

The benefits of buying abroad



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International diversification is likely to be a growth area for Australian investors in the 1990s. Ean Higgins, Arun Abey and Scott Donald write that the potential risk-return benefits are enticing institutional and private investors into overseas markets.

From the viewpoint of the Australian investor, access to international markets has developed over a relatively short time. Until 1972 Australian investors were prohibited by exchange controls from any overseas portfolio investment, and severe restrictions applied until a decade ago.

Since then, from being an exotic sideline, foreign portfolio investment has become widely regarded as a natural part of portfolio planning. The depreciation of the Australian dollar against most major currencies in the 1980s probably reinforced this view, since almost any diversified international portfolio would have made a large profit on exchange-rate movements alone.

International diversification is, however, complex, and achieving the hoped for benefits may in some ways become more difficult. Ostensibly, the avenues for international investment are expanding. A number of countries in what used to be known as the Third World have opened their doors to foreign investment, and new capital markets are emerging in what was the Communist Bloc.

However, there are clouds on the horizon which may make overseas investment less effective. The paradox is that the same "one-world economy" trends which make foreign investment easier may actually be eroding the

diversification benefit. Investors and fund managers will have to adopt more sophisticated approaches to foreign investment in the future to retain its full value.

It is important to establish *why* foreign investment should serve as a means of improving portfolio performance, and whether this benefit will continue. The need arises to distinguish the two components of overseas investment—actual asset performance and exchange-rate fluctuation. It may also be relevant to consider whether to remove the exchange-rate component through a currency hedge. And, as with all investments, it is crucial to work out how useful historical results are as a guide to future performance.

This article explores these issues through a series of experiments which, illustrate the dynamics of international diversification for the Australian investor.

Methodology

The methodology was kept simple. A consistent existing data base was used—that provided by Frank Russell Australia. Major stockmarket and bond market indexes for Australian and overseas markets were examined over the past 11 years.¹ All figures are calculated free of taxation. While the Frank Russell Asset Allocation Model was also used for optimisation analyses, the tabulated results and

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interpretation of these are the responsibility of the authors.

The approach implies investment in the index, rather than selected stocks in each market, but this is not unrealistic when it comes to overseas investment. Studies such as those by US academic Bruno Solnik have shown that the primary benefit from international diversification lies in spreading risk generally over several countries. That is, the objective is to diversify away country risk, rather than trying to use foreign markets to diversify into individual industries or securities.²

For consistency, and according to industry practice, compound (geometric) annual returns are reported throughout. The proxy for risk is also the industry norm: the standard deviation of returns. All measurement periods are the calendar year—the year starting on January 1.

Benefits for Australian investors

To test the potential benefits for Australian investors of overseas diversification over recent years, the stock-market and bond index performances between 1980 and 1991 were compared for Australia, the United States, Japan, France, Germany and the United Kingdom.

In local currency (ie, excluding the exchange-rate factor) the returns of the Australian sharemarket were fairly average at around 10 per cent, but the risk was considerably higher than that of any of the other countries. The Australian bond index, however, performed particularly well in the international comparison.

An examination of correlations between Australian and overseas securities over this period found them to be generally low—below 0.5—particularly for bonds. When the overseas returns were converted into Australian dollars, the correlations were even lower, suggesting that in this period accepting currency risk would have enhanced the diversification benefit. These figures suggest a potential for improved portfolio performance over this period by taking advantage of the lower local risk of overseas sharemarkets, and low correlations for both shares and bonds.

The first experiment tested the

potential for an Australian investor to improve portfolio performance by diversifying into a small range of “traditional” overseas markets. This experiment asked two questions:

● What was the efficient frontier—the best possible set of returns for rising levels of risk—for the Australian investor who put money into a broad range of domestic stocks and bonds representing the overall market between 1980 and 1991? (The result is shown in the “Australian only” efficient frontier in Figure 1. This curve simply reflects the effect of the optimiser, at each higher level of risk, increasing the proportion of shares which provided higher returns than bonds but with more risk.

● What if this same investor had put money into the same range of domestic securities, but also into a range of foreign stocks and bonds, over the same period?

The three foreign markets selected were those generally regarded as traditional for mainstream Australian investors: the United States, the United Kingdom and Japan. This experiment assumed that the investor accepted the full currency risk, and reaped the rewards or paid the penalties of currency fluctuation. The computer optimiser then selected the optimal portfolios from domestic and international markets and produced a second efficient frontier.

As shown in Figure 1, the international (including Australia) portfolio produced significantly superior returns for any given level of risk. The premium ranged from 1 per cent at the lower risk levels to about 3 per cent at the higher risk levels. In the medium risk levels with standard deviations of 12 to 17 per cent, the premium was about 2 per cent to 2.5 per cent.

This medium range is probably the most meaningful. The conservative investor who can tolerate only very low risk levels would be reluctant to put much money overseas because of the currency risk. At the high risk-tolerance levels, optimisers tend to pick historical winners and concentrate most of the portfolio in one or two assets, which would not be an acceptable strategy for most investors.

These points become apparent when one examines how the portfolios changed as the risk tolerance

increased. The optimal portfolios at different points on the efficient frontier are shown in Table 1.

At the lower risk-tolerance levels, access to overseas securities markets was of limited use, since to maintain a standard deviation of only 5.4 per cent the optimiser was still forced to put the bulk of the portfolio—80.4 per cent—into Australian bonds. At the other extreme, where the risk tolerance was set at a high standard deviation of 25 per cent, almost all the portfolio was allocated to Japanese stocks, which performed very well over that period. In the medium-risk range, the diversification became much more meaningful: there was a fairly even spread across several allocation options.

It is clear from the first experiment that foreign investment had considerable potential to improve portfolio performance. But how much of this improvement reflected changes in exchange rates?

The currency question

The second experiment explored this question by incorporating an international portfolio in which the currency risk was removed. That is, the impact of the foreign assets on the portfolio was assessed purely in terms of their actual market performance, and not converted into Australian dollars.

For the purpose of the exercise, we call this the “hedged” portfolio, because from the Australian investor’s viewpoint it isolates out the exchange rate influence on portfolio performance. With this aim in mind, and to keep the exercise simple, it ignored any interest-rate differentials which could have reduced or increased the cost of hedging.³

The results appear in Figure 2. The “hedged” international portfolio did not perform quite as well as the unhedged portfolio, but was still a considerable improvement on the Australian portfolio.

The exchange-rate risk may not be as great as would first appear. If the international portion of an investor’s portfolio is spread over a few countries (preferably from different geographic and economic regions), the fluctuations largely cancel each other out. There is also, for most investors, a degree of natural hedge against the

remaining danger that the Australian dollar would appreciate against the basket of international currencies. A higher \$A would reduce the costs of imports, including both consumer goods and inputs to the economy generally. William Sharpe wrote on this point:⁴

"The importance of exchange risk can easily be exaggerated . . . most people buy foreign goods, and many buy foreign services as well (eg, as tourists)."

Declining effectiveness of overseas investment

As discussed, the reason international diversification works is that overseas markets may have superior risk-return profiles, and that the economies of countries around the world differ enough to produce low correlations. A major issue confronting the investment community is whether these benefits will continue. The risk-adjusted returns of international markets may come closer into line for a number of reasons. Of equal importance, correlations may move higher as the economies of different countries—and their securities markets—start to move in greater unison.

Two dynamics are at work: international economic integration, and greater market efficiency. A number of related factors are contributing to these trends. These include:

● **Market deregulation and internationalisation:** The increasingly "footloose" nature of international portfolio investment capital, made possible by deregulation and backed up by improved information, increases the responsiveness and mobility of such capital. This trend has a direct impact on securities markets through the price mechanism, but there is a broader political effect as well. Governments pursuing economic policies which produce investment regimes less attractive than the world "norm" quickly find capital goes elsewhere. There is thus a disincentive to "go it alone", either by scaring off capital or by attracting it at a rate which throws other macroeconomic objectives, such as fighting inflation, out of kilter.

● **Transnational corporations:** While international portfolio investors exert pressure in passive investment

TABLE 1: Asset allocations of optimal portfolios of stocks and bonds in selected markets at different risk levels (Dec 80-Dec 91)

	Standard deviation of portfolio				
	5.4%	10%	15%	20%	25%
US stocks	3.3	7.9	10.0	10.5	0.0
UK stocks	0.0	16.9	30.0	42.0	11.5
Jap stocks	1.5	22.1	34.3	46.0	88.5
Aus stocks	0.0	0.0	0.1	1.5	0.0
US bonds	7.4	1.6	0.0	0.0	0.0
UK bonds	0.0	0.0	0.0	0.0	0.0
Jap bonds	7.4	0.0	0.0	0.0	0.0
Aus bonds	80.4	51.5	25.6	0.0	0.0
Portfolio	100.0	100.0	100.0	100.0	100.0

markets, TNCs play a similar role in direct investment. TNCs will look for the best possible risk-adjusted returns from direct investment around the world, making it difficult for governments to pursue policies seen to be inimical to the TNCs' interests.

● **Formal economic blocs:** In many parts of the world which have been traditional foreign investment markets for Australians, groups of countries have begun to integrate their economies or at least remove trade barriers and achieve monetary union. The European Community and the proposed European Monetary Union are an example. The EMU would virtually eliminate individual monetary policies among members of the EC and institute, for practical purposes, a single policy. This would significantly reduce the diversification benefit of investing in more than one European bond market, for example. Other groupings, such as the United States, Canada and Mexico, are moving towards varying degrees of economic unification.

● **Semi-formal economic coordination:** Many countries—particularly those classified as advanced industrialised countries—engage in informal efforts to coordinate economic policy, for example the "G-7" group. International organisations and "clubs", such as the International Monetary Fund and the OECD, act in varying degrees as observers or even policemen for such coordination.

These trends have a number of important implications for the investor. The first is that the world

may be moving towards a "globally efficient market". Investment theory suggests such a trend would gradually eliminate "bargains" overseas. If a particular market appeared to offer better-than-average risk-adjusted returns, one would expect enough international bargain-hunters come in and push up prices until expected returns came into line.

Second, the diversification benefit of offshore investment may be reduced as correlations among securities markets rise, especially in regions or among countries where economic integration is advanced. The next experiment illustrates this point. It compares the correlations among major "traditional" sharemarkets and bond markets over two three-year time periods, seven years apart. To gauge the changes in the underlying markets rather than exchange rates, the experiment was conducted in local currency. The results appear in Tables 2 and 3.

The tables show an often dramatic increase in correlation among major world securities markets, particularly in the European community and among the US, Europe and Japan. While the results may in part reflect particular circumstances of those years, the overall trend is undeniable. Out of 30 correlations, 24 were higher in the later period.

The quest for better diversification

For the investor looking overseas, a couple of strategies present themselves to deal with this trend. It

TABLE 2: Correlations among select sharemarkets using local currency, Dec 80-Dec 83 (in bold) and Dec 88-Dec 90.

	Aus	US	Fr	Jap	Ger
Australia	1.0				
United States	0.36 0.43	1.0			
France	0.24 0.27	0.56 0.23	1.0		
Japan	0.14 0.27	0.43 0.29	0.40 0.03	1.0	
Germany	0.37 0.13	0.50 0.21	0.77 0.15	0.38 0.32	1.0
United Kingdom	0.45 0.36	0.80 0.41	0.42 0.28	0.48 0.33	0.50 0.39

Source: Frank Russell

TABLE 3: Correlations among select bond markets using local currency, Dec 80-Dec 83 (in bold) and Dec 87-Dec 90.

	Aus	US	Fr	Jap	Ger
Australia	1.0				
United States	0.18 0.30	1.0			
France	0.23 0.06	0.55 -0.12	1.0		
Japan	0.16 0.03	0.40 0.33	0.45 0.17	1.0	
Germany	0.37 0.15	0.55 0.47	0.72 0.50	0.40 0.42	1.0
United Kingdom	0.29 0.15	0.52 0.61	0.31 0.10	0.61 0.27	0.51 0.32

Source: Frank Russell

becomes increasingly important to identify underlying economic themes which will differentiate world securities markets. It is interesting to note that Australia accounted for four out of the six declines in correlation between the two periods, the most significant being against the United States and Japan. In the case of Japan in particular, this trend may suggest

that the gulf between the two economies may be expanding.

The other implication is that investors may have to look still farther afield to retain the advantages of international diversification. Potential markets include Asia apart from Japan, and non-aligned European countries. Some investors prepared to take a walk on the wild side may

even consider Latin America or Africa. Developing markets in these regions, and also the former communist bloc, may in coming years offer new diversification options, although they may individually involve high risk.

The next experiment looks at broader-based international diversification. The exercise is similar to that demonstrated in Figure 1, but using a wider range of foreign markets. These include Korea, Austria, Belgium, Canada, Denmark, France, Germany, Hong Kong, Italy, the Netherlands, Malaysia, New Zealand, the Philippines, Singapore, Spain, Sweden, Switzerland, Taiwan and Thailand. Because many of the indexes did not go back to 1980, the period was shortened to 1985-91. Bond and share markets were included in the range of options, as were Australian securities markets.

The results of this experiment are shown in Figure 3. The extension of the range of international options produced a far superior efficient frontier. At medium levels of risk the extended international portfolio produced a return of nearly 20 per cent, compared with just over 15 per cent for the narrow international portfolio and about 12.5 per cent for the domestic portfolio. Of course, the improved performance reflected in part the ability to "pick" some particularly good stockmarket performers, such as Austria, the Philippines and Taiwan, which produced returns of more than 22 per cent.

How useful are historical returns?

These experiments demonstrate the benefits of international investment with hindsight—the optimiser selects the best portfolio with the knowledge of how the markets performed in the past. What the experiments show is the potential for international diversification to improve the efficient frontier dramatically. The question is whether it is possible to realise this potential *without* the benefit of hindsight.

One means of assessing this sort of issue is to conduct an *ex post*, *ex ante* analysis. As applied to portfolio strategy, the procedure is to determine the optimal portfolios, for given levels of risk, over a particular period

(the *ex post* analysis). Then, the asset allocations of those portfolios are applied to a subsequent period, and the results examined (the *ex ante* analysis).

Two Australians, John Watson and John Dickenson, conducted an *ex post*, *ex ante* study from the viewpoint of the Australian investor considering putting money into overseas equities.⁵ This study used data from eight stockmarkets in five regions from 1970 to 1977 and concluded that over this period "international diversification could have produced risk-return benefits for an Australian investor not only on an *ex post* basis but also, and more importantly, on an *ex ante* basis".

For this article, a similar exercise was conducted, but covering a more recent period, and including a wider range of countries and both equities and bonds. The technique was to take the 1980-91 data for all those countries for which data was available (this covered most of those countries in the "extended international" portfolio but excluded New Zealand, Taiwan, the Philippines and Malaysia). The period was then divided into two sub-periods for the purposes of an *ex post*, *ex ante* analysis.

This approach enabled two analyses, for separate five-year periods. The optimal portfolios for 1980-85 were determined *ex post* for five risk levels. Using these asset allocations, the performance of these portfolios was then assessed for the next five years—1985 to 1990—on an *ex ante* basis. This procedure was rolled a year forward to produce a second experiment, in which the optimal portfolios were determined *ex post* for 1981 to 1986, and applied to 1986-91 *ex ante*. The results are presented in Table 4.

The general pattern was that in terms of *effectiveness*, optimal performance based on hindsight was not carried into the future. The performance of portfolios based on the optimal allocation of the past (1980 to 1985, 1981 to 1986) deteriorated markedly when the same asset allocation was held into the future. Return declined in relation to each level of risk so that the ratio of each unit of return per unit of risk—a crude measure of investment effectiveness—was often halved.

The fall in portfolio efficiency was most pronounced at the highest risk levels. That is, the decline in the amount of return achieved for each unit of risk was most dramatic where the standard deviations for the *ex post* portfolios were over 10 per cent. This pattern makes some sense when one considers how optimisers work. The higher the designated level of acceptable risk, the more the optimiser is likely to "pick winners" with particularly good returns for the *ex post* historical analysis. For example, the *ex post* portfolio with a risk tolerance of 15 per cent in 1980-85 had 40 per cent allocated to the Swedish stockmarket, 42.6 per cent to the Japanese stockmarket and 17.5 per cent to the US stockmarket. Holding that relatively narrow allocation between 1985 and 1990 subjected the investor to considerable risk which did not pay off to the same extent.

Various possible conclusions emerge from this analysis. Obviously, replicating portfolios achieved with the benefit of hindsight and continuing those allocations into the future did not produce the same results.

This point is a fundamental tenet of investment strategy: past results are not, on their own, a good guide to future performance. However, there are implications for international diversification.

It may be that a large part of the decline in return for any particular level of risk between the *ex post* and *ex ante* periods may reflect temporal factors: in the deregulated, post-crash investment scene, risk was generally higher and return generally lower. It may also be that the trend discussed earlier—the declining effectiveness of international diversification in an increasingly "one-world" economy—had an impact. The question then is whether international diversification was at least partially effective; a purely Australian portfolio might have produced an even worse result over the later period than the international portfolio.

In this regard, it is interesting to note that the *ex ante* portfolios all produced average returns of more than 12.5 per cent over the five-year periods. These returns compare favourably with the Australian-only

Table 4: *Ex post*, *ex ante* performances of extended international portfolios, Dec 80-Dec 91, with risk/return ratios

	1980-85		1985-90		1981-86		1986-91
	<i>Ex post</i>		<i>Ex ante</i>		<i>Ex post</i>		<i>Ex ante</i>
Risk %	5.0	->	7.9		5.1*	->	6.8
Return %	9.8	->	13.0		12.5	->	12.5
Ratio	2.0	->	1.6		2.5	->	1.8
Risk %	7.5	->	12.1		7.5	->	11.3
Return %	13.2	->	12.6		16.4	->	13.1
Ratio	1.8	->	1.0		2.2	->	1.2
Risk %	10.0	->	16.7		10.0	->	14.6
Return %	14.9	->	13.0		18.6	->	13.4
Ratio	1.5	->	0.8		1.9	->	0.9
Risk %	12.5	->	21.2		12.5	->	18.0
Return %	16.3	->	13.3		20.5	->	13.8
Ratio	1.3	->	0.6		1.6	->	0.8
Risk %	15.0	->	24.7		15.0	->	21.2
Return %	17.4	->	14.7		22.0	->	14.9
Ratio	1.2	->	0.6		1.5	->	0.7

* For these particular years, the optimiser was unable to find a portfolio with a standard deviation of 5.0 per cent; the lowest possible was 5.1 per cent.

FIGURE 1. Efficient Frontiers
International (inc. Aust) v Australian

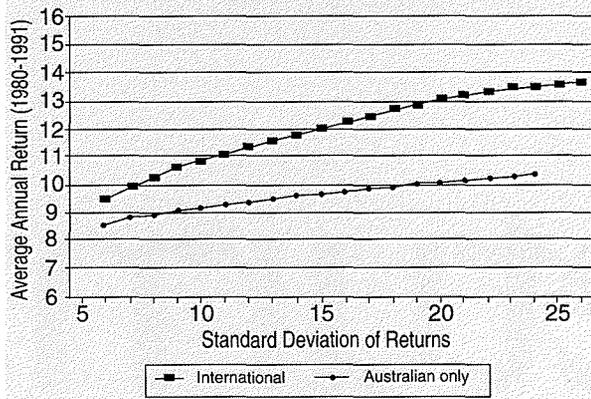


FIGURE 2. Efficient Frontiers
Int'l (A\$) v Int'l (hedged) v Aust

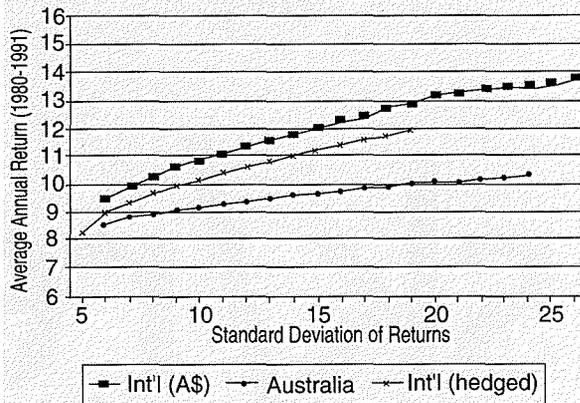


FIGURE 3. Efficient Frontiers
Int'l (Extended) v Int'l v Aust

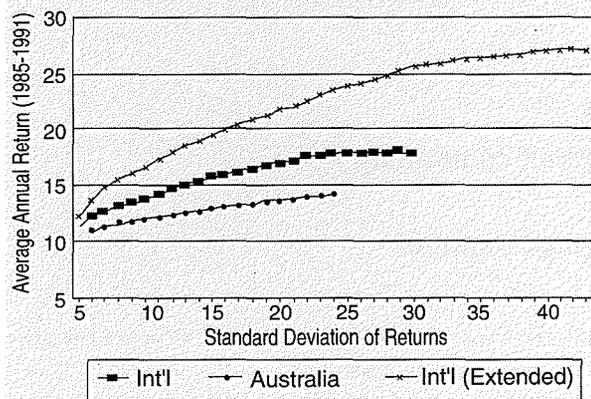
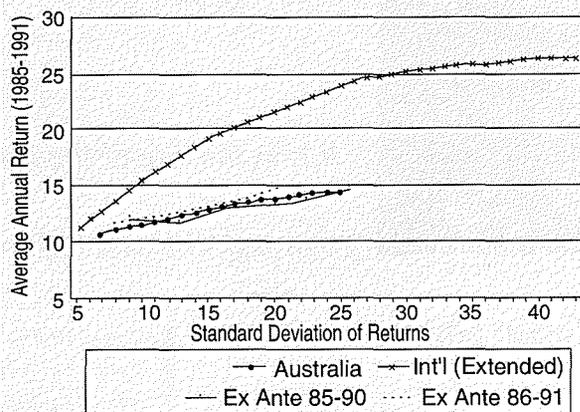


FIGURE 4. Efficient Frontiers
Int'l (Extended) v Ante v Aust



portfolios. Figure 4 compares the *ex ante* portfolios of the last experiment with the efficient frontiers of Australian-only and extended international portfolios of Figure 3.

The *ex ante* portfolios produced efficient frontiers equal to, and at some risk levels superior to, the best possible portfolios based exclusively on Australian bonds and shares. In other words, the naive international investment strategy still did better than the best possible Australian portfolios.

The narrow conclusion from this particular experiment is similar to that of Watson and Dickenson: even on an *ex ante* basis, international diversification can produce a better risk-return profile than staying purely in Australian securities.

The more general conclusion, however, is that while international diversification has considerable potential to improve portfolio performance, it requires the same disciplines and skills one would apply to domestic investment. The *ex post*, *ex ante* tech-

nique is a useful way of testing whether historical performance carries over into future performance.

The fact is, however, that no competent funds manager would adopt such a strict approach. It would be derelict to look at performance data over the past five years, select the best historical portfolio, and use that asset allocation as a static investment strategy for the next five years.

Rather, the manager would start with historical data but then examine economic trends to forecast where markets would go in the future. The

portfolio would be adjusted regularly as current and forecast market conditions changed.

The best results from international diversification are likely to come from careful fundamental analysis of overseas markets, and an ability to run a dynamic investment strategy to cope with the significant change those markets are likely to experience in coming years.

For those who can meet the challenge, overseas investment still offers a great opportunity to improve portfolio performance.

NOTES

1. The proxies were: the MSCI index for the Australian and most overseas sharemarkets, the only exceptions being Korea and Thailand for which the IFC index was used; for overseas bonds, the Salomon Bros bond index; for domestic bonds, the Commonwealth Bank bond index.

2. Bruno H. Solnik, 1974, "Why Not Diversify Internationally Rather than Domestically", *Financial Analysts Journal*, July-August.

3. Exchange rate risk is discussed in detail in the authors' forthcoming book on portfolio strategy and international investment, to be published by Allen & Unwin.

4. William F. Sharpe, 1985, *Investments* (3rd edition), Prentice-Hall International, p. 714.

5. John Watson and John P. Dickenson, 1981, "International Diversification: an *Ex Post* and *Ex Ante* Analysis of Possible Benefits", *Australian Journal of Management*, June. ■