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HOME BIAS AND THE
GLOBALIZATION OF SECURITIES
MARKETS

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ABSTRACT

This paper documents the available evidence on international portfolio investment in five OECD countries. We draw three conclusions from the data. First, there is strong evidence of a home bias in national investment portfolios despite the potential gains from international diversification. Second, to the extent investors hold international securities, the composition of the portfolio of foreign securities seems to reflect factors other than diversification of risk. Third, the high volume of cross-border capital flows and the high turnover rate on foreign equity investments relative to domestic equity markets suggests that transactions costs and incomplete information are unlikely to be important deterrents to international investment. These observations suggest that a richer set of models is required to account for international investment behavior.

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1. Introduction

The deregulation of financial markets and the relaxation of capital controls in the the 1970s and 1980s have brought about increased opportunities for international investment. The potential gains from diversification of investment portfolios across national markets have been recognized for some time. Early work by Grubel (1968), Levy and Sarnat (1970) and Solnik (1974a) and more recently by Grauer and Hakansson (1987) and Black and Litterman (1991) suggest that risk reduction can be obtained by incorporating foreign securities into a well-diversified portfolio. Obviously, the magnitude of these gains and the "optimal" portfolio selected by an international investor depends on the available menu of assets, the size of any transactions costs involved in purchasing foreign securities and the costs of hedging exchange rate risk. The evidence seems clear, however, that under a wide range of assumptions, the gains from investing internationally exceed the costs.

On the surface, it would appear that investors have begun taking advantage of these international opportunities. In a recent speech on behalf of the SEC Richard Breeden cites the following statistics on international investment:¹

- * Currently one out of every seven equity trades worldwide involves a foreign party on one side or the other.
- * Ten percent of all trading in U.S. equities takes place outside of the United States.
- * In the period from 1984 to 1990, gross cross-border equity flows have increased from approximately \$300 billion per year to about \$1.7 trillion, a rate of increase of 34 percent per annum.

Despite this increased activity in international financial markets and the large volume of cross-border capital flows, the fraction of investment portfolios allocated to foreign

¹ From "Reconciling National and International Concerns in the Regulation of Global Capital Markets" given at the London School of Economics in November 1991.

securities remains surprisingly small. We find that foreign portfolio investment ranges from 33.3 percent of GDP in the United Kingdom to less than ten percent in Canada and the United States.

This paper documents the available evidence on long-term international investment patterns in Canada, Germany, Japan, the United Kingdom and the United States during the 1970–1990 period. Our study includes investment in corporate equities, and in government and corporate bonds. We examine data on international financial transactions (purchases and sales of securities by non-residents), cross-border investment flows (net purchases by non-residents) as well as estimates of the stock value of domestic securities held by non-residents. The data used in this study are largely gathered from national sources although we make some use of figures reported by the IMF and the Bank for International Settlements. A complete discussion of the coverage of the various sources and the issues involved in cross-country comparisons of the figures is provided in the appendix. One of the contributions of this research is to identify some of the gaps in the existing data sources and to provide some useful benchmarks for further empirical and theoretical work.

We draw four main conclusions from the data. First, investment in foreign securities offers significant gains from international diversification. Second, despite these potential gains, there is strong evidence of home bias in the national portfolios of the countries we study. While there has been some increase in international investment positions since the 1970s, the share of foreign assets in investment portfolios is still considerably smaller than standard theories would predict. Third, examination of the bilateral investment data for Canada and the United States suggests that to the extent investors hold foreign securities, the composition of the portfolio of foreign assets may reflect factors other than diversification of risk. Finally, despite the low degree of international diversification implied by the investment position data, the volume of transactions in international markets is large and has increased dramatically in the 1980s.

In particular, the turnover rate on securities held by non-residents is higher than the overall turnover rate in the domestic market. This level of activity in international markets casts doubt on explanations of home bias which rely on prohibitive transactions costs of international investments. It also suggests that to the extent investors participate in international markets, they respond to changes in economic conditions by making frequent and sizable shifts in their holdings of foreign securities.

We present evidence on the returns to international securities investment in Section 2. The available evidence on the actual investment positions of investors is presented in Section 3. Using these data, we then compare the recent performance of the observed portfolios with the value-weighted world portfolio and the optimal portfolio. In all of the countries, the risk-return trade-off of the market and the optimal portfolio is more favorable than that of the portfolio chosen by investors. Next we follow French and Poterba (1991) in calculating the expected returns required to justify the observed degree of home bias in these investment portfolios. Our results confirm their findings: in every country investors seem to anticipate returns on domestic equity of 60 to 420 basis points in excess of actual returns.

In section 4 we examine the data on international security transactions and compare the turnover rates on foreign and domestic investments. We find that the turnover rate on foreign equity investments is high when compared to the turnover rate on the investor's home market or when compared to the turnover rate of the market of the foreign security. We argue that these observations cannot be explained by the investment activity of institutional investors. Our conclusions and a discussion of directions for future research are presented in Section 5.

2. The Returns on International Securities Investment

At the end of 1990, the capitalized values of the markets in our five-country sample accounted for roughly 84 percent of the world market for corporate equity and 78 percent

of the world bond market.² Table 1 shows the shares of each of the countries' equity and bond markets as shares of the five-country aggregate reported by Morgan Stanley Capital International and Salomon Brothers respectively. In the 1975 to 1990 period, the share of the U.S. equity market in the five-country sample fell from a little over 68 percent to 40 percent, while Japan's share increased from about 14 to 40 percent.³ The United Kingdom's share increased in this time period from about 7 to 12 percent while the shares of Canada and Germany remained fairly constant. Taking the simplest view of portfolio diversification, one would expect that in this universe of five countries, an investor choosing a well-diversified portfolio in 1990 would hold roughly forty percent of his portfolio of equities as claims on U.S. firms, forty percent in Japanese equities, about thirteen percent in British equities, about five percent in German equities and three percent in Canadian stocks.

Changes in the world bond market have been less dramatic.⁴ The size of the U.S. bond market dominates the sample at roughly 60 percent of the five-country aggregate throughout the 1975-90 period. Japan's share has risen from 13 to 24 percent while the German and British shares declined. These figures suggest that an international investor selecting a portfolio in 1990 would choose a portfolio dominated by U.S. bonds with considerably smaller holdings of German and Japanese bonds.

The benefits from diversifying internationally depend on expected returns and the correlation between the return on the investor's home investments and the return on investing in foreign markets. We use the FT-Actuaries indices to calculate returns on

² The bond figures are based on the capitalized values of publicly issued bonds.

³ Japan's share of the world equity market has declined since the end of our sample period. It is also likely that the Japanese market capitalization value is overstated due to the substantial investment in corporate securities by Japanese firms. This results in a double counting of domestic firm value. For further discussion see McDonald (1989) and French and Poterba (1989). Similar problems are prevalent in Germany (see Harvey (1991)).

⁴ The bond data used to estimate these shares include publicly and privately issued securities. We exclude bonds issued on Eurobond markets and domestic currency bonds issued directly in foreign markets as these are generally treated as "foreign" securities in balance of payments accounts.

equity investment in Canada, Germany, Japan, the United Kingdom, the United States, and the value-weighted World portfolio.⁵ As a proxy for long-term bond returns, we use Salomon Brothers government bond indices.⁶ Excess returns in U.S. dollars are computed by subtracting the holding period returns on the U.S. Treasury Bill that is closest to 30 days to maturity on the last trading day of each month. Treasury Bill data are drawn from the CRSP Government Bond File. Holding period returns on Treasury Bills are computed as in Fama (1984). Excess returns in foreign currency are computed by subtracting the 30-day Eurorate for each currency as reported by the BIS.

Table 2 reports the historical means and standard deviations of U.S. dollar-denominated returns on equity and bond investments in each of the five countries and the World portfolio. These are the returns relevant for a U.S. investor who does not hedge the portfolio against exchange risk. Moments of returns denominated in the currencies of the other four countries in our sample are reported in the appendix. The unconditional equity returns indicate that Japan has the highest mean return and the highest standard deviation of returns. Canada has the lowest historical mean return but not the lowest single market standard deviation. The U.S. market has the lowest standard deviation during the 1980s relative to the other four countries; only the World portfolio is less risky. Investment in the Canadian and the U.S. equity market is dominated by the value-weighted World portfolio which has both a higher unconditional mean and a lower standard deviation.

⁵ The FT-Actuaries Indices *TM/SM* are jointly compiled by The Financial Times Limited, Goldman, Sachs, & Co., and County NatWest Securities in conjunction with the Institute of Actuaries and the Faculty of Actuaries. The indices are available for 24 countries and 12 regions. Each index is representative of the market structure (industry, firm size etc.) covered and captures approximately 75 percent of the market capitalization. The index numbers used in this study are total returns, including dividends. The authors thank Ms. Barbara Mueller at Goldman, Sachs & Co. for providing the data.

⁶ Salomon Brothers government bond indices are available for 6 individual countries, and two aggregate portfolios; the non U.S. dollar world portfolio, and a world portfolio. The remaining maturities of the bonds included in the indices are at least 5 years and the average duration is typically between four and seven years. Government securities excluded from these bond indices include variable bonds, savings bonds, and private placements.

Dollar-denominated returns on government bonds indicate that both the mean and standard deviations of excess returns are lower for bonds than for equities. The single exception is the return on Canadian government bonds which has a higher historical mean than the return on Canadian equity. In a cross-country comparison, Canadian bonds promise the highest expected return of the countries in our sample with a relatively low standard deviation. Again the World portfolio offers the lowest standard deviation and the lowest expected return.⁷

The lower panel of Table 2 shows the correlations between expected excess returns across the five markets. The correlations between equity returns are less than one for all country pairs, indicating that there are benefits from diversification. The data also indicate that excess equity returns for Canada, the United Kingdom and the United States are more highly positively correlated with each other than any of these three countries are with Japan and Germany. Based on this observation, one would predict that, all other things being equal, investors in the U.S. should prefer investing in German and Japanese equity to investing in Canadian and the British equity. The low correlations between bond returns suggest that there are likely to be substantial gains from diversification across bond markets as well as across equity markets.⁸

Investors considering diversification across national securities markets are concerned with both the changes in the underlying security values and changes in exchange rates. Table 3 illustrates the Sharpe ratios, defined as the mean excess return divided by the standard deviation, of a portfolio of domestic securities in each of the five countries (denominated in own currencies), the market portfolio denominated in each of the five currencies and the market portfolio hedged against exchange rate risk. For example, a

⁷ Note that the World portfolio contains the 24 countries covered by the data set described in footnote 5.

⁸ These conclusions are generally robust to the currency denomination of the returns. (See the appendix for the moments of historical excess returns denominated in the other four currencies.) Japanese equity has the highest mean return regardless of currency denomination and the highest standard deviation. The World equity portfolio dominates a portfolio of domestic equity in Canada and the United Kingdom.

British investor holding a portfolio of U.K. equities in the 1980:1–1990:12 period earned a Sharpe ratio of 0.019. By diversifying across national equity markets, this return–risk ratio increases to 0.129. However, it appears that exchange rate fluctuations added risk to the portfolio; if the market portfolio is hedged against exchange rate risk, the compensation for risk increases further to 0.132.

Hedging against exchange rate risk, even if costless, is not necessarily beneficial. Comparing equity portfolios across markets, hedging exchange rate risk improves the Sharpe ratio in only two of the five countries. All of the Sharpe ratios of the bond portfolios, however, improve with hedging. The improvement for the U.S. bond portfolio is only marginal, which follows since the U.S. bond market makes up a large component of the world market. The benefits of hedging exchange rate risk on bondholdings isn't surprising, since bond returns are more sensitive to inflation risk.

3. International Investment Positions

In this section we document the international investment positions (i.e. the estimated stock value of holdings of foreign securities by domestic residents) as reported by the official sources in each of the countries in our sample. To place these figures in some perspective, it is worthwhile to briefly explain how these figures are collected. As part of the system of balance of payments accounting, any security transaction involving a non–resident is reported to the central government.⁹ At periodic intervals, the government conducts a "benchmark" survey of investors, brokerages, banks, and other investment institutions to estimate the current value of domestic holdings of foreign securities. Data on capital flows, or transactions data, are then used to extrapolate the value of foreign

⁹ In the United States, all financial institutions (including securities brokers and dealers) are required to file a form (Form S) with the Federal Reserve system in the event of any transaction with a non–U.S. resident. These transactions data are published by the Treasury Department in its Quarterly Bulletin. The figures are then revised by the Department of Commerce to adjust for transactions fees and to remove official flows before publication in the Survey of Current Business. The data in the Survey of Current Business are the basis for the U.S. balance of payments accounts.

assets in the portfolio of domestic investors in the intervening years between the benchmark surveys.

Table 4 reports the stock value of direct investment and portfolio investment abroad as shares of domestic GDP.¹⁰ For all countries except Germany, data include the investment positions of private individuals, enterprises and banks and exclude the official assets of the public sector; German figures exclude the assets of the banking sector. It appears that for most countries, foreign direct investment was the prominent means of overseas investment throughout the 1970s. The figures also suggest that the level of portfolio investment has increased with the relaxation of capital controls.¹¹ In Canada and the United States, portfolio investment has remained fairly constant at two to four percent of domestic GDP, while it has increased in Germany, Japan and the United Kingdom. The United Kingdom leads the sample in international portfolio diversification with foreign security holdings of 33 percent of GDP in 1990, compared with 17 percent in Japan, ten percent in Germany and roughly four percent in the United States and Canada.

Table 5 decomposes these data further into U.S. investment in foreign stocks and bonds by country as shares of the market capitalization value of the U.S. bond and equity markets. Interestingly, while there has been a doubling of the investment position in foreign equities, the extent of U.S. investment in foreign bonds has remained at a fairly constant level of three percent of the value of the U.S. bond market. This is consistent with the observation that since the mid-1970s, the United States' share of the equity markets in our sample has fallen by nearly one-half while the United States' share of the aggregate

¹⁰ Our study focuses on international portfolio investment as opposed to direct investment. A securities investment is classified as direct investment if the position taken exceeds 10 percent of the firm's value. We restrict our analysis to portfolio investment as direct investment involves issues related to corporate control, outside of the scope of our analysis. A recent study of foreign acquisitions of U.S. chemical plants shows that the motivation for direct investment is overwhelmingly control related. Moreover, when an investment is classified as direct investment it typically exceeds the 10 percent level by a large margin (Dewenter (1991)).

¹¹ It may also be the case that data coverage of direct investment has historically been more complete than coverage of portfolio investment.

bond market has remained nearly constant. However, the overall foreign investment position in both bonds and stocks is far less than one would predict on the basis of the country shares of the world market shown in Table 1 or the correlation structure of returns reported in Table 2.

Results of a similar exercise for Canada are reported in Table 6. Canadian holdings of foreign equity have again remained nearly constant at between six and seven percent of the capitalized value of the Canadian stock market while bond holdings vary between 0.8 and 2.4 percent of the value of the Canadian bond market. These figures are surprisingly low given the relatively small size of the Canadian equity and bond markets and the low historical returns on Canadian equity. Both the U.S. and Canadian portfolios are dominated by investment in the other's market: over 25 percent of U.S. investment in foreign equity is in Canadian stocks while 71 percent of Canadian foreign equity investment is placed in the United States. This clearly contradicts the notion that investors primarily seek foreign markets which have a low correlation with the domestic market for portfolio diversification. Instead, it suggests that other factors such as access to information and geographic proximity matter potentially even more than the diversification motive *per se* for international portfolio choice.

Several issues should be kept in mind in drawing inferences from these estimates of international investment positions. First, the data are only as reliable as the government's ability to accurately incorporate the effects of changes in asset prices, exchange rates and changes in the composition of security holdings on the overall value of the portfolio. In the United States, the last benchmark survey was conducted in the mid-1940s. As a result, estimates of U.S. holdings of Japanese securities are no longer published as the official figures appear to have little correspondence with the reported level of income from Japanese investments. Data reported by the German, Canadian and British governments are based on more recent surveys but the data nonetheless suffer from similar problems in

estimating the effects of changes in asset prices on portfolio values.¹²

A second problem relates to tracing shifts in bilateral investment positions. Governments typically collect figures on the residence of the foreign party involved in the transaction and record whether the security being traded is a "domestic" or "foreign" stock or bond. If, for example, a British broker sells a share of German equity to an American investor, the transaction will be recorded as a capital outflow from the United Kingdom to the United States; however, the change in each country's position of net indebtedness is not recorded.¹³ This reporting methodology also misses some of the large and growing volume of cross-exchange transactions (the exchange of securities listed in the investor's market or on a specialized international exchange).¹⁴

Third, it is possible that the reported value of holdings of foreign securities based on the assets side of a country's balance sheet will differ from actual investment positions due to investor responses to capital controls or taxes on investment income. All of the countries in our sample have had (or to a limited extent still maintain) controls on the level of capital outflows.¹⁵ To the extent investors have been successful in finding ways of circumventing these controls, these transactions are outside of the scope of current methods of data collection. Differences in income tax laws may also induce an investor to hold foreign securities in an account with a foreign broker or bank.

¹² French and Poterba (1991) start with the benchmark positions reported by the U.S. Department of Commerce and use the reported transactions data and their own estimates of changes in asset values to update investment positions. Interestingly, their estimates of domestic weights (94 percent for the United States, 98 percent for Japan and 82 percent for the United Kingdom) are slightly higher than the shares implied by the national data sources.

¹³ Steckler and Truman (1992) provide a thorough discussion of the shortcomings of data on U.S. international financial transactions and current efforts to improve the quality of the data.

¹⁴ Our data do reflect the initial listing of foreign securities on domestic exchanges and the sale of American Depository Receipts. However, after the initial listing of these securities, only those exchanges involving a foreign resident are reflected in the data.

¹⁵ Capital controls have been virtually eliminated in the countries in our sample. In some cases, there are legal restrictions on the extent of foreign investment by pension funds and life insurance companies. However, the levels of international investment currently observed appear to be well under the legal limitations.

Given these problems in measuring international investment positions, we utilize bilateral data for the United States and Canada to compare the official figures on one country's external assets with the other country's external liabilities. Comparing the two data sources on U.S. portfolio investment in Canada (Table 7, part 1) we find that the Department of Commerce measurement of U.S. assets are some 10 to 20 percent higher than Canadian liabilities data. In the analogous comparison of the data on Canadian portfolio investment in the United States, reported U.S. liabilities are some two to three times larger than the official Canadian figures. It would appear that the U.S. data are in general more comprehensive than the Canadian statistics. The much larger discrepancy between the two sources regarding Canadian investment in the United States suggests that Canadian investors may be transacting in U.S. securities in such a way as to circumvent Canadian capital controls or to avoid the higher Canadian taxes on investment income.¹⁶

4. The Gains from International Diversification.

These observations on the international investment positions actually chosen by investors in our five-country sample allow us to compare the expected returns on the national portfolios with the value-weighted World portfolio and the optimal portfolio suggested by a simple mean-variance model of portfolio choice. We assume that the menu of assets available to investors are the value-weighted market indices of the five countries in our sample.¹⁷ We consider two possible models for forecasting expected returns. In the first model, we assume that investors adopt the moments of historical excess returns in the 1981:1-1990:12 period as their expectation of the return structure in January 1991. In the second model, we assume that excess returns follow a Markov process with the

¹⁶ Ideally, we would like to cross-check reported international investment positions for all the country pairs in our sample. Unfortunately, to our knowledge only the United States and Canada report bilateral international investment positions.

¹⁷ Portfolio choices are likely to differ if investors are not restricted to holding the market index but can choose claims on particular firms or industries. In future research, we will extend these results on portfolio diversification to more disaggregated data.

variance–covariance structure observed during the 1981:1–1990:12 time period. Investors' best guess of excess returns in January 1991 according to this method are the returns observed in December 1990.

To calculate portfolio weights of the optimal portfolio, we assume that investors choose to allocate their wealth across the set of available risky securities (equity–indices and equity–indices and bond–indices respectively in each of the national markets) to maximize a simple mean–variance objective. We impose short–sales constraints for each security in the portfolios and also force the optimal portfolios to contain only risky assets (no investment in the riskless asset). The variance–covariance structure of returns is the historical one. We assume a degree of absolute risk aversion of 10. Optimal portfolios in own currencies and for the portfolios hedged against exchange rate risk for historical returns are given in Table 8.¹⁸ Equity portfolios are reported in Table 8a and the weights for portfolios of equity and bonds are given in Table 8b. Two general comments on the results in Table 8a are in order. First, all portfolios exclude Canadian equity. Secondly, except for Canada there is a tendency to home bias in the equity portfolios based on own currency returns compared to optimal portfolios based on hedged returns. Similar inferences can be drawn from Table 8b, where the exception to the home bias pattern is Japanese bonds. In addition, all investors except those from the United Kingdom should exclude U.K. bonds. It is interesting to note that the optimal portfolio differs substantially across currency domiciles. To the extent that investors leave their portfolios of foreign assets unhedged, this seems to rectify some degree of home bias.

Tables 9a and 9b show the portfolio allocations for the five countries in our sample based on the international investment figures reported in Tables 4, 5 and 6.¹⁹ Based on our findings above, we add two hypothetical portfolios (Can 2 and U.S. 2) which adjust for

¹⁸ The optimal portfolio weights for markov returns are available from the authors on request.

¹⁹ Since Germany, Japan and the United Kingdom do not separate foreign equities and bonds, we assume that their holdings of foreign equities matches the share of foreign bonds and stocks in GDP.

underestimation of the international investment positions. In particular, Can 2 triples Canadian investment abroad given the discrepancies found between Canadian and U.S. data sources. U.S. 2 increases the U.S. investment position in Japan to 5 percent of the U.S. equity portfolio to correct for the lack of accurate data on U.S. investment in Japan. In cases when bilateral investment position data is unavailable we assume that the investor allocates the share unaccounted for according to relative market capitalization values.²⁰ Table 9a examines equity portfolios alone, while Table 9b looks at combined equity and bond portfolios.

We contrast the Sharpe ratios (return per unit risk) of the observed national portfolios with hedged and unhedged market portfolios and optimal portfolios based on both methods of forecasting returns for January 1991. Focussing first on historical, unhedged excess returns on equity portfolios, the market portfolio offers higher compensation for risk in every country. The portfolio held by Japanese residents comes closest to the market because of the strong performance of Japanese equity (which dominates the Japanese portfolio) during this time period. The optimal portfolio offers still higher compensation in Germany, Japan and the United Kingdom. In Canada and the United Kingdom, the optimal portfolio hedged against exchange rate risk offers the highest return-risk trade-off. If returns are assumed to follow a Markov process, the Canadian portfolio now offers a higher Sharpe ratio than the market portfolio. This is due to a high excess return on Canadian equity in December of 1990 relative to its historical average. In all other countries, the unhedged market portfolio offers higher compensation for risk than the domestic portfolio. The unhedged optimal portfolio offers the highest compensation in Japan, the United Kingdom and the United States, while the hedged optimal portfolio is

²⁰ For Canada, this implies assigning the 0.97 percent labelled rest of the world to Germany. For the U.S., we divided the share labelled Western Europe between Germany and the U.K. U.S. portfolio investment in all other countries was allocated to Japan. In the cases of Germany, Japan, and the U.K. we allocated the total foreign investment over the remaining countries according to market shares. Based on our observations of the U.S. and Canadian portfolios, this is probably an optimistic view of the extent of these countries' diversification across foreign markets.

the best option in Canada and Germany.

When bonds are added to the portfolios, the results are similar. Based on unhedged historical excess returns, the market portfolio offers a higher Sharpe ratio than the observed national portfolios. The optimal portfolio offers still higher Sharpe ratios in every country; the hedged optimal portfolio is the best option in Canada and the United Kingdom. The results based on Markov returns are affected by the higher returns on Canadian equity and U.S. bonds in 1990. The unhedged optimal portfolio offers the highest Sharpe ratio in Japan; in all other countries the hedged optimal portfolio is the best option.

Another way of comparing the implications of the observed portfolio allocations with the world equity market portfolio was suggested by French and Poterba (1991). Let us assume that investors use the model for asset allocation described above and that their portfolio choice is optimal given their expectations on excess returns. In addition, assume that the investors in different countries use the same local currency unconditional variance-covariance matrices of returns translated into their own specific exchange rate. We can then infer the expected excess returns on equity investment required to justify observed portfolios. Table 10 shows the implied expected returns of each portfolio in excess of those of the market portfolio for a risk aversion coefficient (λ) equal to 1.²¹ The returns are annualized by multiplying by 1200. Again, we report additional portfolios for Canada and the United States due to previously mentioned data problems. In each country, the returns on the market portfolio and the portfolio chosen by investors are denominated in each country's own currency.

Note that the investors are consistently more optimistic about the returns on the domestic market than they are about investment in foreign markets. Most optimistic are German investors who think that the expected return is 420 basis points higher in

²¹ This corresponds to the level of risk aversion used by French and Poterba (1991).

Germany than what the world market portfolio would indicate. Japanese investors are about as optimistic with a 353 basis point difference, while U.K. investors believe that the return in the United Kingdom is 267 basis points higher than what the world market portfolio indicates. Canadian investors think that the expected return is around 170 basis points higher than the market capitalization weighted portfolio would indicate. Finally, U.S. investors think that their local market is going to do better than the world market portfolio indicates by about 65 basis points.

These results are similar both in magnitude and direction those reached by French and Poterba (1991). We concur with them in concluding that it is unlikely that transactions costs are able to explain such large differences in expected rates of return for investors in different countries. Neither is it likely that the explanation is simply barriers to international investment. These have historically been important, but were virtually eliminated by the mid-1980s.

5. International Securities Transactions

Next we turn to evidence on the volume of international financial transactions. We measure transactions in international markets in a number of ways. First, in Table 11, we report the means and standard deviations of the sum of the (absolute value of) portfolio inflows and outflows in each of the five countries.²² In order to compare the figures across countries, the series are converted to constant U.S. dollars. Comparing the two columns, we find that the average volume of transactions increased in all countries from the 1970s to the 1980s, with the most dramatic increases in international portfolio flows in Japan and the United Kingdom. Notably, these two countries also experienced the largest increases in the volatility of portfolio flows.

²² Portfolio inflows reflect net purchases of equities and bonds by foreign residents and outflows reflect net purchases of equities and bonds from abroad by domestic residents. Note that whether the security itself is "foreign" or "domestic" is not reflected in these data.

Table 12 focuses on transactions in corporate equity and contrasts the turnover rates in equities on national markets with the turnover rates in international equity investments. Here the volume of transactions is measured as the sum of purchases and sales.²³ The first part of the table shows the total volume of transactions and the market capitalization values of each of the five markets and a global aggregate. The turnover rate is defined as the ratio of transactions to the market capitalization value. The turnover rates vary across the markets from 0.61 in Canada to 1.74 in Germany, with a five-country average of 1.09.

Part 2 of Table 12 reports the trading volume of domestic residents in foreign equities. Surprisingly, despite the low share of foreign equities in the Canadian portfolio, Canada's turnover rate is 7.7 in foreign equities, over ten times as large as the turnover rate in the Canadian equity market. Even if Canada's international investment position in foreign equities is tripled to take into account the possibility of underreporting discussed in Section 3, the revised turnover rate is still four times that of the domestic equity market. Similarly, the U.S. turnover rate in foreign equities is more than double the domestic rate. Part 3 of the table reports the turnover rate of foreign investors' holdings of domestic equity. It appears that in each of the countries for which data is available, foreign investors transact at a significantly higher rate than domestic investors. Thus, the turnover rate on international equity investments is high when compared to the turnover rate in the investor's country of origin, or when compared to the market of origination of the foreign security.

Table 13 uses U.S. data on non-resident purchases and sales of equities and bonds to estimate the turnover rates of foreign investors by country of origin. In each case, the turnover rate is measured as the ratio of purchases and sales of U.S. securities involving

²³ In a sense, this measure of trading activity double-counts some transactions; once as a sale to a foreign resident and again as a purchase. However, we are primarily interested in the relative turnover rates in domestic and foreign investments.

non-residents to the foreigner's investment position in U.S. securities. We find that Canadian and Japanese investors tend to transact in U.S. equities at roughly double the turnover rate in their own equity markets, and at a rate higher than the overall turnover rate in the U.S. equity market. The turnover rate in U.S. bonds (excluding Treasury securities) is considerably lower than for U.S. equities.

Table 14 repeats the exercise on bilateral data from Canada. Here the results are even more striking. The turnover rates of British and Japanese investors in Canadian equity is significantly higher than their respective domestic turnover rates. Again, except for the U.K., the turnover rate on bonds is lower than for equities.

One possible explanation for the high turnover rates on foreign equity investments is that for reasons of economies of scale or informational advantages, international investment activity is dominated by institutional investors. Within national equity markets, institutional investors account for a substantial share of the market. Prowse (1991) reports that institutional investment has increased substantially in the 1970–88 period. For the U.S., the share of the equity market held by institutional investors increased from 15.8 percent to 30.4 percent. In this study, the United States appeared to lag far behind countries like the United Kingdom and Japan where institutional holdings account for over 50 percent of their respective markets.²⁴ More recent numbers indicate that the share of institutional investment in the U.S. market has also reached the 50 percent level (Jacobs (1991)).

An often cited phenomenon is that institutional investors churn their portfolios excessively. Annual turnover rates, defined as the average of purchases and sales over assets, of 60 to 65 percent have been reported (Nussbaum and Dobrzynski (1987)). Similarly, Jones, Lehn, and Mulherin (1991), show that stocks which in 1988 had high institutional ownership tended to have high turnover rates (81.1%) compared to those that

²⁴ The same source reports that the fraction of institutional investment in the German equity market was 15 percent in 1982.

had low institutional ownership (54.9%). This would correspond to a turnover ratio of 1.1 to 1.6 in our way of expressing turnover (the sum of purchases and sales over investment position).

The investment behavior of institutional investors, however, does little to help explain the high volatility of transactions in foreign securities. Table 15 documents the shares of foreign assets in the portfolios of pension funds and insurance companies in 1988 in the five countries in our sample. In the United States and Canada, the portfolios of these institutional investors mirrors the shares of foreign securities in the national portfolio at about three to four percent of total assets. In the United Kingdom, Germany and Japan, the portfolios of these institutional investors appear to be less well-diversified than the national portfolios shown in Table 4. Thus, given these small international investment positions, institutional investors would have to transact at a much higher rate in foreign markets than they do in domestic markets to account for the high turnover rates in foreign securities. Furthermore, the portfolios of these investors in Germany and Japan are dominated by holdings of foreign bonds, making the high turnover rates in foreign equities even more puzzling.

6. Conclusions

The behavior of investors in international markets poses a challenge for theories of portfolio diversification. First, there is a strong bias toward domestic securities in national portfolios despite the apparent gains from risk minimization from diversifying internationally. Second, observations on the portfolio choices of Canadian and U.S. investors suggest that to the extent investors do invest in foreign securities, their investment decisions do not seem to reflect pure diversification motives. Third, the high transactions rate on foreign investments suggest that investors frequently adjust the composition and the size of their international portfolios, even though much of this activity has little impact on net investment positions.

In future work, we will explore several alternative explanations for observed international investment behavior. One possibility alluded to in the text is that the correlation structure of returns across markets is not stable and that investors form conditional expectations of market returns. We will examine whether changes in the conditional correlations of returns is linked in a systematic way to bilateral portfolio investment flows. Second, the apparent contradiction between the data on international transactions and the low international investment positions may be an indication that much of the trading reflects arbitrage activity in stocks that are cross-listed on two or more exchanges. Whether the trading activity on these types of securities is large enough to account for the high volume of cross-border flows and the high rate of transactions remains to be seen.

The data also suggest that there must be some sources of country-specific disturbances to income which can be partially diversified by holding claims to domestic securities. These disturbances to domestic income must be large enough and occur with sufficient frequency to cause the investor to adjust his portfolio often and by large amounts. Two possibilities are fluctuations in labor's share of income over the business cycle and government policies which redistribute income in response to cyclical fluctuations.

We will also explore other, more general, explanations for investment behavior. It may be that the observed lack of international diversification has less to do with "international" investment choices but simply the issue of why people in general tend not to hold well-diversified portfolios, even within a given national market. The explanation for why people tend to invest "locally" suggests that a richer model incorporating informational and institutional constraints may be needed to account for observed investment behavior.

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Table 1: Equity and Bond Market Shares, 1975–1990

	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
1. <u>National Stock Markets as Shares of Five–Country Aggregate:</u>				
Canada	5.3	6.4	4.2	3.2
Germany	5.4	4.3	5.1	5.0
Japan	13.7	18.2	25.8	40.2
United Kingdom	7.3	9.9	9.3	11.6
United States	68.3	61.2	55.6	40.0
2. <u>National Bond Markets as Shares of Five–Country Aggregate:</u>				
Canada	4.0	3.2	2.9	2.8
Germany	15.1	16.6	10.1	13.2
Japan	13.3	21.4	21.4	24.1
United Kingdom	6.6	6.8	3.4	2.5
United States	60.9	52.0	62.2	57.4
3. <u>National Financial Markets (Bonds and Equities) as Shares of Five–Country Aggregate:</u>				
Canada	4.5	4.4	3.1	3.0
Germany	11.1	12.1	9.3	9.6
Japan	13.5	20.0	22.1	31.1
United Kingdom	6.9	7.9	4.3	6.4
United States	64.0	55.4	61.2	49.8

Source: Equity market figures from Morgan Stanley, Market Capitalization International. Bond data from Salomon Brothers.

Table 2: Moments of Monthly Excess Returns

1. Means of Excess Monthly Returns:

	Equities	Bonds
Canada	0.00149	0.00449
Germany	0.00827	0.00246
Japan	0.01104	0.00403
U.K.	0.00788	0.00309
U.S.	0.00516	0.00394
World	0.00591	0.00239

2. Standard Deviations of Excess Monthly Returns:

	Equities	Bonds
Canada	0.05588	0.03858
Germany	0.06798	0.04358
Japan	0.07482	0.04809
U.K.	0.06500	0.05370
U.S.	0.04774	0.03028
World	0.04608	0.01873

3. Correlations Across Markets:

	Germany	Japan	U.K.	U.S.	World
a. Equities					
Canada	0.29	0.31	0.62	0.75	0.70
Germany		0.37	0.48	0.35	0.54
Japan			0.47	0.29	0.79
U.K.				0.56	0.75
U.S.					0.77
b. Bonds					
Canada	0.38	0.27	0.44	0.75	0.78
Germany		0.68	0.59	0.31	0.41
Japan			0.56	0.28	0.43
U.K.				0.39	0.54
U.S.					0.94

Table 3: Sharpe Ratios on Hedged and Unhedged Portfolios^a

	Equities	Bonds
Portfolio denominated in Canadian Dollars:		
Canadian Securities	-0.070	0.047
Market Portfolio	0.107	0.040
Portfolio denominated in German Marks:		
German Securities	0.111	0.056
Market Portfolio	0.142	0.113
Portfolio denominated in Japanese Yen:		
Japanese Securities	0.161	-0.151
Market Portfolio	0.182	0.052
Portfolio denominated in British Pounds:		
British Securities	0.019	0.030
Market Portfolio	0.129	0.098
Portfolio denominated in U.S. Dollars:		
U.S. Securities	0.108	0.130
Market Portfolio	0.164	0.131
Hedged Market Portfolio	0.132	0.130

a. The Sharpe ratio is defined as the mean return divided by the standard deviation. In this table, all results are based on historical excess returns.

Table 4: International Investment Positions as Shares of Domestic GDP.
(in percent)

	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
<u>Canada</u> ^{a.}					
Direct Investment	6.8	5.8	8.3	11.0	12.6
Portfolio Investment	3.1	2.4	2.7	3.6	3.6
Stocks	2.5	2.0	2.5	2.7	2.5
Bonds	0.6	0.4	0.3	1.0	1.0
<u>Germany</u> ^{b.,c.}					
Direct Investment ^{d.}	1.9	2.3	3.1	4.3	6.0
Portfolio Investment ^{d.}	2.4	1.5	1.9	5.9	10.3
<u>Japan</u> ^{c.}					
Direct Investment	0.7 ^{e.}	1.6	1.7	2.8	6.0
Portfolio Investment	0.1 ^{e.}	0.8	1.8	9.2	16.8
<u>United Kingdom</u> ^{f.}					
Direct Investment ^{g.}	12.5	11.2	13.7	19.1	22.8
Portfolio Investment	10.3	5.9	7.9	27.1	33.3
Stocks	n.a.	n.a.	5.5	15.5	19.2
Bonds	n.a.	n.a.	2.3	11.7	14.2
<u>United States</u> ^{h.}					
Direct Investment	n.a.	n.a.	13.6	9.2	10.8
Portfolio Investment	n.a.	n.a.	2.2	2.7	4.0
Stocks	n.a.	n.a.	0.7	1.0	1.7
Bonds	n.a.	n.a.	1.5	1.8	2.3

Sources: Figures on portfolio and direct investment from individual country sources; see data appendix for detailed descriptions of these data. GDP figures from OECD Quarterly Accounts; fourth quarter observations used as the base.

- a. Figures exclude loans and subscriptions, official international reserves, nonbank deposits, other debt and other assets.
- b. Assets of enterprises and individuals. This excludes banks and public authorities. In December 1990, enterprises and individuals accounted for 88% of total foreign direct investment and 87% of total holdings of foreign securities.
- c. Calculated as shares of GNP.
- d. Long-term assets of the private sector; these figures exclude government assets and the external assets of the banking sector.
- e. Investment positions in 1971.
- f. Overseas investment by U.K. residents including banks, financial institutions and other U.K. residents. The data appear to have been revised upwards in 1980. Values reported prior to 1980 should be interpreted with caution.
- g. Reported as book values.
- h. U.S. private assets excluding claims on unaffiliated foreigners reported by nonbanking concerns and U.S. claims reported by U.S. banks not included elsewhere. Direct and portfolio investment positions are calculated at current cost.

Table 5: **Estimated Portfolio Weights on Foreign Security Investments
by U.S. Investors, 1970–90.**
(in percent)

	<u>1970</u> ^a	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
1. <u>U.S. Holdings of Foreign Corporate Equity as a share of the Capitalized Value of the U.S. Stock Market</u>					
Canada	n.a.	0.87	0.95	0.69	0.83
Western Europe	n.a.	0.39	0.46	1.00	2.25
Total Foreign ^b	n.a.	1.40	1.53	2.04	3.31
2. <u>U.S. Holdings of Foreign Bonds as a share of the Capitalized Value of the U.S. Bond Market</u> ^c					
Canada	1.42	1.76	1.48	1.56	1.00
Western Europe	0.10	0.14	0.51	0.98	1.37
Total Foreign	2.60	2.97	2.78	2.39	2.42

Source: Data on U.S. assets and liabilities in the form of foreign stocks and bonds are taken from the Survey of Current Business, Department of Commerce. Stock market capitalization values are taken from Morgan Stanley Capital Market International and bond market capitalization values are published by Salomon Brothers. Fourth quarter stock market capitalization values are used as the base for equity shares. Bond market capitalization values are reported on an annual basis.

a. Market capitalization values for the U.S. are available for 1974:4–1991:1.

b. Total foreign holdings are likely to be underreported given the problems in estimating the value of U.S. holdings of Japanese securities.

c. Bond market capitalization equals the sum of the capitalized values of outstanding government, federal agency, non-agency mortgage securities, municipal and total corporate bonds.

Table 6: **Estimated Portfolio Weights on Foreign Security Investments
by Canadian Investors, 1970–90.**
(in percent)

	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
1. <u>Canadian Holdings of Foreign Corporate Equity as a share of the Capitalized Value of the Canadian Stock Market</u>					
United States	n.a.	6.15	5.14	5.53	4.69
United Kingdom	n.a.	0.20	0.07	0.20	0.70
Japan	n.a.	n.a.	n.a.	0.25	0.23
Total Foreign	n.a.	7.15	5.96	6.51	6.62
2. <u>Canadian Holdings of Foreign Bonds as a share of the Capitalized Value of the Canadian Bond Market^a</u>					
United States	0.74	0.37	0.30	0.31	0.55
United Kingdom	0.07	0.08	0.07	0.05	0.03
Japan	n.a.	n.a.	n.a.	0.0	0.0
Total Foreign	1.57	1.17	0.79	2.44	2.22

Source: Data on Canadian assets in the form of foreign securities are published in Statistics Canada, Canada's International Investment Position. Stock market capitalization values are taken from Morgan Stanley Capital Market International and bond market capitalization values are published by Solomon Brothers.

a. The bond market capitalization value is the sum of the capitalized values of outstanding marketable government bonds, provincial and municipal bonds, corporate bonds and bonds issued by institutions (hospitals, colleges and religious institutions).

Table 7: Comparison of Canadian and U.S. Data Sources:
(\$U.S. Billion)

	<u>1980</u>	<u>1985</u>	<u>1990</u>
1. <u>U.S. Portfolio Investment in Canada</u>			
A. Reported U.S. Assets:			
Total Portfolio Investment	35.9	49.9	76.7
Stocks	11.8	13.4	23.3
Bonds	24.1	36.5	53.4
B. Reported Canadian Liabilities			
Total Portfolio Investment	37.3	44.8	62.2
Stocks	...	9.2	15.6
Bonds	...	35.6	46.6
2. <u>Canadian Investment in the U.S.</u>			
A. Reported U.S. Liabilities			
Total Portfolio Investment	12.5	21.8	41.7
Stocks	11.4	19.3	33.8
Bonds	1.1	2.5	7.9
B. Reported Canadian Assets			
Total Portfolio Investment	6.2	10.8	13.9
Stocks	5.9	8.2	10.4
Bonds	0.3	0.4	3.5

Sources: U.S. international investment data published in the Survey of Current Business, Department of Commerce. Canadian data from Canada's International Investment Position, Statistics Canada.

Table 8a. Optimal National and Hedged Portfolios:
Equities

Short-sales constraints imposed,
and portfolios restricted to include only risky securities.
 $\lambda = 10.$

	Can\$	DM	Yen	£	U.S.\$	Hedged	Mkt.
Canada	0.0	0.0	0.0	0.0	0.0	0.0	3.2
Germany	17.8	37.2	20.7	24.4	20.3	24.4	5.0
Japan	22.4	24.5	41.1	26.6	23.8	30.3	40.2
U.K.	8.8	7.4	7.2	23.2	2.7	1.7	11.6
U.S.	51.0	30.9	31.0	25.8	53.2	43.6	40.0

Table 8b. Optimal National and Hedged Portfolios:
Equities and Bonds

Short-sales constraints imposed,
and portfolios restricted to include only risky securities,
 $\lambda = 10.$

	Can\$	DM	Yen	£	U.S.\$	Hedged	Mkt.
a. Equities:							
Canada	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Germany	7.7	17.8	3.8	9.0	11.1	8.5	2.2
Japan	15.6	8.2	34.4	14.7	18.1	13.7	18.0
U.K.	5.3	2.4	1.8	0.7	0.0	0.0	5.2
U.S.	5.8	0.0	0.0	0.0	8.4	0.0	17.9
b. Bonds:							
Canada	28.7	8.9	10.1	7.0	9.7	0.0	1.6
Germany	0.0	31.4	21.4	21.9	0.0	5.0	7.3
Japan	0.0	14.8	0.0	0.0	0.0	33.1	13.3
U.K.	0.0	0.0	0.0	36.9	0.0	0.0	1.4
U.S.	36.9	16.4	28.5	9.6	52.7	39.7	31.7

Table 10: Implied Expected Returns in Excess of the
Expected Returns Implied by the World Portfolio

	Anticipated Excess Return on Investment in:				
	<u>Can</u>	<u>Ger</u>	<u>Jpn</u>	<u>U.K.</u>	<u>U.S.</u>
Canadian Investor	1.97	-0.96	-2.37	-0.13	0.18
Canadian Investor(2)	1.71	-0.81	-2.31	-0.15	0.22
German Investor	-2.69	4.20	-2.48	-1.56	-2.68
Japanese Investor	-1.99	-1.08	3.53	-1.19	-2.32
U.K. Investor	-1.00	-0.78	-1.71	2.67	-1.67
U.S. Investor	0.34	-0.65	-2.39	-0.59	0.73
U.S. Investor(2)	0.29	-0.61	-2.13	-0.56	0.65

Table 11: Size and Volatility of International Transactions
(Constant \$US Billion)

	<u>1970.1–1979.4</u>	<u>1980.1–1990.4</u>
<u>Canada</u>		
Mean	25.98	44.26
Standard Deviation	22.72	23.49
<u>Germany</u>		
Mean	14.07	61.36
Standard Deviation	10.40	47.74
<u>Japan</u>		
Mean	17.02	179.15
Standard Deviation	14.17	124.66
<u>United Kingdom</u>		
Mean	11.92	80.94
Standard Deviation	6.21	55.07
<u>United States</u>		
Mean	30.70	87.49
Standard Deviation	13.67	64.21

Notes: International transactions are the sum of the absolute value of portfolio inflows and portfolio outflows. Data are converted to U.S. dollars and deflated using U.S. CPI.

Sources: International portfolio flows from BIS. Exchange rates and consumer price index from IFS.

Table 12: Volume and Turnover Rate in International Equities, 1989.
(\$U.S. Billion)

1. Domestic Turnover Rates:

	Total Trans. (A)	Market Cap. (B)	Total Turnover (A/B)
Canada	177.8	290.1	0.61
Germany	628.2	361.5	1.74
Japan	5,218.5	4,102.1	1.27
U.K.	635.0	823.2	0.77
U.S.	3,223.9	3,027.1	1.07
World	11,716.9	10,140	1.16

2. Turnover Rates in Foreign Equity held by Domestic Residents:

	Trans.in Foreign Equity (C)	Inv.Pos. in For. Equity (D)	Turnover Rate (C/D)	Pct.For. Equity in Total Trans. (C/A)
Canada	43.1	5.6	7.7	24.2%
Germany	73.1	n.a.	n.a.	11.6%
Japan	166.1	n.a.	n.a.	3.2%
United Kingdom	n.a.	226.2	n.a.	n.a.
United States	232.8	91.7	2.54	7.2%

3. Turnover Rates in Domestic Equity held by Foreign Residents:

	For. Trans. in Dom. Equity <u>(E)</u>	For. Inv. Pos in Dom. Eq. <u>(F)</u>	Turnover Rate <u>(E/F)</u>	Pct. For. Trans. in Total <u>(E/A)</u>
Canada	37.1	17.2	2.2	20.9%
Germany	109.3	n.a.	n.a.	17.4%
Japan	400.2	n.a.	n.a.	7.7%
United Kingdom	141.3	103.1	1.37	22.3%
United States	418.2	260.6	1.60	13.0%

Notes:

Column A: Total sales and purchases in equity markets. Data from Howell and Cozzini, Figure 11, p.12.

Column B: Market capitalization values from Morgan Stanley Capital Market International, value at end 1989.4.

Column C: Sum of purchases and sales of foreign equity by domestic residents.

Column E: Sum of foreign purchases and foreign sales of domestic equity. For country sources see data appendix.

Table 13: Foreign Transactions in U.S Stocks and Bonds, 1989.
(\$U.S. Billions)

	<u>U.S. Stocks:</u>			<u>U.S. Bonds:</u> ^{b.}		
	Gross Trans. (A)	Invest. Position (B)	Turnover (A/B)	Gross Trans. (C)	Invest. Position (D)	Turnover (C/D)
Canada	45.4	35.0	1.30	3.8	6.2	0.62
Japan	60.9	27.4	2.22	25.9	37.7	0.69
W. Europe ^{a.}	203.3	149.7	1.36	68.2	159.2	0.43
Total Foreign	416.4	260.1	1.60	119.0	228.5	0.52

Notes:

a. In calculating gross transactions from U.S. Treasury data, Western Europe is total Europe less Bulgaria, Czechoslovakia, the GDR, Hungary, Poland, Romania, U.S.S.R. and Yugoslavia.

b. Figures exclude U.S. Treasury securities.

Columns A and C: Total sales plus purchases of U.S. stocks and bonds by non-U.S. residents. Data from U.S. Treasury Bulletin.

Columns B and D: International investment position of foreign residents in U.S. stocks and bonds (foreign assets in the U.S.). From U.S. international investment position data published in the Survey of Current Business.

Table 14: Foreign Transactions in Canadian Stocks and Bonds,
1989.
(\$Canadian Billions)

	<u>Canadian Stocks:</u>			<u>Canadian Bonds:</u>		
	Gross Trans. (A)	Invest. Position (B)	Turnover (A/B)	Gross Trans. (C)	Invest. Position (D)	Turnover (C/D)
United States	30.3	17.9	1.69	56.4	45.0	1.25
United Kingdom	5.5	0.9	6.11	54.0	9.6	5.62
Japan	0.5	0.1	5.0	26.5	42.4	0.62
Total Foreign	44.1	20.4	2.16	159.5	161.4	0.99

Notes:

Columns A and C: Sales plus purchases of Canadian stocks and bonds by non-Canadian residents. Data from Security Transactions with Non-Residents, Statistics Canada.

Columns B and D: International investment position of foreign residents in Canadian stocks and bonds (foreign assets in Canada.). From Canada's International Investment Position, Statistics Canada.

Table 15: International Investment Positions of Institutional Investors,
1988.

	<u>Pct. For. Assets in Total Portfolio</u>	<u>Pct. of Int'l Port. in Foreign Bonds</u>	<u>Pct. of Int'l Port in Foreign Equity</u>
1. <u>Life Insurance Companies</u>			
Canada	2.2	18%	82%
Germany	0.6	83	17
Japan	14.2	79	21
United Kingdom	9.5	18	82
United States	3.5	90 ^a .	10 ^a .
2. <u>Pension Funds</u>			
Canada	5.3	7%	93%
Germany	0.4	93	7
Japan	7.1	50 ^a .	50 ^a .
United Kingdom	13.9	6	94
United States	4.0	14	86

a. Estimated.

Source: E. Philip Davis, "International Diversification of Institutional Investors," Bank of England Discussion Papers, No. 44 (Sept. 1991), p. 17 and p. 23.

Home Bias and the Globalization of Securities Markets
Appendix

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Moments of Monthly Excess Returns Denominated in Canadian Dollars

Mean Returns: Equities

Canada	-0.00394
Germany	0.00550
Japan	0.00823
UK	0.00494
US	0.00236
World	0.00308

Mean Returns: Bonds

Canada	0.00155
Germany	-0.00020
Japan	0.00137
UK	0.00042
US	0.00127
World	-0.00027

Standard Deviations: Equities

Canada	0.05605
Germany	0.06762
Japan	0.07419
UK	0.06178
US	0.04634
World	0.04423

Standard Deviations: Bonds

Canada	0.03267
Germany	0.04195
Japan	0.04766
UK	0.05099
US	0.02971
World	0.01930

Correlations Between Equity Returns:

	Can	Ger	Jpn	UK	US	World
Can	1.000	0.205	0.226	0.549	0.634	0.586
Ger		1.000	0.365	0.453	0.341	0.538
Jpn			1.000	0.443	0.269	0.786
UK				1.000	0.516	0.717
US					1.000	0.757

Correlations Between Bond Returns:

	Can	Ger	Jpn	UK	US	World
Can	1.000	0.269	0.185	0.342	0.681	0.594
Ger		1.000	0.674	0.542	0.262	0.339
Jpn			1.000	0.526	0.259	0.412
UK				1.000	0.315	0.419
US					1.000	0.921

Moments of Monthly Excess Returns Denominated in German DM

Mean Returns: Equities

Canada	0.00134
Germany	0.00755
Japan	0.01006
UK	0.00707
US	0.00510
World	0.00536

Mean Returns: Bonds

Canada	0.00385
Germany	0.00086
Japan	0.00384
UK	0.00290
US	0.00374
World	0.00220

Standard Deviations: Equities

Canada	0.06630
Germany	0.06815
Japan	0.07257
UK	0.06405
US	0.06114
World	0.05118

Standard Deviations: Bonds

Canada	0.04383
Germany	0.01532
Japan	0.03704
UK	0.04654
US	0.04248
World	0.03601

Correlations Between Equity Returns:

	Can	Ger	Jpn	UK	US	World
Can	1.000	-0.002	0.374	0.671	0.835	0.795
Ger		1.000	0.152	0.220	0.000	0.163
Jpn			1.000	0.457	0.370	0.757
UK				1.000	0.623	0.749
US					1.000	0.857

Correlations Between Bond Returns:

	Can	Ger	Jpn	UK	US	World
Can	1.000	0.144	0.219	0.373	0.889	0.885
Ger		1.000	0.245	0.228	0.056	-0.015
Jpn			1.000	0.354	0.240	0.293
UK				1.000	0.365	0.392
US					1.000	0.949

Moments of Monthly Excess Returns Denominated in Japanese Yen

Mean Returns: Equities

Canada	0.00043
Germany	0.00661
Japan	0.01200
UK	0.00620
US	0.00435
World	0.00436

Mean Returns: Bonds

Canada	0.00317
Germany	0.00159
Japan	-0.00269
UK	0.00222
US	0.00307
World	0.00152

Standard Deviations: Equities

Canada	0.06304
Germany	0.06565
Japan	0.07465
UK	0.06153
US	0.06069
World	0.04501

Standard Deviations: Bonds

Canada	0.04521
Germany	0.03193
Japan	0.01784
UK	0.04616
US	0.04337
World	0.03624

Correlations Between Equity Returns:

	Can	Ger	Jpn	UK	US	World
Can	1.000	0.342	-0.098	0.638	0.823	0.775
Ger		1.000	0.018	0.440	0.427	0.505
Jpn			1.000	0.109	-0.160	0.279
UK				1.000	0.600	0.719
US					1.000	0.863

Correlations Between Bond Returns:

	Can	Ger	Jpn	UK	US	World
Can	1.000	0.370	-0.082	0.386	0.895	0.895
Ger		1.000	0.037	0.376	0.329	0.324
Jpn			1.000	0.140	-0.094	-0.129
UK				1.000	0.370	0.387
US					1.000	0.953

Moments of Monthly Excess Returns Denominated in British Pounds

Mean Returns: Equities

Canada	0.00075
Germany	0.00709
Japan	0.00974
UK	0.00124
US	0.00480
World	0.00497

Mean Returns: Bonds

Canada	0.00353
Germany	0.00195
Japan	0.00352
UK	0.00088
US	0.00342
World	0.00188

Standard Deviations: Equities

Canada	0.06207
Germany	0.06664
Japan	0.07225
UK	0.06474
US	0.06118
World	0.04934

Standard Deviations: Bonds

Canada	0.04417
Germany	0.03253
Japan	0.04048
UK	0.02890
US	0.04313
World	0.03634

Correlations Between Equity Returns:

	Can	Ger	Jpn	UK	US	World
Can	1.000	0.335	0.323	0.250	0.820	0.760
Ger		1.000	0.331	0.192	0.434	0.534
Jpn			1.000	0.219	0.356	0.750
UK				1.000	0.121	0.306
US					1.000	0.857

Correlations Between Bond Returns:

	Can	Ger	Jpn	UK	US	World
Can	1.000	0.353	0.282	0.087	0.891	0.887
Ger		1.000	0.517	-0.059	0.331	0.336
Jpn			1.000	0.088	0.309	0.365
UK				1.000	0.076	0.023
US					1.000	0.951

Data Appendix

United States:

1. International Investment Position:

Annual figures on the international investment position of the United States are published in the June issues of the Survey of Current Business, Department of Commerce. Aggregate foreign direct and portfolio investment positions cited in this paper are based on the current-cost method of asset valuation. A complete description of the different methodologies of estimating international investment positions is provided in Landefeld and Lawson, "Valuation of the U.S. Net International Investment Position," Survey of Current Business, May 1991.

Regional decompositions are available from 1976 to 1990 at current cost for U.S. portfolio investments in foreign stocks and bonds and for foreign holdings of U.S. stocks and bonds. The regional breakdown covers Western Europe, Canada, Japan, Latin America, Other Countries and International Organizations. U.S. assets abroad (U.S. holdings of foreign securities) exclude official reserve assets, U.S. government assets and the international investment positions of banks and nonbanks. Foreign assets in the U.S. (foreign holdings of U.S. securities) exclude foreign official assets, holdings of U.S. Treasury securities and U.S. liabilities reported by U.S. banks and nonbanks. We are grateful to Harlen King at the Department of Commerce for sending us the most recent estimates.

2. Securities Transactions with Non-Residents:

A. Data are taken from "U.S. International Transactions by Area," Table 10 of the Survey of Current Business, Dept. of Commerce. Quarterly data on the securities transactions between U.S. and foreign residents are reported in the June issue of the SCB starting in 1970.1. These data are collected by the Dept. of Treasury in accordance with the guidelines for International Capital Form S. All banks, brokers, dealers, etc. must report any transaction of long-term securities with a foreign resident to the Dept. of the Treasury. Sales of ADRs are included in the figures. Securities are classified according to the residency of the issuer. For example, a bond issued by an offshore subsidiary of a U.S. firm is considered a foreign security. Individuals involved in a transaction are classified according to their country of residence. For example, the sale of a U.S. corporate bond to a U.K. brokerage appears as an outflow of capital from the U.K., even if the ultimate holder of the bond is a German resident.

Treatment of Commissions and Fees: The guidelines for Form S indicate that the figure reported for transactions "should equal the cost of purchases plus commissions, etc. or the proceeds of sales less commissions, taxes, etc. as of the payment date or settlement." The SCB adjusts their figures for fees and commissions.

B. Figures on U.S. international transactions as reported on Form S to the U.S. Treasury are reported in the Treasury Department's Quarterly Bulletin. The Bulletin reports gross flows (i.e. sales and purchases of U.S. and foreign securities with foreign residents) whereas the SCB publishes only net transactions. The Treasury figures differ to the extent that the Dept. of Commerce adjusts their reported figures for fees and commissions and by government transactions in securities markets, which are unpublished.

Canada:

1. International Investment Position:

Statistics on Canada's international investment position (1926–1990) are published by Statistics Canada in Canada's International Investment Position, Selected Years. Canada's asset position (holdings of foreign assets) are decomposed into direct investment, stocks, bonds, other debt, loans and subscriptions, official reserves, non–bank deposits, other assets and allowances. Liabilities include direct investment, stocks, bonds, other debt, Canadian banks' net foreign currency liability position, money market securities and other liabilities. Regional decomposition is available for the United States, the United Kingdom, other EEC, Japan, other OECD and all other countries. We are grateful to Tiff Macklem at the Bank of Canada for his help in obtaining the data.

2. Securities Transactions with Non–Residents:

Monthly data on international security transactions are published by Statistics Canada in Security Transactions with Non–residents. Sales and purchases of Canadian bonds and stocks are available by area. Data are also decomposed by type of bond issue. Net transactions with non–residents in foreign bonds and stocks are reported by area.

Japan:

1. International Investment Position

Annual data (1976–1989) on the external asset and liability position of Japan are reported in the Bank of Japan Balance of Payments Monthly. Data for the private and government sectors are decomposed into direct investment, trade credits, loans, securities and other. We use the figures in the category "securities" as a measure of the stock value of portfolio investment. Note that these figures include the asset positions of Japanese banks. Regional decomposition of the Japan's international investment position is unavailable.

2. Securities Transactions with Non–Residents:

A. Annual data on the changes in asset and liability positions of Japanese securities investments (1970–1990) are published in the Balance of Payments Monthly of the Bank of Japan. "Long–term securities" include corporate equities, bonds, debentures and flotation of external bonds. Data are available for a large number of countries including U.S., U.K., Canada, France, Italy and Germany. Note that the data are not decomposed into private vs. official flows and banking figures are not separated out. All data are reported in \$U.S. million.

In comparing U.S. and Japanese balance of payments figures we find that the reported figures on direct foreign investment are fairly similar (i.e. outflows from Japan roughly equal inflows from Japan). This makes sense since banks and the governments make few direct investments. However, the figures for securities investments are close only when figures for banks and nonbanks in the U.S. are included. The revised figures still differ by roughly 10 percent due to the inclusion of government transactions in the Japanese statistics.

B. The Tokyo Stock Exchange Fact Book publishes monthly data on foreign sales and purchases of Japanese stocks, bonds, repos and conversion to stocks and Japanese

investment in foreign stocks and bonds. The original source of this data is the Ministry of Finance. Monthly data is available from 1981:1 – 1990:12.

Disaggregation of these flows by country is available annually from 1976–1990. It is unclear whether these data include foreign direct investment.

Germany:

1. International Investment Position

Stock statistics on Germany's external asset and liability positions are reported bi-annually (1970–1990) in the Statistical Supplement to the Monthly Report of the Deutsche Bundesbank, Table 13 "Assets and Liabilities of the Federal Republic of Germany vis-a-vis Non-Residents." Long-term investment of enterprises and individuals (excluding banks and public authorities) are broken down into loans, securities investment, direct investment and other capital shares. The data are adjusted for changes in asset valuation. We are grateful to Hartmut Draeger at the New York Representative Office of the Deutsche Bundesbank for providing us with data previously unavailable in the United States.

2. Securities Transactions with Non-Residents:

German data on securities transactions with non-residents are taken from the Statistical Supplements to the Monthly Reports of the Deutsche Bundesbank, Table 5e (Wertpapieranlagen (ohne Direktinvestitionen) nach Landergruppen und Landern) . Quarterly data on the portfolio investment by foreign residents in Germany and German residents' portfolios investments abroad are available beginning in 1968.1 for a broad set of countries including the U.S., U.K., Japan, Canada and other European countries. Decomposition into purchases and sales of stocks and bonds is available from 1986.1.

United Kingdom

1. International Investment Position:

Annual estimates of the international investment position of the U.K. are reported in section 8 "Levels of Identified UK External Assets and Liabilities" of The Pink Book: United Kingdom Balance of Payments. Estimates of direct investment positions are based on the Census of Overseas Assets and the Overseas Transactions Inquiry conducted by the Central Statistical Office. Direct investment figures are reported as book values. Figures used in this paper include financial institutions other than banks, industrial and commercial companies and public corporations.

Portfolio investment figures are based on surveys conducted by the Bank of England and the Central Statistical Office. Data are adjusted for changes in the market values of security holdings. Figures for overseas investment by UK residents used in this paper include holdings of bonds, preference shares, debentures (bondholdings) and ordinary shares of financial institutions other than banks, and "other" UK residents. Foreign investment in the UK cover total investment in securities issued by UK companies.

Decomposition of these data by country is not available.

2. Securities Transactions with Non-Residents:

Decomposition of transactions data is identical to that described for international investment position data. Only net transactions data (purchases less sales) are available.