

EXAMINATIONS

September 2000

Subject 401 — UK Fellowship Investment

Paper One

EXAMINERS REPORT

1 (i)

Diversification: Investing in an overseas bond market will provide an element of diversification for the bond portfolio in terms of market, government funding policy, term, currency and economy.

Tactical reasons:

1. To benefit from currency gains
2. To benefit from a fall in yields in the overseas markets
3. Anomaly switch out of UK bonds and into overseas bonds perhaps hedging the currency exposure
4. To take advantage of relatively more favourable tax treatment of foreign bonds compared with domestic bonds
5. To trade actively in larger and more liquid markets like that of the U.S.
6. To invest in overseas inflation-linked government bonds
7. Reducing risk – the correlation between overseas bonds and UK bonds is lower than the correlation between different UK bonds.
8. Technical factors like the foreign government is repurchasing long-term bonds and is not issuing any further long-term bonds.
9. The benchmark of the scheme may specify one or other of the two bond markets.
10. The fund manager's competitors have decided to invest in one of the two markets.
11. There may be some types of bonds available in one of these markets which are not available in the UK.

[Candidates only needed five of the above points to score full marks]

(ii)

The factors to be taken into account in both the US and Germany include:

- Likely decisions by other fund managers to move into the US and/or German bond market
- The level of nominal yields (across the maturity range) and their history in the recent past
- The level of real yields (across the maturity range) and their history in the recent past
- The shape of the yield curve and changes in it in the recent past
- The level of inflation, its past history and inflationary pressures in the economy and the world economy
- The government deficit and forecasts of changes in it
- Institutional and private cashflows and the share of same that will go into bonds
- Expected movements in exchange rates between sterling, the US\$ and the euro
- Political issues
- US, German and world economic growth prospects
- Correlation with the UK bond market

- Expectations of inflows to the bond markets of these currencies as a result of an equity market crash
- Supply of long-dated US treasuries drying up pushing up their prices
- Existing asset split of the fund may influence the decision
- Strength of secondary markets like bond derivatives, forward currency markets for hedging.
- Impact of choice on valuation regulations like the MFR
- Possible convergence of sterling and euro interest rates if UK to enter the EMU – US\$ represents better diversification
- What durations are available?
- Taxation issues
- Trading opportunities and marketability
- Relative liquidity and dealing costs
- Frequency of coupon payments
- Portfolio benchmark and investment management agreement

[Only 10 points were required for full marks]

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(i)

Before discussing the future, it might be useful to outline the reasons for the strong equity returns over the 1990's. The annualised REAL return on UK equities over the past decade has been some 10% p.a. and in the US the real return has been some 15% p.a., well above the long-term trend of 6% p.a.

The main driver behind the strong equity returns has been the sustained period of falling inflation, which historically has always been a golden period for equities. A low inflation world can justify higher equity prices in two ways:

- Firstly, low inflation means low interest rates. Within standard dividend discount models, the use of lower discount rates implies a higher net present value of future dividends and asset prices.
- Secondly, the long-term decline in structural interest rates through most of the 1990's has allowed the earnings yield of equities to fall (or price/earnings multiples to rise).

The other major factor behind the equity bull market has been the so-called "new paradigm" of moderate economic growth coupled with low inflation. This has led to higher corporate earnings and an associated change in the nature of the leading global companies. If the new paradigm is a reality, productivity growth will feed through to an improvement in long-run earnings per share projections.

Productivity growth remains strong in the US and there is a belief that:

- (a) this will spread to other economies
- (b) the use of new technology can keep this trend on track.

Finally, the changes within the global economy are bringing a new breed of companies to the fore. These rapidly expanding companies, usually in technology or telecommunications, are becoming increasingly important in driving the overall market, and are delivering significant profit growth. Historical valuation yardsticks for these companies are becoming less relevant than volume growth and margin control leading to higher price earnings ratios being justified.

Although not required for full marks, the following points also scored marks:

Increase in labour market flexibility and a decline in the power of trade unions. Returns are time and market dependent; strong cash flows into mutual funds drove equity prices up.

Not all markets have performed well. Contrast the performance of the US market with that of Japan (second largest market in the world).

(ii)

These points explain the strong performance of equities over the past decade. It is, however, dangerous to extrapolate from these recent experiences. There are

two important points as we start the new decade that suggest lower returns from equities.

Firstly, we start the new millenium with inflation at very low levels. While inflation is likely to stay low due to continued pressure on prices from the internet, it is unlikely to fall further, which as I outlined above was one of the major drivers behind the equity bull market.

A period of continuous low inflation is not necessarily a strong environment for equities, but it usually is a good background for bonds.

Of course, unanticipated inflation, to which investors are attributing a very low risk, would have a severe negative effect on equities, while bonds, which would also react negatively, has built in this risk during 1999 when oil prices doubled.

The second factor is that “cult of the equity” paradigm which has drawn in investors across a wide spectrum of savers from individuals to previously cautious institutions. The average US investor still expects to earn annual returns in excess of 20%. In the face of such confidence, and the almost frantic move upwards in any stock with an internet-related story, it seems inevitable that equity returns will disappoint

Other points which scored marks but were not required for full marks included:

Being overweight in global equities can increase risk in the form of extra currency exposure.

Japan has been an exception to the past trend.

Equity markets run in cycles.

Benchmark or investment management agreement may prohibit the level of equity investment proposed.

Being over weight relative to the benchmark increases the risk for the business.

- 3** It should be easy to use – an investor should be able to replicate the index with minimal tracking error.

It should be acceptable to a wide enough group of investors to constitute a meaningful benchmark against which to measure comparable funds.

Index members should be relatively stable to make comparisons over reasonable time periods meaningful, and membership should be reviewed regularly to ensure continued appropriateness.

There should be clear and consistent rules about membership, and any subjectivity kept to a minimum.

The index should be free from manipulation. It should not be possible to manipulate either the total value of the index or the valuation of any individual member.

Other points which scored marks but were not required for full marks included:

Weighted arithmetic indices reflect portfolio performance better than other types of indices.

Constituents should be legally and practical holdings for institutional investors.

The frequency of calculation should be at the very least daily.

Can you replicate it and can you trade the stocks in it?

It should be representative of equity price movements in the market

Availability of such information as ex-dividend adjustments, etc.

- 4** The stock specific problem could be looked at from the point of view of the proportion of a UK pension fund's assets in UK equities.

Over 50% of a typical UK pension fund is currently invested in the UK stock market.

The UK stock market has become concentrated in the hands of a few large "mega-cap" companies particularly in the telecom, pharmaceutical and oil sectors. Cross-border merger activity in these sectors have heightened the stock specific risk.

In many cases, the benchmark which UK equity pension fund managers face is the median of their peers. If the UK equity sector of the pension fund industry is investing in stocks relative to the All-Share index then a manager with such a benchmark cannot afford to move too radically away from it.

The manager must bear the stock specific risk in order to beat the benchmark – failure to do so could result in underperformance.

Failure or a collapse in the value of a large constituent of the FTSE 100 could result in substantial absolute loss for a pension fund.

In countries where pension funds have faced concentration issues, so long as there are no significant regulatory barriers to overseas investment, the response has been to diversify internationally, e.g. Holland, Ireland, and have a significant exposure to non-domestic equities.

Certainly, if the UK joins EMU, then European equities should also count as "domestic" equities which would allow UK funds to dramatically reduce stock specific risk

Other points which scored marks but were not required for full marks included:

Problem fund managers face: Forced to have a high exposure to one or two companies in order to be close to benchmark – may even be forced to breach investment guidelines regarding the maximum exposure to any one equity in order to match the benchmark.

There is an increasing level of stock-specific risk in the FTSE All Share Index.

Constituents giving rise to stock specific risk are likely to be large cap stocks – probably multinationals the returns of which are correlated because of links to global markets and currency movements against £.

May have to breach stock concentration limits if you want to match the benchmark.

Change the benchmark as one possible remedy.

Get the index changed – to reduce specific risk – capped index: no stock can be more than 3% of the index.

A few large shares drive the index – making it easy to manipulate.
Under the current composition of the FTSE, funds could be holding more than 5% of their portfolio in just one share.

Overseas investment could reduce the exposure to the UK market and hence the amount of specific stocks.

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- The quality of the tenant's covenant, the price and the rental income from the farm.
- The type of farming activity involved e.g. dairy, tillage, forestry, dry stock, etc.
- The ability to relet the property to another farmer or farm manager in the event of a void.
- The general economic outlook for the economy including, inflation, interest rates and the exchange rate with particular emphasis on the outlook for farmers.
- Government policy on agriculture and likely developments.
- Impact of environmental legislation on farm operating costs.
- Expected changes to the EU Common Agricultural Policy and their impact on the tenant's income.
- Location of the farm in terms of a steady supply of suitably skilled labour.
- Potential to rezone part or all of the farm for industrial or residential use.
- The existing property holdings of the pension fund; will the farm add to the concentration by geographical area or property type or will it improve the diversification of the fund.
- The size of the deal – it may be too small or too large. Small property holding require as much management time – if not more – as large properties.

Other points which scored marks but were not required for full marks included:

Suitability for the liabilities in terms of liquidity, cash flow requirements and term of investment.

The property team's expertise and resources in the context of managing this type of property.

The investment will increase the property weighting in the portfolio but at the expense of what other asset class?

What will the addition of this investment do for risk adjusted returns?

Is agricultural land permitted under the trust deed/ benchmark/investment agreement.

How will the farm affect the measurement of performance

Valuation and rack rent comparisons are more difficult for farms than for other types of properties like offices.

Management is a big issue here as is giving the farmer an incentive to perform.

Do assets have to be sold to meet the cost of buying the farm?

Take a hard look at the numbers: price plus present value of expenses versus present value of expected income and capital growth.

- 6** The largest equity exposure of the Arcadian pension fund is the domestic market, which has a relatively high exposure to the resources and mining sector. The issue here is that the performance of the pension funds investments are highly correlated with that of the performance of the sponsoring employer because of their common link to gold and commodity prices.

One possible natural hedge is thus to reduce the exposure to domestic equities in favour of international equities.

One could also restrict the exposure to the domestic resource and mining sectors. One should also avoid the global sectors which have a significant positive correlation with gold prices.

These would tend to be economically sensitive, “cyclical” sectors, such as oils, chemicals, papers.

It would thus make sense for the fund to underweight these sectors globally, and to overweight the “growth” and “defensive” sectors such as telecoms, pharmaceuticals and utilities

Other points which scored marks but were not required for full marks included:

Invest in overseas bonds, index-linked bonds or property.

Sell commodity futures – reduces potential gains. Rolling over derivative contracts is expensive and you can get selected against if you have a big position in the market. Further, funding futures contracts could be a cash burden on the fund.

The failure of the company – may be highly correlated with the collapse of other companies in the economy thus diminishing the pension scheme assets.

Gold is priced in US\$; If the dollar falls company revenues may fall and so too will the value of US\$ investments. Need to manage currency exposure carefully. Are the returns of the fund correlated with the price of gold?

7 Risk-Adjusted Returns

The venture capital vehicle may have produced higher investment performance than that of the S&P 500 vehicle but this higher return may have only been achieved at the expense of higher risk.

Examine the risk-adjusted returns of the two funds after allowing for investment management expenses. Use the Sharpe ratio.

Sharpe ratio is defined as follows:

$$(\text{Return on portfolio} - \text{return on T-bills})/(\text{SD of return on portfolio})$$

Nature of the Underlying Assets

The venture capital vehicle is likely to invest in smaller companies often in the early stages of development, longer established companies in need of capital for expansion and management buy-outs or buy-ins. Ms. Mow would need to understand the mix of investments in the vehicle.

The S&P 500 vehicle invests in quoted, well researched companies with relatively large balance sheets in established industries.

Liquidity

Are they quoted entities? If not how often do the vehicles allow investors to exit – this is particularly important for the vehicle providing venture capital for unquoted US companies.

If liquidity is a major issue for you, be particularly careful that the venture capital vehicle does not lock you into the investment for long periods like five to ten years.

Valuation

If you cannot exit the venture capital vehicle, you would want to be very sure that the managers are honest. As the securities the vehicle holds are not generally traded on a public market the managers have huge leeway in valuing the portfolio.

By contrast, this is not a problem for the vehicle investing in the constituents of the S&P 500 index as independent prices are readily available.

If there are doubts about the valuation of the venture capital portfolio, then the return figures cannot be relied on when calculating risk-adjusted returns.

Reputation & Regulation

Enquiries should be made as the reputation of those involved in the investment vehicles. Checks should also be made as to what entity is the regulator of each of the vehicles.

Expenses

What fees are charged for managing the portfolios?

In the case of the venture capital vehicles, what percentage of the profits go to the investment manager for running the portfolio? Is there a hurdle before the investment manager participates in profits? Is there an annual management charge as well?

The vehicle investing in the constituents of the S&P 500 may by contrast have no initial charges, no performance fees and have only a small annual management charge.

Do you believe that the charging structures are such that the investment manager's interests are in step with those of the investors?

Alternatives

Compare different fund managers in each of the two categories with those offered to see if better risk-adjusted returns are available.

Consider investing with two or three managers in each sector to spread manager risk.

Transparency & Access to Information

What information is provided by the managers on a regular basis? Information on stocks held, changes in the portfolio, current valuations, strategies, market commentaries ought to be made available to made to investors. What investor relation services are in place?

Minimum Investment

Some venture capital fund have very high minimum investment amounts – like £3 - £5m. This may limit Ms. Mow's ability to get a diversified portfolio of venture capital mangers.

Other points which scored marks but were not required for full marks included:

S&P 500 stocks are subject to a greater regulatory and transparency environment and dealing costs in S&P 500 stocks are much lower.

There is a marked contrast in information disclosure between S&P 500 stocks and the stocks of venture capital companies this may lead to pricing inefficiencies which ought to be of benefit to good managers at a venture capital collective investment vehicle.

VC track record needs to be on an inception year basis as it takes 4/5 years to see results from a lot of these companies.

Look at the client's current portfolio and consider the two investments from the point of view of how they change the Sharpe ratio of the client's existing portfolio. Invest in a combination of the two funds for diversification.

Examine closely the level of diversification of the venture capital fund.

A thorough due diligence of the people and investment process behind the two vehicles ought to be conducted.

Are you authorised to give investment advice on this issue?

8

When the fund invests in, say, German shares, it is exposed to movements in the sterling / euro rate of exchange.

These movements may increase the return of the fund in sterling terms or reduce it.

The decision to invest in German equities can be separated from that of investing in euros by hedging the currency exposure back into sterling.

The hedging can be carried out by selling euros back into sterling using forward contracts.

A forward currency contract is an agreement to sell a certain amount of one currency for a certain amount of another currency at a future date.

The forward foreign currency market in the major currencies of the world is extremely liquid, has low dealing costs and is conducted over the telephone by major international banks.

The maturity of the forward contract has to be decided. This could be the expected time horizon of the investment.

We cannot be sure of the value of the German equity portfolio at the end of the holding period. So one difficulty with this type of hedging is in deciding the amount of euros to sell forward at the end of the investment time horizon.

For short investment time periods – up to six months – investors tend to just sell the amount of the original investment forward. [Answers suggesting selling the expected value of the portfolio at the end of the holding period were also acceptable].

For longer holding periods investors tend to roll over the forward contract every six months selling forward the value of the portfolio at the beginning of the six month period. The problem here is that the future roll over rates are unknown at the outset.

There is still therefore some residual foreign exchange rate risk in such circumstances.

It is essential to understand that not hedging the foreign currency exposure is also a decision in relation to foreign currency exposure.

Hedging using forward contracts is not without cost; currency hedging makes the currency outcome more certain it doesn't necessarily make it better.

Not hedging the exposure effectively introduces an other asset class – currencies - into the portfolio.

Managers often take a position in between these two extremes of no hedging and fully hedging the foreign exchange exposure.

Managers may hedge a fixed percentage – like 50% - of the exposure using forward contracts. Or sometimes they vary the percentage of the exposure hedged depending on the prevailing outlook for the currency relative to sterling.

It is important to understand what the goals of the trustees are in hedging:

Is the goal to lower portfolio volatility?

Is the goal to reduce the cost of hedging exposures?

What is the benchmark (unhedged, fully hedged, 60% hedged etc.) that the trustees wish to beat?

Other points which scored marks but were not required for full marks included:

Need to frequently rebalance the currency overlay and this costs money; alternatively one could reduce the frequency of rebalancing by setting tolerance limits for the movement in FX rates before rebalancing is done.

Hire a separate specialist currency manager for currency exposures.

For bonds cash flows are known in advance if they are coupons and redemption proceeds; this is not so for equity dividends and sales proceeds.
Difficult to hedge implicit currency exposure.

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(i) European exchanges (excluding the UK)

DTB in Germany is the second largest derivative exchange in Europe.

Trading at DTB is automated – there is no open outcry trading all trading is conducted through computer terminals.

The computer terminals of DTB's market participants are linked via a telecommunications network to the DTB computer centre where all of the trades are processed.

The MATIF in France trades financial and commodity futures and option contracts.

The methods of trading on the MATIF is open outcry and automated.

The three main derivatives exchanges in the US are CBOT, CBOE and CME.

The method of trading on all three exchanges is a combination of open outcry and automated trading.

CBOT trades futures and option with financial, agricultural and metallic commodities as underlying instruments. The exchange also trades equity index futures.

CBOE trades interest rate and equity options.

CME trades financial and commodity futures and options contracts.

- (ii) A market order is for immediate execution at the best available price. It is used when a trader just wants to get into the market as fast as possible at whatever is the prevailing price.

A stop order is used when a trader wants to buy or sell at the prevailing price once a specified price has been reached. There is no requirement on the broker to get a price better than the prevailing price merely to execute the order once the specified price is reached. Stop orders are used when a trader wants to close out her position in the market regardless of the price movements after the specified price has been hit.

A limit order is can only be executed by a broker on behalf of a customer at the designated price (the limit price) or better.

- (iii) A limit order will only be executed at the limit price or better. Suppose a client had a long futures position in crude oil and wishes to close it out by selling once the price per barrel rose above US\$24. If the futures price rose through US\$24 briefly but fell back below the limit before the broker was able to execute then the long position would remain, as the broker would not be able to execute the sale at a price of US\$24 or better. As a result the trader would not have closed out his position. Only a stop order will be successful in getting the trader's wishes executed in such circumstances.