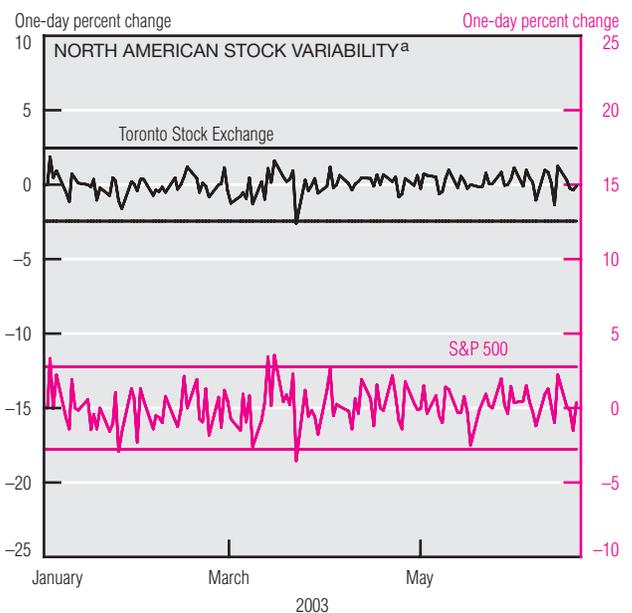
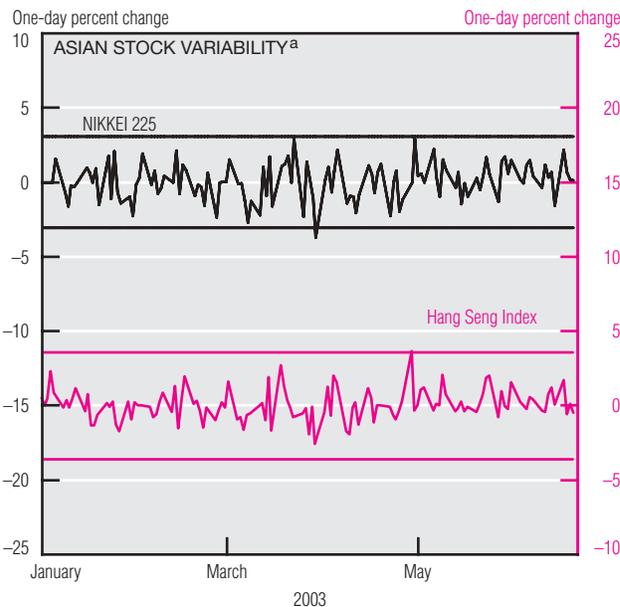
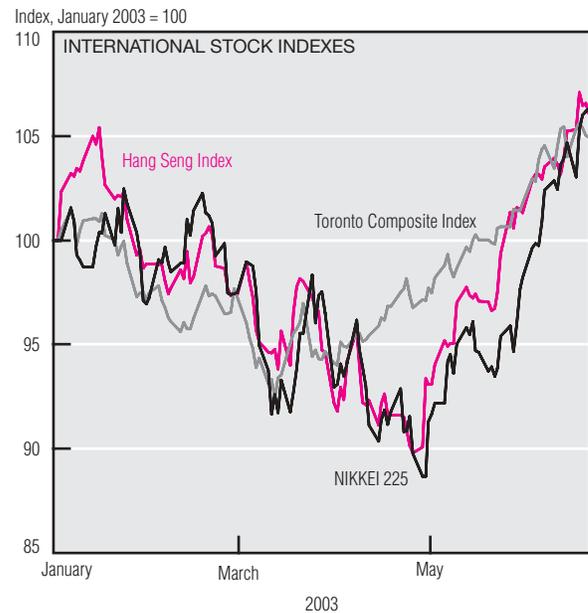


# International Markets



a. Plus and minus two standard deviations.  
SOURCE: Bloomberg Financial Information Services.

Stock prices in the U.S. have increased since the beginning of the year, as measured by three broad indexes: The S&P 500 has risen 9.8%, the Dow Jones 7.5%, and the Wilshire 5000 11.0%. All three fell during the first part of the year, bottomed out in March, and have increased at least 20% since then. Qualitatively speaking, foreign stocks' price movements have mirrored those of the U.S. The Toronto Stock Exchange, the Hang Seng, and the NIKKEI indexes fell during the first part of the year; by late

April, they all had reversed their downward trend.

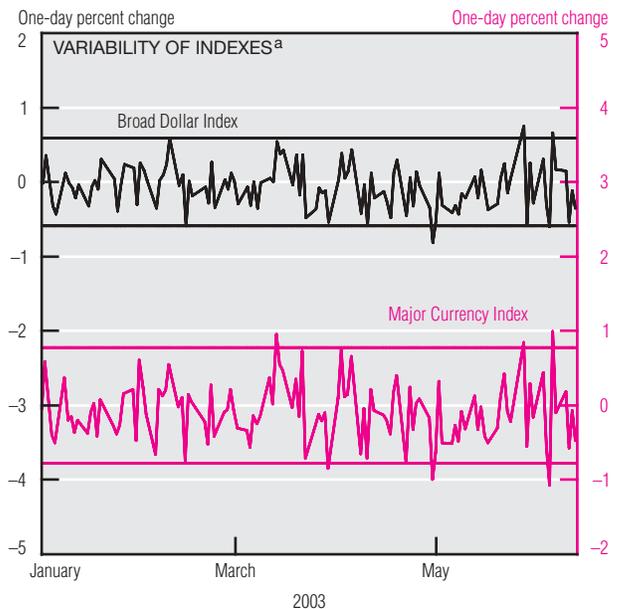
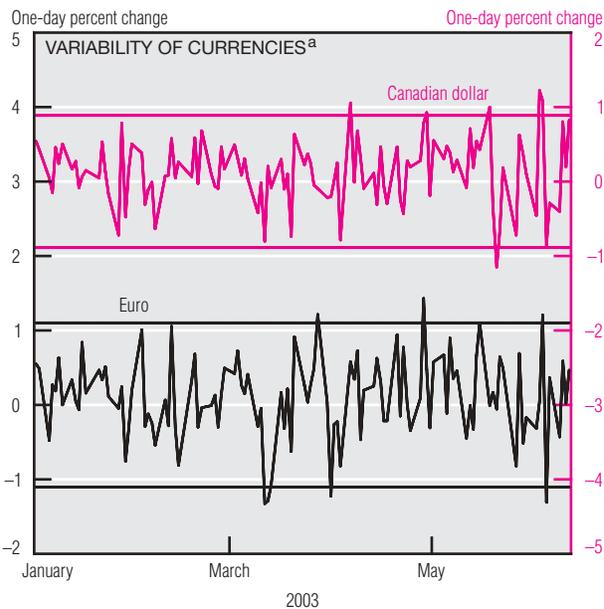
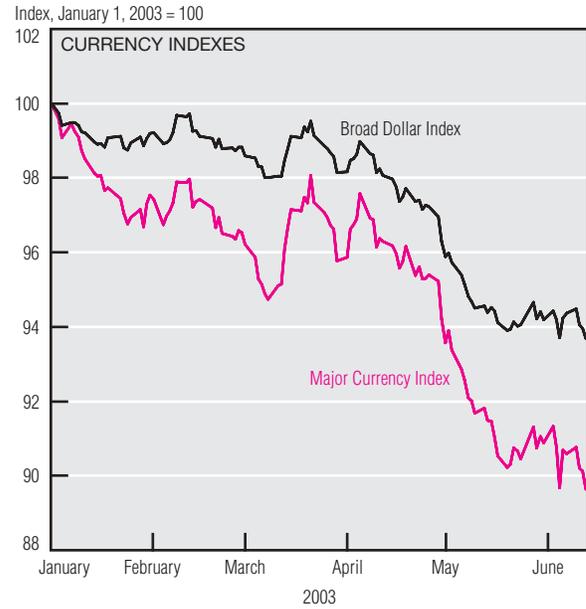
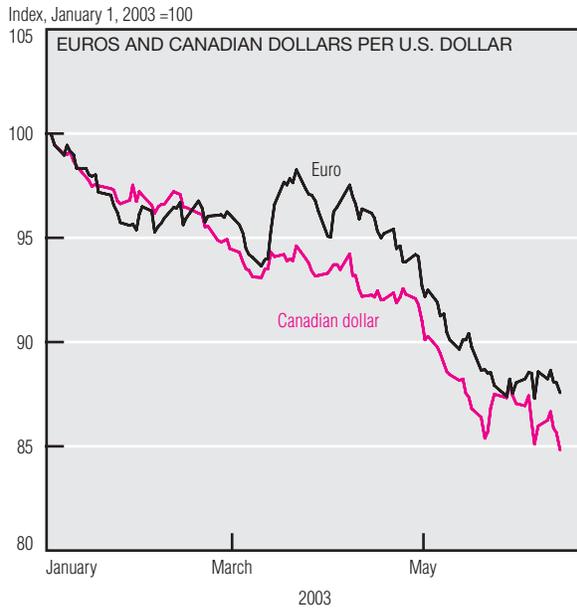
However, the fall and subsequent rise of stock indexes were more pronounced in the U.S. than abroad. Domestic stock prices, as measured by the S&P 500, appear more volatile than foreign stock prices. Except for one observation in each series, the one-day percent change in stock prices—the daily returns—of the foreign indexes remain within a band that represents plus and minus two standard deviations of daily returns. The standard deviations are calculated

from daily returns going back to 1998; intuitively, we would expect about 5% of observations for the daily returns to lie outside the bands.

Considering that stock markets are open five days a week, we would expect about five or six observations to lie outside the bands this year. So recent movements in daily returns on foreign stock markets have been rather smooth compared to movements over the past five and a half years. The S&P 500 daily returns have fallen outside the two-standard-deviation bands five times since the

(continued on next page)

## International Markets (cont.)



a. Plus and minus two standard deviations.  
SOURCE: Board of Governors of the Federal Reserve System.

beginning of the year, which is within the range of what we would expect.

The value of the U.S. dollar has deteriorated significantly against both the Canadian dollar and the euro since the beginning of the year. The U.S. dollar has depreciated about 15% against the Canadian dollar and about 12% against the euro, both of which are included in the Broad Dollar Index and the Major Currency Index. Since the year began, the Broad Dollar Index has depreciated 6% and the Major Currency Index has depreciated 10%.

One would expect volatility in the value of a single country's currency to exceed the volatility of an index that includes the values of a set of countries' currencies. For example, in an index, an appreciation of one country's currency can be offset by a depreciation of another country's currency.

Since the beginning of the year, one-day changes in the Broad Dollar Index (four times) and the Major Currency Index (six times) have fallen outside their historical bands of plus and minus two standard deviations. The standard deviations are calculated using daily changes in the

indexes from the beginning of 1998 to the present.

Foreign exchange markets are open five days a week, so we would expect about five or six daily changes to have fallen outside the bands since the beginning of the year. Hence, the volatility of the indexes is in line with recent experience. The one-day changes for both the euro and the Canadian dollar have fallen outside the two-standard-deviation bands more often than would be expected, indicating that the volatility in daily changes has recently increased.