a considerable improvement in U.S. manufacturing labour productivity during the period. For example, in the technology-intensive manufacturing industries, employment of the top U.S. firms increased by a mere 1.2 percent per year, compared to 8.3 percent sales growth.

The employment of the top Canadian firms in the technology-intensive industries increased by 1.3 percent per year, compared to 1.2 percent in the United States. Employment by Canadian firms in labour-intensive manufacturing increased by 6.4 percent compared to

2.4 percent in U.S. industries. However, in resource-intensive manufacturing, Canadian firms' employment declined by 1.8 percent per year, compared to 2.3 percent growth of the top American firms.¹¹

The stronger American sales growth in combination with similar employment growth in the two countries implies a significantly faster labour productivity growth for the top U.S. manufacturing firms relative to their Canadian counterparts. These results are consistent with the narrowing of the aggregate U.S.-Canada manufacturing productivity gap between 1986 and 1991, which is discussed in more detail later.¹²

As with sales, the top American manufacturing firms generally experienced faster growth in assets than their Canadian counterparts (see Table 14 and Appendix 5, Table 5-4). For example, the assets of American technology-intensive manufacturing firms increased by 19.3 percent per year during the 1986-91 period, compared to 11.5 percent in Canada. In contrast, Canadian firms recorded faster growth in assets in the mining, labour-intensive manufacturing, transportation, utilities, communications and financial services industries.

In Mexico, there was a marked increase of between 60 percent and 100 percent in the sales and between 43 percent and 90 percent in the assets of the top 27 Mexican firms between 1986 and 1991. However, this rapid growth could be due largely to the marked rise in Mexican prices and high levels of inflation during this period, factors that were not as prevalent in the U.S. and Canada.

R&D Performance

Numerous studies have documented the importance of R&D for productivity performance at the firm and industry level.¹³ Ergo, R&D expenditure is an important determinant of inter-firm, inter-industry and inter-country differences in productivity levels; and R&D plays a significant role in the determination of the productivity growth of firms, industries and countries.

The R&D performance of the top Canadian and American firms, measured by the R&D-sales ratio, is set out in Table 15 and in Appendix 5, Table 5-5. The average R&D intensity of the top firms in the technology-intensive manufacturing industries is considerably higher than that for firms in other manufacturing industries in both Canada and the U.S. For instance, the average R&D/sales ratio in the U.S. resource-intensive manufacturing industries is only 1.34 percent, compared to 5.13 percent in the technology-intensive manufacturing industries.

It is notable, however, that the top U.S. non-manufacturing firms invest significantly in R&D. For instance, the average R&D intensity of the top American firms in the commercial services (8.3 percent) and agriculture, forestry and fishing (7.3 percent) industries is considerably higher than that of the top American firms in the technology-intensive manufacturing industries (5.1 percent).

Table 15
R&D Performance of Canadian and U.S. Firms
R&D Expenditures as a Percent of Sales

Industry	Canada	United States
Agriculture & Fishing		7.30
Mining	1.54	0.90
Construction		4.57
Labour-Intensive Manufacturing	1.38	1.01
Resource-Intensive Manufacturing	0.56	1.34
Technology-Intensive Manufacturing	2.21	5.13
Transportation		
Communications		
Utilities		1.68
Trade		1.03
Finance		0.98
Services		8.26

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

In general, the R&D intensity of the top Canadian-based firms is considerably lower than the top American firms. For instance, in the technology-intensive manufacturing industries, the R&D intensity of the top Canadian firms averages 2.2 percent, compared to 5.1 percent by the American firms. Nevertheless, in mining and labour-intensive manufacturing industries, the R&D performance level of Canadian firms is significantly better than that of their U.S. counterparts.

Many have speculated on why Canada's R&D performance generally lags the U.S. (and other industrialized partners). One explanation is that the small size of the Canadian market plays an important role in the decisions of firms to concentrate on applied R&D compared to basic R&D. Thus, it can be argued that Canadian firms invest in R&D primarily for the purpose of adopting new advanced technologies developed in the U.S. and other countries.

Profitability

Profitability of firms plays a crucial role in the determination of their investments in physical capital, R&D, the adoption and diffusion of new technologies and skill upgrading. The profit positions of firms today are significantly influenced by their current and past productivity and cost performance.

The rate of return on the assets of the top Canadian manufacturing companies during the period between 1986 and 1991 averaged about two percentage points lower than in the United States. For instance, it averaged only 6.2 percent for the top Canadian resource-intensive manufacturing firms, compared to 7.9 percent for the American firms (see Table 16 and in Appendix 5, Table 5-6).

On the other hand, the profitability of the top Canadian companies fared well in relation to the American companies in the mining, transportation, communications and utilities industries. The generally weaker growth in assets can be explained by the large appreciation of the Canadian dollar and the higher growth in Canadian wages during the period between 1986 and 1991.

Table 16
Profitability and Degree of Leverage
of U.S. and Canadian Firms (Percent)

Industry	Rate of Return on Assets		Equity/Total Capital	
	U.S.	Canada	U.S.	Canada
Agriculture & Fishing	7.27		62.91	
Mining	6.56	6.31	67.28	60.73
Construction	8.38	1.24	59.21	40.20
Labour-Intensive Manufacturing	8.69	9.10	43.92	53.26
Resource-Intensive Manufacturing	8.31	6.17	58.07	55.88
Technology-Intensive Manufacturing	7.88	5.80	59.64	66.40
Transportation	3.68	3.93	55.69	52.32
Communications	6.46	6.47	53.48	41.96
Utilities	5.86	5.86	43.17	22.07
Trade	7.86	5.46	52.35	56.22
Finance	1.84	1.07	52.70	54.77
Services	9.26		59.11	

Note: Blank cells indicate that the data is not available.

Source: Estimates based on data from Disclosure Inc.

Characteristics

Average Size

Another determinant of the productivity of top firms is the *average size* of their sales, assets and employment. The larger the size of these elements, other things being equal, the more opportunity a firm has to take advantage of scale economies in production, R&D and marketing, and to improve its productivity and cost performance. The firm size also plays an important role in the determination of a firm's R&D performance and in the adoption of new and state of the art product and process technologies.

Past research has indicated that about one-third of the gap between the U.S. and Canadian manufacturing productivity levels is attributable to the difference in the average size of firms in the two countries.¹⁴ To shed further light on this important policy issue, the average size of top firms in the three NAFTA countries was computed in terms of assets, sales and employment, disaggregated by sector. These results are summarized in Table 17 and in Appendix 5, Table 5-7.

The average sales of all the top U.S. firms is US\$ 4.7 billion, compared to the average asset size of US\$ 9.5 billion and employment of 33,000. However, the average size varies substantially across individual industries. For instance, average sales range from a low of US\$ 1.88 billion in the service industry to a high of US\$ 13.2 billion in the mining industry. The average sales of top firms in the mining, technology-intensive manufacturing, transportation and trade industries is considerably higher than the aggregate firm size.

In contrast, the average firm size is substantially smaller in the labour-intensive manufacturing and services industries. However, the average asset size of top firms in the mining, financial services, and communications industries is substantially larger than the average of all top U.S. firms.

The average size of top American firms is over twice the Canadian level in most of the industries. In addition, the size disadvantage is acute in the mining, construction, technology-intensive manufacturing and communications industries. On the other hand, the average size of top Canadian firms in general compares favourably with their U.S. counterparts in the labour-intensive manufacturing, utilities and financial services industries.

The average size of the top Mexican firms is high by the standards of developing countries. By sales, the average size of Mexican firms is less than the average Canadian firm size. This is due mainly to the large scale disadvantage of the top Mexican firms in the transportation, communication and finance industries. On the other hand, the average firm size of the top Mexican firms compares favourably with the Canadian firm size in resource-intensive manufacturing and construction industries.

Table 17
Average Firm Size for Top U.S., Canadian and Mexican Firms

Industry	U.S.A				Canada				Mexico			
	No. of Firms	Total Assets (\$US 000)	Sales (\$US 000)	Employees	No. of Firms	Total Assets (\$US 000)	Sales (\$US 000)	Employees	No. of Firms	Total Assets (\$US 000)	Sales (\$US 000)	Employees
Agriculture & Fishing	3	1,812,259	2,694,755	24,339	0				0			
Mining	25	12,662,463	13,198,018	24,569	20	3,133,375	2,410,262	7,351	1	3,021,219	869,555	18,884
Construction	9	2,810,842	3,290,330	17,662	2	600,607	1,290,464	5,998	1	2,184,279	1,263,767	
Labour-Intensive Manufacturing	44	2,098,612	1,965,901	14,600	7	2,471,497	2,056,996	17,692	0			
Resource-Intensive Manufacturing	109	4,260,568	4,653,625	22,464	31	2,829,552	2,178,641	14,094	10	6,716,231	3,319,945	18,279
Technology-Intensive Manufacturing	193	7,097,812	5,712,012	34,279	17	2,249,088	3,952,532	15,261	7	2,294,284	1,438,151	26,651
Transportation	23	5,393,887	4,727,374	36,450	9	4,509,678	2,985,002	27,647	1	1,140,841	978,832	12,076
Communications	19	17,670,920	10,577,821	65,880	5	10,364,206	4,521,668	31,227	2	6,843,271	3,058,782	31,790
Utilities	86	6,183,211	2,700,957	9,762	12	9,000,290	2,108,009	6,794	0			
Trade	119	3,120,594	5,018,279	94,571	30	1,429,004	2,515,224	19,736	3	1,316,268	1,430,683	11,393
Finance	145	27,986,424	4,009,174	13,073	25	31,605,784	4,270,549	12,971	2	8,753,231	2,631,998	11,101
Services	48	2,316,010	1,876,300	17,923	0				0			
Total	823	9,484,846	4,707,617	33,206	158	7,851,558	2,891,810	15,076	27	4,618,905	2,298,232	19,269

Note: Blank cells indicate that the data is not available.

Source: Estimates based on data from Disclosure Inc. and Expansion.

In short, the average size of top Canadian and Mexican firms is well below the size of top American firms. This supports the view that the North American Free Trade Agreement would enable the top Canadian and Mexican firms to obtain freer and more secure access to the large U.S. market, which should help them to grow and overcome their size disadvantage and which should also improve their competitive position relative to their U.S. and overseas competitors.

Debt and Leverage

On the other hand, the debt structure of the top manufacturing companies in the two countries is very similar (see Table 16 and in Appendix 5, Table 5-6). Hence, it appears that debt structure did not contribute to the weaker Canadian profit performance, nor will it in the near future.

The structure of financing -- debt vs. equity -- of a firm's financial requirements is largely determined by the availability and cost of alternative sources of raising funds and its risk preference. However, the ownership structure of a firm's assets or capital can have a significant impact on its profitability and investments.

For instance, in periods of high and variable real interest rates and weak economic growth, a firm with higher equity/capital ratio, other things being equal, will earn a higher rate of return than a firm with a lower equity/capital ratio. Similarly, in periods of slower growth in sales and lower profitability, the firm with a higher leverage will have a greater difficulty in raising funds than the firm with lower leverage, because of the threat of increased bankruptcy.

In both Canada and the United States, the equity/capital ratio of the top firms varies considerably across industries. In Canada it ranges from a low of 12.2 percent in the other financial services industry to a high of 84.7 percent in the chemicals and chemical products industry. In the United States it varies between 5.8 percent and 84.8 percent (see Table 16).

However, in both countries, it exceeds 50 percent in a majority of industries. In addition, it is generally higher in traded goods industries than in service industries.

Globalization and Outward Orientation

A number of factors have contributed to a borderless world for consumers as well as for producers -- the rapid tempo of product and process technologies, the communications revolution, the rapid, world-wide diffusion of new technologies, the liberalization of trade, direct investment and financial flows across countries and the convergence of consumer tastes around the globe. These trends, in conjunction with the emergence of the Asia Pacific Rim as a major player in the world economy, have intensified competition among firms and nations for markets and technology. In addition, shorter product cycles and the increased

scope for imitation which is, in turn, the result of rapid changes in technology, have substantially reduced the pay offs from new innovations. But the fixed R&D costs of developing, commercializing and marketing new product and process technologies are very high and rising rapidly. Moreover, the uncertainty associated with the creation and commercialization of new technologies has been increasing steadily.

These developments have necessitated global sourcing of all factor inputs and a speedier and more simultaneous entry of business into all major markets of the OECD. Toward this end, firms are becoming increasingly global in their outlook and are establishing production, sourcing, research and marketing facilities in all the important international markets either on their own or by undertaking various types of joint ventures with firms from other countries. This trend is true for both MNEs as well as for domestically based enterprises.

In short, due to the rapidly changing patterns of comparative advantage and fierce and growing international competition, firms, especially MNEs, are increasingly becoming global or footloose in their outlook, activities and strategies. This internationalization of business has important implications for national market framework laws and policies as well as for international cooperation and coordination.¹⁵

In this part of our study, the degree of internationalization of the top Canadian and U.S. firms is examined, disaggregating results by industry. The limitations of the available data on top firms again precludes analysis of Mexico. Globalization of the top firms is measured against two variables: the share of foreign assets in relation to the total assets of the firm; and the share of foreign sales in relation to the firm's total sales.¹⁶

Overall, more than 400 (of the 1,008) firms reported a portion of their assets and sales as foreign located. Furthermore, the analysis of the characteristics of these firms indicates that the degree of outward orientation is not correlated with any definition of the size of the firm.

The share of foreign assets in relation to total assets is over 25 percent for 33 of the 158 top Canadian companies. The top five Canadian global firms are: Thomson Corp. (printing and publishing), Dominion Textiles Inc. (textiles), CAE industries (light machinery), Varity Corp.¹⁷ (non-electrical machinery) and Onex Corp. (wholesale trade). The share of foreign assets of these five companies varies between 66 percent and 90 percent.

Similarly, for 184 of the 823 top American firms, the share of foreign assets is greater than 25 percent. The top U.S. outwardly oriented firms are: Aflac Incorporated (insurance), Maxtor Corp. (computer and office equipment), Commodore International Limited (computer and office equipment), Standard Commercial Corp. (tobacco) and NL Industries (chemicals and allied products). Foreign assets account for more than 75 percent of their total assets.

Table 18
Outward Orientation of Top U.S. and Canadian Firms
(Percent)

Industry	Foreign Assets/Total Assets		Foreign Sales/Total Sales	
	U.S.	Canada	U.S.	Canada
Agriculture & Fishing	36.41		33.27	
Mining	43.12	26.11	68.63	50.40
Construction	6.21	46.98	19.14	82.34
Labour-Intensive Manufacturing	16.20	68.45	22.54	64.75
Resource-Intensive Manufacturing	28.33	35.97	32.61	54.90
Technology-Intensive Manufacturing	25.31	43.80	34.00	27.99
Transportation	20.40	27.12	30.09	33.96
Communications	11.17	21.80	9.35	37.72
Utilities	20.69	1.43	23.44	6.15
Trade	14.18	33.41	15.69	26.93
Finance	24.47	31.35	24.54	56.55
Services	27.28		25.05	

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

The degree of internationalization or outward orientation of the top American and Canadian companies is fairly significant (over 20 percent) in most of the industries. For instance, in mining, the share of foreign assets of the top U.S. firms in relation to their total assets is 43 percent, compared to 28 percent in the resource-intensive and 25 percent in the technology-intensive manufacturing industries (see Table 18 and in Appendix 5, Table 5-8). Similarly, the shares of foreign assets of the top American firms outside the goods industries are fairly large, ranging from a low of 11 percent in the communications industry to a high of 27 percent in the services industry. Foreign sales indicators give a similar picture about the foreign activities of the top U.S. firms.

In addition, the outward orientation of the top Canadian firms is substantially higher than that of their American counterparts in all major industries except mining. For instance, in the construction industry, the share of foreign assets of the top Canadian firms is almost 47 percent, compared to a mere 6 percent in the U.S. (see Table 18 and in Appendix 5, Table 5-8). These results are consistent with the results of earlier studies undertaken by the

OECD and UNCTC ---i.e. firms from smaller, more open economies generally venture abroad earlier than firms from larger economies.

The high degree of outward orientation of the top firms is consistent with the strong trade and investment linkages between the three countries and their strong and growing investment linkages with Europe, Japan and other countries, described earlier. These results in turn imply that the location decisions regarding production, R&D and innovation of the North American based global firms will play a crucial role in determining the future competitive position of the three North American economies.

CONCLUSIONS

The main objectives of this study are threefold: to provide an overview of integration among the three North American economies; to analyze formally the structure, performance and characteristics of the top North American firms; and to examine the role of the top North American firms in the North American economy. Our sample of the top 1,008 firms (based on total sales) is comprised of 823 American corporations, 158 Canadian-based firms and 27 Mexican companies. Collectively, they play a crucial role in shaping the comparative advantage and competitive positions of the three countries.

These firm-specific findings strongly confirm the widely accepted conclusions of the previous aggregate analysis regarding the relative strengths and weaknesses of the three North American economies and the recent trends in productivity and profitability in the three countries. Since the top firms are dominant players in the North American economy, their decisions, strategies and activities will no doubt play critical roles in shaping the future competitive positions of the three countries.

Increased economic integration among the three NAFTA countries will likely lead to further specialization by firms and countries. Canada is expected to increase its specialization in resources, resource-intensive manufacturing and financial service industries. The U.S., on the other hand, will further increase its specialization in the technology-intensive manufacturing and commercial services industries. Mexican firms will likely concentrate on the low to middle parts of the value-added chain in the manufacturing sector, and their growth could be spectacular as they catch up to their industrialized counterparts.

These results are not surprising. Nevertheless, other dynamic factors should be taken into account when interpreting them. In Canada's case, supplementary data show the fastest-growing firms to be relatively small and not in the top 1,008. They also tend to be in the technology- and knowledge-intensive areas.

It should be noted that while this study shows that the productivity gap in manufacturing between Canada and the U.S. remains substantial, recent data suggest room for more optimism. Canadian manufacturers have taken several measures to improve their productivity and cost performance during the last three years. The preliminary data also suggest that Canadian manufacturing productivity grew at a significantly faster pace than American productivity in 1993. Better productivity performance, lower value of the Canadian dollar, and lower wage growth has resulted in closing some of the Canada-U.S. manufacturing cost gap, possibly by as much as 35 percent.

Pressures on Canadian firms to rationalize and restructure their operations further and to become even more cost competitive will persist. The NAFTA can enable Canadian firms to grow and overcome the possible size disadvantages, to reap the benefits of scale and scope

economies and to improve their relative productivity performance. Vertical linkages and alliances with Mexican firms could also help them to improve their relative cost and productivity performance.

ENDNOTES

1. An MNE is typically an enterprise form which entails integrated affiliates or subsidiaries in at least two national markets, functioning as part of an operationally unified global entity
2. For an excellent discussion of the role of MNEs in the rising global economic integration, see Encarnation (1992), Reich (1991) and Ohmae (1985).
3. Resource depletion, particularly in mining, may constrain the future growth of primary industries.
4. For details, see Encarnation (1992, 1993).
5. For details, see United Nations Centre for Transnational Corporations (UNCTC), World Investment Report 1992: Transnational Corporations as Engines of Growth and World Investment Report 1993: Transnational Corporations and Integrated International Production.
6. A detailed discussion of the growth and trade records of the Asia Pacific Rim countries is given in Rao (1992).
7. For a detailed description of Canada's trade and investment linkages with the Asia Pacific Rim, see Rao (1992).
8. This industry grouping is consistent with the commonly used practices of the Economic Council of Canada and the OECD.
9. An excellent discussion of the concept of revealed comparative advantage is given in Balassa (1977).
10. These results are similar to the findings of Letourneau (1992), Magun (1992) and Eden and Molot (1992).
11. Employment growth was unavailable for most Mexican firms in the database.
12. For a detailed analysis of Canada's productivity record during the past 25 years, see Economic Council of Canada (1992) and Rao and Lempriere (1992).
13. For a detailed survey of the theoretical and empirical research on the linkages between R&D and productivity, see Griliches (1984) and Mohnen (1992).

14. For details, see Baldwin and Gorecki (1986).
15. See Reich (1991) and Ohmae (1985).
16. With the exception of Ford Canada, the assets and sales of Canadian subsidiaries of U.S. firms in the motor vehicle and equipment industries are included in the parent firms' statistics.
17. The Varsity Corporation reincorporated as a U.S. company on July 31, 1991. Shareholders of the company became stockholders of the New Varsity, a Delaware corporation. The new company is the holding concern of the old firm and its subsidiaries.

APPENDIX 1

DESCRIPTION OF DATABASE OF TOP 1,000 NORTH AMERICAN FIRMS

The top 1,000 North American firms were selected mainly from the Disclosure/Worldscope Global database using firms' total sales as the criterion. Setting a lower sales boundary of U.S. \$ 725 millions provided a list of just over 1,000 companies. This information was verified and, as required, supplemented with the information from Compact Disclosure Canada, *Financial Post 500*, the *Fortune 500*, *Moody's International* and *Expansión*.

Disclosure/Worldscope Global Database

The Global database, which is made up of 9,832 public companies from 40 countries, was used to select the top 1000 U.S., Canadian and Mexican companies. The following criteria were used by Disclosure/Worldscope to select the global companies:

- inclusion in a country's national index (ie. *Fortune 500* for the U.S., *Financial Times 500* for the U.K. and *Financial Post 500* for Canada, etc.);
- high profile and visibility of firms; and
- request for information by Worldscope clients.

The data for each firm were obtained from annual and periodic reports filed with each of the national stock exchange commissions. It is estimated that the Worldscope Global database covers over 90 percent of world's capital markets.

Compact D/Canada Database

The Compact D/Canada database was consulted to select some additional top Canadian-based firms, based on information from the *Financial Post 500*. It contains data on over 8,000 public, private and crown companies. It covers all the public firms and crown corporations headquartered in the ten provinces and two territories, provided their stock is traded on any of the following stock exchanges: all Canadian stock exchanges, the American Stock Exchange, the National Association of Securities Dealers Automated Quotation System, and the New York Stock Exchange. The data were drawn from annual and periodic reports issued by the company concerned with these stock exchanges. Federally incorporated private firm data are supplemented by financial filings from the Department of Consumer and Corporate Affairs.

We obtained data for the top 500 Mexican companies from *Expansión*.

Description of the Database

Industrial Classification

The top 1,000 firms are separated into 45 major industry groups, according to their primary line of business, as determined by Disclosure Incorporated's 1986 U.S. Standard Industrial Classification (SIC) code. The 25 manufacturing industries are further aggregated into three major groups: labour-, resource- and technology-intensive industries, similar to the Economic Council of Canada's (1992) aggregation, based on factor input and technology intensities.

Aggregation of the Top Firm Data

The firm data were aggregated to the industry level using the weighted average method, except for those variables expressed in absolute values. This procedure permits the industry averages to capture better the relative size of the firms in each industry. Either sales, assets, or employment were used as the weights, depending on the variable being aggregated. For instance, the growth of sales and the R&D/sales ratio variables were averaged using total sales as the weight. On the other hand, the rate of return on assets was aggregated using total assets as the weight.

Similarly, the summary data for the broader industry groupings (i.e., labour-intensive manufacturing) were obtained by weighting the industry data with either assets, sales or employment of the component industries.

Definition of Variables

Total Assets

These include, but are not limited to: property, plant and equipment, inventories, cash, receivables, sundry receivables, and other liquid assets and intangibles, measured in thousands of U.S. \$.

Total Sales

These equal sales net of discounts, returns, allowances or revenue as reported, measured in thousands of U.S. \$.

Number of Employees

The number of employees as specified and/or as available from company's annual report.

Shareholders' Equity

This represents the sum of issued, common and preferred shares, reserves, retained earnings and contributed surplus, measured in thousands of U.S. \$.

Total Debt

This includes, but is not limited to: short-term and long-term bank/institution loans, mortgages and leasing obligations, and amounts due to associated/affiliated companies all payable within one year, measured in thousands of U.S. \$.

Ratio of Equity to Total Capital (five year average)

This ratio shows shareholders' equity as a percent of the sum of shareholders' equity and total debt, percent.

Income before Taxes

This includes net income and extraordinary items plus provisions for minority interest and provisions for income taxes, measured in thousands of U.S. \$.

Rate of Return on Assets (five year average)

This represents income before taxes as a percent of total assets, percentage points.

Domestically-controlled versus Foreign-controlled Canadian Firms

Foreign-controlled Canadian firms include the Canadian-based firms with at least 50 percent of assets owned by non-Canadians, percent.

Percentage of Foreign Assets

The percentage of a firm's total foreign assets are accounted for by the percentage of assets held in countries other than the country of incorporation.

Percentage of Foreign Sales

The percentage of a firm's total foreign sales are accounted for by the percentage of sales recorded in countries other than the country of incorporation.

R&D/Sales Ratio

The percentage of a firm's sales devoted to research and development activities, expressed as a percent of total sales.

Growth of Sales, Assets and Employment (five year average)

The average annual growth of sales, assets and employment, respectively, expressed as a percent.

Sales Concentration

The ratio of the total sales of the three largest North American firms in a given industry to the total sales of all top North American firms in that industry, expressed as a percentage.

Asset Concentration

The ratio of total assets of the three largest North American firms in a given industry to the total assets of all top North American firms in that industry, expressed as a percentage.

Employment Concentration

The ratio of total employment of the three largest North American firms in a given industry to the total employment of all top North American firms in that industry, percent.

Average Firm Size, by Assets

The ratio of all firms' total assets in a given industry to the total number of firms in that industry, measured in thousands of U.S. \$, disaggregated by country.

Average Firm Size, by Sales

The ratio of all firms' sales in a given industry to the total number of firms in that industry, measured in thousands of U.S. \$, disaggregated by country.

Average Firm Size, by Employment

The ratio of all firms' employment in a given industry to the total number of firms in that industry, number of employees, expressed as a percentage.

Labour Productivity

Sales per employee, in thousands of U.S. \$.

Capital Productivity

The ratio of sales to assets.

Intra-firm Imports

The ratio of intra-firm imports to estimated sales = the ratio of labour productivity of the top foreign-controlled Canadian firms in a given goods producing industry to the labour productivity of the top American firms in that industry.

APPENDIX 2
LIST OF TOP 1,000 NORTH AMERICAN FIRMS

Rank by Sales	Rank by Assets	Company Name	Industry	Country
1	2	GENERAL MOTORS CORPORATION	Motor Vehicles & Equipment	U.S.A.
2	19	EXXON CORPORATION	Mining	U.S.A.
3	3	FORD MOTOR COMPANY	Motor Vehicles & Equipment	U.S.A.
4	16	INTERNATIONAL BUSINESS MACHINES	Computers & Office Machines	U.S.A.
5	31	AMERICAN TELEPHONE & TELEGRAPH	Communications	U.S.A.
6	4	GENERAL ELECTRIC COMPANY	Electrical Products	U.S.A.
7	12	SEARS, ROEBUCK AND COMPANY	Retail Trade	U.S.A.
8	46	MOBIL CORPORATION	Mining	U.S.A.
9	35	PHILIP MORRIS COMPANIES, INC.	Tobacco	U.S.A.
10	130	WAL-MART STORES, INC.	Retail Trade	U.S.A.
11	54	DU PONT (E.I.) DE NEMOURS AND COMPANY	Petroleum Refining	U.S.A.
12	82	TEXACO INC.	Mining	U.S.A.
13	58	CHEVRON CORPORATION	Mining	U.S.A.
14	125	K MART CORPORATION	Retail Trade	U.S.A.
15	1	CITICORP	Depository Instit.	U.S.A.
16	44	CHRYSLER CORPORATION	Motor Vehicles & Equipment	U.S.A.
17	90	PROCTER & GAMBLE COMPANY (THE)	Chemicals & Allied	U.S.A.
18	128	BOEING COMPANY (THE)	Aircraft & Parts	U.S.A.
19	6	AMERICAN EXPRESS COMPANY	Securities & Brokers	U.S.A.
20	72	AMOCO CORPORATION	Mining	U.S.A.
21	386	KROGER COMPANY (THE)	Retail Trade	U.S.A.
22	126	UNITED TECHNOLOGIES CORPORATION	Non-Metallic Minerals	U.S.A.
23	226	CONAGRA INC.	Food & Products	U.S.A.
24	274	AMERICAN STORES COMPANY	Retail Trade	U.S.A.
25	29	ITT CORPORATION	Insurance	U.S.A.
26	45	GTE CORPORATION	Communications	U.S.A.
27	109	PEPSICO, INC.	Retail Trade	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
28	88	EASTMAN KODAK COMPANY	Light Machinery	U.S.A.
29	17	AETNA LIFE & CASUALTY COMPANY	Insurance	U.S.A.
30	37	PETROLEOS MEXICANOS	Petroleum Refining	MEXICO
31	85	DOW CHEMICAL COMPANY	Chemicals & Allied	U.S.A.
32	24	CIGNA CORPORATION	Insurance	U.S.A.
33	137	MCDONNELL DOUGLAS CORPORATION	Aircraft & Parts	U.S.A.
34	67	XEROX CORPORATION	Computers & Office Machines	U.S.A.
35	164	J.C. PENNEY COMPANY, INC.	Retail Trade	U.S.A.
36	48	BCE INC.	Communications	CANADA
37	86	ATLANTIC RICHFIELD COMPANY	Mining	U.S.A.
38	327	GENERAL MOTORS OF CANADA LIMITED	Motor Vehicles & Equipment	CANADA
39	236	DAYTON HUDSON CORPORATION	Retail Trade	U.S.A.
40	23	AMERICAN INTERNATIONAL GROUP, INC.	Insurance	U.S.A.
41	172	HEWLETT-PACKARD COMPANY	Computers & Office Machines	U.S.A.
42	71	BELLSOUTH CORPORATION	Communications	U.S.A.
43	7	CHEMICAL BANKING CORPORATION	Depository Instit.	U.S.A.
44	178	USX-MARATHON GROUP, INC.	Mining	U.S.A.
45	186	DIGITAL EQUIPMENT CORPORATION	Misc. Elect. Prod.	U.S.A.
46	110	TENNECO INC.	Machinery excluding electrical	U.S.A.
47	50	LOEWS CORPORATION	Insurance	U.S.A.
48	217	ENRON CORPORATION	Utilities	U.S.A.
49	5	FEDERAL NATIONAL MORTGAGE ASSOCIATION	Non-Deposit. Instit.	U.S.A.
50	193	MINNESOTA MINING & MANUFACTURING	Light Machinery	U.S.A.
51	202	MOTOROLA, INC.	Electrical Products	U.S.A.
52	219	SARA LEE CORPORATION	Food & Products	U.S.A.
53	81	NYNEX CORPORATION	Communications	U.S.A.
54	466	FLEMING COMPANIES, INC.	Wholesale Trade	U.S.A.
55	123	AMR CORPORATION	Transportation	U.S.A.
56	103	WESTINGHOUSE ELECTRIC CORPORATION	Light Machinery	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
57	136	INTERNATIONAL PAPER COMPANY	Paper & Allied	U.S.A.
58	181	PHILLIPS PETROLEUM COMPANY	Petroleum Refining	U.S.A.
59	205	JOHNSON & JOHNSON	Chemicals & Allied	U.S.A.
60	8	ROYAL BANK OF CANADA	Depository Instit.	CANADA
61	20	MERRILL LYNCH & COMPANY, INC.	Securities & Brokers	U.S.A.
62	79	BELL ATLANTIC CORPORATION	Communications	U.S.A.
63	9	BANKAMERICA CORPORATION	Depository Instit.	U.S.A.
64	84	TIME WARNER, INC.	Printing & Pub.	U.S.A.
65	271	SUN COMPANY, INC.	Petroleum Refining	U.S.A.
66	14	CHASE MANHATTAN CORPORATION	Depository Instit.	U.S.A.
67	211	ALLIED-SIGNAL, INC.	Aircraft & Parts	U.S.A.
68	224	UAL CORPORATION	Transportation	U.S.A.
69	10	NATIONSBANK CORPORATION	Depository Instit.	U.S.A.
70	441	GREAT ATLANTIC & PACIFIC TEA COMPANY	Retail Trade	U.S.A.
71	212	COCA-COLA COMPANY (THE)	Food & Products	U.S.A.
72	203	GEORGIA-PACIFIC CORPORATION	Wholesale Trade	U.S.A.
73	32	TRAVELERS CORPORATION	Insurance	U.S.A.
74	238	BRISTOL-MYERS SQUIBB COMPANY	Light Machinery	U.S.A.
75	57	CNA FINANCIAL CORPORATION	Insurance	U.S.A.
76	220	ANHEUSER-BUSCH COMPANIES, INC.	Food & Products	U.S.A.
77	239	ROCKWELL INTERNATIONAL CORPORATION	Construction	U.S.A.
78	255	GOODYEAR TIRE & RUBBER COMPANY	Rubber & Products	U.S.A.
79	213	DELTA AIR LINE INC.	Transportation	U.S.A.
80	98	AMERITECH CORPORATION	Communications	U.S.A.
81	516	SUPERVALU, INC.	Wholesale Trade	U.S.A.
82	252	MAY DEPARTMENT STORES COMPANY	Retail Trade	U.S.A.
83	80	U S WEST, INC.	Communications	U.S.A.
84	462	FORD MOTOR COMPANY OF CANADA LTD.	Motor Vehicles & Equipment	CANADA
85	671	IBP, INC.	Food & Products	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
86	593	WINN-DIXIE STORES, INC.	Retail Trade	U.S.A.
87	13	MORGAN (J.P.) & COMPANY INC.	Securities & Brokers	U.S.A.
88	489	MCKESSON CORPORATION	Wholesale Trade	U.S.A.
89	315	ASHLAND OIL, INC.	Petroleum Refining	U.S.A.
90	170	CATERPILLAR, INC.	Machinery excluding electrical	U.S.A.
91	124	OCCIDENTAL PETROLEUM CORPORATION	Chemicals & Allied	U.S.A.
92	358	WOOLWORTH CORPORATION	Retail Trade	U.S.A.
93	99	PACIFIC TELESIS GROUP	Communications	U.S.A.
94	388	MELVILLE CORPORATION	Retail Trade	U.S.A.
95	191	ALUMINUM COMPANY OF AMERICA	Mining	U.S.A.
96	287	LOCKHEED CORPORATION	Other Transp. Equipment	U.S.A.
97	95	PACIFIC GAS AND ELECTRIC COMPANY	Utilities	U.S.A.
98	225	UNOCAL CORPORATION	Petroleum Refining	U.S.A.
99	235	COASTAL CORPORATION (THE)	Utilities	U.S.A.
100	93	SOUTHWESTERN BELL CORPORATION	Communications	U.S.A.
101	433	GEORGE WESTON LIMITED	Wholesale Trade	CANADA
102	60	LINCOLN NATIONAL CORPORATION	Insurance	U.S.A.
103	305	RAYTHEON COMPANY	Light Machinery	U.S.A.
104	267	ARCHER-DANIELS-MIDLAND COMPANY	Food & Products	U.S.A.
105	11	CANADIAN IMPERIAL BANK OF COMMERCE	Depository Instit.	CANADA
106	15	SALOMON INC.	Securities & Brokers	U.S.A.
107	22	SECURITY PACIFIC CORPORATION	Depository Instit.	U.S.A.
108	241	BAXTER INTERNATIONAL, INC.	Wholesale Trade	U.S.A.
109	540	SYSCO CORPORATION	Wholesale Trade	U.S.A.
110	243	MONSANTO COMPANY	Chemicals & Allied	U.S.A.
111	18	BANK OF MONTREAL	Depository Instit.	CANADA
112	208	SPRINT CORPORATION	Communications	U.S.A.
113	301	GENERAL DYNAMICS CORPORATION	Aircraft & Parts	U.S.A.
114	116	CANADIAN PACIFIC LIMITED	Transportation	CANADA

Rank by Sales	Rank by Assets	Company Name	Industry	Country
115	120	WEYERHAEUSER COMPANY	Paper & Allied	U.S.A.
116	256	UNISYS CORPORATION	Computers & Office Machines	U.S.A.
117	553	ALBERTSON'S, INC.	Retail Trade	U.S.A.
118	158	CSX CORPORATION	Transportation	U.S.A.
119	234	MERCK & COMPANY, INC.	Chemicals & Allied	U.S.A.
120	247	MCI Communications CORPORATION	Communications	U.S.A.
121	134	AMERICAN BRANDS, INC.	Tobacco	U.S.A.
122	293	MARRIOTT CORPORATION	Retail Trade	U.S.A.
123	21	THE BANK OF NOVA SCOTIA	Depository Instit.	CANADA
124	231	NORTHERN TELECOM LIMITED	Comm. Equipment	CANADA
125	104	THE SOUTHERN COMPANY	Utilities	U.S.A.
126	175	IMPERIAL OIL LIMITED	Mining	CANADA
127	362	BRASCAN LIMITED	Mining	CANADA
128	317	TRW INC.	Motor Vehicles & Equipment	U.S.A.
129	129	TEXTRON INC.	Aircraft & Parts	U.S.A.
130	375	GENERAL MILLS, INC.	Food & Products	U.S.A.
131	336	RALSTON PURINA COMPANY	Food & Products	U.S.A.
132	198	ALCAN ALUMINIUM LIMITED	Primary Metals	CANADA
133	286	EMERSON ELECTRIC COMPANY	Electrical Products	U.S.A.
134	27	MANUFACTURERS HANOVER CORPORATION	Depository Instit.	U.S.A.
135	162	WASTE MANAGEMENT, INC.	Utilities	U.S.A.
136	326	FEDERAL EXPRESS CORPORATION	Transportation	U.S.A.
137	600	PRICE COMPANY (THE)	Retail Trade	U.S.A.
138	197	DISNEY (WALT) COMPANY, (THE)	Commercial Serv.	U.S.A.
139	121	SCECORP	Other Fin. Serv.	U.S.A.
140	530	WALGREEN COMPANY	Retail Trade	U.S.A.
141	584	LOBLAW COMPANIES LIMITED	Retail Trade	CANADA
142	324	BORDEN, INC.	Food & Products	U.S.A.
143	492	CHRYSLER CANADA LIMITED	Motor Vehicles & Equipment	CANADA

Rank by Sales	Rank by Assets	Company Name	Industry	Country
144	160	NORANDA INC.	Lumber and Wood	CANADA
145	380	APPLE COMPUTER, INC.	Computers & Office Machines	U.S.A.
146	309	AMERICAN HOME PRODUCTS CORPORATION	Chemicals & Allied	U.S.A.
147	177	DEERE & COMPANY	Machinery excluding electrical	U.S.A.
148	153	UNION PACIFIC CORPORATION	Transportation	U.S.A.
149	344	HALLIBURTON COMPANY	Utilities	U.S.A.
150	692	LUCKY STORES, INC.	Retail Trade	U.S.A.
151	299	ABBOTT LABORATORIES	Chemicals & Allied	U.S.A.
152	70	SUN LIFE ASSURANCE COMPANY OF CANADA	Insurance	CANADA
153	25	BANKERS TRUST NEW YORK CORPORATION	Depository Instit.	U.S.A.
154	61	TRANSAMERICA CORPORATION	Insurance	U.S.A.
155	26	MORGAN STANLEY GROUP, INC.	Securities & Brokers	U.S.A.
156	346	TEXAS INSTRUMENTS INC.	Misc. Elect. Prod.	U.S.A.
157	316	KIMBERLY-CLARK CORPORATION	Paper & Allied	U.S.A.
158	292	WHIRLPOOL CORPORATION	Electrical Products	U.S.A.
159	524	FLUOR CORPORATION	Construction	U.S.A.
160	183	MCDONALD'S CORPORATION	Retail Trade	U.S.A.
161	635	COSTCO WHOLESALE CORPORATION	Wholesale Trade	U.S.A.
162	101	PRIMERICA CORPORATION	Insurance	U.S.A.
163	280	PACIFIC ENTERPRISES	Utilities	U.S.A.
164	310	H.J. HEINZ COMPANY	Food & Products	U.S.A.
165	291	USAIR GROUP, INC.	Transportation	U.S.A.
166	590	FOOD LION INC.	Retail Trade	U.S.A.
167	364	NCR CORPORATION	Computers & Office Machines	U.S.A.
168	119	COMMONWEALTH EDISON COMPANY	Utilities	U.S.A.
169	246	AMERADA HESS CORPORATION	Petroleum Refining	U.S.A.
170	374	CAMPBELL SOUP COMPANY	Food & Products	U.S.A.
171	176	SEAGRAM COMPANY LIMITED	Food & Products	CANADA
172	352	HONEYWELL INC.	Light Machinery	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
173	367	CPC INTERNATIONAL INC.	Food & Products	U.S.A.
174	52	ONTARIO HYDRO	Utilities	CANADA
175	270	COOPER INDUSTRIES, INC.	Machinery excluding electrical	U.S.A.
176	429	LIMITED, INC. (THE)	Retail Trade	U.S.A.
177	277	SCHLUMBERGER LIMITED	Mining	U.S.A.
178	363	TOYS "R" US, INC.	Retail Trade	U.S.A.
179	395	MARTIN MARIETTA CORPORATION	Other Transp. Equipment	U.S.A.
180	366	COLGATE-PALMOLIVE COMPANY	Chemicals & Allied	U.S.A.
181	308	GRACE (W.R.) & COMPANY	Chemicals & Allied	U.S.A.
182	283	THE LTV CORPORATION	Primary Metals	U.S.A.
183	192	CONSOLIDATED EDISON COMPANY OF NEW YORK	Utilities	U.S.A.
184	30	WELLS FARGO & COMPANY	Depository Instit.	U.S.A.
185	78	MANUFACTURERS LIFE INSURANCE COMPANY	Insurance	CANADA
186	223	MCDONALD'S CORPORATION	Retail Trade	CANADA
187	718	WETTERAU INC.	Wholesale Trade	U.S.A.
188	393	KELLOGG COMPANY	Food & Products	U.S.A.
189	282	REYNOLDS METALS COMPANY	Primary Metals	U.S.A.
190	663	LYONDELL PETROCHEMICAL COMPANY	Petroleum Refining	U.S.A.
191	257	LILLY (ELI) AND COMPANY	Chemicals & Allied	U.S.A.
192	693	UNIVA INC.	Retail Trade	CANADA
193	450	NORTHROP CORPORATION	Aircraft & Parts	U.S.A.
194	351	LITTON INDUSTRIES, INC.	Light Machinery	U.S.A.
195	306	PPG INDUSTRIES, INC.	Non-Metallic Minerals	U.S.A.
196	102	CONFEDERATION LIFE INSURANCE COMPANY	Insurance	CANADA
197	259	THOMSON CORPORATION	Printing & Pub.	CANADA
198	456	QUAKER OATS COMPANY (THE)	Food & Products	U.S.A.
199	416	CONTINENTAL AIRLINES HOLDINGS, INC.	Transportation	U.S.A.
200	467	I B M CANADA LIMITED	Computers & Office Machines	CANADA
201	53	HYDRO QUEBEC	Utilities	CANADA

Rank by Sales	Rank by Assets	Company Name	Industry	Country
202	147	THE CONTINENTAL CORPORATION	Insurance	U.S.A.
203	276	STONE CONTAINER CORPORATION	Paper & Allied	U.S.A.
204	281	CAPITAL CITIES/ABC, INC.	Communications	U.S.A.
205	616	VONS COMPANIES, INC., (THE)	Retail Trade	U.S.A.
206	168	TELEFONOS DE MEXICO S.A.	Communications	MEXICO
207	187	FPL GROUP, INC.	Utilities	U.S.A.
208	513	HOME DEPOT, INC. (THE)	Wholesale Trade	U.S.A.
209	34	FIRST INTERSTATE BANCORP	Depository Instit.	U.S.A.
210	138	PUBLIC SERVICE ENTERPRISE GROUP	Utilities	U.S.A.
211	338	RYDER SYSTEM, INC.	Commercial Serv.	U.S.A.
212	410	WARNER-LAMBERT COMPANY	Chemicals & Allied	U.S.A.
213	677	BERGEN BRUNSWIG CORPORATION	Wholesale Trade	U.S.A.
214	146	AMERICAN ELECTRIC POWER COMPANY	Utilities	U.S.A.
215	340	AMERICAN CYANAMID COMPANY	Chemicals & Allied	U.S.A.
216	56	TRILON FINANCIAL CORPORATION	Depository Instit.	CANADA
217	289	SCOTT PAPER COMPANY	Paper & Allied	U.S.A.
218	28	TORONTO DOMINION BANK (THE)	Depository Instit.	CANADA
219	520	ALCO STANDARD CORPORATION	Wholesale Trade	U.S.A.
220	108	TEXAS UTILITIES COMPANY	Utilities	U.S.A.
221	278	UNION CARBIDE CORPORATION	Chemicals & Allied	U.S.A.
222	318	USX-STEEL GROUP, INC.	Fabricated Metals	U.S.A.
223	33	FIRST CHICAGO CORPORATION	Depository Instit.	U.S.A.
224	253	CHAMPION INTERNATIONAL CORPORATION	Paper & Allied	U.S.A.
225	297	INTEL CORPORATION	Misc. Elect. Prod.	U.S.A.
226	396	GILLETTE COMPANY (THE)	Fabricated Metals	U.S.A.
227	447	TANDY CORPORATION	Retail Trade	U.S.A.
228	436	DRESSER INDUSTRIES, INC.	Machinery excluding electrical	U.S.A.
229	353	DUN & BRADSTREET CORPORATION (THE)	Commercial Serv.	U.S.A.
230	322	BLACK & DECKER CORPORATION (THE)	Electrical Products	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
231	449	CHIQUITA BRANDS INTERNATIONAL,	Agriculture & Fishing	U.S.A.
232	75	HOUSEHOLD INTERNATIONAL, INC.	Non-Deposit. Instit.	U.S.A.
233	391	MEAD CORPORATION (THE)	Printing & Publishing	U.S.A.
234	382	DANA CORPORATION	Motor Vehicles & Equipment	U.S.A.
235	319	JAMES RIVER CORPORATION OF VIRGINIA	Paper & Allied	U.S.A.
236	296	BURLINGTON NORTHERN INC.	Transportation	U.S.A.
237	473	JOHNSON CONTROLS, INC.	Light Machinery	U.S.A.
238	64	BANK OF BOSTON CORPORATION	Depository Instit.	U.S.A.
239	148	CHUBB CORPORATION	Insurance	U.S.A.
240	36	AHMANSON H.F. & COMPANY	Depository Instit.	U.S.A.
241	43	PNC FINANCIAL CORPORATION	Depository Instit.	U.S.A.
242	215	NORFOLK SOUTHERN CORPORATION	Transportation	U.S.A.
243	171	HOUSTON INDUSTRIES INC.	Utilities	U.S.A.
244	51	NORWEST CORPORATION	Depository Instit.	U.S.A.
245	55	AMERICAN GENERAL CORPORATION	Insurance	U.S.A.
246	157	ST. PAUL COMPANIES, INC. (THE)	Insurance	U.S.A.
247	39	FIRST UNION CORPORATION	Depository Instit.	U.S.A.
248	384	BETHLEHEM STEEL CORPORATION	Primary Metals	U.S.A.
249	41	FLEET FINANCIAL GROUP, INC.	Depository Instit.	U.S.A.
250	483	HUDSON'S BAY COMPANY	Retail Trade	CANADA
251	49	BANK OF NEW YORK COMPANY, INC.	Depository Instit.	U.S.A.
252	143	USF & G CORPORATION	Insurance	U.S.A.
253	503	TYSON FOODS, INC.	Food & Products	U.S.A.
254	142	GREAT WEST LIFE ASSURANCE COMPANY	Insurance	CANADA
255	335	PETRO CANADA	Petroleum Refining	CANADA
256	38	BANC ONE CORPORATION	Depository Instit.	U.S.A.
257	337	SHELL CANADA LIMITED	Mining	CANADA
258	542	CONSOLIDATED FREIGHTWAYS, INC.	Transportation	U.S.A.
259	141	CANADA LIFE ASSURANCE COMPANY	Insurance	CANADA

Rank by Sales	Rank by Assets	Company Name	Industry	Country
260	145	ENTERGY CORPORATION	Utilities	U.S.A.
261	284	COCA COLA ENTERPRISES INC.	Food & Products	U.S.A.
262	400	HUMANA, INC.	Health Services	U.S.A.
263	419	DILLARD DEPARTMENT STORES INC.	Retail Trade	U.S.A.
264	154	PACIFICORP	Utilities	U.S.A.
265	379	NATIONAL MEDICAL ENTERPRISES,	Health Services	U.S.A.
266	163	PHILADELPHIA ELECTRIC COMPANY	Utilities	U.S.A.
267	532	GRUMMAN CORPORATION	Aircraft & Parts	U.S.A.
268	47	GREAT WESTERN FINANCIAL CORPORATION	Depository Instit.	U.S.A.
269	355	BOISE CASCADE CORPORATION	Paper & Allied	U.S.A.
270	65	ROYAL TRUSTCO LIMITED	Depository Instit.	CANADA
271	822	OSHAWA GROUP LIMITED	Wholesale Trade	CANADA
272	579	PAN AM CORPORATION	Transportation	U.S.A.
273	430	DONNELLEY (R.R.) AND SONS COMPANY	Printing & Publishing	U.S.A.
274	477	FMC CORPORATION	Chemicals & Allied	U.S.A.
275	285	PARAMOUNT Communications, INC.	Commercial Serv.	U.S.A.
276	156	TELE-Communications, INC.	Communications	U.S.A.
277	385	RHONE-POULENC RORER GROUP, INC	Chemicals & Allied	U.S.A.
278	207	DUKE POWER COMPANY	Utilities	U.S.A.
279	461	CROWN CORK & SEAL COMPANY, INC.	Fabricated Metals	U.S.A.
280	127	BANCA SERFIN, S.N.C.	Depository Instit.	MEXICO
281	190	DOMINION RESOURCES, INC. (VA)	Utilities	U.S.A.
282	321	AMAX INC.	Primary Metals	U.S.A.
283	625	RITE AID CORPORATION	Retail Trade	U.S.A.
284	66	NATIONAL BANK OF CANADA	Depository Instit.	CANADA
285	73	CT FINANCIAL SERVICES INC.	Non-Deposit. Instit.	CANADA
286	390	SCHERING-PLOUGH CORPORATION	Chemicals & Allied	U.S.A.
287	738	CIRCLE K CORPORATION (THE)	Retail Trade	U.S.A.
288	543	JWP, INC.	Construction	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
289	626	AVON PRODUCTS, INC.	Chemicals & Allied	U.S.A.
290	209	DETROIT EDISON COMPANY (THE)	Utilities	U.S.A.
291	496	SUN MICROSYSTEMS, INC.	Computers & Office Machines	U.S.A.
292	300	GENERAL CINEMA CORPORATION	Retail Trade	U.S.A.
293	76	BANK OF NEW ENGLAND CORPORATION	Depository Instit.	U.S.A.
294	575	TW SERVICES, INC.	Retail Trade	U.S.A.
295	333	NORANDA FOREST INC.	Lumber and Wood	CANADA
296	328	AMOCO CANADA PETROLEUM COMPANY	Mining	CANADA
297	465	VARITY CORPORATION	Machinery excluding electrical	CANADA
298	539	SEARS CANADA INC.	Retail Trade	CANADA
299	451	MCDERMOTT INTERNATIONAL, INC.	Machinery excluding electrical	U.S.A.
300	700	GIANT FOOD, INC.	Retail Trade	U.S.A.
301	425	NAVISTAR INTERNATIONAL CORPORATION	Motor Vehicles & Equipment	U.S.A.
302	666	GENUINE PARTS COMPANY	Wholesale Trade	U.S.A.
303	743	NATIONAL INTERGROUP, INC.	Wholesale Trade	U.S.A.
304	307	CANADIAN NATIONAL RAILWAYS COMPANY	Transportation	CANADA
305	586	CUMMINS ENGINE COMPANY, INC.	Machinery excluding electrical	U.S.A.
306	606	NIKE INC.	Leather and Products	U.S.A.
307	493	INLAND STEEL INDUSTRIES, INC.	Primary Metals	U.S.A.
308	383	UPJOHN COMPANY (THE)	Chemicals & Allied	U.S.A.
309	526	AMERICAN STANDARD INC.	Computers & Office Machines	U.S.A.
310	648	SERVICE MERCHANDISE COMPANY	Retail Trade	U.S.A.
311	188	RELIANCE GROUP HOLDINGS, INC.	Insurance	U.S.A.
312	258	NIAGARA MOHAWK POWER CORPORATION	Utilities	U.S.A.
313	381	MCA INC.	Commercial Serv.	U.S.A.
314	404	GANNETT COMPANY, INC.	Printing & Publishing	U.S.A.
315	453	EATON CORPORATION	Motor Vehicles & Equipment	U.S.A.
316	269	GENERAL PUBLIC UTILITIES CORPORATION	Utilities	U.S.A.
317	59	SUNTRUST BANKS, INC.	Depository Instit.	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
318	471	FINA, INC.	Petroleum Refining	U.S.A.
319	294	PITNEY BOWES, INC.	Computers & Office Machines	U.S.A.
320	389	BROWNING-FERRIS INDUSTRIES, INC.	Utilities	U.S.A.
321	216	AFLAC INC.	Insurance	U.S.A.
322	428	KERR-MCGEE CORPORATION	Mining	U.S.A.
323	63	BARNETT BANKS, INC.	Depository Instit.	U.S.A.
324	475	COMPAQ COMPUTER CORPORATION	Computers & Office Machines	U.S.A.
325	538	CANADA POST CORPORATION	Transportation	CANADA
326	614	AGWAY INC.	Food & Products	U.S.A.
327	397	CORNING, INC.	Non-Metallic Minerals	U.S.A.
328	272	CONSOLIDATED RAIL CORPORATION	Transportation	U.S.A.
329	484	JOHN LABATT LIMITED	Food & Products	CANADA
330	368	AIR PRODUCTS AND CHEMICALS, INC.	Chemicals & Allied	U.S.A.
331	481	DOLE FOOD COMPANY, INC.	Food & Products	U.S.A.
332	628	TELEDYNE, INC.	Aircraft & Parts	U.S.A.
333	165	GENERAL RE CORPORATION	Insurance	U.S.A.
334	173	SAFECO CORPORATION	Insurance	U.S.A.
335	585	NORDSTROM, INC.	Retail Trade	U.S.A.
336	660	ROADWAY SERVICES, INC.	Transportation	U.S.A.
337	97	PAINE WEBBER GROUP INC.	Securities & Brokers	U.S.A.
338	399	MASCO CORPORATION	Furniture and Fix.	U.S.A.
339	62	WACHOVIA CORPORATION	Depository Instit.	U.S.A.
340	140	KEMPER CORPORATION	Insurance	U.S.A.
341	42	STUDENT LOAN MARKETING ASSOCIATION	Non-Deposit. Instit.	U.S.A.
342	312	CONTEL CORPORATION	Communications	U.S.A.
343	458	AMP INC.	Misc. Elect. Prod.	U.S.A.
344	377	AIR CANADA	Transportation	CANADA
345	149	MUTUAL LIFE ASSURANCE COMPANY OF CANADA	Insurance	CANADA
346	519	TYCO LABORATORIES, INC.	Comm. Equipment	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
347	673	LOWE'S COMPANIES, INC.	Wholesale Trade	U.S.A.
348	240	CENTRAL AND SOUTH WEST CORPORATION	Utilities	U.S.A.
349	357	IMASCO LIMITED	Tobacco	CANADA
350	479	CBS INC.	Communications	U.S.A.
351	372	VITRO SOCIEDAD ANOMINA	Non-Metallic Minerals	MEXICO
352	517	HARRIS CORPORATION	Computers & Office Machines	U.S.A.
353	369	INCO LIMITED	Mining	CANADA
354	697	UNIVERSAL CORPORATION	Wholesale Trade	U.S.A.
355	68	MELLON BANK CORPORATION	Depository Instit.	U.S.A.
356	511	MAYTAG CORPORATION	Electrical Products	U.S.A.
357	356	UNION CAMP CORPORATION	Paper & Allied	U.S.A.
358	565	V.F. CORPORATION	Clothing	U.S.A.
359	302	CMS ENERGY CORPORATION	Utilities	U.S.A.
360	179	AON CORPORATION	Insurance	U.S.A.
361	423	HERCULES INC.	Chemicals & Allied	U.S.A.
362	535	HERSHEY FOODS CORPORATION	Food & Products	U.S.A.
363	497	LORAL CORPORATION	Light Machinery	U.S.A.
364	615	SEAGATE TECHNOLOGY	Computers & Office Machines	U.S.A.
365	830	SOCANAV INC.	Retail Trade	CANADA
366	488	MARION MERRELL DOW, INC.	Chemicals & Allied	U.S.A.
367	405	ARCO CHEMICAL COMPANY	Wholesale Trade	U.S.A.
368	448	ENSERCH CORPORATION	Mining	U.S.A.
369	686	AMES DEPARTMENT STORES, INC.	Retail Trade	U.S.A.
370	587	PREMARK INTERNATIONAL, INC.	Rubber & Products	U.S.A.
371	805	HORMEL (GEORGE A.) & COMPANY	Food & Products	U.S.A.
372	781	CIRCUIT CITY STORES, INC.	Retail Trade	U.S.A.
373	576	OWENS-CORNING FIBERGLAS CORPORATION	Textiles	U.S.A.
374	629	MAPCO INC.	Mining	U.S.A.
375	347	ARKLA, INC.	Utilities	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
376	529	MARSH & McLENNAN COMPANIES, INC.	Insurance	U.S.A.
377	469	ROHM & HAAS COMPANY	Chemicals & Allied	U.S.A.
378	499	MICROSOFT CORPORATION	Commercial Serv.	U.S.A.
379	751	TJX COMPANIES, INC.(THE)	Retail Trade	U.S.A.
380	655	CIFRA, S.A. DE C.V.	Retail Trade	MEXICO
381	279	NORTHEAST UTILITIES	Utilities	U.S.A.
382	439	AMERICAN MEDICAL INTERNATIONAL	Health Services	U.S.A.
383	74	FIRST FIDELITY BANCORPORATION	Depository Instit.	U.S.A.
384	359	TRANSCO ENERGY COMPANY	Utilities	U.S.A.
385	675	REEBOK INTERNATIONAL LIMITED	Leather and Products	U.S.A.
386	733	UNITED STATES SHOE CORPORATION	Retail Trade	U.S.A.
387	77	NBD BANCORP, INC.	Depository Instit.	U.S.A.
388	788	MEYER (FRED), INC.	Retail Trade	U.S.A.
389	872	EG & G, INC.	Light Machinery	U.S.A.
390	268	CAROLINA POWER & LIGHT COMPANY	Utilities	U.S.A.
391	40	BEAR STEARNS COMPANY'S INC. (THE)	Securities & Brokers	U.S.A.
392	314	TRANSCANADA PIPELINES LIMITED	Utilities	CANADA
393	107	CAPITAL HOLDING CORPORATION	Insurance	U.S.A.
394	343	NOVA CORPORATION OF ALBERTA	Mining	CANADA
395	831	BRUNO'S INC.	Retail Trade	U.S.A.
396	996	MITSUMI & COMPANY	Wholesale Trade	CANADA
397	549	ILLINOIS TOOL WORKS INC.	Motor Vehicles & Equipment	U.S.A.
398	83	SOVRAN FINANCIAL CORPORATION	Depository Instit.	U.S.A.
399	709	MAPLE LEAF FOODS INC.	Food & Products	CANADA
400	345	CONSOLIDATED NATURAL GAS COMPANY	Utilities	U.S.A.
401	506	BOMBARDIER INC.	Aircraft & Parts	CANADA
402	89	NATIONAL CITY CORPORATION	Depository Instit.	U.S.A.
403	602	CANADIAN TIRE CORPORATION LIMITED	Wholesale Trade	CANADA
404	295	COLUMBIA GAS SYSTEM, INC. (THE)	Utilities	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
405	711	DIAMOND SHAMROCK, INC.	Petroleum Refining	U.S.A.
406	263	ETHYL CORPORATION	Chemicals & Allied	U.S.A.
407	169	CENTERIOR ENERGY CORPORATION	Utilities	U.S.A.
408	262	PENNSYLVANIA POWER & LIGHT COMPANY	Utilities	U.S.A.
409	230	LONG ISLAND LIGHTING COMPANY	Utilities	U.S.A.
410	624	AVERY DENNISON CORPORATION	Chemicals & Allied	U.S.A.
411	640	SHERWIN-WILLIAMS COMPANY (THE)	Chemicals & Allied	U.S.A.
412	440	BAKER HUGHES, INC.	Machinery excluding electrical	U.S.A.
413	443	QUANTUM CHEMICAL CORPORATION	Chemicals & Allied	U.S.A.
414	332	PENNZOIL COMPANY	Motor Vehicles & Equipment	U.S.A.
415	736	GAP, INC. (THE)	Retail Trade	U.S.A.
416	218	TEMPLE-INLAND INC.	Paper & Allied	U.S.A.
417	609	GENERAL MOTORS DE MEXICO	Motor Vehicles & Equipment	MEXICO
418	69	REPUBLIC NEW YORK CORPORATION	Depository Instit.	U.S.A.
419	569	MOORE CORPORATION LIMITED	Printing & Publishing	CANADA
420	774	TOTAL PETROLEUM (NORTH AMERICA) LIMITED	Mining	CANADA
421	522	PWA CORPORATION	Transportation	CANADA
422	737	THE HORSHAM CORPORATION	Mining	CANADA
423	547	THE B.F. GOODRICH COMPANY	Chemicals & Allied	U.S.A.
424	288	CANADIAN WHEAT BOARD	Wholesale Trade	CANADA
425	273	BALTIMORE GAS AND ELECTRIC COMPANY	Utilities	U.S.A.
426	303	PANHANDLE EASTERN CORPORATION	Utilities	U.S.A.
427	658	AMERICAN PRESIDENT COMPANIES LIMITED	Transportation	U.S.A.
428	92	CITIZENS & SOUTHERN CORPORATION	Depository Instit.	U.S.A.
429	632	MERCANTILE STORES COMPANY, INC.	Retail Trade	U.S.A.
430	562	ARMSTRONG WORLD INDUSTRIES, INC.	Misc. Mnfr. Goods	U.S.A.
431	698	ENGELHARD CORPORATION	Chemicals & Allied	U.S.A.
432	408	GRUPO INDUSTRIAL ALFA, S.A.	Primary Metals	MEXICO
433	455	PHELPS DODGE CORPORATION	Mining	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
434	607	ABITIBI-PRICE INC.	Paper & Allied	CANADA
435	199	UNUM CORPORATION	Insurance	U.S.A.
436	780	JIM PATTISON GROUP	Other Fin. Serv.	CANADA
437	566	WHITMAN CORPORATION	Food & Products	U.S.A.
438	930	BINDLEY WESTERN INDUSTRIES INC.	Wholesale Trade	U.S.A.
439	100	CORESTATES FINANCIAL CORPORATION	Depository Instit.	U.S.A.
440	210	LONDON LIFE INSURANCE COMPANY	Insurance	CANADA
441	601	PARKER HANNIFIN CORPORATION	Computers & Office Machines	U.S.A.
442	879	LONGS DRUG STORES CORPORATION	Retail Trade	U.S.A.
443	445	BECTON, DICKINSON AND COMPANY	Light Machinery	U.S.A.
444	334	SANTA FE PACIFIC CORPORATION	Transportation	U.S.A.
445	265	OHIO EDISON COMPANY	Utilities	U.S.A.
446	435	MACMILLAN BLOEDEL LIMITED	Lumber and Wood	CANADA
447	694	MCCAIN FOODS INC.	Food & Products	CANADA
448	755	YELLOW FREIGHT SYSTEM, INC.	Transportation	U.S.A.
449	952	NASH-FINCH COMPANY	Wholesale Trade	U.S.A.
450	403	WESTVACO CORPORATION	Paper & Allied	U.S.A.
451	747	CHRYSLER DE MEXICO	Motor Vehicles & Equipment	MEXICO
452	91	CONTINENTAL BANK CORPORATION	Depository Instit.	U.S.A.
453	631	BEVERLY ENTERPRISES	Health Services	U.S.A.
454	820	DEAN FOODS COMPANY	Food & Products	U.S.A.
455	94	KEYCORP	Depository Instit.	U.S.A.
456	350	ALLEGHENY POWER SYSTEM, INC.	Utilities	U.S.A.
457	845	INTERNATIONAL MULTIFOODS CORPORATION	Food & Products	U.S.A.
458	589	OLIN CORPORATION	Chemicals & Allied	U.S.A.
459	649	BALL CORPORATION	Fabricated Metals	U.S.A.
460	96	SHAWMUT NATIONAL CORPORATION	Depository Instit.	U.S.A.
461	87	GOLDEN WEST FINANCIAL CORPORATION	Depository Instit.	U.S.A.
462	537	KNIGHT-RIDDER, INC.	Printing & Publishing	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
463	331	COMDISCO, INC.	Commercial Serv.	U.S.A.
464	354	NORTHERN STATES POWER COMPANY	Utilities	U.S.A.
465	685	DOVER CORPORATION	Machinery excluding electrical	U.S.A.
466	763	AMFAC, INC.	Agriculture & Fishing	U.S.A.
467	118	MNC FINANCIAL, INC.	Other Fin. Serv.	U.S.A.
468	533	CENTEX CORPORATION	Construction	U.S.A.
469	491	PACCAR INC.	Wholesale Trade	U.S.A.
470	591	MOLSON COMPANIES LIMITED	Food & Products	CANADA
471	884	HONDA CANADA INC.	Motor Vehicles & Equipment	CANADA
472	387	GEICO CORPORATION	Insurance	U.S.A.
473	598	HASBRO INC.	Misc. Mnfr. Goods	U.S.A.
474	633	CARTER HAWLEY STORES, INC.	Retail Trade	U.S.A.
475	681	COMPUTER SCIENCES CORPORATION	Commercial Serv.	U.S.A.
476	827	SERVICEMASTER, LIMITED PARTNERSHIP	Commercial Serv.	U.S.A.
477	378	WILLIAMS COMPANIES (THE)	Utilities	U.S.A.
478	313	UNION ELECTRIC COMPANY	Utilities	U.S.A.
479	370	NEW ENGLAND ELECTRIC SYSTEM	Utilities	U.S.A.
480	676	WANG LABORATORIES, INC.	Computers & Office Machines	U.S.A.
481	608	BRUNSWICK CORPORATION	Other Transp. Equipment	U.S.A.
482	478	SYNTEX CORPORATION	Chemicals & Allied	U.S.A.
483	713	GRAINGER, (W.W.) INC.	Wholesale Trade	U.S.A.
484	342	FLORIDA PROGRESS CORPORATION	Utilities	U.S.A.
485	604	POLAROID CORPORATION	Light Machinery	U.S.A.
486	228	LAURENTIAN GROUP	Insurance	CANADA
487	545	QUEBECOR INC.	Printing & Publishing	CANADA
488	572	MORTON INTERNATIONAL, INC.	Chemicals & Allied	U.S.A.
489	463	TEXACO CANADA INC.	Mining	CANADA
490	583	TANDEM COMPUTERS INC.	Computers & Office Machines	U.S.A.
491	480	TRIBUNE COMPANY	Printing & Publishing	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
492	636	FOSTER WHEELER CORPORATION	Other Services	U.S.A.
493	847	F W WOOLWORTH COMPANY LIMITED	Retail Trade	CANADA
494	459	MANVILLE CORPORATION	Non-Metallic Minerals	U.S.A.
495	161	CARENA DEVELOPMENTS LIMITED	Other Fin. Serv.	CANADA
496	106	UNITED STATES BANCORPORATION	Depository Instit.	U.S.A.
497	869	HANNAFORD BROS. COMPANY	Retail Trade	U.S.A.
498	727	LIZ CLAIBORNE, INC.	Clothing	U.S.A.
499	552	WILLAMETTE INDUSTRIES, INC	Paper & Allied	U.S.A.
500	748	GENCORP INC.	Aircraft & Parts	U.S.A.
501	764	E-SYSTEMS, INC.	Light Machinery	U.S.A.
502	114	MIDLANTIC CORPORATION	Depository Instit.	U.S.A.
503	776	MORRISON KNUDSEN CORPORATION	Construction	U.S.A.
504	789	TOSCO CORPORATION	Petroleum Refining	U.S.A.
505	651	STANLEY WORKS (THE)	Machinery excluding electrical	U.S.A.
506	132	FIRST EXECUTIVE CORPORATION	Insurance	U.S.A.
507	768	HARSCO CORPORATION	Other Transp. Equipment	U.S.A.
508	512	MCGRAW-HILL, INC.	Printing & Publishing	U.S.A.
509	558	AUTOMATIC DATA PROCESSING, INC.	Commercial Serv.	U.S.A.
510	304	TORCHMARK CORPORATION	Insurance	U.S.A.
511	373	PHH CORPORATION	Commercial Serv.	U.S.A.
512	708	PITTSTON COMPANY (THE)	Transportation	U.S.A.
513	406	LAIDLAW INC.	Transportation	CANADA
514	592	COORS (ADOLPH) COMPANY	Food & Products	U.S.A.
515	868	INTELLIGENT ELECTRONICS	Retail Trade	U.S.A.
516	468	ASARCO INC.	Primary Metals	U.S.A.
517	113	HOMEFED CORPORATION	Depository Instit.	U.S.A.
518	701	SPRINGS INDUSTRIES, INC.	Clothing	U.S.A.
519	320	I.C.H. CORPORATION	Insurance	U.S.A.
520	717	EMPIRE COMPANY LIMITED	Retail Trade	CANADA

Rank by Sales	Rank by Assets	Company Name	Industry	Country
521	573	SEQUA CORPORATION	Aircraft & Parts	U.S.A.
522	934	METRO-RICHELIEU INC.	Wholesale Trade	CANADA
523	790	UNITED WESTBURNE INC.	Wholesale Trade	CANADA
524	112	FIRST BANK SYSTEM	Depository Instit.	U.S.A.
525	710	MEDCO CONTAINMENT SERVICES, INC.	Retail Trade	U.S.A.
526	221	BENEFICIAL CORPORATION	Non-Deposit. Instit.	U.S.A.
527	740	NEIMAN MARCUS GROUP, INC. (THE)	Retail Trade	U.S.A.
528	412	ALLMERICA PROPERTY & CASUALTY	Insurance	U.S.A.
529	417	ANGLO-CANADIAN TELEPHONE COMPANY	Communications	CANADA
530	422	PUBLIC SERVICE COMPANY OF COLORADO	Utilities	U.S.A.
531	401	SAN DIEGO GAS & ELECTRIC COMPANY	Utilities	U.S.A.
532	521	FOMENTO ECONOMICO MEXICANO, S.A. DE C.V.	Food & Products	MEXICO
533	707	ECHLIN INC.	Motor Vehicles & Equipment	U.S.A.
534	460	DOFASCO INC.	Primary Metals	CANADA
535	761	VOLKSWAGEN DE MEXICO	Motor Vehicles & Equipment	MEXICO
536	874	CROWN CENTRAL PETROLEUM CORPORATION	Petroleum Refining	U.S.A.
537	706	AVNET, INC.	Misc. Elect. Prod.	U.S.A.
538	298	BURLINGTON RESOURCES INC.	Mining	U.S.A.
539	696	MAGNA INTERNATIONAL INC.	Motor Vehicles & Equipment	CANADA
540	758	SHAW INDUSTRIES, INC.	Textiles	U.S.A.
541	638	MACK TRUCKS, INCORPORATED	Motor Vehicles & Equipment	U.S.A.
542	482	ALLTEL CORPORATION	Commercial Serv.	U.S.A.
543	261	BRITISH COLUMBIA HYDRO & POWER	Utilities	CANADA
544	870	BROWN GROUP, INC.	Retail Trade	U.S.A.
545	518	DOW JONES & COMPANY, INC.	Commercial Serv.	U.S.A.
546	859	SUBARU OF AMERICA INC.	Wholesale Trade	U.S.A.
547	735	NATIONAL SEMICONDUCTOR CORPORATION	Misc. Elect. Prod.	U.S.A.
548	639	CLOROX COMPANY	Chemicals & Allied	U.S.A.
549	111	CALIFORNIA FEDERAL BANK, A.F.S.B.	Depository Instit.	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
550	563	STELCO INC.	Primary Metals	CANADA
551	415	OHIO CASUALTY CORPORATION	Insurance	U.S.A.
552	637	USG CORPORATION	Non-Metallic Minerals	U.S.A.
553	919	ACE HARDWARE CORPORATION	Wholesale Trade	U.S.A.
554	398	CEMEX S.A.	Non-Metallic Minerals	MEXICO
555	564	NEW YORK TIMES COMPANY (THE)	Printing & Publishing	U.S.A.
556	581	IMCERA GROUP, INC.	Chemicals & Allied	U.S.A.
557	536	AMDAHL CORPORATION	Computers & Office Machines	U.S.A.
558	275	GULF STATES UTILITIES COMPANY	Utilities	U.S.A.
559	574	LOUISIANA-PACIFIC CORPORATION	Wholesale Trade	U.S.A.
560	311	POTOMAC ELECTRIC POWER COMPANY	Utilities	U.S.A.
561	742	SONOCO PRODUCTS COMPANY	Paper & Allied	U.S.A.
562	557	MURPHY OIL CORPORATION	Petroleum Refining	U.S.A.
563	437	BRITISH COLUMBIA TELEPHONE COM	Communications	CANADA
564	766	TRINOVA CORPORATION	Rubber & Products	U.S.A.
565	825	HILLS DEPARTMENT STORES, INC.	Retail Trade	U.S.A.
566	485	INTERPUBLIC GROUP OF COMPANIES	Commercial Serv.	U.S.A.
567	744	ARVIN INDUSTRIES, INC.	Motor Vehicles & Equipment	U.S.A.
568	432	PENN CENTRAL CORPORATION (THE)	Insurance	U.S.A.
569	627	SUNDSTRAND CORPORATION	Aircraft & Parts	U.S.A.
570	705	RUBBERMAID INCORPORATED	Rubber & Products	U.S.A.
571	139	NATIONAL TRUSTCO INC.	Depository Instit.	CANADA
572	848	U.S. HEALTHCARE INC.	Health Services	U.S.A.
573	244	CROWN LIFE INSURANCE COMPANY	Insurance	CANADA
574	596	CYPRUS MINERALS COMPANY	Mining	U.S.A.
575	667	SQUARE D COMPANY	Electrical Products	U.S.A.
576	527	VALORES INDUSTRIALES, S.A.	Food & Products	MEXICO
577	908	CARDINAL DISTRIBUTION, INC.	Wholesale Trade	U.S.A.
578	621	TIMKEN COMPANY (THE)	Machinery excluding electrical	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
579	772	NATIONAL SERVICE INDUSTRIES, INC.	Electrical Products	U.S.A.
580	115	GLENFED, INC.	Depository Instit.	U.S.A.
581	414	SOUTHERN NEW ENGLAND TELECOMMUNICATIONS	Communications	U.S.A.
582	720	WITCO CORPORATION	Chemicals & Allied	U.S.A.
583	571	FRUIT OF THE LOOM, INC.	Clothing	U.S.A.
584	767	MATTEL, INC.	Misc. Mnfr. Goods	U.S.A.
585	151	SOUTHEAST BANKING CORPORATION	Depository Instit.	U.S.A.
586	725	GENERAL SIGNAL CORPORATION	Machinery excluding electrical	U.S.A.
587	664	CBI INDUSTRIES, INC.	Other Services	U.S.A.
588	684	CANADIAN ULTRAMAR LIMITED	Transportation	CANADA
589	131	SOCIETY CORPORATION	Depository Instit.	U.S.A.
590	797	HECHINGER COMPANY	Wholesale Trade	U.S.A.
591	105	TEXAS COMMERCE BANCSHARES, INC.	Other Fin. Serv.	U.S.A.
592	687	CONNER PERIPHERALS, INC.	Computers & Office Machines	U.S.A.
593	610	ARMCO INC.	Primary Metals	U.S.A.
594	804	FLEETWOOD ENTERPRISES, INC.	Other Transp. Equipment	U.S.A.
595	117	BOATMEN'S BANCSHARES, INC.	Depository Instit.	U.S.A.
596	898	FHP INTERNATIONAL CORPORATION	Insurance	U.S.A.
597	630	STORAGE TECHNOLOGY CORPORATION	Computers & Office Machines	U.S.A.
598	659	HARNISCHFEGER INDUSTRIES, INC.	Wholesale Trade	U.S.A.
599	910	SASKATCHEWAN WHEAT POOL	Wholesale Trade	CANADA
600	411	FREEMPORT-MCMORAN, INC.	Mining	U.S.A.
601	997	SUPER FOOD SERVICES, INC.	Wholesale Trade	U.S.A.
602	204	TRIZEC CORPORATION. LIMITED	Other Fin. Serv.	CANADA
603	918	RUDDICK CORPORATION	Retail Trade	U.S.A.
604	612	LAFARGE CORPORATION	Non-Metallic Minerals	U.S.A.
605	472	OGDEN CORPORATION	Commercial Serv.	U.S.A.
606	931	CARGILL LIMITED	Wholesale Trade	CANADA
607	531	DOMTAR INC.	Paper & Allied	CANADA

Rank by Sales	Rank by Assets	Company Name	Industry	Country
608	882	DYLEX LIMITED	Retail Trade	CANADA
609	863	UNIVAR CORPORATION	Wholesale Trade	U.S.A.
610	650	CABOT CORPORATION	Chemicals & Allied	U.S.A.
611	349	NEW YORK STATE ELECTRIC & GAS	Utilities	U.S.A.
612	674	AMERICAN GREETINGS CORPORATION	Printing & Publishing	U.S.A.
613	760	PROCTER & GAMBLE INC.	Chemicals & Allied	CANADA
614	420	WISCONSIN ENERGY CORPORATION	Utilities	U.S.A.
615	407	NIPSCO INDUSTRIES, INC.	Utilities	U.S.A.
616	732	NORTON COMPANY	Non-Metallic Minerals	U.S.A.
617	715	CERIDIAN CORPORATION	Computers & Office Machines	U.S.A.
618	510	MOBIL OIL CANADA LIMITED	Mining	CANADA
619	990	TOYOTA CANADA INC.	Wholesale Trade	CANADA
620	528	UNICORP ENERGY CORPORATION	Utilities	CANADA
621	509	CANADIAN PACIFIC FOREST PRODUCTS LIMITED	Paper & Allied	CANADA
622	618	BAUSCH & LOMB INC.	Light Machinery	U.S.A.
623	935	RYKOFF-SEXTON, INC.	Food & Products	U.S.A.
624	361	CINCINNATI GAS & ELECTRIC COMPANY	Utilities	U.S.A.
625	546	NICOR INC.	Utilities	U.S.A.
626	559	COMPUTER ASSOCIATES INTERNATIONAL	Commercial Serv.	U.S.A.
627	323	FIRST FINANCIAL MANAGEMENT CORPORATION	Commercial Serv.	U.S.A.
628	523	JAMES RICHARDSON & SONS LIMITED	Transportation	CANADA
629	570	UNION ENERGY INC.	Mining	CANADA
630	464	PROGRESSIVE CORPORATION	Insurance	U.S.A.
631	371	ORYX ENERGY COMPANY	Mining	U.S.A.
632	330	ILLINOIS POWER COMPANY	Utilities	U.S.A.
633	290	PINNACLE WEST CAPITAL CORPORATION	Utilities	U.S.A.
634	754	DELUXE CORPORATION	Printing & Publishing	U.S.A.
635	702	INTERCO INC.	Furniture and Fix.	U.S.A.
636	730	LUBRIZOL CORPORATION (THE)	Chemicals & Allied	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
637	643	DESC SOCIEDAD DE FOMENTO INDUSTRIAL S.A. DE C.V.	Other Fin. Serv.	MEXICO
638	595	MASCO INDUSTRIES, INC.	Motor Vehicles & Equipment	U.S.A.
639	724	NUCOR CORPORATION	Primary Metals	U.S.A.
640	195	CENTRAL GUARANTY TRUSTCO LIMITED	Depository Instit.	CANADA
641	752	ONEX CORPORATION	Wholesale Trade	CANADA
642	937	KELLY SERVICES, INC.	Commercial Serv.	U.S.A.
643	514	FEDERAL PAPER BOARD COMPANY, I	Paper & Allied	U.S.A.
644	122	FIRST OF AMERICA BANK CORPORAT	Depository Instit.	U.S.A.
645	739	ESSELTE BUSINESS SYSTEMS INC.	Printing & Publishing	U.S.A.
646	778	MCCORMICK & COMPANY, INC.	Food & Products	U.S.A.
647	442	SONAT INC.	Utilities	U.S.A.
648	144	COMERICA INC.	Depository Instit.	U.S.A.
649	444	HARCOURT BRACE JOVANOVIH, INC.	Printing & Publishing	U.S.A.
650	567	BALLY MANUFACTURING CORPORATION	Commercial Serv.	U.S.A.
651	365	ALLEGHANY CORPORATION	Insurance	U.S.A.
652	498	CARNIVAL CRUISE LINES, INC.	Commercial Serv.	U.S.A.
653	959	ROSE'S STORES INC.	Retail Trade	U.S.A.
654	844	EDISON BROTHERS STORES, INC.	Retail Trade	U.S.A.
655	329	USLIFE CORPORATION	Insurance	U.S.A.
656	180	CONSECO, INC.	Insurance	U.S.A.
657	556	CONSUMER'S GAS CO. LTD.	Utilities	CANADA
658	661	WASHINGTON POST COMPANY (THE)	Printing & Publishing	U.S.A.
659	728	GENERAL INSTRUMENT CORPORATION	Misc. Elect. Prod.	U.S.A.
660	402	OLD REPUBLIC INTERNATIONAL CORPORATION	Insurance	U.S.A.
661	791	BLOCK (H&R), INC.	Commercial Serv.	U.S.A.
662	487	ALEXANDER & ALEXANDER SERVICES	Insurance	U.S.A.
663	641	NACCO INDUSTRIES, INCORPORATED	Machinery excluding electrical	U.S.A.
664	431	WESTCOAST ENERGY INC.	Utilities	CANADA
665	833	AIRBORNE FREIGHT CORPORATION	Transportation	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
666	588	CHEMICAL WASTE MANAGEMENT, INC.	Utilities	U.S.A.
667	599	SUNCOR INC.	Mining	CANADA
668	808	PETRIE STORES CORPORATION	Retail Trade	U.S.A.
669	917	FEDERATED CO-OPERATIVES LIMITED	Retail Trade	CANADA
670	817	UNITED DOMINION INDUSTRIES LIMITED	Construction	CANADA
671	242	COLUMBIA SAVINGS & LOAN ASSOCIATION	Depository Instit.	U.S.A.
672	206	GREAT AMERICAN BANK, A FEDERAL SAVINGS BANK	Depository Instit.	U.S.A.
673	251	NWNL COMPANIES, INC. (THE)	Insurance	U.S.A.
674	785	G.E. CANADA INC.	Machinery excluding electrical	CANADA
675	657	MACLEAN HUNTER LIMITED	Printing & Publishing	CANADA
676	875	ZENITH ELECTRONICS CORPORATION	Electrical Products	U.S.A.
677	452	BOSTON EDISON COMPANY	Utilities	U.S.A.
678	508	OKLAHOMA GAS AND ELECTRIC COMPANY	Utilities	U.S.A.
679	611	SOUTHWEST AIRLINES COMPANY	Transportation	U.S.A.
680	792	THIOKOL CORPORATION	Other Transp. Equipment	U.S.A.
681	634	GREAT LAKES CHEMICAL CORPORATION	Chemicals & Allied	U.S.A.
682	894	CRANE COMPANY	Fabricated Metals	U.S.A.
683	135	STATE STREET BOSTON CORPORATION	Depository Instit.	U.S.A.
684	914	OFFICE DEPOT, INC.	Retail Trade	U.S.A.
685	815	TEKTRONIX, INC.	Light Machinery	U.S.A.
686	796	PRATT & WHITNEY CANADA INC.	Aircraft & Parts	CANADA
687	189	SIGNET BANKING CORPORATION	Depository Instit.	U.S.A.
688	679	RAYCHEM CORPORATION	Rubber & Products	U.S.A.
689	956	SERVISTAR CORPORATION	Wholesale Trade	U.S.A.
690	857	WEIS MARKETS, INC.	Retail Trade	U.S.A.
691	486	BOWATER INCORPORATED	Paper & Allied	U.S.A.
692	810	VARIAN ASSOCIATES, INC.	Misc. Elect. Prod.	U.S.A.
693	438	ATCO LIMITED	Utilities	CANADA
694	194	AMERITRUST CORPORATION	Depository Instit.	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
695	683	ROHR, INC.	Aircraft & Parts	U.S.A.
696	656	MCN CORPORATION	Utilities	U.S.A.
697	814	DWG CORPORATION	Textiles	U.S.A.
698	809	GERBER PRODUCTS COMPANY	Food & Products	U.S.A.
699	555	EMPRESAS ICA SOCIEDAD CONTROLADORA, S.A. DE C.V.(MEXICO)	Construction	MEXICO
700	714	PIONEER HI-BRED INTERNATIONAL, INC.	Agriculture & Fishing	U.S.A.
701	155	NORTHERN TRUST CORPORATION	Depository Instit.	U.S.A.
702	722	BROWN-FORMAN CORPORATION	Food & Products	U.S.A.
703	454	DOW CHEMICAL CANADA INC.	Mining	CANADA
704	376	UNITRIN, INC.	Insurance	U.S.A.
705	152	UJB FINANCIAL CORPORATION	Depository Instit.	U.S.A.
706	167	FIRSTAR CORPORATION	Depository Instit.	U.S.A.
707	185	GOLDOME	Depository Instit.	U.S.A.
708	794	AMOSKEAG COMPANY	Wholesale Trade	U.S.A.
709	749	FIGGIE INTERNATIONAL, INC.	Machinery excluding electrical	U.S.A.
710	867	KRAFT GENERAL FOODS CANADA INC.	Food & Products	CANADA
711	689	NALCO CHEMICAL COMPANY	Chemicals & Allied	U.S.A.
712	603	POTLATCH CORPORATION	Paper & Allied	U.S.A.
713	605	OMNICOM GROUP, INC.	Commercial Serv.	U.S.A.
714	982	PACIFICARE HEALTH SYSTEMS, INC	Health Services	U.S.A.
715	980	PCL CONSTRUCTION GROUP INC.	Construction	CANADA
716	801	MAGNETEK, INC.	Electrical Products	U.S.A.
717	691	ADVANCED MICRO DEVICES, INC.	Misc. Elect. Prod.	U.S.A.
718	806	GRUPO INDUSTRIAL BIMBO S.A. DE C.V.	Food & Products	MEXICO
719	582	AMERICAN TELEVISION & COMM. COMPANY	Communications	U.S.A.
720	166	HUNTINGTON BANCSHARES, INC.	Depository Instit.	U.S.A.
721	854	HARTMARX CORPORATION	Retail Trade	U.S.A.
722	413	RYLAND GROUP, INC. (THE)	Construction	U.S.A.
723	409	PHM CORPORATION	Construction	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
724	184	MERIDIAN BANCORP INC.	Depository Instit.	U.S.A.
725	813	FIELDCREST CANNON, INC.	Textiles	U.S.A.
726	174	CRESTAR FINANCIAL CORPORATION	Depository Instit.	U.S.A.
727	133	FIRST FIDELITY (OLD)	Other Fin. Serv.	U.S.A.
728	544	WEST POINT-PEPPERELL, INC.	Textiles	U.S.A.
729	904	SAVANNAH FOODS & INDUSTRIES, INC.	Food & Products	U.S.A.
730	392	DQE, INC.	Utilities	U.S.A.
731	653	HILLENBRAND INDUSTRIES, INC.	Furniture and Fix.	U.S.A.
732	339	AMERICAN NATIONAL INSURANCE COMPANY	Insurance	U.S.A.
733	769	TECUMSEH PRODUCTS COMPANY	Computers & Office Machines	U.S.A.
734	783	INTERGRAPH CORPORATION	Computers & Office Machines	U.S.A.
735	873	DART GROUP CORPORATION	Retail Trade	U.S.A.
736	787	TRINITY INDUSTRIES, INC.	Fabricated Metals	U.S.A.
737	855	FEDERAL INDUSTRIES LIMITED	Primary Metals	CANADA
738	746	CLARK EQUIPMENT COMPANY	Motor Vehicles & Equipment	U.S.A.
739	421	CENTEL CORPORATION	Communications	U.S.A.
740	793	ORACLE SYSTEMS CORPORATION	Computers & Office Machines	U.S.A.
741	862	STANDARD COMMERCIAL CORPORATION	Tobacco	U.S.A.
742	731	MEDTRONIC, INC.	Light Machinery	U.S.A.
743	348	JEFFERSON-PILOT CORPORATION	Insurance	U.S.A.
744	490	WHEELABRATOR TECHNOLOGIES INC.	Other Services	U.S.A.
745	841	PENTAIR, INC.	Paper & Allied	U.S.A.
746	950	BUSINESSLAND, INC.	Retail Trade	U.S.A.
747	568	WESTERN RESOURCES, INC.	Utilities	U.S.A.
748	427	CINCINNATI FINANCIAL CORPORATION	Insurance	U.S.A.
749	150	MANUFACTURERS NATIONAL CORPORATION	Other Fin. Serv.	U.S.A.
750	938	FAMILY DOLLAR STORES, INC.	Retail Trade	U.S.A.
751	927	COMMERCIAL METALS COMPANY	Securities & Brokers	U.S.A.
752	799	DU PONT CANADA	Chemicals & Allied	CANADA

Rank by Sales	Rank by Assets	Company Name	Industry	Country
753	984	GETTY PETROLEUM CORPORATION	Retail Trade	U.S.A.
754	474	TECO ENERGY, INC.	Utilities	U.S.A.
755	896	WRIGLEY (WM) JR. COMPANY	Food & Products	U.S.A.
756	777	HANNA (M.A.) COMPANY	Chemicals & Allied	U.S.A.
757	434	SCANA CORPORATION	Utilities	U.S.A.
758	757	MARK IV INDUSTRIES, INC	Wholesale Trade	U.S.A.
759	753	DOMINION TEXTILE INC.	Textiles	CANADA
760	222	FIRST CITY BANCORP OF TEXAS	Depository Instit.	U.S.A.
761	865	BEMIS COMPANY, INC.	Paper & Allied	U.S.A.
762	560	COMINCO LIMITED	Primary Metals	CANADA
763	200	VALLEY NATIONAL CORPORATION	Depository Instit.	U.S.A.
764	989	MARSH SUPERMARKETS, INC.	Retail Trade	U.S.A.
765	916	QUANTUM CORPORATION	Computers & Office Machines	U.S.A.
766	924	CULLUM COMPANIES, INC.	Retail Trade	U.S.A.
767	577	PSI RESOURCES, INC.	Utilities	U.S.A.
768	942	K MART CANADA LIMITED	Retail Trade	CANADA
769	775	NEWELL COMPANY	Furniture and Fix.	U.S.A.
770	795	DATA GENERAL CORPORATION	Commercial Serv.	U.S.A.
771	745	IVACO INC.	Primary Metals	CANADA
772	943	COOPERATIVE FEDEREE DE QUEBEC	Wholesale Trade	CANADA
773	973	CULBRO CORPORATION	Tobacco	U.S.A.
774	716	ALASKA AIR GROUP, INC.	Transportation	U.S.A.
775	652	PEOPLES ENERGY CORPORATION	Utilities	U.S.A.
776	812	FEDERAL-MOGUL CORPORATION	Machinery excluding electrical	U.S.A.
777	925	HOME SHOPPING NETWORK, INC.	Retail Trade	U.S.A.
778	201	MICHIGAN NATIONAL CORPORATION	Depository Instit.	U.S.A.
779	907	UNITED STATIONERS, INC.	Wholesale Trade	U.S.A.
780	864	EQUIFAX INC.	Insurance	U.S.A.
781	837	UNIFI, INC.	Textiles	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
782	900	ALBERTO CULVER COMPANY	Chemicals & Allied	U.S.A.
783	623	CINCINNATI BELL INC.	Communications	U.S.A.
784	360	LEUCADIA NATIONAL CORPORATION	Insurance	U.S.A.
785	928	TESORO PETROLEUM CORPORATION	Petroleum Refining	U.S.A.
786	619	UNION GAS LIMITED	Utilities	CANADA
787	159	FIDELCOR, INC.	Other Fin. Serv.	U.S.A.
788	554	HILTON HOTELS CORPORATION	Commercial Serv.	U.S.A.
789	888	LEGGETT & PLATT, INC.	Furniture and Fix.	U.S.A.
790	893	DIBRELL BROTHERS, INC.	Wholesale Trade	U.S.A.
791	525	UTILICORP UNITED, INC.	Utilities	U.S.A.
792	622	BROOKLYN UNION GAS COMPANY	Utilities	U.S.A.
793	968	NATIONAL CONVENIENCE STORES INC.	Retail Trade	U.S.A.
794	394	HAWAIIAN ELECTRIC INDUSTRIES, INC.	Utilities	U.S.A.
795	782	OUTBOARD MARINE CORPORATION	Machinery excluding electrical	U.S.A.
796	929	TERRA INDUSTRIES, INC.	Chemicals & Allied	U.S.A.
797	502	TELUS CORPORATION	Communications	CANADA
798	979	ROTHMANS INC.	Other Fin. Serv.	CANADA
799	617	IMC FERTILIZER GROUP, INC.	Chemicals & Allied	U.S.A.
800	880	FERRO CORPORATION	Fabricated Metals	U.S.A.
801	860	ANDERSON, CLAYTON & COMPANY	Food & Products	U.S.A.
802	947	CYCLOPS INDUSTRIES, INC.	Primary Metals	U.S.A.
803	962	INGLES MARKETS, INC.	Retail Trade	U.S.A.
804	993	SMITHFIELD FOODS, INC.	Food & Products	U.S.A.
805	229	FIRST CAPITAL HOLDINGS CORPORATION	Insurance	U.S.A.
806	1002	DI GIORGIO CORPORATION	Wholesale Trade	U.S.A.
807	852	ARROW ELECTRONICS, INC.	Misc. Elect. Prod.	U.S.A.
808	899	BRIGGS & STRATTON CORPORATION	Machinery excluding electrical	U.S.A.
809	967	MORRISON RESTAURANTS	Retail Trade	U.S.A.
810	951	MAXTOR CORPORATION	Computers & Office Machines	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
811	995	JACOBS ENGINEERING GROUP, INC.	Construction	U.S.A.
812	826	LAWSON MARDON GROUP	Paper & Allied	CANADA
813	654	PROMUS COMPANIES INC.	Commercial Serv.	U.S.A.
814	227	DOMINION BANKSHARES CORPORATION	Depository Instit.	U.S.A.
815	988	OWENS & MINOR, INC.	Light Machinery	U.S.A.
816	771	IMO INDUSTRIES, INC.	Light Machinery	U.S.A.
817	883	CARSON PIRIE SCOTT & COMPANY	Retail Trade	U.S.A.
818	182	BANCORP HAWAII, INC.	Depository Instit.	U.S.A.
819	233	BAYBANKS, INC.	Depository Instit.	U.S.A.
820	891	CHARMING SHOPPES, INC.	Retail Trade	U.S.A.
821	889	HANDLEMAN COMPANY	Electrical Products	U.S.A.
822	923	HELENE CURTIS INDUSTRIES, INC.	Chemicals & Allied	U.S.A.
823	721	SOUTHAM INC.	Printing & Publishing	CANADA
824	712	INTERNATIONAL FLAVORS & FRAGRANCES	Chemicals & Allied	U.S.A.
825	662	VALERO ENERGY CORPORATION	Petroleum Refining	U.S.A.
826	765	VULCAN MATERIALS COMPANY	Mining	U.S.A.
827	846	ALLEGHENY LUDLUM CORPORATION	Primary Metals	U.S.A.
828	426	TRANSALTA CORPORATION	Utilities	CANADA
829	821	PEP BOYS--MANNY, MOE & JACK (THE)	Retail Trade	U.S.A.
830	881	COOPER TIRE & RUBBER COMPANY	Rubber & Products	U.S.A.
831	905	BROOKE GROUP LTD.	Tobacco	U.S.A.
832	932	BURLINGTON COAT FACTORY WAREHOUSE	Retail Trade	U.S.A.
833	494	DPL, INC.	Utilities	U.S.A.
834	665	ATLANTA GAS LIGHT COMPANY	Utilities	U.S.A.
835	476	CANADIAN UTILITIES LIMITED	Mining	CANADA
836	688	EASTERN ENTERPRISES	Utilities	U.S.A.
837	953	SHONEY'S, INC.	Retail Trade	U.S.A.
838	418	GATX CORPORATION	Transportation	U.S.A.
839	829	FIRST BRANDS CORPORATION	Rubber & Products	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
840	1004	RISER FOODS, INC.	Retail Trade	U.S.A.
841	741	CORPORACION MEXICANA DE AVIACION	Transportation	MEXICO
842	551	UNION TEXAS PETROLEUM HOLDINGS	Mining	U.S.A.
843	897	WORTHINGTON INDUSTRIES, INC.	Fabricated Metals	U.S.A.
844	541	PLACER DOME, INC.	Mining	CANADA
845	892	STRAWBRIDGE & CLOTHIER	Retail Trade	U.S.A.
846	729	WHEELING-PITTSBURGH CORPORATION	Primary Metals	U.S.A.
847	515	PUGET SOUND POWER & LIGHT COMPANY	Utilities	U.S.A.
848	254	COAST SAVINGS FINANCIAL, INC.	Depository Instit.	U.S.A.
849	750	GAZ METROPOLITAIN AND COMPANY,	Mining	CANADA
850	974	DURR-FILLAUER MEDICAL, INC.	Wholesale Trade	U.S.A.
851	998	DELCHAMPS, INC.	Retail Trade	U.S.A.
852	906	AST RESEARCH, INC.	Computers & Office Machines	U.S.A.
853	939	HARLEY-DAVIDSON, INC.	Other Transp. Equipment	U.S.A.
854	985	DIGITAL EQUIPMENT OF CANADA LIMITED	Computers & Office Machines	CANADA
855	734	CELANESE MEXICANA SA	Chemicals & Allied	MEXICO
856	578	MONTANA POWER COMPANY (THE)	Utilities	U.S.A.
857	645	EDWARDS (A.G.), INC.	Securities & Brokers	U.S.A.
858	921	WESTERN DIGITAL CORPORATION	Computers & Office Machines	U.S.A.
859	842	DEXTER CORPORATION (THE)	Textiles	U.S.A.
860	819	ALLEGHENY INTERNATIONAL, INC.	Electrical Products	U.S.A.
861	912	FULLER (H.B.) COMPANY	Chemicals & Allied	U.S.A.
862	723	GOULD INC.	Fabricated Metals	U.S.A.
863	214	SOUTHTRUST CORPORATION	Depository Instit.	U.S.A.
864	975	BEST BUY COMPANY, INC.	Retail Trade	U.S.A.
865	807	CAESARS WORLD, INC.	Commercial Serv.	U.S.A.
866	949	PHILIPS INDUSTRIES INC. (OHIO)	Machinery excluding electrical	U.S.A.
867	250	BANPONCE CORPORATION	Depository Instit.	U.S.A.
868	970	ROSS STORES, INC.	Retail Trade	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
869	1005	MEDIS HEALTH & PHARMACEUTICAL	Wholesale Trade	CANADA
870	759	FUQUA INDUSTRIES, INC.	Commercial Serv.	U.S.A.
871	507	PATHE COMMUNICATIONS CORPORATION	Commercial Serv.	U.S.A.
872	620	NATIONAL FUEL GAS COMPANY	Utilities	U.S.A.
873	594	NERCO, INC.	Mining	U.S.A.
874	798	ECOLAB INC.	Chemicals & Allied	U.S.A.
875	903	NORTEK, INC.	Machinery excluding electrical	U.S.A.
876	1008	MARUBENI CANADA LIMITED	Wholesale Trade	CANADA
877	779	MANOR CARE, INC.	Health Services	U.S.A.
878	978	AGROPUR COOPERATIVE AGRO-ALIME	Wholesale Trade	CANADA
879	920	KELLWOOD COMPANY	Clothing	U.S.A.
880	232	FERROCARRILES NACIONALES DE MEXICO	Other Transp. Equipment	MEXICO
881	580	UNOCAL EXPLORATION CORPORATION	Mining	U.S.A.
882	839	PERKIN-ELMER CORPORATION (THE)	Light Machinery	U.S.A.
883	890	COMMODORE INTERNATIONAL LIMITED	Computers & Office Machines	U.S.A.
884	887	UST, INC.	Tobacco	U.S.A.
885	668	XEROX CANADA	Computers & Office Machines	CANADA
886	682	20TH CENTURY INDUSTRIES	Insurance	U.S.A.
887	961	PHILLIPS-VAN HEUSEN CORPORATION	Clothing	U.S.A.
888	237	AMSOUTH BANCORPORATION	Depository Instit.	U.S.A.
889	642	FLETCHER CHALLENGE CANADA LIMITED	Lumber and Wood	CANADA
890	922	CURTICE-BURNS FOODS, INC.	Food & Products	U.S.A.
891	680	RIO ALGOM LIMITED	Mining	CANADA
892	960	ASEA BROWN BOVERI INC.	Electrical Products	CANADA
893	913	DELL COMPUTER CORPORATION	Computers & Office Machines	U.S.A.
894	504	PORTLAND GENERAL CORPORATION	Utilities	U.S.A.
895	249	FIFTH THIRD BANCORP	Depository Instit.	U.S.A.
896	672	FREEPORT-MCMORAN RESOURCES PARTNERS, LIMITED	Mining	U.S.A.
897	871	UNIVERSAL FOOD CORPORATION	Food & Products	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
898	803	SNAP-ON TOOLS CORPORATION	Fabricated Metals	U.S.A.
899	850	SMITH (A.O.) CORPORATION	Motor Vehicles & Equipment	U.S.A.
900	786	CAE INDUSTRIES LIMITED	Light Machinery	CANADA
901	945	FLOWERS INDUSTRIES, INC.	Food & Products	U.S.A.
902	911	JOSTENS, INC.	Misc. Mnfr. Goods	U.S.A.
903	886	BARD, (C.R.) INC.	Light Machinery	U.S.A.
904	948	SEABOARD CORPORATION	Food & Products	U.S.A.
905	858	T.C.C. BEVERAGES LIMITED	Food & Products	CANADA
906	992	UNITED GRAIN GROWERS LIMITED	Transportation	CANADA
907	840	SCOTT'S HOSPITALITY INC.	Retail Trade	CANADA
908	550	MITCHELL ENERGY & DEVELOPMENT	Mining	U.S.A.
909	678	CONSOLIDATED PAPERS, INC.	Paper & Allied	U.S.A.
910	457	GRUPO INDUSTRIAL MINERA MEXICO	Mining	MEXICO
911	838	BLOCKBUSTER ENTERTAINMENT CORPORATION	Commercial Serv.	U.S.A.
912	849	SILICON GRAPHICS, INC.	Commercial Serv.	U.S.A.
913	647	CENTRAL MAINE POWER COMPANY	Utilities	U.S.A.
914	946	EMCO LIMITED	Fabricated Metals	CANADA
915	248	OLD KENT FINANCIAL CORPORATION	Depository Instit.	U.S.A.
916	762	CRAY RESEARCH, INC.	Computers & Office Machines	U.S.A.
917	196	BROAD INC.	Securities & Brokers	U.S.A.
918	470	ROGERS Communications INC.	Communications	CANADA
919	866	BECKMAN INSTRUMENTS, INC.	Light Machinery	U.S.A.
920	534	PUBLIC SERVICE COMPANY OF NEW MEXICO	Utilities	U.S.A.
921	987	JAMESWAY CORPORATION	Retail Trade	U.S.A.
922	597	ROCHESTER GAS AND ELECTRIC CORPORATION	Utilities	U.S.A.
923	756	HYLSA	Primary Metals	MEXICO
924	500	NORCEN ENERGY RESOURCES LIMITED	Mining	CANADA
925	703	COMMONWEALTH ENERGY SYSTEMS	Utilities	U.S.A.
926	646	GRUPO TELEVISA, S.A. DE C.V.	Communications	MEXICO

Rank by Sales	Rank by Assets	Company Name	Industry	Country
927	877	PITTMAY CORP (OLD)	Comm. Equipment	U.S.A.
928	909	UNITED HEALTHCARE CORPORATION	Health Services	U.S.A.
929	926	UNILEVER CANADA LIMITED	Food & Products	CANADA
930	548	DELMARVA POWER & LIGHT COMPANY	Utilities	U.S.A.
931	853	UNITED STATES SURGICAL CORPORATION	Light Machinery	U.S.A.
932	1003	OLSTEN CORPORATION (THE)	Commercial Serv.	U.S.A.
933	836	DIVERSIFIED ENERGIES, INC.	Utilities	U.S.A.
934	983	ALBERTA WHEAT POOL	Wholesale Trade	CANADA
935	802	CHESAPEAKE CORPORATION	Paper & Allied	U.S.A.
936	773	GAZ METROPOLITAN INC.	Utilities	CANADA
937	613	NL INDUSTRIES, INC.	Chemicals & Allied	U.S.A.
938	832	ALLERGAN, INC.	Chemicals & Allied	U.S.A.
939	957	GEORGIA GULF CORPORATION	Chemicals & Allied	U.S.A.
940	981	NESTLE CANADA INC.	Food & Products	CANADA
941	856	DANAHER CORPORATION	Motor Vehicles & Equipment	U.S.A.
942	936	INDAL LIMITED	Primary Metals	CANADA
943	963	LESLIE FAY COMPANIES, INC. (THE)	Clothing	U.S.A.
944	994	FAY'S INC.	Retail Trade	U.S.A.
945	266	MARSHALL & ILSLEY CORPORATION	Depository Instit.	U.S.A.
946	811	KIMBERLY CLARK DE MEXICO, S.A.	Paper & Allied	MEXICO
947	972	IBM DE MEXICO	Computers & Office Machines	MEXICO
948	944	CHILD WORLD, INC.	Retail Trade	U.S.A.
949	861	LOTUS DEVELOPMENT CORPORATION	Commercial Serv.	U.S.A.
950	885	CRYSTAL BRANDS, INC.	Clothing	U.S.A.
951	505	KANSAS CITY POWER & LIGHT COMPANY	Utilities	U.S.A.
952	704	CHEVRON CANADA RESOURCES LIMITED	Mining	CANADA
953	690	MIRAGE RESORTS, INC.	Commercial Serv.	U.S.A.
954	940	CIA NESTLE	Food & Products	MEXICO
955	986	DOSKOCIL COMPANIES, INC.	Food & Products	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
956	976	BEARINGS, INC.	Wholesale Trade	U.S.A.
957	851	QUAKER STATE CORPORATION	Petroleum Refining	U.S.A.
958	495	REPAP ENTERPRISES INC.	Paper & Allied	CANADA
959	1007	ALBERTA & SOUTHERN GAS COMPANY	Mining	CANADA
960	964	HUDSON FOODS, INC.	Wholesale Trade	U.S.A.
961	971	GROSSMAN'S INC.	Wholesale Trade	U.S.A.
962	843	CIRCUS CIRCUS ENTERPRISES, INC.	Commercial Serv.	U.S.A.
963	818	WELLMAN, INC.	Textiles	U.S.A.
964	719	THERMO ELECTRON CORPORATION	Light Machinery	U.S.A.
965	895	INDIANA ENERGY, INC.	Utilities	U.S.A.
966	941	MILLER, (HERMAN) INC.	Furniture and Fix.	U.S.A.
967	835	RUSSELL CORPORATION	Clothing	U.S.A.
968	669	ORION CAPITAL CORPORATION	Insurance	U.S.A.
969	245	INTEGRA FINANCIAL CORPORATION	Depository Instit.	U.S.A.
970	699	LOUISIANA LAND & EXPLORATION CO.	Mining	U.S.A.
971	341	SCHWABB (CHARLES) CORP. (THE)	Securities & Brokers	U.S.A.
972	424	SOUTHWEST GAS CORPORATION	Utilities	U.S.A.
973	670	MAXUS ENERGY CORPORATION	Mining	U.S.A.
974	1001	EMERSON RADIO CORPORATION	Electrical Products	U.S.A.
975	834	TONKA CORPORATION	Misc. Mnfr. Goods	U.S.A.
976	954	PILGRIM'S PRIDE CORPORATION	Food & Products	U.S.A.
977	501	PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE	Utilities	U.S.A.
978	325	BRAMALEA LIMITED (CANADA)	Other Fin. Serv.	CANADA
979	902	TEREX CORPORATION	Motor Vehicles & Equipment	U.S.A.
980	823	FINNING LIMITED	Wholesale Trade	CANADA
981	933	GITANO GROUP, INC. (THE)	Clothing	U.S.A.
982	828	EL PUERTO DE LIVERPOOL, S.A. DE C.V.	Retail Trade	MEXICO
983	958	LIFETIME CORPORATION	Health Services	U.S.A.
984	784	GRUPO CYDSA S.A DE C.V.	Chemicals & Allied	MEXICO

Rank by Sales	Rank by Assets	Company Name	Industry	Country
985	955	KAMAN CORPORATION	Other Services	U.S.A.
986	561	ATLANTIC ENERGY, INC.	Utilities	U.S.A.
987	446	NEW BRUNSWICK POWER CORPORATION	Utilities	CANADA
988	965	AVONDALE INDUSTRIES, INC.	Other Transp. Equipment	U.S.A.
989	824	MOLEX INC.	Misc. Elect. Prod.	U.S.A.
990	260	MERCANTILE BANCORPORATION, INC.	Depository Instit.	U.S.A.
991	800	TORSTAR CORPORATION	Printing & Publishing	CANADA
992	816	LAFARGE CANADA INC.	Non-Metallic Minerals	CANADA
993	977	CONSOLIDATED STORES CORPORATION	Retail Trade	U.S.A.
994	915	DENNISON MANUFACTURING COMPANY	Paper & Allied	U.S.A.
995	966	CAROLINA FREIGHT CORPORATION	Transportation	U.S.A.
996	695	AMERICAN BANKERS INSURANCE GROUP	Insurance	U.S.A.
997	1000	CDI CORPORATION	Other Services	U.S.A.
998	726	VALHI, INC.	Food & Products	U.S.A.
999	1006	MAZDA CANADA INC.	Wholesale Trade	CANADA
1000	991	MERRY-GO-ROUND ENTERPRISES, INC.	Retail Trade	U.S.A.
1001	644	TOLMEX, S.A. DE C.V. (MEXICO)	Wholesale Trade	MEXICO
1002	969	FISCHBACH CORPORATION	Construction	U.S.A.
1003	876	HUBBELL INC.	Electrical Products	U.S.A.
1004	264	FIRST TENNESSEE NATIONAL	Depository Instit.	U.S.A.
1005	999	DOLLAR GENERAL CORPORATION	Retail Trade	U.S.A.
1006	770	WEYERHAEUSER CANADA LIMITED	Paper & Allied	CANADA
1007	901	CINCINNATI MILACRON INC.	Machinery excluding electrical	U.S.A.
1008	878	CO-STEEL INC.	Primary Metals	CANADA

APPENDIX 3

CONCENTRATION OF TOP FIRMS' ACTIVITIES

Agriculture, Forestry and Fishing Industry

All three top firms in **agriculture, forestry and fishing** are based in the United States. They are: Chiquita Brands International, AMFAC, Inc. and Pioneer Hi-Bred International. Their combined sales are over U.S.\$ 8 billion.

Mining Industry

In the **mining industry**, the concentration ratio varies between 32 and 54. The three largest North American mining firms, namely Exxon Corp., Mobil Corp. and Texaco Inc., account for 54 percent of the sales of all 43 top mining firms in North America. The three largest Canadian-based mining companies are: Imperial Oil Limited, Shell Canada Limited and Amoco Canada Petroleum Company.⁷

Construction Industry

Rockwell International Corp., Fluor Corp. and JWP Inc., all American-based, account for 64 percent of the total sales of the top 12 **construction** companies in North America. The two Canadian companies are: United Dominion Industries Ltd. and PCL Construction Group Inc., with combined sales close to U.S.\$3 billion.

Labour-Intensive Manufacturing Industries

The labour-intensive manufacturing industries are made up of 51 firms in total of which 44 are U.S.-based and seven are Canadian-based and controlled. There are no Mexican firms in this major industry grouping.

The three largest North American **textile** firms are based in the United States. They are: Owens-Corning Fiberglass Corp., Shaw Industries Inc. and DWG Corp. They contribute almost 50 percent to the sales of all the nine top North American textile firms. Dominion Textile Inc. is the only Canadian representative, with sales over U.S.\$1.2 billion.

As in textiles, the top firm concentration is very high in the **clothing industry**. The three largest firms, V.F. Corp., Liz Claiborne Inc. and Springs Industries Inc., account for over 50 percent of the sales of all top 10 North American, U.S.-based, clothing firms.

As with textiles, the six top North American companies in the **furniture and fixture industry** are U.S.-based; Masco Corp., Interco Inc. and Hillenbrand Industries Inc. contribute close to two-thirds to the sales of all the top firms.

In the **printing and publishing industry**, Time Warner Inc., Thomson Corp. (Canadian) and Mead Corp. account for over 40 percent of the sales of the top 19 North American firms. The other two largest Canadian firms are: Moore Corp. Ltd. and Quebecor Inc.

Nike Inc. and Reebok International Ltd. are the only two top North American firms in the **leather and leather products industry**. Both are American-based enterprises, with sales over U.S.\$ 6 billion.

Resource-Intensive Manufacturing Industries

Of the total of 147 firms in the resource-intensive manufacturing industries, 109 firms are U.S.-based, 31 are Canadian-based and seven are Mexican based. Only five of the 31 Canadian-based firms are foreign-controlled.

Of the top 1000 North American firms, 51 are in the **food and beverage industry**. However, the three largest firms in this industry command close to 25 percent of the sales of all the top firms in this industry. They are: Conagra Inc., Sara Lee Corp. and The Coca-Cola Company. Seagram Co. Ltd., John Labatt Ltd. and Maple Leaf Foods Inc. are the three largest Canadian-based companies.

The top four North American companies in the **lumber and wood industry**, namely Noranda Inc., Noranda Forest Inc., Macmillan Bloedel Ltd. and Fletcher Challenge Canada Ltd., are from Canada. Their total sales were close to U.S.\$ 14 billion in 1991. However, Noranda Inc. alone commands almost 50 percent of the sales of these top four firms.

The three largest North American firms in the **paper and allied products industry**, namely, International Paper Co., Weyerhaeuser Co. and Kimberly-Clark Corp., account for 35 percent of the sales of all the top North American enterprises in this industry. The three largest Canadian companies are Abitibi-Price Inc., Domtar Inc. and Canadian Pacific Forest Products, with sales over U.S.\$ 5.5 billion.

Du Pont (E.I.), Phillips Petroleum Co. and Sun Co. Inc., which are American-based, are the three largest North American firms in the **petroleum refining industry**. They command nearly 60 percent of the sales of all top firms in this industry. Of the top 16 enterprises, 15 are U.S.-based. Canada is represented by Petro Canada.⁸

Of the ten top firms in the **nonmetallic industry**, seven are from the United States, two are from Mexico and one from Canada. The three largest firms, however, account for

over 70 percent of the sales of all top North American firms in this industry. They are United Technologies Corp., PPG Industries Incorporated and Corning Inc. The two top Mexican companies are Cemex S.A. and Vitro Sociedad Anonima, with sales over U.S.\$ 4 billion.

Alcan Aluminium Limited (Canadian), The LTV Corp. and Reynolds Metals Company command 40 percent of the sales of all the top North American firms in the **primary metals industry**. Canada is well represented in this industry; eight of the 20 top firms are from Canada.

The three largest firms in the **fabricated metals industry**, USX-Steel Group Inc., Gillette Co. and Crown Cork & Steel Co., contribute about 60 percent to the sales of all top firms in this industry. Emco Ltd. is the only Canadian representative in this industry.

Technology-Intensive Manufacturing Industries

There are 212 firms in the technology-intensive manufacturing industries. Seventeen of these are Canadian, two are Mexican, and the remaining 193 are U.S.-based. Contrary to both the labour-intensive and resource-intensive manufacturing industries, the technology-intensive industries have a higher degree of foreign ownership. Of the 17 Canadian-based firms, 13 are foreign-controlled and four are domestically controlled.

The **chemical and chemical products industry** is significantly concentrated, with the three top firms of the industry's 57 firms accounting for 29 percent of sales. These large firms are the Proctor and Gamble Company, the Dow Chemical Company and Johnson and Johnson. The two Canadian firms in this industry are foreign subsidiaries of The Proctor and Gamble Company, and E.I. du Pont de Nemours. Similarly, Mexico also has two firms in this industry grouping: Celanese Mexicana SA and Grupo Cydsa SA de CV.

The **rubber and plastics industry** have only seven firms in the top 1,000 listing. The top three account for 76 percent of sales and 74 percent of assets. These top firms are Goodyear Tire & Rubber Company, Premark International, Inc., and Trinova Corp. There are no top Canadian or Mexican firms in this industry.

The **machinery excluding electrical products industry** has a total of 22 firms of which the top three account for 43 percent of sales and 54 percent of assets. Tenneco Inc., Caterpillar, Inc., and Deere and Co. are the three largest firms in this industry. The two Canadian firms are Varsity Corp. and G.E. Canada Inc.⁹

There are 32 companies in the **computer and office equipment industry**. This industry grouping is dominated by U.S. firms and Canadian subsidiaries of U.S. MNEs. The top three firms, International Business Machines, Xerox Corp., and the Hewlett Packard Company, are responsible for 57 percent of sales and 69 percent of assets within this

industry. The Canadian subsidiaries included in this industrial listing are IBM Canada Ltd., Digital Equipment of Canada Ltd., and Xerox Canada. There are no top Mexican firms within this industry.

The **electrical products industry** is comprised of only 15 firms. The industry's top firm: General Electric Co., has sales of just under \$60 billion. General Electric's sales are four times larger than the second largest competitor, Motorola Inc. Combined, the General Electric Co., Motorola Inc., and the Emerson Electric Co. contributed to 77 percent of the sales and 90 percent of the assets within this industry. The only Canadian firm, Asea Brown Boveri Inc., is a subsidiary of the Swiss firm ABB Asea Brown Boveri.

As mentioned above, the **communications equipment industry** has only three firms in the list of top 1,000 North American Firms. The largest firms are Northern Telecom Ltd. of Canada with over \$8 billion in sales, Tyco Laboratories, Inc., of the U.S. with just over \$3 billion in sales and Pittway Corp. of the U.S. with less than \$678 million in sales.

Eleven U.S. firms make up the **miscellaneous electrical products industry**. The top three account for 67 percent of sales and 69 percent of assets. These top firms are Digital Equipment Corp., Texas Instruments Inc., and Intel Corp.

The **motor vehicle and equipment industry** is quite concentrated since the top three of 22 firms account for 77 percent of sales and 90 percent of assets. These three largest firms are General Motors Corp., Ford Motor Co. and Chrysler Corp. The Canadian subsidiaries within this industry include General Motors of Canada Ltd., Ford Motor Co. of Canada Ltd., Chrysler Canada Ltd., and Honda Canada Inc. Magna International Inc. is the sole Canadian-owned manufacturer within this industry.

The Boeing Co., McDonnell Douglas Corp. and Allied Signal Inc. are the largest firms in the **aircraft and aircraft parts industry**. These top three firms account for 60 percent of sales and 51 percent of assets of the 14 firms within this industry. The two largest Canadian firms are Bombardier Inc. and Pratt and Whitney Canada Inc.

There are only eight firms in the **other transportation equipment industries**. The top three firms: Lockheed Corp., Martin Marietta Corp. and Brunswick Corp. make up 73 percent of sales and 77 percent of assets. There are no Canadian or Mexican firms in the top 1,000 within this industry.

The **light machinery industry** is made up of 24 firms of which all but CAE Industries Ltd. are U.S.-based. The top three firms, The Eastman Kodak Co., Minnesota Mining & Manufacturing and Westinghouse Electric Corp., account for 43 percent of sales and 54 percent of assets within this industry grouping.

Transportation Industry

In the **transportation industries**, Canada's representation is quite strong, with nine out of a total of 33 firms. Mexico is represented by one firm: Corporation Mexicana de Aviación. The top three firms are AMR Corp., UAL Corp. and Delta Air Line Inc. They account for 26 percent of sales in this industry.

Communications Industry

The **communications industry** is also well represented by all three countries. Of the 26 firms, 19 are U.S.-based, five are Canadian and two are Mexican. The sales of the top three firms account for 34 percent of the industry sample total. The top firms are American Telephone and Telegraph, and GTE Corp. (both U.S.-owned), followed by Bell Canada Enterprises Inc.

Utilities Industry

With 98 firms, the **utilities industry** is the largest of the 41 industries classified in the sample. The top three utilities, Enron Corp., Pacific Gas and Electric Co. and The Coastal Corp., account for only 13 percent of sales and seven percent of assets, however. Canada's utilities are well represented in the list with 12 firms; the U.S. makes up the balance at 86 firms.

Trade Industry

The trade industry is comprised of 152 firms. Thirty of these are Canadian, three are Mexican and 119 are U.S.-based. Of the 30 Canadian-based firms, 22 are Canadian-controlled.

Within the **wholesale trade industry**, there are 38 U.S., 18 Canadian and one Mexican-based firm. The top three firms represent 20 percent of the sales within this industry.

The **retail trade industry** is significantly more concentrated than wholesale trade. With 95 firms, the top three account for 27 percent of sales. Representation by country is proportionately distributed among the U.S., with 81 firms, Canada, with 12 firms and Mexico, with 2 firms.

Finance Industry

The finance industry is comprised of 25 Canadian firms, two Mexican and 145 U.S. firms. All but one of the 25 Canadian firms in this industry are Canadian-controlled.

Within the finance sector, the **depository institution industry** has the largest number of firms with 86 in total. The Royal Bank of Canada is the third largest bank by sales, preceded by the Chemical Banking Corp. and Citicorp in that order. These top three firms account for 19 percent of sales and 16 percent of assets. Each country is well represented in the distribution of the number of depository institutions with the U.S. banks accounting for 75 firms, Canada 10 and Mexico one.

The **non-depository institution industry** is comprised of only five firms. By sales, the top three firms account for 81 percent of total sales within this industry. The top three firms are, respectively, Federal National Mortgage Assn. and Household International Inc. of the U.S., and CT Financial of Canada.

The **securities and brokers industry** is made up of eleven U.S. firms only. The top three are The American Express Co., Merrill Lynch and J.P. Morgan. In terms of sales, these three firms account for 65 percent of the industry sample total.

The **insurance industry** is composed of 58 firms. Both Canadian and U.S. firms are well represented in this industry. There are 47 U.S.-based firms and nine Canadian firms. There are no Mexican firms. The top three firms are, respectively, ITT Corp., Aetna Life & Casualty Co., and Cigna Corp.

The **other financial services** are comprised mainly of holding companies for diversified firms. It is important to note that when possible, holding companies have been attributed to their primary activity. For these reasons, this grouping is not comprehensive of all holding companies in North America.

Services Industry

There are 48 firms within the services industries. All of these firms are U.S.-based.

Of the 34 firms comprising the **commercial service industry**, the top three account for 26 percent of sales. These top three firms are: The Walt Disney Co., Ryder System, Inc. and The Dun and Bradstreet Corp.

The top three firms in **health services industry** are Humana Inc., National Medical Enterprises and American Medical International. They account for 58 percent of total sales of this industry.

There are only 5 firms in the **other services industry**. Foster Wheeler Corp., CBI Industries Inc., and Wheelabrator Technologies Inc. account for 76 percent of all sales in this industry.

In summary, the top 1000 firms are major players in the North American economy. In addition, the three largest firms in each industry command a substantial share of the total sales, assets and employment of all the top North American firms. Therefore, the activities, strategies and performances of the top North American enterprises, especially the dominant players, can play a crucial role in shaping the future comparative advantage and competitive positions of the three North American economies.

APPENDIX 4
LIST OF OUTWARDLY ORIENTED FIRMS

Rank by Sales	Rank by Assets	Company Name	Industry	Country
196	257	THOMSON CORPORATION	Printing & Publishing	CANADA
320	215	AFLAC INC.	Insurance	U.S.A.
806	944	MAXTOR CORPORATION	Computer & Office	U.S.A.
878	884	COMMODORE INTERNATIONAL LTD.	Computer & Office	U.S.A.
755	749	DOMINION TEXTILE INC.	Textiles	CANADA
895	780	CAE INDUSTRIES LTD.	Light Machinery	CANADA
737	856	STANDARD COMMERCIAL CORPORATION	Tobacco	U.S.A.
931	610	NL INDUSTRIES, INC.	Chemicals & Allied	U.S.A.
296	463	VARITY CORPORATION	Machinery excl. Electrical	CANADA
637	748	ONEX CORPORATION	Wholesale Trade	CANADA
417	567	MOORE CORPORATION LTD.	Printing & Publishing	CANADA
562	483	INTERPUBLIC GROUP OF COMPANIES	Commercial Services	U.S.A.
808	820	LAWSON MARDON GROUP	Paper & Allied	CANADA
786	887	DIBRELL BROTHERS, INC.	Wholesale Trade	U.S.A.
172	365	CPC INTERNATIONAL INC.	Food & Products	U.S.A.
131	197	ALCAN ALUMINIUM LTD.	Primary Metals	CANADA
400	504	BOMBARDIER INC.	Aircraft & Parts	CANADA
225	394	GILLETTE COMPANY (THE)	Fabricated Metals	U.S.A.
981	818	MOLEX INC.	Misc. Electrical Products	U.S.A.
641	736	ESSELTE BUSINESS SYSTEMS INC.	Printing & Publishing	U.S.A.
276	383	RHONE-POULENC RORER GROUP, INC.	Chemicals & Allied	U.S.A.
936	930	INDAL LTD.	Primary Metals	CANADA
709	603	OMNICOM GROUP, INC.	Commercial Services	U.S.A.
580	761	MATTEL, INC.	Misc. Manufactured Goods	U.S.A.
353	694	UNIVERSAL CORPORATION	Wholesale Trade	U.S.A.
176	275	SCHLUMBERGER LTD.	Mining	U.S.A.
152	25	BANKERS TRUST NEW YORK CORPORATION	Depository Institution	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
838	549	UNION TEXAS PETROLEUM HOLDINGS	Mining	U.S.A.
44	185	DIGITAL EQUIPMENT CORPORATION	Misc. Electrical Products	U.S.A.
123	230	NORTHERN TELECOM LTD.	Communications Equipment	CANADA
658	485	ALEXANDER & ALEXANDER SERVICES	Insurance	U.S.A.
298	449	MCDERMOTT INTERNATIONAL, INC.	Machinery excl. Electrical	U.S.A.
170	175	SEAGRAM CO. LTD.	Food & Products	CANADA
2	19	EXXON CORPORATION	Mining	U.S.A.
840	539	PLACER DOME, INC.	Mining	CANADA
363	612	SEAGATE TECHNOLOGY	Computer & Office	U.S.A.
684	676	RAYCHEM CORPORATION	Rubber & Products	U.S.A.
8	45	MOBIL CORPORATION	Mining	U.S.A.
154	26	MORGAN STANLEY GROUP, INC.	Securities & Brokers	U.S.A.
375	527	MARSH & McLENNAN COMPANIES, INC.	Insurance	U.S.A.
479	476	SYNTEX CORPORATION	Chemicals & Allied	U.S.A.
4	16	INTERNATIONAL BUSINESS MACHINES	Computer & Office	U.S.A.
618	615	BAUSCH & LOMB INC.	Light Machinery	U.S.A.
229	320	BLACK & DECKER CORPORATION (THE)	Electrical Products	U.S.A.
51	218	SARA LEE CORPORATION	Food & Products	U.S.A.
583	661	CBI INDUSTRIES, INC.	Other Services	U.S.A.
796	874	FERRO CORPORATION	Fabricated Metals	U.S.A.
40	171	HEWLETT-PACKARD COMPANY	Computer & Office	U.S.A.
510	404	LAIDLAW INC.	Transportation	CANADA
342	456	AMP INC.	Misc. Electrical Products	U.S.A.
409	621	AVERY DENNISON CORPORATION	Chemicals & Allied	U.S.A.
416	68	REPUBLIC NEW YORK CORPORATION	Depository Institution	U.S.A.
563	741	ARVIN INDUSTRIES, INC.	Motor Vehicle & Equipment	U.S.A.
179	364	COLGATE-PALMOLIVE COMPANY	Chemicals & Allied	U.S.A.
902	834	SCOTT'S HOSPITALITY INC.	Retail Trade	CANADA
543	732	NATIONAL SEMICONDUCTOR CORPORATION	Misc. Electrical Products	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
187	391	KELLOGG COMPANY	Food & Products	U.S.A.
288	623	AVON PRODUCTS, INC.	Chemicals & Allied	U.S.A.
202	274	STONE CONTAINER CORPORATION	Paper & Allied	U.S.A.
477	673	WANG LABORATORIES, INC.	Computer & Office	U.S.A.
86	13	MORGAN (J.P.) & CO. INC.	Securities & Brokers	U.S.A.
666	811	UNITED DOMINION INDUSTRIES LTD.	Construction	CANADA
70	211	COCA-COLA COMPANY (THE)	Food & Products	U.S.A.
600	609	LAFARGE CORPORATION	Non-Metallic Minerals	U.S.A.
91	356	WOOLWORTH CORPORATION	Retail Trade	U.S.A.
58	204	JOHNSON & JOHNSON	Chemicals & Allied	U.S.A.
612	729	NORTON COMPANY	Non-Metallic Minerals	U.S.A.
159	182	MCDONALD'S CORPORATION	Retail Trade	U.S.A.
820	709	INTERNATIONAL FLAVORS & FRAGRANCES	Chemicals & Allied	U.S.A.
772	806	FEDERAL-MOGUL CORPORATION	Machinery excl. Electrical	U.S.A.
560	760	TRINOVA CORPORATION	Rubber & Products	U.S.A.
155	344	TEXAS INSTRUMENTS INC.	Misc. Electrical Products	U.S.A.
730	777	INTERGRAPH CORPORATION	Computer & Office	U.S.A.
166	362	NCR CORPORATION	Computer & Office	U.S.A.
396	547	ILLINOIS TOOL WORKS INC.	Motor Vehicle & Equipment	U.S.A.
707	686	NALCO CHEMICAL COMPANY	Chemicals & Allied	U.S.A.
30	84	DOW CHEMICAL COMPANY	Chemicals & Allied	U.S.A.
377	497	MICROSOFT CORPORATION	Commercial Services	U.S.A.
734	743	CLARK EQUIPMENT COMPANY	Motor Vehicle & Equipment	U.S.A.
489	633	FOSTER WHEELER CORPORATION	Other Services	U.S.A.
163	308	H.J. HEINZ COMPANY	Food & Products	U.S.A.
411	438	BAKER HUGHES, INC.	Machinery excl. Electrical	U.S.A.
17	89	PROCTER & GAMBLE COMPANY (THE)	Chemicals & Allied	U.S.A.
736	787	ORACLE SYSTEMS CORPORATION	Computer & Office	U.S.A.
94	190	ALUMINUM COMPANY OF AMERICA	Mining	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
308	524	AMERICAN STANDARD INC.	Computer & Office	U.S.A.
632	727	LUBRIZOL CORPORATION (THE)	Chemicals & Allied	U.S.A.
49	192	MINNESOTA MINING & MANUFACTURING	Light Machinery	U.S.A.
15	1	CITICORP	Depository Institution	U.S.A.
914	860	BECKMAN INSTRUMENTS, INC.	Light Machinery	U.S.A.
122	21	THE BANK OF NOVA SCOTIA	Depository Institution	CANADA
942	855	LOTUS DEVELOPMENT CORPORATION	Commercial Services	U.S.A.
352	367	INCO LTD.	Mining	CANADA
39	23	AMERICAN INTERNATIONAL GROUP, INC.	Insurance	U.S.A.
77	253	GOODYEAR TIRE & RUBBER COMPANY	Rubber & Products	U.S.A.
729	763	TECUMSEH PRODUCTS COMPANY	Computer & Office	U.S.A.
11	53	DU PONT (E.I.) DE NEMOURS AND	Petroleum Refining	U.S.A.
64	269	SUN COMPANY, INC.	Petroleum Refining	U.S.A.
278	459	CROWN CORK & SEAL COMPANY, INC.	Fabricated Metals	U.S.A.
751	890	WRIGLEY (WM) JR. COMPANY	Food & Products	U.S.A.
132	284	EMERSON ELECTRIC COMPANY	Electrical Products	U.S.A.
932	826	ALLERGAN, INC.	Chemicals & Allied	U.S.A.
168	244	AMERADA HESS CORPORATION	Petroleum Refining	U.S.A.
211	408	WARNER-LAMBERT COMPANY	Chemicals & Allied	U.S.A.
83	460	FORD MOTOR CO. OF CANADA LTD.	Motor Vehicle & Equipment	CANADA
484	543	QUEBECOR INC.	Printing & Publishing	CANADA
758	558	COMINCO LTD.	Primary Metals	CANADA
877	833	PERKIN-ELMER CORPORATION (THE)	Light Machinery	U.S.A.
627	369	ORYX ENERGY COMPANY	Mining	U.S.A.
304	584	CUMMINS ENGINE COMPANY, INC.	Machinery excl. Electrical	U.S.A.
269	64	ROYAL TRUSTCO LTD.	Depository Institution	CANADA
696	711	PIONEER HI-BRED INTERNATIONAL, INC.	Agriculture & Fishing	U.S.A.
273	475	FMC CORPORATION	Chemicals & Allied	U.S.A.
848	900	AST RESEARCH, INC.	Computer & Office	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
778	894	ALBERTO CULVER COMPANY	Chemicals & Allied	U.S.A.
133	27	MANUFACTURERS HANOVER CORPORATION	Depository Institution	U.S.A.
482	602	POLAROID CORPORATION	Light Machinery	U.S.A.
677	631	GREAT LAKES CHEMICAL CORPORATION	Chemicals & Allied	U.S.A.
530	704	ECHLIN INC.	Motor Vehicle & Equipment	U.S.A.
552	579	IMCERA GROUP, INC.	Chemicals & Allied	U.S.A.
366	403	ARCO CHEMICAL CO.	Wholesale Trade	U.S.A.
907	843	SILICON GRAPHICS, INC.	Commercial Services	U.S.A.
492	160	CARENA DEVELOPMENTS LTD.	Other Financial Services	CANADA
441	443	BECTON, DICKINSON AND COMPANY	Light Machinery	U.S.A.
613	712	CERIDIAN CORPORATION	Computer & Office	U.S.A.
215	55	TRILON FINANCIAL CORPORATION	Depository Institution	CANADA
157	290	WHIRLPOOL CORPORATION	Electrical Products	U.S.A.
230	447	CHIQUITA BRANDS INTERNATIONAL, INC.	Agriculture & Fishing	U.S.A.
466	489	PACCAR INC.	Wholesale Trade	U.S.A.
169	372	CAMPBELL SOUP COMPANY	Food & Products	U.S.A.
622	557	COMPUTER ASSOCIATES INTERNATIONAL	Commercial Services	U.S.A.
541	516	DOW JONES & COMPANY, INC.	Commercial Services	U.S.A.
105	15	SALOMON INC.	Securities & Brokers	U.S.A.
130	334	RALSTON PURINA COMPANY	Food & Products	U.S.A.
605	857	UNIVAR CORPORATION	Wholesale Trade	U.S.A.
671	654	MACLEAN HUNTER LTD.	Printing & Publishing	CANADA
228	351	DUN & BRADSTREET CORPORATION (THE)	Commercial Services	U.S.A.
588	684	CONNER PERIPHERALS, INC.	Computer & Office	U.S.A.
606	647	CABOT CORPORATION	Chemicals & Allied	U.S.A.
827	899	BROOKE GROUP LTD.	Tobacco	U.S.A.
109	241	MONSANTO COMPANY	Chemicals & Allied	U.S.A.
194	304	PPG INDUSTRIES, INC.	Non-Metallic Minerals	U.S.A.
345	517	TYCO LABORATORIES, INC.	Communications Equipment	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
141	322	BORDEN, INC.	Food & Products	U.S.A.
553	534	AMDAHL CORPORATION	Computer & Office	U.S.A.
502	648	STANLEY WORKS (THE)	Machinery excl. Electrical	U.S.A.
12	81	TEXACO INC.	Mining	U.S.A.
227	434	DRESSER INDUSTRIES, INC.	Machinery excl. Electrical	U.S.A.
329	366	AIR PRODUCTS AND CHEMICALS, INC.	Chemicals & Allied	U.S.A.
188	280	REYNOLDS METALS COMPANY	Primary Metals	U.S.A.
376	467	ROHM & HAAS COMPANY	Chemicals & Allied	U.S.A.
594	656	HARNISCHFEGER INDUSTRIES, INC.	Wholesale Trade	U.S.A.
429	695	ENGELHARD CORPORATION	Chemicals & Allied	U.S.A.
171	350	HONEYWELL INC.	Light Machinery	U.S.A.
388	866	EG & G, INC.	Light Machinery	U.S.A.
20	71	AMOCO CORPORATION	Mining	U.S.A.
180	306	GRACE (W.R.) & COMPANY	Chemicals & Allied	U.S.A.
884	639	FLETCHER CHALLENGE CANADA LTD.	Lumber and Wood	CANADA
148	342	HALLIBURTON COMPANY	Utilities	U.S.A.
127	315	TRW INC.	Motor Vehicle & Equipment	U.S.A.
738	728	MEDTRONIC, INC.	Light Machinery	U.S.A.
197	454	QUAKER OATS COMPANY (THE)	Food & Products	U.S.A.
372	574	OWENS-CORNING FIBERGLAS CORPORATION	Textiles	U.S.A.
118	232	MERCK & CO., INC.	Chemicals & Allied	U.S.A.
454	839	INTERNATIONAL MULTIFOODS CORPORATION	Food & Products	U.S.A.
968	947	PILGRIM'S PRIDE CORPORATION	Food & Products	U.S.A.
174	268	COOPER INDUSTRIES, INC.	Machinery excl. Electrical	U.S.A.
535	693	MAGNA INTERNATIONAL INC.	Motor Vehicle & Equipment	CANADA
986	909	DENNISON MANUFACTURING COMPANY	Paper & Allied	U.S.A.
470	596	HASBRO INC.	Misc. Manufactured Goods	U.S.A.
487	581	TANDEM COMPUTERS INC.	Computer & Office	U.S.A.
688	804	VARIAN ASSOCIATES, INC.	Misc. Electrical Products	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
216	287	SCOTT PAPER COMPANY	Paper & Allied	U.S.A.
22	125	UNITED TECHNOLOGIES CORPORATION	Non-Metallic Minerals	U.S.A.
323	473	COMPAQ COMPUTER CORPORATION	Computer & Office	U.S.A.
144	378	APPLE COMPUTER, INC.	Computer & Office	U.S.A.
766	789	DATA GENERAL CORPORATION	Commercial Services	U.S.A.
28	87	EASTMAN KODAK COMPANY	Light Machinery	U.S.A.
384	672	REEBOK INTERNATIONAL LTD.	Leather and Products	U.S.A.
57	180	PHILLIPS PETROLEUM COMPANY	Petroleum Refining	U.S.A.
45	109	TENNECO INC.	Machinery excl. Electrical	U.S.A.
970	323	BRAMALEA LTD. (CANADA)	Other Financial Services	CANADA
115	254	UNISYS CORPORATION	Computer & Office	U.S.A.
305	604	NIKE INC.	Leather and Products	U.S.A.
983	794	TORSTAR CORPORATION	Printing & Publishing	CANADA
65	14	CHASE MANHATTAN CORPORATION	Depository Institution	U.S.A.
307	381	UPJOHN COMPANY (THE)	Chemicals & Allied	U.S.A.
369	585	PREMARK INTERNATIONAL, INC.	Rubber & Products	U.S.A.
283	65	NATIONAL BANK OF CANADA	Depository Institution	CANADA
439	599	PARKER HANNIFIN CORPORATION	Computer & Office	U.S.A.
290	494	SUN MICROSYSTEMS, INC.	Computer & Office	U.S.A.
135	324	FEDERAL EXPRESS CORPORATION	Transportation	U.S.A.
558	555	MURPHY OIL CORPORATION	Petroleum Refining	U.S.A.
150	297	ABBOTT LABORATORIES	Chemicals & Allied	U.S.A.
69	439	GREAT ATLANTIC & PACIFIC TEA COMPANY	Retail Trade	U.S.A.
999	895	CINCINNATI MILACRON INC.	Machinery excl. Electrical	U.S.A.
818	917	HELENE CURTIS INDUSTRIES, INC.	Chemicals & Allied	U.S.A.
13	57	CHEVRON CORPORATION	Mining	U.S.A.
678	888	CRANE COMPANY	Fabricated Metals	U.S.A.
285	388	SCHERING-PLOUGH CORPORATION	Chemicals & Allied	U.S.A.
214	338	AMERICAN CYANAMID COMPANY	Chemicals & Allied	U.S.A.

Rank by Sales	Rank by Assets	Company Name	Industry	Country
365	486	MARION MERRELL DOW, INC.	Chemicals & Allied	U.S.A.
679	134	STATE STREET BOSTON CORPORATION	Depository Institution	U.S.A.
972	817	FINNING LTD	Wholesale Trade	CANADA
120	133	AMERICAN BRANDS, INC.	Tobacco	U.S.A.
888	907	DELL COMPUTER CORPORATION	Computer & Office	U.S.A.
713	688	ADVANCED MICRO DEVICES, INC.	Misc. Electrical Products	U.S.A.
321	426	KERR-MCGEE CORPORATION	Mining	U.S.A.
145	307	AMERICAN HOME PRODUCTS CORPORATION	Chemicals & Allied	U.S.A.
898	880	BARD, (C.R.) INC.	Light Machinery	U.S.A.
444	433	MACMILLAN BLOEDEL LTD.	Lumber and Wood	CANADA
9	35	PHILIP MORRIS COMPANIES, INC.	Tobacco	U.S.A.
33	66	XEROX CORPORATION	Computer & Office	U.S.A.
314	451	EATON CORPORATION	Motor Vehicle & Equipment	U.S.A.
950	493	REPAP ENTERPRISES INC.	Paper & Allied	CANADA
73	236	BRISTOL-MYERS SQUIBB CO.	Light Machinery	U.S.A.
355	509	MAYTAG CORPORATION	Electrical Products	U.S.A.

APPENDIX 5

Table 5-1
Industrial Distribution of the Top U.S. and Canadian Firms
(Percent of Total)

Industry	United States				Canada			
	No. of Firms	Assets	Sales	Employees	No. of Firms	Assets	Sales	Employees
Agriculture & Fishing	3	0.07	0.21	0.27	0			
Mining	25	4.06	8.52	2.07	20	5.05	10.55	6.17
Construction	9	0.32	0.76	0.58	2	0.10	0.56	0.50
Labour-Intensive Manufacturing	44	1.18	2.23	2.35	7	1.39	3.15	5.20
Textiles	8	0.12	0.29	0.31	1	0.09	0.25	0.39
Clothing	10	0.13	0.35	0.57	0			
Furniture & Fixtures	6	0.11	0.23	0.30	0			
Printing & Publishing	13	0.69	1.01	0.92	6	1.31	2.90	4.81
Leather & Products	2	0.04	0.16	0.04	0			
Misc. Manufactured Goods	5	0.08	0.20	0.22	0			
Resource-Intensive Manufacturing	109	5.95	13.09	8.96	31	7.07	14.78	18.34
Food & Products	39	1.52	4.52	3.57	9	1.71	4.47	3.40
Tobacco	6	0.83	1.56	0.82	1	0.37	0.67	3.26
Lumber & Wood	0				4	1.83	3.05	3.83
Paper & Allied	21	1.32	1.86	1.42	6	0.92	1.77	2.18
Petroleum Refining	15	1.17	2.82	0.97	1	0.42	0.91	0.40
Non-Metallic Minerals	7	0.43	0.96	1.11	1	0.07	0.17	0.24
Primary Metals	11	0.44	0.81	0.63	8	1.70	3.56	4.85
Fabricated Metals	10	0.24	0.57	0.44	1	0.04	0.19	0.19
Technology-Intensive Manufacturing	193	17.55	28.45	24.21	17	3.08	14.71	10.89
Chemicals & Allied	50	2.78	5.37	4.07	2	0.16	0.59	0.32
Rubber & Products	7	0.20	0.53	0.62	0			
Machinery excl. Electrical	20	0.95	1.73	1.77	2	0.32	1.07	1.29
Computer & Office	29	2.45	4.17	3.64	3	0.38	1.60	0.86

Industry	United States				Canada			
	No. of Firms	Assets	Sales	Employees	No. of Firms	Assets	Sales	Employees
Electrical Products	14	2.65	2.69	1.87	1	0.03	0.20	0.15
Communications Equipment	2	0.04	0.10	0.12	1	0.77	1.79	2.40
Misc. Electrical Products	11	0.42	0.98	1.12	0			
Motor Vehicles & Equipment	17	5.57	7.09	5.35	5	1.05	8.41	4.01
Aircraft & Parts	12	0.98	2.47	2.22	2	0.29	0.85	1.46
Other Transportation Equipment	8	0.21	0.63	0.73	0			
Light Machinery	23	1.31	2.70	2.71	1	0.08	0.19	0.41
Transportation	23	1.59	2.81	3.07	9	3.27	5.88	10.45
Communications	19	4.30	5.19	4.34	5	4.18	4.95	6.55
Utilities	86	6.81	6.00	2.89	12	8.71	5.54	3.42
Trade	119	4.76	15.41	41.18	30	3.46	16.51	24.86
Wholesale Trade	38	0.85	3.58	1.88	18	1.55	8.10	5.85
Retail Trade	81	3.91	11.83	39.30	12	1.90	8.41	19.00
Finance	145	51.99	15.00	6.94	25	63.69	23.37	13.61
Depository Institutions	75	29.90	6.51	3.63	10	46.55	13.01	9.76
Non-Depository Institutions	4	2.98	0.59	0.08	1	2.44	0.81	0.51
Securities & Brokers	11	7.48	1.91	0.78	0			
Insurance	49	10.41	5.61	2.26	9	12.29	7.83	1.79
Other Financial Services	6	1.21	0.38	0.18	5	2.41	1.72	1.56
Services	48	1.42	2.32	3.15	0			
Commercial Services	34	1.14	1.68	1.91	0			
Health Services	9	0.20	0.48	1.06	0			
Other Services	5	0.08	0.16	0.18	0			
Total*	823	7,806	3,874	27,329	158	1,241	457	2,382

Note: Blank cells indicate data is not available.

* Sales and assets are denominated in US \$ billions and employment in thousands.

Source: Estimates based on data from Disclosure Inc.

Table 5-2
Industrial Distribution of Domestic- and Foreign-controlled Canadian Firms
(Percent of Total)

Industry	Domestically-controlled				Foreign-controlled			
	No. of Firms	Assets	Sales	Employees	No. of Firms	Assets	Sales	Employees
Mining	10	2.42	6.00	5.15	10	41.83	23.38	8.51
Construction	2	0.10	0.66	0.59	0			
Labour-Intensive Manufacturing	7	1.43	3.69	6.05	0			
Textiles	1	0.09	0.29	0.45	0			
Printing & Publishing	6	1.34	3.40	5.60	0			
Resource-Intensive Manufacturing	26	10.79	26.25	27.78	5	5.04	4.33	4.53
Food & Products	6	1.63	4.48	3.38	3	1.94	2.76	2.39
Tobacco	1	4.24	10.90	11.30	0	0.00	0.00	0.00
Lumber and Wood	3	1.75	3.34	4.22	1	2.00	0.85	0.98
Paper & Allied	6	0.94	2.08	2.54	0			
Petroleum Refining	1	0.43	1.07	0.47	0			
Non-Metallic Minerals	0				1	1.09	0.73	1.16
Primary Metals	8	1.75	4.16	5.65	0			
Fabricated Metals	1	0.04	0.22	0.22	0			
Technology-Intensive Manufacturing	4	1.19	3.44	5.30	13	29.75	50.69	30.83
Chemicals & Allied	0				2	2.51	2.55	1.56
Machinery excl. Electrical	0				2	4.94	4.61	6.28
Computer & Office	0				3	5.90	6.89	4.19
Electrical Products	0				1	0.50	0.84	0.71
Communications Equipment	1	0.79	2.10	2.79	0			
Motor Vehicles & Equipment	1	0.11	0.45	0.73	4	14.73	34.58	16.45
Aircraft & Parts	1	0.22	0.67	1.30	1	1.17	1.22	1.63
Light Machinery	1	0.08	0.23	0.47	0			
Transportation	8	3.25	6.47	12.08	1	1.69	1.52	0.35

Industry	Domestically-controlled				Foreign-controlled			
	No. of Firms	Assets	Sales	Employees	No. of Firms	Assets	Sales	Employees
Communications	5	4.29	5.79	7.63	0			
Utilities	11	8.77	6.13	3.81	1	2.71	1.30	0.73
Trade	22	2.32	14.50	15.82	8	18.57	17.77	54.81
Wholesale Trade	13	1.41	7.34	6.33	5	2.73	7.88	2.02
Retail Trade	9	0.91	7.16	9.49	3	15.84	9.90	52.78
Finance	24	65.44	27.08	15.79	1	0.41	1.00	0.24
Depository Institutions	10	47.85	15.23	11.36	0			
Non-Depository Institutions	1	2.51	0.95	0.59	0			
Insurance	9	12.63	9.16	2.08	0			
Other Financial Services	4	2.45	1.74	1.76	1	0.41	1.00	0.24
Total	119	100.00	100.00	100.00	39	100.00	100.00	100.00

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

Table 5-3
Productivity Performance of Top U.S.
and Domestically-controlled Canadian Firms

Industry	United States			Domestically-controlled Canadian firms		
	No. of Firms	Sales Employment Ratio	Sales Asset Ratio	No. of Firms	Sales Employment Ratio	Sales Asset Ratio
Agriculture & Fishing	3	110.72	1.49	0		
Mining	25	537.19	1.04	10	222.25	0.80
Construction	9	186.29	1.17	2	215.17	2.15
Labour-Intensive Manufacturing	44	134.65	0.94	7	116.27	0.00
Textiles	8	113.83	1.14	1	123.13	1.04
Clothing	10	69.61	1.36	0		
Furniture and Fixtures	6	72.84	1.01	0		
Printing & Publishing	13	155.46	0.72	6	115.71	0.82
Leather and Products	2	572.73	1.86	0		
Misc. Manufacturing Goods	5	133.42	1.20	0		
Resource-Intensive Manufacturing	109	207.16	1.09	26	180.22	1.59
Food & Products	39	169.90	1.48	6	252.56	0.89
Tobacco	6	270.89	0.94	1	184.01	0.83
Lumber and Wood	0			3	151.04	0.62
Paper & Allied	21	176.74	0.70	6	155.92	0.71
Petroleum Refining	15	414.20	1.20	1	436.52	0.80
Non-Metallic Minerals	7	122.54	1.10	0		
Primary Metals	11	180.44	0.92	8	140.65	0.77
Fabricated Metals	10	164.67	1.15	1	187.82	1.88
Technology-Intensive Manufacturing	193	166.64	0.80	4	123.72	0.93
Chemicals & Allied	50	172.12	0.96	0		
Rubber & Products	7	119.46	1.29	0		
Machinery excl. Electrical	20	138.34	0.91	0		
Computer & Office	29	162.57	0.84	0		
Electrical Products	14	160.33	0.50	0		

Industry	United States			Domestically-controlled Canadian firms		
	No. of Firms	Sales Employment Ratio	Sales Asset Ratio	No. of Firms	Sales Employment Ratio	Sales Asset Ratio
Communications Equipment	2	123.47	1.25	1	143.40	0.86
Misc. Electrical Products	11	123.69	1.15	0		
Motor Vehicles & Equipment	17	187.95	0.63	1	116.84	1.37
Aircraft & Parts	12	144.58	1.25	1	97.52	1.00
Other Transportation Equipment	8	123.10	1.52	0		
Light Machinery	23	129.21	1.03	1	90.68	0.90
Transportation	23	129.70	0.88	8	102.20	0.64
Communications	19	160.56	0.60	5	144.80	0.44
Utilities	86	276.68	0.44	11	306.78	0.23
Trade	119	53.06	1.61	22	174.85	2.02
Wholesale Trade	38	256.30	2.10	13	221.30	1.68
Retail Trade	81	39.51	1.50	9	143.87	2.56
Finance	145	306.68	0.14	24	327.15	0.13
Depository Institutions	75	237.27	0.11	10	255.72	0.10
Non-Depository Institutions	4	512.81	0.10	1	307.74	0.12
Securities & Brokers	11	315.02	0.13	0		
Insurance	49	323.01	0.27	9	840.56	0.23
Other Financial Services	6	249.81	0.16	4	188.29	0.23
Services	48	104.69	0.81	0		
Commercial Services	34	120.94	0.73	0		
Health Services	9	64.05	1.16	0		
Other Services	5	105.80	0.98	0		
Total	823	141.77	0.50	119	190.77	0.32

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

Table 5-4
Five Year Growth Performance
(Percent)

Industry	Sales Growth		Asset Growth		Employment Growth	
	U.S.	Canada	U.S.	Canada	U.S.	Canada
Agriculture & Fishing	5.27		15.99		1.85	
Mining	6.59	5.04	2.17	5.37	(0.14)	(2.62)
Construction	10.66	0.80	21.08	(8.42)	2.24	(0.19)
Labour-Intensive Manufacturing	12.96	11.73	20.26	20.53	2.36	6.39
Textiles	8.57	5.65	11.39	10.15	(7.56)	(3.65)
Clothing	13.32		10.10		4.23	
Furniture and Fixtures	11.08		12.05		4.59	
Printing & Publishing	12.80	12.26	25.10	21.24	3.20	7.20
Leather and Products	28.13		28.30		20.54	
Misc. Manufacturing Goods	9.58		15.83		1.78	
Resource-Intensive Manufacturing	9.31	5.35	12.15	9.91	2.33	(1.84)
Food & Products	9.12	5.54	11.70	9.43	4.48	(6.47)
Tobacco	16.66	(3.97)	21.74	12.46	3.80	
Lumber and Wood		12.90		17.24		1.63
Paper & Allied	10.65	5.81	18.03	14.17	4.08	
Petroleum Refining	6.70	0.62	3.82	(5.81)	(1.41)	4.24
Non-Metallic Minerals	5.52	2.06	6.71	7.66	(0.87)	
Primary Metals	5.37	1.33	5.24	3.67	(2.82)	(4.07)
Fabricated Metals	11.09	8.67	12.24	7.87	0.19	
Technology-Intensive Manufacturing	8.34	3.75	19.26	11.45	1.19	1.29
Chemicals & Allied	9.57	1.45	10.80	6.83	9.71	(1.77)
Rubber & Products	5.84		3.53		(1.58)	
Machinery excl. Electrical	6.04	13.59	7.77	11.78	0.26	(0.67)
Computer & Office	10.90	3.93	13.85	6.14	1.06	1.31
Electrical Products	10.78		33.33		(1.04)	
Communications Equipment	21.01	9.31	28.52	15.01	13.99	4.31

Industry	Sales Growth		Asset Growth		Employment Growth	
	U.S.	Canada	U.S.	Canada	U.S.	Canada
Misc. Electrical Products	10.56		10.62		(0.61)	
Motor Vehicles & Equipment	5.41	(0.68)	26.05	4.45	(2.19)	1.00
Aircraft & Parts	6.98	22.60	9.63	35.65	(1.68)	
Other Transportation Equipment	3.98		5.15		(3.67)	
Light Machinery	10.20	16.55	12.67	20.95	1.87	
Transportation	9.85	5.93	6.28	6.53	6.76	1.69
Communications	9.14	7.45	6.64	12.85	0.94	1.79
Utilities	6.06	4.10	5.35	5.79	3.83	0.80
Trade	11.52	3.22	12.92	5.35	0.39	(0.30)
Wholesale Trade	12.17	3.54	13.29	8.42	8.57	3.16
Retail Trade	11.33	2.91	12.84	2.84		(1.36)
Finance	4.73	17.63	5.03	15.73	0.93	0.54
Depository Institutions		15.91		13.83		
Non-Depository Institutions	8.39	23.95	11.50	21.19	(3.61)	5.79
Securities & Brokers	10.30		9.78		4.25	
Insurance	7.77	10.89	14.21	14.26	1.55	2.49
Other Financial Services	7.15	58.48	4.91	54.20	(0.51)	
Services	17.15		19.62		4.06	
Commercial Services	19.35		23.34		7.69	
Health Services	13.99		7.10		(0.43)	
Other Services	3.81		(0.32)		(8.49)	

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

Table 5-5
R&D Performance of Canadian and U.S. Firms
(R&D Expenditures as a Percent of Sales)

Industry	Canada	United States
Agriculture & Fishing		7.30
Mining	1.54	0.90
Construction		4.57
Labour-Intensive Manufacturing	1.38	1.01
Textiles		1.65
Clothing		
Furniture and Fixtures		1.61
Printing & Publishing	1.50	0.79
Leather and Products		
Misc. Manufacturing Goods		3.06
Resource-Intensive Manufacturing	0.56	1.34
Food & Products		0.79
Tobacco	0.14	0.75
Lumber and Wood	0.46	
Paper & Allied	0.44	1.05
Petroleum Refining		1.78
Non-Metallic Minerals		4.26
Primary Metals	1.69	0.91
Fabricated Metals		1.81
Technology-Intensive Manufacturing	2.21	5.13
Chemicals & Allied	2.03	5.72
Rubber & Products		3.06
Machinery excl. Electrical	1.64	2.61
Computer & Office		8.43
Electrical Products		2.36

Industry	Canada	United States
Communications Equipment	11.59	0.93
Misc. Electrical Products		10.70
Motor Vehicles & Equipment	0.44	4.23
Aircraft & Parts	1.76	3.56
Other Transportation Equipment		2.78
Light Machinery	18.26	6.16
Transportation		
Communications		
Utilities		1.68
Trade		1.03
Wholesale Trade		2.80
Retail Trade		0.50
Finance		0.98
Depository Institutions		
Non-Depository Institutions		
Securities & Brokers		
Insurance		2.63
Other Financial Services		
Services		8.26
Commercial Services		11.20
Health Services		0.37
Other Services		1.12

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

Table 5-6
Profitability and Degree of Leverage of U.S. and Canadian Firms
(Percent)

Industry	Rate of Return on Assets		Equity/Total Capital	
	U.S.	Canada	U.S.	Canada
Agriculture & Fishing	7.27		62.91	
Mining	6.56	6.31	67.28	60.73
Construction	8.38	1.24	59.21	40.20
Labour-Intensive Manufacturing	8.69	9.10	43.92	53.26
Textiles	6.81	1.21		40.31
Clothing	10.68		58.96	
Furniture and Fixtures	9.23		65.77	
Printing & Publishing	7.60	9.64	39.19	54.15
Leather and Products	23.37		95.25	
Misc. Manufacturing Goods	9.27		70.03	
Resource-Intensive Manufacturing	8.31	6.17	58.07	55.88
Food & Products	10.65	8.02	61.81	69.74
Tobacco	11.23	9.34	47.74	48.67
Lumber and Wood		5.96		40.79
Paper & Allied	7.82	4.89	57.07	52.29
Petroleum Refining	6.34	0.62	59.90	56.56
Non-Metallic Minerals	5.53	10.93	62.21	77.79
Primary Metals	3.37	5.78	58.49	61.26
Fabricated Metals	9.72	2.29	58.53	27.93
Technology-Intensive Manufacturing	7.88	5.80	59.64	66.40
Chemicals & Allied	11.54	10.87	65.28	84.65
Rubber & Products	6.14		58.31	
Machinery excl. Electrical	5.26	6.11	55.56	41.94
Computer & Office	7.03	5.92	73.06	45.90

Industry	Rate of Return on Assets		Equity/Total Capital	
	U.S.	Canada	U.S.	Canada
Electrical Products	8.87		57.78	
Communications Equipment	10.21	7.70	65.94	73.28
Misc. Electrical Products	5.55		84.78	
Motor Vehicles & Equipment	6.50	2.75	48.04	74.96
Aircraft & Parts	6.47	9.05	62.02	68.29
Other Transportation Equipment	7.53		70.08	
Light Machinery	9.53	6.24	67.06	65.58
Transportation	3.68	3.93	55.69	52.32
Communications	6.46	6.47	53.48	41.96
Utilities	5.86	5.86	43.17	22.07
Trade	7.86	5.46	52.35	56.22
Wholesale Trade	8.05	5.07	61.26	70.31
Retail Trade	7.81	5.78	50.42	44.73
Finance	1.84	1.07	52.70	54.77
Depository Institutions	0.85	0.70	52.79	56.85
Non-Depository Institutions	6.00	0.95	5.78	74.48
Securities & Brokers	2.84		41.84	
Insurance	2.76	1.18	71.38	51.37
Other Financial Services	2.03	7.61	72.03	12.21
Services	9.26		59.11	
Commercial Services	10.14		61.59	
Health Services	6.79		47.62	
Other Services	3.30		53.44	

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

Table 5-7
Average Firm Size for Top U.S., Canadian and Mexican Firms

Industry	United States				Canada				Mexico			
	No. of Firms	Total Assets (\$US 000)	Sales (\$US 000)	Employees	No. of Firms	Total Assets (\$US 000)	Sales (\$US 000)	Employees	No. of Firms	Total Assets (\$US 000)	Sales (\$US 000)	Employees
Agriculture & Fishing	3	1,812,259	2,694,755	24,339	0				0			
Mining	25	12,662,463	13,198,018	24,569	20	3,133,375	2,410,262	7,351	1	3,021,219	869,555	18,884
Construction	9	2,810,842	3,290,330	17,662	2	600,607	1,290,464	5,998	1	2,184,279	1,263,767	
Labour-Intensive Manufacturing	44	2,098,612	1,965,901	14,600	7	2,471,497	2,056,996	17,692	0			
Textiles	8	1,211,914	1,382,478	12,145	1	1,103,551	1,145,155	9,300	0			
Clothing	10	996,546	1,354,561	19,460	0				0			
Furniture and Fixtures	6	1,455,831	1,469,504	20,175	0				0			
Printing & Publishing	13	4,160,970	3,005,421	19,333	6	2,699,488	2,208,970	19,090	0			
Leather and Products	2	1,651,841	3,069,843	5,360	0				0			
Misc. Manufactured Goods	5	1,309,376	1,573,403	11,793	0				0			
Resource-Intensive Manufacturing	109	4,260,568	4,653,625	22,464	31	2,829,552	2,178,641	14,094	10	6,716,231	3,319,945	18,279
Food & Products	39	3,036,326	4,485,681	26,401	9	2,363,349	2,266,961	10,110	4	1,553,116	1,370,985	20,868
Tobacco	6	10,800,685	10,105,349	37,305	1	4,646,616	3,044,976	77,546	0			
Lumber and Wood	0				4	5,687,231	3,484,163	22,782	0			
Paper & Allied	21	4,919,100	3,433,664	19,428	6	1,896,657	1,350,947	8,664	1	891,146	834,429	5,827
Petroleum Refining	15	6,080,429	7,287,725	17,595	1	5,219,712	4,157,430	9,524	1	47,111,457	18,884,520	
Non-Metallic Minerals	7	4,788,584	5,290,157	43,171	1	874,080	771,817	5,674	2	4,105,051	2,354,349	29,673
Primary Metals	11	3,100,112	2,841,270	15,746	8	2,639,716	2,032,026	14,447	2	2,368,571	1,643,934	17,071
Fabricated Metals	10	1,905,229	2,196,362	13,338	1	458,952	862,475	4,592	0			
Technology-Intensive Manufacturing	193	7,097,812	5,712,012	34,279	17	2,249,088	3,952,532	15,261	7	2,294,284	1,438,151	26,651
Chemicals & Allied	50	4,334,813	4,157,576	24,155	2	1,003,934	1,354,527	3,831	2	1,069,144	859,017	4,388
Rubber & Products	7	2,251,227	2,908,132	24,343	0				0			
Machinery excl. Electrical	20	3,693,112	3,351,895	24,229	2	1,977,186	2,444,637	15,387	0			

Computer & Office	29	6,594,850	5,572,103	34,275	3	1,575,482	2,435,345	6,839	1	343,252	831,212	2,026
Electrical Products	14	14,754,241	7,436,306	46,382	1	401,598	891,036	3,480	0			
Communications Equipment	2	1,564,955	1,957,020	15,850	1	9,534,200	8,182,500	57,059	0			
Misc. Electrical Products	11	2,994,337	3,434,255	27,766	0				0			
Motor Vehicles & Equipment	17	25,578,009	16,152,937	85,941	5	2,615,989	7,687,135	19,110	3	1,349,095	2,201,043	30,821
Aircraft & Parts	12	6,372,202	7,987,770	55,248	2	1,776,632	1,949,952	17,347	0			
Other Transportation Equipment	8	2,020,701	3,066,679	24,913	0				1	9,531,163	914,681	83,290
Light Machinery	23	4,442,627	4,555,129	35,254	1	976,806	879,570	9,700	0			
Transportation	23	5,393,887	4,727,374	36,450	9	4,509,678	2,985,002	27,647	1	1,140,841	978,832	12,076
Communications	19	17,670,920	10,577,821	65,880	5	10,364,206	4,521,668	31,227	2	6,843,271	3,058,782	31,790
Utilities	86	6,183,211	2,700,957	9,762	12	9,000,290	2,108,009	6,794	0			
Trade	119	3,120,594	5,018,279	94,571	30	1,429,004	2,515,224	19,736	3	1,316,268	1,430,683	11,393
Wholesale Trade	38	1,742,219	3,652,699	14,251	18	1,069,318	2,056,634	7,746	1	1,586,045	757,252	
Retail Trade	81	3,767,239	5,658,921	143,211	12	1,968,533	3,203,110	37,722	2	1,181,380	1,767,399	17,089
Finance	145	27,986,424	4,009,174	13,073	25	31,605,784	4,270,549	12,971	2	8,753,231	2,631,998	11,101
Depository Institutions	75	31,122,697	3,363,057	14,174	10	57,747,438	5,945,177	23,249	1	15,916,280	3,796,139	22,201
Non-Depository Institutions	4	58,086,675	5,717,865	11,150	1	30,247,767	3,708,271	12,050	0			
Securities & Brokers	11	53,071,753	6,726,801	21,354	0				0			
Insurance	49	16,589,193	4,438,455	13,741	9	16,942,704	3,973,497	4,727	0			
Other Financial Services	6	15,803,782	2,458,402	9,841	5	5,987,622	1,568,444	7,440	1	1,590,181	1,467,858	
Services	48	2,316,010	1,876,300	17,923	0				0			
Commercial Services	34	2,608,566	1,917,075	15,851	0				0			
Health Services	9	1,774,469	2,057,259	32,121	0				0			
Other Services	5	1,301,401	1,273,306	12,035	0				0			
Total	823	9,484,846	4,707,617	33,206	158	7,851,558	2,891,810	15,076	27	4,618,905	2,298,232	19,269

Note: Blank cells indicate that the data is not available.

Source: Estimates based on data from Disclosure Inc. and Expansion.

Table 5-8
Outward Orientation of U.S. and Canadian Firms (Percent)

Industry	by Assets (Foreign Assets/Total Assets)		by Sales (Foreign Sales/Total Sales)	
	U.S.	Canada	U.S.	Canada
Agriculture & Fishing	36.41		33.27	
Mining	43.12	26.11	68.63	50.40
Construction	6.21	46.98	19.14	82.34
Labour-Intensive Manufacturing	16.20	68.45	22.54	64.75
Textiles	22.59	80.39	25.32	73.79
Clothing	13.78		8.38	
Furniture and Fixtures	11.93		16.98	
Printing & Publishing	13.57	67.63	21.15	63.96
Leather and Products	28.63		32.51	
Misc. Manufacturing Goods	31.54		48.40	
Resource-Intensive Manufacturing	28.33	35.97	32.61	54.90
Food & Products	35.92	49.68	35.16	78.11
Tobacco	26.49		43.26	
Lumber and Wood		25.27		46.99
Paper & Allied	17.61	25.03	19.93	42.24
Petroleum Refining	32.58		31.20	
Non-Metallic Minerals	29.07		35.16	
Primary Metals	18.52	58.50	22.92	68.22
Fabricated Metals	41.43	8.32	41.12	9.42
Technology-Intensive Manufacturing	25.31	43.80	34.00	27.99
Chemicals & Allied	32.64		41.01	
Rubber & Products	36.26		39.82	
Machinery excl. Electrical	26.37	75.26	31.00	86.18
Computer & Office	43.47		54.51	
Electrical Products	14.59		19.79	
Communications Equipment	33.98	61.25	31.44	52.99
Misc. Electrical Products	43.64		53.73	

Industry	by Assets (Foreign Assets/Total Assets)		by Sales (Foreign Sales/Total Sales)	
	U.S.	Canada	U.S.	Canada
Motor Vehicles & Equipment	18.53	36.27	27.85	19.77
Aircraft & Parts	21.27	68.12	20.01	56.48
Other Transportation Equipment	4.82		6.20	
Light Machinery	23.86	78.38	31.80	51.58
Transportation	20.40	27.12	30.09	33.96
Communications	11.17	21.80	9.35	37.72
Utilities	20.69	1.43	23.44	6.15
Trade	14.18	33.41	15.69	26.93
Wholesale Trade	27.99	42.54	23.85	38.87
Retail Trade	11.19	25.97	13.22	15.44
Finance	24.47	31.35	24.54	56.55
Depository Institutions	26.11	37.41	25.20	88.45
Non-Depository Institutions	16.23		18.32	
Securities & Brokers	31.71		27.84	
Insurance	19.04	14.04	24.69	15.58
Other Financial Services	6.32	34.33	3.92	28.36
Services	27.28		25.05	
Commercial Services	28.30		27.44	
Health Services	13.60		6.43	
Other Services	46.98		54.72	

Note: Blank cells indicate data is not available.

Source: Estimates based on data from Disclosure Inc.

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