SECURITIES & INVESTMENT INSTITUTE DIPLOMA

SUMMER 2008

CHIEF EXAMINER'S REPORT- FUND MANAGEMENT

Introduction

The purpose of this exam was to once again to assess candidates' up-to-date knowledge in the Fund Management field. In particular, both the theoretical knowledge and empirical (practical) issues are tested, so the candidates are encouraged to read relevant textbooks, research papers and case studies (where appropriate) to update their knowledge regularly, given the fast changing fund management industry.

Section A of the paper aims to assess candidates' general knowledge in this area. Candidates showed an excellent understanding of the index tracking in question 4, the rights issues in question 6, and the calculation of portfolio alphas in question 9. Overall, candidates did well in this section. Nevertheless, a significant number of candidates did not get any marks or very few marks on questions 1 and 8, showing that understanding of swaps and arbitrage opportunities is quite weak.

Section B was answered more weakly in this exam than in previous years. Answers to Section B indicate that large numbers of candidates have a good understanding of dividend discount models (part (e)), elimination of systematic risk from a portfolio (part (f)) and asset allocation (part (g)). However, the answers show that Fama-French (1993) alpha (part (c)), Carhart (1997) momentum portfolios (part (d)) and fundamental weighted indices (part (a)) are not very well understood. Additionally, optional questions from Section C were answered well by the vast majority of the candidates. A few struggled to communicate the theories put forward to explain the shape of the yield curve in question 16 but the rest of the questions showed reasonable understanding of the topics.

These are issues that need to be addressed. The overall standard of answers in both Section A and Section C was good, while Section B was weaker in comparison to previous years.

Section A

Question 1

Most of the candidates named the primary and secondary currency in a swap but fail to provide any explanation for it. Part iii) on SAFE was quite poorly answered. A good answer would contain the following:

i) One of the currencies in the currency swap – most deals are structured such that the nominal value of the primary currency exchanged on the two dates is equal.

ii) The other currency is secondary currency and the nominal value of this exchanged on the two dates is a function of the spot rate and the swap market forward rate.

iii) A SAFE is a variation of a currency swap which implies no actual exchange of the principal at the start or at maturity date. At maturity, one party pays to the other the difference in the vale of secondary currency between the rate at the beginning of the swap contract and the one prevailing at maturity.

Question 2

This was one of better answered questions. The candidates showed that they can differentiate between a global fund manager (who manages all assets of a client in different markets and determines both asset allocation and security selection) and a specialised manager (who specialise in particular investment areas – such as Japan, European market, technology stocks etc) using examples of their choice. Better answers mention that the trend towards specialised management is based on the belief that no manager can be an expert in all markets, but some of them may be in a few markets.

Question 3

Most of the candidates focused on the explanation of the portable alpha strategy as a tool to separate alphas from betas, through the use of derivatives. Better answers mentioned benchmarks used for performance, such as futures contract on the underlying asset used, hedge fund benchmarks or peer group benchmarks.

Question 4

The answers to this question were very good showing that candidates understand the synthetic indexation approach and that it can be achieved by using derivatives products (particularly stock index futures) on a particular index. Candidates further explained the advantages of no rebalancing, no transaction costs and tracking error and disadvantages of not receiving any dividends for example.

Question 5

In general, the candidates showed a good understanding of these relationships. Using:

$$\sigma_i^2 = \sigma_s^2 + \sigma_u^2$$

$$\sigma_u^2 = 12^2 - 10^2 = 44$$

$$\sigma_u = \sqrt{44} = 6.63\%$$

Proportion of unsystematic risk in the portfolio is:

$$1 - R^2 = 1 - \frac{\sigma_s^2}{\sigma_i^2} = 1 - \frac{100}{144} = 30.55\%$$

Correlation with the market = $\sqrt{R^2} = \sqrt{\frac{100}{144}} = 0.83$

Weaker answers failed to calculate the correlation coefficient, or to find a link between R-squared and level of diversification in a portfolio.

Question 6

a) Most candidates correctly answered that one in five rights issue implies that we get one extra share for every five we hold ie, 200 new shares if we originally had 1000. In that case, the new theoretical ex rights price will be:

$(1000*110+200*95)/1200=107.5p$

b) This question was answered more weakly. Better answers stated that the price may fall 2-4% when the rights issue is announced, if the market is concerned how the company will use the new funds or if this gives signal to the market that the company believes their shares are overpriced. A second price fall occurs when the issue is implemented in order to equalise the price of new and existing shares (ex-rights price).

Question 7

A large numbers of candidates showed that they understood that commodity funds are of interest to an investor who is interested in real assets as a hedge against inflation and is also looking more towards capital growth than income. However, many answers failed to show what the advantages of such indirect investment are: the shares may pay dividend unlike any direct investment in physical assets; lower holding/storage costs; and lower minimal dealing size. Some candidates mentioned some of the advantages but not all of them.

Question 8

a) Part a) was well answered and candidates showed that the correlation of -1 is perfect negative correlation which implies that assets move perfectly in the opposite direction. That can enable us to construct a portfolio with zero risk.

b) However, in part b) majority fails to realise that if there should be no arbitrage opportunities, the risk free rate has to be equal to the return on a risk free portfolio, i.e., portfolio AB as the correlation between the two stocks is -1. Therefore, such a portfolio has to be constructed and its expected return calculated. That return will have to be equal to the risk free rate of return if there are no arbitrage opportunities:

$w_A\sigma_A-(1-w_A)\sigma_B=0$

$0.16w_A-0.17+0.17w_A=0$

$0.33w_A=0.17$

$w_A=\frac{0.17}{0.33}=0.5151=51.515\%$

$w_B=1-0.5151=0.4848=48.485\%$

And the risk free rate than has to be equal to:

$E(r_p)=r_f=w_Ar_A+w_Br_B=51.515*12+48.485*14=12.97\%$

Question 9
This was a well answered question where candidates showed that Jensen's alpha is excess return on a portfolio in comparison to a chosen benchmark. Better answers included the estimation equation of Jensen's alpha from a regression model:
$r_{pi} - r_{fi} = \alpha + \beta(r_{mi} - r_{fi}) + \varepsilon_i$

Question 10
Candidates did not recognise that the variable (floating rate) coupon bond protects the nominal value of investment by adjusting the coupon rate to help the bond maintain its current market value as interest rates change. Their coupon rate is usually lower than that of fixed-rate bonds. While the floating rate gilt may protect the nominal value of the investment, it cannot protect against inflation which affects the real value of the investment. The understanding of index-linked gilts was much better. Most candidates explained that the index-linked gilts are adjusted to take account of movement in the lagged valued of a Retail Price Index (RPI); in periods of fast increasing inflation, this could be a problem. The coupon is usually lower than that of similar fixed rate gilts.

Section B

Question 11
The answers in this section were not of a good standard. Better answers included the following:

a) FTSE GWA index is an example of a fundamental weighted index. It shows similar performance to FTSE 350 value index because it is constructed based on companies' ability to generate wealth (so similar concept to value). In particular, in FTSE GWA ability to generate wealth is measured by three fundamentals – net income, cash flow & book value.

b) This was one of the better answered questions. The candidates understood that the differentiating characteristic between The Capital Market Line (CML) and The Security Market Line (SML) is the type of risk they are associated with. In particular the CML determines the equilibrium relationship between the total risk and the expected return of the efficient portfolios, while the SML determines the equilibrium relationship between systematic risk and the expected return of both individual securities and portfolios. Better answers showed the equations of both lines.

c) Many candidates did not attempt to answer this question. A good answer should state that the Fama-French Three-Factor Model changes the definition of alpha. Fama and French (1993) started with the observation that two classes of stocks have tended to do better than the market as a whole: (i) small caps and (ii) stocks with a high book-value-to-price ratio (also called "value" stocks; their opposites are called "growth" stocks). They then added two factors to CAPM to reflect a portfolio's exposure to these two classes as seen in the following equation**:**

$$R_{pt} - r_{ft} = \alpha_p + \beta_{p,m}(R_{mt} - r_{ft}) + \beta_{SMB}\, SMB_t + \beta_{HML}\, HML_t + \varepsilon_{pt}$$

The Fama-French Three-Factor Model defines alpha for equities more precisely as the return an active manager achieves above the sum of the portfolio's expected return due to all three equity risk factors.

d) In general, very few candidates showed a good understanding of the concept of momentum. One example of momentum: looking at short term history of returns. Therefore, winner portfolio: weighted average of, say, top 30% of firms with highest 11-month returns lagged one month; loser portfolio: weighted average of the, say, 30% firms with the lowest 11-month returns lagged one month. Winner portfolio and loser portfolio are expected to reverse performance after 2-3 years so that winners become losers and the other way around. Some recognised that this comes from Carhart (1997) model.

e) This question was answered better than most other questions in this section. Good answers gave the equation of constant growth model and explained its assumptions. Further, they stated that it is not appropriate for the valuation of companies in growth stages and more generally it is not appropriate for the valuation of companies that pay no dividend. For growth companies, the multiple stage growth model is better (I would expect an equation of this in better answers), and for zero dividend companies, valuation should be done using methods that do not involve dividends, such as P/E ratio for example.

f) This question was also well answered as candidates recognised that through the use of derivatives (by shorting FTSE 100 futures contract for example) one can reduce the systematic risk of a portfolio.

g) Many answers in this section were very good. The candidates differentiated that Strategic Asset Allocation is based on long term forecast on the expected performance of asset classes; long term split between two asset classes; can be moderate (for example 45% equities, 55% bonds) or more aggressive (for example 80% equities, 20% bonds). On the other hand, Tactical Asset Allocation is based on a short term forecast; it can make month-to-month changes in the allocation of funds to different asset classes. The success of the strategy relies highly on forecasting ability and the quantitative model used and requires small transaction costs.

Section C

Question 12

I expected better answers to this question. Candidates writing weaker answers failed to explain market neutral strategy well, i.e. that it is a zero beta strategy, constructed from an equal amount invested in the long and short portfolio, which have the same betas. However, the majority understood that the 130-30 fund is a type of collective investment vehicle, often a type of specialty mutual fund, which allows the fund manager simultaneously to hold both long and short positions on different equities in the fund. Traditionally, mutual funds were long-only investments. 130-30 funds are a fast growing segment of the financial industry, with many new releases planned in 2008; they should be available both as traditional mutual funds, and as exchange-traded funds (ETFs). While this type of investment has existed for a while in the hedge fund industry, its availability for retail investors is relatively new. The 130-30

funds work by investing, for example, £100 in a basket of stocks. They then short £30 in stocks that they believe to be overvalued. Proceeds from that short sale are then used to purchase an additional £30 in stocks thought to be undervalued. The name reflects the fact that the manager ends up with £130 invested in traditional long positions and £30 invested short. Candidates failed to explain the differences between the two strategies:

- in 130/30, the proceeds from short sale are invested in the long portfolio, in the market neutral, they are kept as a collateral;
- restricted shorting in 130/30;
- 130/30 is used in mutual funds whereas market neutral in hedge funds;
- beta is close to 1 in 130/30 fund whereas it is zero in a market neutral fund.

Question 13

This question was answered well by those who attempted it. The main exit options that were mentioned are:

-Trade sale. The sale of your company's shares to another company, perhaps in the same industry sector. The majority of exits are achieved through a trade sale. This often brings a higher valuation to the company being sold than a full stock market quotation, because the acquirer actually needs the company to supplement its own business area, unlike a public shareholder.

- The repurchase of the private equity investors' shares by the company and/or its management. To repurchase shares you and your advisers will need to consult the Companies Act, which governs the conditions of this exit option. Clearance in advance from the Inland Revenue and professional accounting and tax advice are essential before choosing this route.

- Refinancing. This refers to the purchase of the private equity investors' or others' shareholdings by another investment institution. This type of exit may be most suitable for a company that is not yet willing or ready for flotation or trade sale, but whose private equity investors may need an exit.

- Flotation. This method refers to the fact that the company obtains a quotation or IPO on a stock exchange, such as the Official List of the London Stock Exchange or AIM in the UK. A stock market quotation has various advantages and disadvantages for the entrepreneur, which was mentioned in better answers.

- Involuntary exit - the company goes into receivership or liquidation.

Question 14

This was a well answered question, where all candidates who attempted it understand how one can use indifference curves to identify the optimal portfolio of risky assets. Weaker answers failed to explain what indifference curves are. All candidates have shown the same weak point: if they answered well that the optimal portfolio is a tangency point between the concave set efficient frontier of risky assets and the upward sloping indifference curve, they failed to realise that when the risk-free asset is introduced, the efficient frontier is NOT the CML line. They all called it a CML line. It will be a CML line ONLY if other crucial CAPM assumptions were made such

as the single period investment horizon; all investors have homogeneous expectations about expected returns; and variances and covariances between securities etc.

Question 15

This question was attempted by a very large number of candidates and the answers were of a good standard. In better answers, a detailed explanation of value and growth stock characteristics was given. In particular, value stock characteristics are: low P/E, low price to book ratio, high dividend yield, high dividend payout ratio, high earnings to price, they might have small size as well. Growth stocks have the opposite characteristics. Although according to this definition of value and growth stocks – the styles are mutually exclusive. In spite of this there are investors who are interested in stocks that show both style characteristics so they are neither pure value nor pure growth stocks. Investors who are neither pure growth nor pure value are called Growth at reasonable price. Weaker answers fail to explain the GARP approach. If there are four stocks with respective GARP (PEG) ratios 1.25,1 and 1.33, investors would choose the one with the lowest GARP, but that is neither the lowest P/E (value) nor the highest growth stock, but rather somewhere in between.

Question 16

In common with question 15, a large number of candidates attempted this question. The shape of the yield curve as it extends out in time is influenced by the market's expectations about the future. The principal component of these expectations is inflation and its likely impact on the real value of an instrument's future cash flows. Theories that explain upward slope are:

- Pure Expectations Theory
- The Liquidity Theory
- Market Segmentation Theory

I expected short elaboration of each.

A Barbell portfolio is a portfolio which consists of long and short term maturity bonds, which combine to give a duration which is approximately equal to the desired investment holding period. A bullet portfolio, on the other hand, is a portfolio where all the bonds will have a maturity around the desired holding period. The duration of the portfolio will be similar to the duration of each individual bond in the portfolio.
If there is steepening of the yield curve as described in the question, i.e. if we take for example that short rate declines while the long rate increases, in this situation both portfolios will realise lower value than anticipated, because both portfolios suffer a capital loss and lower reinvestment rate. The losses, however, would be substantially higher for the barbell portfolio.