

Equity investment in new countries

May 2001

In early 2001, the Petroleum Fund's equity investments were expanded to include five emerging markets: Brazil, Mexico, Turkey, Taiwan and South Korea. Around 2% of the equity portfolio is invested in these countries, which roughly reflects the size of the markets. This article outlines the criteria underlying the decision to expand equity investments to include new markets, and describes the settlement and clearing systems used in the emerging markets, as well as the markets' size and liquidity. Data on historic returns and risk are also presented. The decision to include these emerging markets in the Petroleum Fund's equity portfolio was taken by the Ministry of Finance in consultation with Norges Bank.

In the National Budget 2000, the Ministry of Finance opened for equity investment in seven emerging markets. However, these were not included in the benchmark portfolio as it was necessary to evaluate appropriate indices and Norges Bank needed time to prepare for expansion of the investment universe. In the National Budget 2001, it was announced that the benchmark portfolio would be expanded to include six new countries: Brazil, Greece, Mexico, Turkey, Taiwan and South Korea. Thailand, the seventh country to be approved for equity investment in 2000, was not included due to operational considerations, but also because the market is small.

Greece was accepted as a member of EMU from 1 January 2001. The Ministry of Finance has based its definition of emerging and developed markets on the recognised market index, MSCI World Index. The index supplier has chosen to redefine Greece as a developed market from May 2001. Greece is therefore not included in the presentation of emerging markets below.

The Ministry of Finance based its decision to change the list of countries and the composition of the benchmark portfolio on the recommendations submitted by Norges Bank. These submissions and the Ministry of Finance's assessments are presented in the Revised National Budget 1999, the National Budget 2000 and the National Budget 2001. Pursuant to the regulations governing the Government Petroleum Fund, total investment in emerging markets cannot exceed 5% of the value of the Petroleum Fund's equity portfolio.

What are emerging markets?

There is no precise set of criteria which clearly defines emerging equity markets. In many cases, a general economic criterion can be used: average income measured by GDP per capita. If the country's average income does not exceed the level set by the World Bank for high-income countries, the country is defined as an emerging economy. This is one common definition of emerging economies and markets. However, average income measured in a common currency is strongly influenced by exchange rate fluctuations, and may rise swiftly in some countries without any corresponding movements in the stock market. Furthermore, there is no clear relationship between a country's income and the stock market. Additional qualitative characteristics of emerging markets, such as the quality of regulation, supervision, transparency and accounting standards should also be highlighted in any delineation between emerging and developed markets, as should the size of the country's securities market. Suppliers of the most recognised indices now use a combination of such factors to differentiate between developed and emerging equity markets.

The emerging economies' share of total GDP in the world was around 22% in 1998, whereas they accounted for 85% of the world's population. The market value of emerging stock markets amounted to nearly 9% of the world's total stock market value in 1999. Measured as a share of Norwegian imports, emerging economies account for a weight of around 15%.

1 Standard & Poor's: Emerging Stock Markets Factbook 2000. Around 80 countries are defined as emerging economies. Many of these countries do not have a stock market. In the countries where a stock market exists, it is often small, illiquid and does not have smooth-functioning settlement and clearing systems.

Thailand

- The crisis at the end of the 1990s highlighted a continued need to develop the regulatory system. The central bank has asked international institutions for advice in order to achieve the goal of an effective supervisory system. Legislation pertaining to securities is relatively new, and market participants claim that there is need for further improvements.
- Thailand has established a system where shares are registered in one central depository, which is standard in developed markets.
- A matching system for trading exists to ensure that transactions are settled as agreed. Market participants regard this system as satisfactory.
- Settlement takes place three days after the trade date,

which is in line with international recommendations. During settlement, the buyer incurs a short intraday exposure to the securities depository, whereas the seller may at worst be exposed to the settlement bank, which is a normal commercial bank, for two days. This is because the securities must be legally transferred before valid payment is received.

In the period from 1960 to date, economic growth in emerging economies has on average been stronger than in developed economies, primarily because emerging economies have accumulated capital and increased the labour force at a faster pace than industrial countries. Emerging economies may also record higher growth than industrial countries in the future. There are several reasons for this. Growth starts at a lower level of welfare and the return on investment in both real capital and education may therefore be greater. There are also indications that investments in emerging economies will increase at a faster pace than in developed countries in the years ahead. The potential for educating the population is considerable. Another important factor that may result in higher economic growth in emerging economies is that population and employment figures rise swiftly in these countries. In addition, there are possibilities to improve efficiency in the economy through structural reforms in the public and private sectors. The future return on investment in emerging stock markets will depend, among other things, on future economic growth in emerging economies.

Emerging economies have an industry structure which is very different from that in developed economies. Monetary and fiscal policy are different, the institutional and legal systems are different, and the challenges facing these countries are different to those facing industrial countries. In both the short and long term, emerging economies will be exposed to different types of shock from those experienced by developed economies. In addition, business cycles in emerging economies often differ from those in developed economies, and the low correlation between rates of return in different countries may reflect economic cycles that are non-synchronised. Generally, the correlation between rates of return can be expected to be low where there is substantial geographical distance, no common participation in institutional foreign exchange arrangements, limited trade, considerable cultural differences and differences in the economic basis. For an international investor, such as the Government Petroleum Fund, investment in emerging economies may help to reduce total risk in the portfolio.

Country risk may be seen as a combination of political and macroeconomic risk. Political risk materialises when the authorities in a country expropriate property, introduce foreign exchange restrictions or trade barriers, change tax legislation and introduce other rules which limit dividends or interest payments, and which reduce the value of shares and bonds. Macroeconomic risk is linked to the monetary and fiscal stance, and the degree to which the country is exposed to economic shocks. Country risk in connection with investment in emerging markets is considerably greater than that associated with developed markets.

Brazil

- The central bank monitors foreign investment and trade in government bonds. The Securities Commission supervises foreign portfolio investment and monitors trade on the stock exchange for unusual price movements and volumes. Market participants consider the Commission to be effective in relation to supervision and the prevention of market manipulation and insider trading. There is still a need for some adjustments in the legal framework, but Brazil is well ahead of other emerging markets in this area.
- The depository and custodian systems are satisfactory and on a par with systems in developed markets.
- Procedures have been introduced which help to ensure that securities and payment are exchanged at the agreed time.
- Settlement takes place three days after the trade date. The legally binding transfer of securities is carried out two days after settlement day, and once payment has been completed. This incurs up to two days' exposure vis-à-vis the central securities depository. Legally binding payment is received on the settlement day, but is not reflected in the seller's central bank account until the following morning. As a result, the seller has security for the money on settlement day, but can only use the funds the following day.

Settlement and clearing systems

For strategic purposes, ie for decisions as to which countries should be included in the investment universe and benchmark portfolio, requirements regarding settlement systems and securities depositories represent minimum requirements. In general, the expected return on a securities portfolio increases in step with the portfolio's market risk. There is no such

relationship between settlement risk and expected return. Investors cannot earn money by taking on settlement risk, and it is therefore in their interest that this risk is minimal.

When Norges Bank started to evaluate emerging stock markets to provide the background for the submissions to the Ministry of Finance, markets in nearly 30 countries were studied. The standard of the stock markets in these countries was considerably better than in the remaining emerging economies. Finally, 7 markets were selected (including Greece). Several of the eliminated countries did not satisfy the requirements for settlement and clearing systems, legislation and supervision that should be fulfilled by markets under assessment for potential investment.

It is natural to set numerous settlement system requirements for those countries in which the Petroleum Fund is invested.

It is important that the process of matching transactions includes all participants in the deal, ie the local custodian, the global custodian, investors and local intermediaries. Local custodians are responsible for the 'safekeeping' of securities in the given national market, whereas the global custodian coordinates and supervises the safekeeping of securities in local depositories. A link between the different parties in the settlement process reduces the risk of errors in the delivery and payment of securities. Organisation in this area is not as well developed in emerging markets as in mature markets.

Non-electronic settlement systems are still used in some emerging markets. In the most primitive systems, securities are physically transferred from the seller to the buyer. The likelihood of fraud, theft, loss of securities and delays as a result of limited settlement capacity is greater in such systems than when securities and payment are transferred via an electronic accounts system.

Many emerging markets do not have a central depository, such as the Norwegian Central Securities Depository. Risk in the settlement system increases with the number of decentralised depositories.

Turkey

- To date, the supervisory apparatus has not been subject to crises and compared with western standards lacks experience, but is developing in the right direction. Improvements are also being made to the legal framework. Compared with other emerging markets, the standard of legislation and supervision is good, but there is still room for improvement in Turkey in relation to developed markets.
- The country has a central electronic depository for ownership rights, as is usual in developed markets.
- Depository institutions seek to match trades on behalf of clients, and routines exist to ensure that transactions are carried out as agreed.
- Settlement takes place two days after the trade date. The legally binding transfer of ownership rights occurs when the securities are credited to the depository institution's account in the central depository on settlement day, before payment. Valid payment is received by cheque or same-day electronic transfer on settlement day. When payment is made by cheque, the seller incurs up to two days' exposure to the local broker.

It is clearly an advantage if ownership rights for securities are exchanged simultaneously with payment, and the process is completed within a maximum of three days and cannot be reversed. Developed markets normally have better procedures in this area than emerging markets. Every now and then, errors occur in trades or settlement, and it is therefore necessary to have procedures which ensure that errors are corrected, and that are enforced consistently by an independent unit, such as a stock exchange or supervisory body. Risk in this area is also normally smaller in developed than in emerging markets.

Standardised and automated information and message systems reduce the possibility of errors and the time it takes to discover/locate an error. SWIFT is an international message and information system which is widely used, and it would be advantageous if participants in the securities market used either SWIFT or a similar system. Such information and message systems are not as widespread in emerging markets as in developed markets.

The enforcement of provisions to ensure that transactions in the market are transparent is important. It is also important that a competent supervisory body with broad powers of attorney is established and that regulations are interpreted and enforced consistently. Key areas must be subject to sound legislation. Ownership rights, contract law, legislation pertaining to securities, bankruptcy and taxation, and court and arbitration systems are important components when evaluating the legal framework. Emerging markets lag behind developed markets in all these areas.

Mexico

- Operative procedures for supervision are being developed, and steps are being taken to improve enforcement by allocating responsibility for different areas of legislation to supervisory institutions, thereby ensuring consistent follow-up.

- The depository system is of the same standard as in many developed markets and is better than in most emerging markets. Shares are kept in a central depository and ownership rights are transferred via an electronic accounts system.
- Depository institutions check on behalf of the buyer and seller that the number of securities, the price and the delivery date are in accordance with the purchase and sale orders. Along with other routines, this ensures that the transaction is completed as agreed on settlement day.
- Settlement for shares takes place two days after the trade date. The transfer of ownership rights is legally binding from the time that the shares are received by the securities depository on settlement day. Cash is available for further settlement during the course of the day, but not available for withdrawal before end-of-day. This entails minor intraday exposure for the seller vis-à-vis the clearing bank, as the seller delivers the securities before payment is credited to the seller's account later the same day.²

² Intraday exposure means that risk is present through parts of the day, but not overnight.

Of the 30 markets assessed, a core of 7 markets (including Greece) satisfied the minimum requirements set for Petroleum Fund investment. However, the quality of settlement and clearing systems, legislation and supervisory authorities in these remaining markets varies, and in some cases actual follow-up by the authorities does not accord with the formal apparatus. However, the quality of systems for the registration and safekeeping of securities was satisfactory in all countries.

Simultaneous payment and delivery is not possible in most of the countries, but risk exposure is relatively short across the board. As a general rule, Norges Bank's counterparties must fulfil the credit rating requirements set out in the regulations governing investment management in Norges Bank, thus limiting the Bank's risk. Some key characteristics of the institutional framework in the 6 countries included in the Petroleum Fund's country list from January 2000, are presented in the boxes.

Size and liquidity of markets

It is necessary to set requirements regarding size and liquidity for markets in which the Petroleum Fund is to be invested. The number of relevant emerging stock markets was reduced from around 30 (the number assessed) to just 6 markets, as a result of settlement and clearing system and size and liquidity requirements. In this section, the size and liquidity of emerging markets will be compared with each other and with developed markets already included in the Fund's investment universe. The Portuguese stock market was the last market to be included in the Fund's benchmark portfolio, and the New Zealand market is the smallest in the portfolio.³ The Norwegian market is well known, and therefore provides a good basis for comparison.

3) The Portuguese stock market was defined as a developed market and included in Morgan Stanley Capital International's indices for developed stock markets in summer 1998, and has been included in the Fund's benchmark portfolio since then. The 6 emerging markets are all larger than the New Zealand stock market.

Taiwan

- **Institutions which have operated in the market for several years report that the regulatory authorities have a good track record for the supervision of market participants, and that the legal framework in the securities market has been tested and proved to be effective.**
- **Taiwan has established a central depository that is obligatory for foreigners and optional for nationals, but all equity trading must be settled via the securities depository.**
- **Depository institutions seek to match trades on behalf of their clients. The authorities operate a sanctions system in the form of substantial fines, which in practice considerably reduces the likelihood of transactions failing to be settled as agreed.**
- **Settlement takes place two days after the trade date, in line with international recommendations. The settlement system entails a short intraday exposure for the seller vis-à-vis local brokers and the depository institution, as ownership rights are**

transferred before valid payment has been received. Major participants regard this risk as minimal.

The stock markets in Brazil and Taiwan are large and considerably larger than many developed markets, see Table 1. The markets in Mexico, South Korea and Turkey are larger than the Norwegian and Portuguese markets. Only the stock market in Thailand is smaller than the Portuguese market. The extensive crisis in Thailand has considerably reduced the value of the country's stock market in recent years. However, for longer periods in the 1990s, the value of the Thai stock market was substantially higher than the value of both the Norwegian and the Portuguese markets.

Market capitalisation increased sharply in many emerging markets in the 1990s. Annual growth has been strong in the Brazilian, Mexican and Turkish markets. Low growth in market capitalisation in the Asian countries reflects the crisis experienced in these countries. However, emerging markets are characterised by relatively substantial variations in annual growth rates, which reflect high price volatility in these markets.

At end-1999, the stock market in Taiwan was the largest of the 6 markets. This was also the case at the start of 1990, but the difference in size has been reduced. In relative terms, the markets in Brazil and Turkey have recorded the strongest growth.

South Korea

- The crisis in 1997-1998 revealed weaknesses in legislation and the supervisory system. Supervision has accordingly been reorganised and some laws/regulations have been improved. As with Thailand, the country lacked effective bankruptcy legislation.
- Risk in connection with trading in the South Korean stock market has been considerably reduced by the establishment of a central depository that is responsible for the settlement of securities transactions. This depository is obligatory for foreign investors.
- Transactions are electronically matched, and guidelines have been drawn up to ensure that transactions are completed as agreed.
- Settlement takes place two days after the trade date. Ownership rights are transferred to the buyer on settlement day, but the buyer incurs intraday exposure vis-à-vis local brokers as payment may have occurred earlier in the day. The legally binding transfer of payment is carried out at the end of the settlement day for electronic transfer, and the following day for cheques. Around 20% of payment is in the form of cheques, which are cleared overnight. In such cases, the seller is exposed to risk overnight.

The 6 countries account for a considerable share of total market capitalisation in the given regions. At end-1999, the aggregate market value of the Brazilian and Mexican markets amounted to 67% of the total market value of emerging stock markets on the American continent. This means that by investing in these two countries, it is possible to capture general developments in South and Central America. The three Asian countries account for 49% of emerging stock markets in Asia. This is considerable coverage, but the three countries are less representative now than they were at the start of the 1990s. This is primarily due to growth in the Chinese and Indian markets. The Turkish market had a share of roughly 45% of total market capitalisation in emerging stock markets in Europe. For all intents and purposes, the markets in Greece and Turkey represented emerging markets in Europe at the start of the 1990s. The establishment of stock markets in eastern and central Europe has reduced the relative importance of the Turkish market in Europe.

Table 1: Market capitalisation at end-1999 and turnover in 1999				
	Market	Share of	Turnover in	Share of

	capitalisation USD millions	emerging markets in region, per cent	USD millions	emerging markets in region, per cent
Latin America				
Brazil	227 962	40.2	87 276	61.6
Mexico	154 044	27.1	36 042	25.4
Other (5 countries)	184 568	32.6	18 418	13.0
Total	566 574	100.0	141 736	100.0
Asia				
South Korea	308 534	20.2	733 591	32.0
Taiwan	375 991	24.7	910 016	39.6
Thailand	58 365	3.8	41 604	1.8
Other (7 countries)	781 494	51.3	608 700	26.5
Total	1 524 384	100.0	2 293 911	100.0
Europe				
Turkey	112 716	46.3	81 277	68.2
Other (5 countries)	130 618	53.7	37 895	31.9
Total	243 334	100.0	119 172	100.0
Developed markets				Share of developed markets
USA	16 635 114	46.2	18 574 100	59.9
Hong Kong	609 090	1.7	244 886	0.8
Norway	63 696	0.2	54 135	0.2
UK	2 933 280	8.1	1 377 859	4.4
New Zealand	28 352	0.1	11 980	0.0
Sweden	373 278	1.0	238 237	0.8
Germany	1 432 190	4.0	1 357 841	4.4
Portugal	66 488	0.2	40 796	0.1

Towards end-1999, markets in the 6 countries accounted for nearly 50% of total market capitalisation in emerging stock markets, which is considerably lower than at the start of the decade. This is primarily due to the emergence of new stock markets in China and some countries in eastern and central Europe. This trend is expected to continue. The largest market in the group of 6 is Taiwan, which accounted for 12% of the total market value of all emerging markets. The South Korean market is also large (10%).

The 10 largest companies in Turkey had a combined market value of around 60% of the total market value of all listed companies. Turkey has the highest market concentration of the 6 countries. In Brazil, the market value of the 10 largest companies accounted for roughly 32% of the market value of all listed companies, and none of the other markets had a lower concentration. This indicates that a substantial number of companies outside the group of 10 are also of a fair size.

Turnover in several emerging markets is substantially higher than in the Norwegian and Portuguese markets, and greater than in Finland and New Zealand. Only Mexico recorded a lower turnover than Portugal in 1999, following a sharp contraction earlier in the 1990s.

Aggregate turnover in the Brazilian and Mexican markets came to roughly 87% of total turnover in emerging markets on the American continent. Turnover in the three Asian countries amounted to over 70% of total turnover in emerging markets in Asia, and turnover in Turkey accounted for nearly 70% of total turnover in European emerging markets. Regional coverage is good. The 6 countries account for a substantial share of turnover in the respective regions and are the most liquid of the emerging markets.

There are a large number of listed companies in all 6 emerging economies. Some countries, such as Brazil and Mexico, have recorded a slight fall over the past ten years, whereas the number of listed companies has risen in other countries. There are more listed companies in each of the 6 countries than in Portugal and, with the exception of Mexico, more than in Norway. All things being equal, the possibility to diversify across different companies ought to be as great in the 6 emerging markets as in many of the developed markets. Standard & Poor's / IFC's 'Investable' index is constructed in such a way that foreign investors can replicate it.⁴⁾ In all the countries, more than 50 companies are included in the different country indices. One of the criteria applied by S&P / IFC for inclusion in the Investable index is that shares are sufficiently liquid. The large number of companies included in country indices indicates that a broad range of companies in the 6 countries have satisfactory liquidity. In addition, companies in each market tended to increase in size, which is an advantage in terms of investment.

4) IFC – International Finance Corporation, previously a subsidiary of the World Bank.

Average turnover per company has risen sharply in Brazil, Mexico, Turkey and South Korea. In Taiwan, however, average turnover has fallen substantially, albeit from a high level. At the end of the period, turnover per company in Taiwan was still considerably higher than in other emerging markets. Average turnover per company has been comparatively low in Thailand in recent years. In the other markets, the average has been roughly as high as or higher than in Norway.

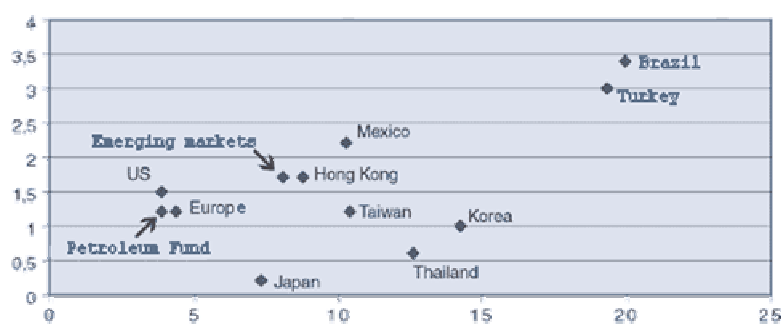
The 10 companies with the largest turnover in Mexico accounted for more than 60% of total turnover on the stock exchange. The 10 largest companies did not account for such a substantial share in any of the other markets. In Brazil, turnover in the 10 most traded shares accounted for roughly 24% of total turnover on the stock exchange. No market recorded a lower concentration. The figures indicate a considerable turnover in company shares that are not included in the list of the 10 most traded shares.

Return and market risk

Two important factors that differentiate emerging markets from developed markets are the return and market risk on investment in these countries. Chart 1 shows risk and return in emerging markets and selected developed markets in the 1990s.⁵⁾ The time series starts in December 1988 for most of the markets, but is slightly shorter for Turkey, Taiwan and South Korea, and finishes in June 2000 for all the countries. All return series have been calculated in USD to facilitate comparison between the different countries.

5) S&P / IFC indices are used for emerging markets, whereas Morgan Stanley Capital International indices are used for developed markets.

Chart 1: Arithmetic mean and standard deviation of monthly returns (Dec 1988 – June 2000)



The chart shows the arithmetic mean of monthly returns and standard deviation of returns

The US stock market exhibited a very favourable trend over the period and is therefore a useful basis for comparison. The stock market in Mexico advanced more than the US market. Share prices in Brazil also increased sharply, and more than in the US. Performance was poorest in the Asian stock markets, particularly in South Korea and Thailand. It is also worth noting that there was a negative trend in the Japanese market over the period.

Risk in emerging markets is considerably greater than in developed markets. Variations in monthly returns are generally substantial, with the greatest fluctuations in Brazil and Turkey. The markets in Taiwan and Mexico appear to be least risky.

Returns in emerging markets have been positive over long periods. These periods have then been followed by long periods with negative returns. Data indicate that the high-risk periods in emerging markets are considerably more risky than high-risk periods in developed markets. Generally, it appears that periods with high risk are followed by further periods with high risk, whereas low-risk periods are followed by periods with continued low risk.

The standard deviations of the monthly rates of return shows that there is considerable uncertainty attached to using historical averages as an estimate of expected returns. This applies to all emerging markets, but also, to some extent, to developed markets. The time series of return data for emerging stock markets are relatively short. The indices which foreign investors can replicate start in 1988. From a longer historical perspective, trends over the past 12 years may not be representative. Economic literature notes that several of the emerging stock markets were closed for long periods in the last century. If these periods were included in the calculations, the return would be smaller and the risk greater than when calculations are based on the past 12 years.

Risk can be reduced by investing in several countries, as the rates of return are not perfectly correlated. Generally, correlation coefficients between the different markets are relatively low.

Chart 2: Index movements

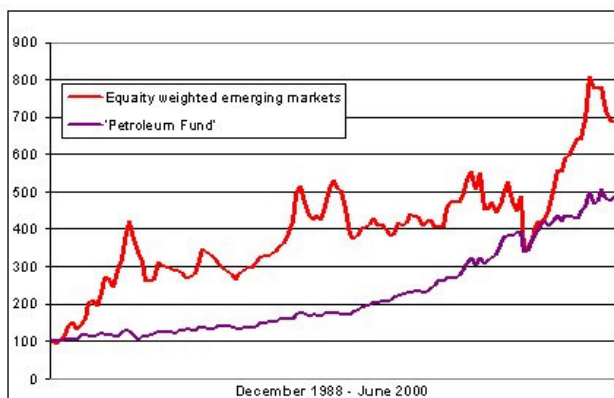


Chart 2 shows the results of calculations of index movements and return on a portfolio of emerging markets where markets are equal-weighted 6). The "Petroleum Fund index" shows approximately how the equity benchmark of the Petroleum Fund would have developed.

6) It is more complicated to calculate a market-weighted index as it is necessary to have access to historical market values over a long period. Simplified calculations of a market-weighted index show that changes in both types of index are more or less the same. We therefore only present the results of the equal-weighted index.

The equal-weighted index for emerging markets rose substantially in the 1990s, see Charts 1 and 2. If USD 100 had been invested in the equal-weighted portfolio, the investment would have had a value of USD 685 by the end of the period. The index for the 'Petroleum Fund' increased to nearly USD 500.

The average monthly return on the emerging equity portfolio amounted to roughly 1.7% per month, whereas the return on a portfolio with the same composition as the Petroleum Fund's equity benchmark would have been around 1.2%. However, the risk attached to investment in emerging markets would have been greater. The standard deviation of the return on the portfolio of emerging markets was just over 8%, whereas it was 3.9% for the 'Petroleum Fund'

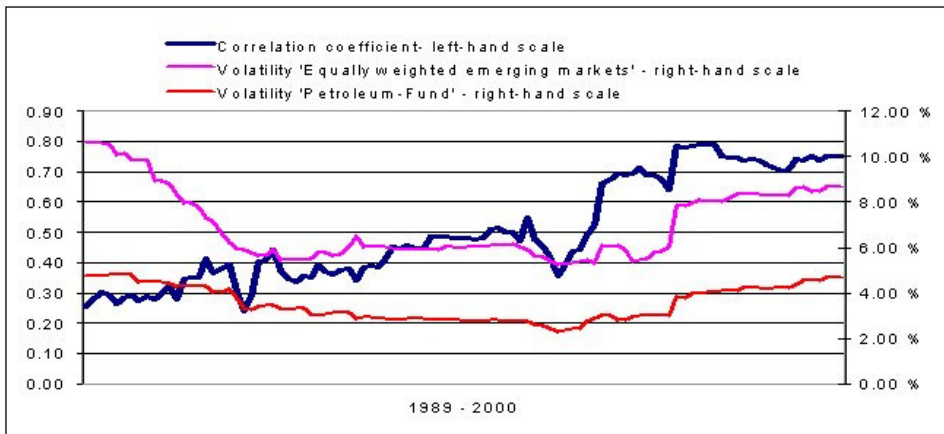
The high return in emerging markets over the past 12 years may be attributable to structural changes which fuelled demand for shares, and strong economic growth. Several emerging economies have opened up securities markets so that it is easier to buy and sell equities. Accounting standards and regulations for new issues have also improved. Many countries have carried out reforms that may have helped to increase the growth rate in the economy. In addition, a good number of foreign investors have invested funds in emerging stock markets in recent years.

Risk, as measured by the standard deviation, is much smaller in a portfolio of emerging markets than in each of the emerging markets in isolation, but considerably greater than in a portfolio of developed markets.

For the Petroleum Fund, calculations based on data from the period 1989 to June 2000 show that the return on the Petroleum Fund's equity portfolio would have been higher and the risk somewhat lower had a small share been invested in emerging stock markets, as the correlation between returns in emerging and developed markets has been low in relative terms. In the 1990s, the correlation coefficient was around 0.4. However, the gains would not have been particularly large. One important reason for this is that the Petroleum Fund is already broadly diversified across different countries and regions.

Furthermore, such analyses are extremely sensitive to changes in rates of return and risk parameters, and there is great uncertainty attached to estimates of rates of return, standard deviations and correlation coefficients.

Chart 3: Time-varying volatility and correlation in the period 1989-2000 for 'the Petroleum Fund' and a portfolio of emerging stock markets



The correlation between returns in developed and emerging markets is decisive to risk in a portfolio of investments in developed and emerging markets. The correlation changes substantially over time, and recently appears to have increased slightly. This may indicate that diversification gains may be smaller in the future. A higher correlation may be the result of more closely integrated economies, so that a trend in one country's securities markets can easily spill over into securities markets in other countries. Chart 3 shows changes in the correlation coefficient between the return on 'the Petroleum Fund's' equity portfolio and the equal-weighted portfolio of emerging markets. It appears that the correlation is high in periods with high volatility. The economic significance of this is that diversification gains are smallest when they are needed most.

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