Actuarial Science Hilary Term Lecture 2

Introduction

Last week we looked at the three main types of investment asset:

Fixed Interest
Equities (Ordinary shares)
Property

There are other types of investment such as:

Commodities (e.g. Oil, Gold)
Works of Art/Antiques

but insurance companies and pension funds don't normally invest in those!

Collective Investment Schemes

Rather than investing directly in stocks, shares or property it is possible to invest in "collective investment schemes" where a "fund manager" creates a fund which invests in particular types of investment. The fund is divided into units and individual clients (or companies) can buy units in the fund. Insurance companies also produce such funds so that their policyholders can choose where their investments will be made.

The old type was a "Unit Trust".
The new version is an "Open Ended Investment Company"

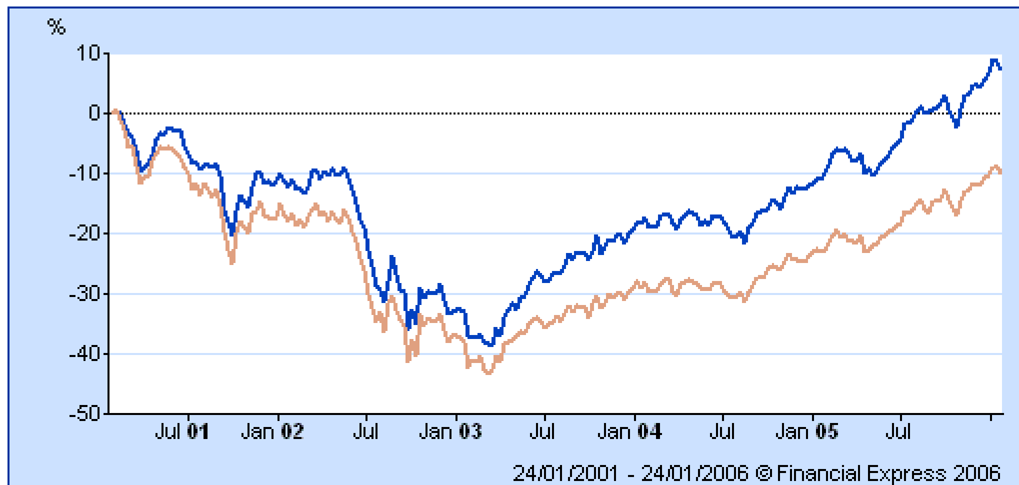
These are extremely popular as shown by the fact that the Financial Times has 7 pages devoted to their prices each day (there are only 2 pages for share prices on the London Stock Exchange). You can check on a daily basis how your investment is performing. The fund manager charges a percentage of the value of the fund to cover his expenses (such as 1.5% p.a.)

For instance Fidelity (a major fund manager) has the following funds:

Moneybuilder Balanced
Extra Income
Sterling Bond
Growth and Income
Moneybuilder Growth
American Growth
European Growth
International Growth
Japan Growth
Etc…

Buying units in such funds means that you are not totally exposed to the movements on one or two shares, bonds or property but pool the risks over a number of shares.

Thus there is less risk but also less potential reward.



This shows the performance of one Fidelity fund (blue line) against the FTSE 100 over 5 years.

Indeed you can use the following Web address to look at the performance of several funds not just Fidelity) against relevant indices and also track the performance of one index against another:

http://www.fidelity.co.uk/direct/newsroom/charttool/charttool.html

Tracker Fund

The next step is to introduce a fund which tries to reproduce the performance of a particular stock exchange index (such as the FTSE 100). The charges for this type of fund are typically lower since the manager has less work to do; he does not have to choose which stocks to invest in since he has to invest in the stocks which make up the particular index.

Since it may not always be possible exactly to match the index (and because there are costs of investment) the performance will not exactly match the index performance. The following chart shows the performance of a Legal and General tracker fund against the FTSE 100 over the last 5 years:

The red line represents the FTSE 100 performance and the blue line the tracker performance.

Venture Capital Trusts (VCTs)

This is another, more specialist type of collective investment scheme. VCTs provide capital finance for small expanding companies with the aim of making capital gains for investors. They are a tax efficient way to invest larger sums of money and are aimed at medium to large net worth private investors. They were first introduced in the UK Finance Act 1995 to encourage investment in new UK businesses and have significant tax advantages. But because they invest in new businesses there is a greater element of risk.

Derivatives

Now we turn to a different type of investment entirely. Derivatives are financial instruments dependent (in a variety of ways) on the value of another underlying asset (or assets). In other words they "derive" their value from the value of some underlying asset.

We will look at the "vanilla" variety – many others devised by "rocket scientists".

Futures

Standardised, exchange tradable contract between 2 parties to trade specified asset on a set date in the future at a specified price.

They were originally designed for use with Commodities (such as coffee and oranges). People wanted to be sure at one point in time of the price they would have to pay for a commodity (or the price at which the farmer would be able to sell his crop) at a point in the future (at harvest time).

Although the first recorded instance of futures trading occurred with rice in 17th Century Japan, there is some evidence that there may also have been rice futures traded in China as long as 6,000 years ago.

In the United States, futures trading started in the grain markets in the middle of the 19th Century. The Chicago Board of Trade was established in 1848. In the 1870s and 1880s the New York Coffee, Cotton and Produce Exchanges were born. Today there are ten commodity exchanges in the United States. The largest are the Chicago Board of Trade, The Chicago Mercantile Exchange, the New York Mercantile Exchange, the New York Commodity Exchange and the New York Coffee, Sugar and Cocoa Exchange.

Worldwide there are major futures trading exchanges in over twenty countries including Canada, England, France, Singapore, Japan, Australia and New Zealand. The products traded range from agricultural staples like Corn and Wheat to Red Beans and Rubber traded in Japan.

The 1983 film "Trading Places" had the rigging of the price of the orange future price as a key part of the plot.

Financial Futures were first launched in 1972.

There are 4 main categories of financial futures. In each case a margin is deposited with the clearing house and daily variation margins are paid if the underlying prices change.

> Bond – Requires the physical delivery of the bond
> Short interest rate – Contract based on the interest paid on a notional deposit for a specified period from the expiry of the future.
> Stock index – Notional transfer of assets underlying the stock index.
> Currency – Delivery of a set amount of currency on the given date.

Options

An option gives the right (but not the obligation) to buy or sell a specified asset on a specified future date. Call options give right to buy. Put options give right to sell.

> American options can be exercised at any date before expiry.
> European options can be exercised only on the expiry date.

Swaps

Interest rate swap exchanges a fixed series of payments for a variable series based on short term interest rates. There is no exchange of principal.

There is a whole language surrounding the derivative industry. There is a helpful glossary at

"A Guide to the language of the futures industry"
http://www.cftc.gov/opa/glossary/opaglossary_a.htm

Counterparty Risk

Any derivative contract requires a second party (the counterparty) and this introduces an element of risk.

There are 2 aspects of counterparty risk:

> Market risk – where market conditions change so that the present value of one part of the swap changes.
> Credit risk – where one party defaults on its payments.

To guard against the second there is another type of derivative which is now issued:

Credit Derivative:

A derivative designed to assume or shift credit risk, that is, the risk of a credit event such as a default or bankruptcy of a borrower. For example, a lender might use a credit derivative to hedge the risk that a borrower might default or have its credit rating downgraded.

Hedge Funds

We will close by mentioning a special type of collective investment scheme.

Hedge Funds have been designed to make use of all types of investment and derivative products. They also adopt "short positions". This means that they sell shares which they do not own in the expectation of buying them when the price has fallen.

The following is a quote from the Hedge Fund Association:

Many, but not all, hedge fund strategies tend to hedge against downturns in the markets being traded. Hedge funds are flexible in their investment options (can use short selling, leverage, derivatives such as puts, calls, options, futures, etc.). Hedge funds benefit by heavily weighting hedge fund managers' remuneration towards performance incentives, thus attracting the best brains in the investment business.

"Leverage" involves borrowing money in order to invest in other securities.

Further details are at

http://www.thehfa.org/Aboutus.cfm