SWP 16/97   DIVIDEND YIELDS, BUSINESS OPTIMISM AND
THE PREDICTABILITY OF LONG HORIZON
RETURNS IN THE UK

DR JOHN FIELDING
Finance and Accounting
Cranfield School of Management
Cranfield University
Cranfield
Bedfordshire MK43 0AL

Tel: +44 (0)1234 751122
Fax: +44 (0)1234 751806

Dividend Yields, Business Optimism and the Predictability of Long Horizon Returns in the UK

John Fielding

Cranfield School of Management

Cranfield University

Cranfield School of Management

Cranfield University

Cranfield

Bedford

MK43 0AL

Tel.   +44(0) 234 751122

Fax   +44(0) 234 751806

E_mail J.A.Fielding@cranfield.ac.uk

Topic Finance - Market Efficiency

Dividend Yields, Business Optimism and the Predictability of Long Horizon Returns in the UK

ABSTRACT

This paper examines the relationship between future returns and dividend yields on the London Stock Exchange for the period 1966 to 1997. An additional set of explanatory variables is introduced in the form of the Confederation of British Industries, Industrial Trends Survey data.

A significant relationship was found between dividend yields and future returns when regression statistics were generated by ordinary least squares. The relationship was shown, however, to be attributable only to the period from 1966 to 1981 and in particular to the turbulent era from 1973 to 1975. When allowance was made for the effect of a lagged regressor by use of the Goetzmann and Jorion (1993) simulation model, and for heteroscedasticity as in McQueen (1992), no significant relationship between dividend yields and future returns for the entire sample period from 1966 to 1997 was found.

Ordinary Least Squares estimation of regressions of future returns on the Confederation of British Industries surveys of Business Opinion showed only a modest relationship. This was considerably weakened when the regression coefficients were estimated by the bootstrap technique. In common with dividend yields the relationship was mainly a feature of the 1966 to 1981 period.

1 Introduction

There is conflicting evidence that returns from financial assets can be forecast. By the late 1980's there were indications that longer term returns in the US were positively related to dividend yields, see for example, Campbell and Shiller (1988) and Fama and French (1988). Later, Goetzmann and Jorion (1993) showed for US data that when allowance was made for the statistical difficulties[1] in what have become to be known as return forecasting regressions, it was no longer possible to reject the null hypothesis of no relationship between future returns and dividend yields. In a later article which examined a series of UK returns from 1870 to 1993, they find that even after allowing for these difficulties, a significant relationship between future returns and dividend yields in the UK for the period from 1926 to 1993. Goetzmann and Jorion explain these findings in terms of a survivorship bias and argue in favour of not rejecting the null hypothesis.

This paper considers whether the addition of a further variable, Confederation of British Industries (CBI) Survey Data on Industrial Trends might further explain any relationship between dividend yields and future returns in the UK. Each quarter the CBI sends a questionnaire to its members asking for information on both historic and anticipated business trends. A question in the survey which is of particular interest concerns optimism regarding future business conditions. It asks, 'Are you more, the same or less optimistic than you were four months ago concerning future business

---

[1] These include biases arising from the use of a lagged regressor as the explanatory variable. serial correlated residuals caused by the overlapping return observations. non-normality and heteroscedasticity in the return series.

conditions'. Since businessmen participating in the survey have access to private information which may not be reflected in stock prices and since they may not be active participants in the market, it was felt possible that some of the information which they possess may only be gradually reflected in stock prices.

The data used in this study covers the period from 1965 to January 1997. Its length was mainly determined by the availability of daily returns on the Financial Times-Actuaries All Share Index from January 1965. The first CBI survey of its members took place in 1958. From 1959 to 1971 three surveys each year were undertaken and four surveys per year from 1972 to the present. Convenience would have suggested that the data should run from 1972 when the pattern of four surveys each year commenced but this would have excluded 6 years of data.

This paper found a significant relationship between dividend yields and future returns when regression statistics were generated by ordinary least squares. The relationship was shown, however, to be attributable only to the period from 1966 to 1981 and in particular to the turbulent era from 1973 to 1975. When allowance was made for the effect of a lagged regressor by use of bootstrap techniques as in Goetzmann and Jorion (1993), and for the effect of heteroscedasticity as in McQueen (1992), no significant relationship between dividend yields and future returns for the entire sample period was found.

Ordinary Least Squares estimation of regressions of future returns on the Confederation of British Industries surveys of Business Opinion showed only a modest

relationship. This was considerably weakened when significance of the regression coefficients was estimated by bootstrapping. In common with dividend yields the relationship was entirely a feature of the 1966^2 to 1981 period.

The organisation of this paper is as follows. The second section discusses return forecasting regressions, the third the CBI data, the fourth the methodology used and the fifth the results of the ordinary least squares regressions. In the sixth section the bootstrap methodology and results are described. The results of split-sample periods are then discussed in section 7. Finally conclusions are presented.

2   Return Forecasting Regressions

Fama and French (1988) model future returns as a function of the preceding period dividend yield as shown in equation 1. If long term returns are related to historic dividend yields the β coefficient should be significant in the equation,

$$TR_{t,t+T} = \alpha_T + \beta_T GDY_t + \varepsilon_{t,t+T,} \qquad (1)$$

where $TR_{t,t+T}$ is the compound total stock return from month t to month $t - T$, and GDY_t is the ratio D_t/P_t, the gross annual dividend up to the time t divided by the stock price at time t.

The econometric difficulties arising in equation 1 have been well documented.[3] To increase the number of observations and degrees of freedom, researchers overlap

return observations. This induces a moving average process in the residuals. Furthermore stock returns are also known to be non-normal and heteroscedastic[4].. The usual econometric corrections to the standard errors for the effects of serial correlation and heteroscedasticity[5] have poorly understood small sample properties and could not be relied on in sample sizes found in typical return forecasting studies.[6] The share price P_t is reflected in both the return on the left hand side of the equation and dividend yield on the right hand side. Since the stream of annual dividends is a highly autocorrelated series P_t dominates and effectively determines the dividend yield. Thus the dividend yield is not properly exogenous as required in the standard statistical models.[7]

To test the hypothesis that future returns are related to CBI survey data $GDYt$ in equation 1 is replaced by the relevant CBI variable. Equation 2 then becomes.

$$TR_{t,t+T} = \alpha_T + \beta_T CBI_t + \varepsilon_{t,t-T,}$$ (2)

In addition the marginal significance of including CBI data as an explanatory variable with dividend yield is considered in equation 3.

$$TR_{t,t+T} = \alpha_T + \beta_T GDY_t + \beta_T CBI_t - \varepsilon_{t,t+T,}$$ (3)

---

[4]   See for example Fama (1965) and McQueen (1992).
[5]   See Hansen and Hodrick (1982) and Newey and West (1987).
[6]   See for example Boudoukh and Richardson (1994) and Goetzmann and Jorion (1993).
[7]   See comments by Stambaugh (1986). The problem of a lagged dependent variable being used as an explanatory variable has been extensively modelled in Dickey and Fuller (1979).

3 Confederation of British Industries Survey Data

Since 1957 the CBI has conducted surveys of its members' expectations concerning a number of key economic variables. The surveys take the form of postal questionnaires which are sent to the chief executives of member companies towards the end of the month. They are returned to the CBI by the middle of the following month and the results have, since 1980, normally been published in the last week of the month. The results are therefore based on the expectations of a large number of senior executives who may have information both on their own company's prospects and on the business conditions in their industries, which is not available to the market as a whole. Since the surveys are published within two weeks of the closing date for replies, and only 4 weeks after the questionnaires reach the respondents, the CBI claim that they are an up-to-date guide to the state of manufacturing industry and a useful indicator of movements which will be shown later in the official estimates, (Wood 1992).

Respondents to the surveys are invited to tick boxes which categorise replies into, more, same or less. This procedure has a number of advantages. The surveys are easy to complete, a response rate between 40% and 50% is achieved and the questionnaires are answered by senior members of staff. The survey, a summary of which appears in the Appendix, includes 16 questions.

Any decision as to which variables to include in the study is clearly judgmental. Selection of a large number of variables invites the criticism of data mining and introducing a search bias. In these circumstances, four variables were chosen which

appeared on an *a priori* assessment to contain information which was likely to indicate the future prospects of firms. An obvious question for inclusion was the first, 'Are you more or less optimistic about the general business situation in your industry than you were 4 months ago'. Question 3 which deals with planned changes in the level of capital expenditure on buildings and on plant, was included, since changes in expected capital expenditure might include private information regarding positive net present values of future projects and also indicate changes in business confidence. Question 7 which concerns the expectations on the levels of future orders was also included since these were more likely than any other factors to impact on future profitability. Since the answers to any of these four questions might have some predictive ability, they were all included in the study[8].

The precise wording[9] of the questions whose responses were included in this thesis were as follows:

Question 1.   Are you more, or less optimistic than you were four months ago about THE GENERAL BUSINESS SITUATION IN YOUR INDUSTRY.

Question 3   Do you expect to authorise more or less capital expenditure in the next 12 months than you authorised in the last 12 months on:

---

[8]   An alternative approach would be to calculate the first and second principal components of the four variables. While this has the advantage of reducing the number of regressions. the principal components and the results of the regressions which use them as explanatory variables, lack direct economic interpretation.

[9]   Upper case and bold are shown above as they appear in the CBI surveys.

a   buildings

b   plant and machinery.

Question 7   **Excluding seasonal variations,** . . . what are the expected trends over the NEXT FOUR MONTHS with regard to

a   Volume of total new orders, up same, down.

The replies to the CBI questionnaires are weighted by the size, measured by number of employees, of the firms responding to the survey and totalled. A score is computed by deducting the weighted figures for less from the weighted figures for more, to give what the CBI describe as the 'balance'; and this figure is included as an explanatory variable in the return forecasting regressions. Responses reporting no change in expectations are excluded from the analysis. The computation of the balance figure is shown in Equation 4.

$$\Delta Q_t = \sum w_i{}^+\Delta q_{ti}^+ - \sum w_i{}^-\Delta q_{ti}^- \tag{4}$$

where ΔQ_t is the balance of firms reporting more over those reporting less expressed as a percentage, w_i is a weighting depending on the relative size of respondent i to the total responding and Δq_{ti} is the reply of respondent i indicated with a $-$ where the reply is more and a - where the reply is less, see Thomas (1995).

A peculiar feature of CBI survey data is that responses are ordinal. Respondents are not required to estimate the expected change in a variable but merely to indicate the change in its direction. In the rational expectations literature, a variety

of methods have been used to convert the ordinal responses to those which might hypothetically have been given if the respondent had been asked to quantify his (or her) reply. Pesaran (1987) compares 4 methods of conversion of expectations of price increases with each other and also with the actual price increases as reflected in the index of 'Wholesale Prices of Manufactured Goods', published by the Central Statistical Office. Pesaran found that each method of conversion produced series which were very closely correlated with one another, coefficients ranging from between 0.940 to 0.997. The methods were also closely correlated with the actual rates of inflation which were subsequently published by the Central Statistical Office, with coefficients of between 0.834 and 0.904.

Studies of rational expectations test whether managers make the optimal use of available data in forming their expectations. In this thesis the problem is different. Businessmen are not asked to forecast future returns, and to attempt to find such a conversion factor by regressing future returns on CBI data would pre-empt the purpose of this study. Furthermore, only the raw CBI balance figure is available to the market place. For this reason, the balance figures published by the CBI are used without further adjustment. It is interesting to note the CBI position on the use of the balance figure.

Despite the quantity of research that has been carried out into the use of more sophisticated variables than the balance to represent survey results, none of the methods suggested has seemed to offer sufficient improvements in understanding to justify their disadvantages in complexity and cost in comparison with the balance. For most

purposes, therefore, CBI staff analysis of the Trends results has tended

to use balances. (McWilliams (1983).)

Three, six, twelve, twenty four and thirty six months returns were used as the dependent variable in the return forecasting regressions. All return series except that for three months used overlapping observations.

Data on daily total returns and on daily capital returns was obtained on line from Datastream for the period from 1 January 1965 to 31 January 1997. The results of the CBI surveys were obtained directly from the CBI. The dates of publication of the results of the CBI surveys were extracted by a scrutiny of the Times and the Financial Times over this period. Returns could therefore be computed for the period immediately following the publication of CBI data. The structural stability of the regressions, was tested by splitting the sample period into two sub-periods. The first starts in 1966 and ends in 1981 and the second runs from 1981 to 1997.

4   Methodology

To accommodate the econometric problems which are inherent in return forecasting regressions which use dividend yields as the explanatory variable, the Goetzmann and Jorion simulation methodology was followed. These problems included biases caused by the presence of price, p_t, which is a determinant of both return on the left hand side of the equation and of the dividend on the right hand side. Thus the explanatory variable is not truly exogenous. Furthermore the use of overlapping observations

causes a serious moving average error in the residuals. Stock returns are also known to be non-normal and heteroscedastic.

Total returns for the periods between the CBI surveys were calculated as in Equation 5 which is reproduced below.

$$TR_t = \frac{TRI_t - TRI_{t-1}}{TRI_{t-1}} \tag{5}$$

where TRI_t is the total return index and TR_t is the total returns at period t. Capital returns are constructed in a similar manner from the FT-Actuaries All Share price Index.

$$CR_t = \frac{PI_t - PI_{t-1}}{PI_{t-1}} \tag{6}$$

where PI_t is the price index at period t and CR_t is the capital return series. Income returns, IR_t were calculated,

$$IR_t = \left[\frac{(1 + TR_t)}{(1 + CR_t)} - 1 \right] \tag{7}$$

Adjusted income return AIR_t was then calculated to allow for the unequal periods between the CBI surveys before 1972 as follows.

$$AIR_t = \frac{IR_t}{DA} \times \frac{365}{12} \tag{8}$$

where DA is the number of days between CBI surveys.

A price series starting at 100, which excluded the reinvestment of dividends, was formed by setting P_0 at 100, then recursively computing P_t

$$P_t = P_{t-1} \times (1 + CR_t) \tag{9}$$

Monthly gross dividends, GD_t were then computed

$$GD_t = AIR \times P_{t-1} \tag{10}$$

An annual series of gross dividends, *GADIV*, was then calculated,

$$GADIV = GD_t + GD_{t-1} + \ldots GD_{t-11} \tag{11}$$

Gross dividend yield, *GDY* was calculated,

$$GDY = \frac{GADIV}{P_t} \times 100 \tag{12}$$

Total returns where then accumulated to the 3, 6, 12, 24 and 36 months horizons and were regressed against dividend yields.

For the CBI data on businessmen's expectations the balance figures for each variable were obtained from the CBI and accumulated returns for the various time horizons were regressed against each CBI variable.

5   Results of the OLS Regressions

Univariate Regressions

Table 1 shows the results of the OLS regressions. In common with other studies[10], the dividend yield is shown to be strongly related to returns at all time horizons. R^2 increases from 0.118 at 3 months to 0.569 at 36 months horizon. In all cases the β coefficients were significant at the 1% level. The serial correlation arising from the use of the overlapping observations is reflected in Durbin Watson (DW) statistic decreasing with the time horizon and little reliance should be placed on the p factors derived by the conventional OLS methodology.

---

[10]   See for example Fama and French (1988), Goetzmann and Jorion (1993) and (1995).

The correlation matrix, see Table 2, showed that the CBI variables were all closely correlated with one another, coefficients ranging from 0.638 to 0.956. They were also quite closely negatively correlated with dividend yields figures ranging from -0.476 to -0.652. In these circumstances to avoid problems arising from multicollinearity the return series were regressed against each of the four chosen CBI variables separately.

CBI variables show rather modest explanatory power. $\bar{R}^2$ for the business optimism series increases from 0.048 for 3 months returns to 0.166 series for 36 months returns. Results for the other three series were rather similar. Interestingly the signs on the beta coefficients were opposite from those anticipated. The more confidence shown by businessmen the lower the future returns. This apparent anomaly will be discussed later in the paper. The coefficients of all the CBI series are significant at the 5% level. In view of the unacceptable level of the DW statistic caused by the moving average error induced by the use of overlapping observations and of the biases in the standard errors which may be attributed to heteroscedasticity and non-normality in the data, little reliance can be placed on the p factors which have been generated through the conventional methodology.

Multiple Regressions

In view of the rather modest explanatory power of the CBI variables on their own and the high level of collinearity with dividend yields it was not anticipated that they would add significantly to dividend yields in explaining future returns. The CBI business optimism series was included with dividend yield as an explanatory variable as

shown in equation (3). The results appear in Table 3. While the coefficients on the dividend yield series all appear significant, none of those for the CBI variables are significant. It is quite possible that the dividend yield series has the effect of capturing the some of the explanatory power of the CBI series. To test whether the addition of CBI data could be justified in equation (3), three model selection criteria which appear widely in the literature were selected and the appropriate statistics computed. They were $\overline{R}^2$, Akaike Information Criteria, AIC, see Akaike (1973) or the Bayesian Information Criteria, SBC, see Schwarz (1978). The results of the statistics are shown in Table 4. The inclusion of the CBI variable was merited in only two of the 5 regressions when the $\overline{R}^2$ criteria was applied. When the AIC or SBC criteria were applied, inclusion of the CBI variable was justified for only one and zero series respectively. The multiple regressions were carried out for the other three CBI variables. Very similar results were obtained as for the CBI optimism variable and to save space these results are not presented in this paper. It seems from the results that not much is to be added by including CBI data with dividend yields in the OLS regressions.

6   Bootstrap Methodology and Results

To allow for the biases arising from the use of serial correlated residuals, the presence of a lagged version of the dependent variable being used as an explanatory variable and non-normality in the return series, the bootstrap technique, see Noreen (1989), was used to estimate the marginal probability of the ordinary least squares beta being obtained by chance.

The OLS betas were first calculated. For the dividend yield series the Goetzmann and Jorion (1993) methodology was adopted.

1   Monthly total returns and monthly capital returns were jointly bootstrapped.

2   A price series starting at 100 was formed by setting P_o at 100, then recursively computing P_t, as follows,

$$P_t^* = P_{t-1} \times (1 + Cr_t) \qquad (13)$$

3   Gross dividend yield was then calculated

$$GDY = \frac{GADIV}{P_t^*} \times 100 \qquad (14)$$

The effect of steps 1- 3 is to ensure that the dividend yield reflects the historic series of prices which is generated by the bootstrap process.

4   Compute the dependent variable, future returns to the desired time horizon by arithmetically compounding randomised total returns.

5   The bootstrap total returns were then regressed against dividend yields and the β calculated. This result is denoted as β^*.

6   If the β^* exceeds β add 1 to x_j which is a counter.

7   Repeat steps 1 through 6 n times. In this case n was taken as 1,000.

8   Compute the empirical p factor of the β.

$$p = \frac{x + 1}{n + 1}$$

The bootstrap betas include the biases which afflict the OLS betas. This is a desirable feature since it enables the proportion of occurrences the bootstrap test statistic which exceeds the conventional test statistic to be calculated It is therefore a measure of the probability of the conventional test statistic occurring by chance.

The same procedure was adopted for each of the four CBI variables with the difference that since the CBI data is determined exogenously steps 2 and 3 are unnecessary.

To allow for the biases which arise from heteroscedasticity in the series of returns a further estimate was made of the p factor for the β by following the weighted least squares methodology in McQueen (1992). The period from 1966 to 1997 includes one of the most dramatic episodes encountered in stock market history. The FT Actuaries All-Share index fell from a peak of over 220 in August 1972 to a low of 63.2 in January 1975 In February the it recovered to 101.9 an increase of 61%. In contrast the second period from 1981 to 1997 was relatively stable, even the stock market crash of 1987 is dwarfed by the 1972 to 1975 decline and its speedy recovery.

Under the null hypothesis, monthly returns are independent so the variance of long horizon returns is the sum of the variances of monthly returns. In addition, if prices follow a random walk, then β_T in Equations 1 and 2 is zero; and therefore, estimates of the standard deviation of the long horizon total returns $TR_{t,t-T}$ are also estimates of the standard deviation of the errors.

Following French, Schwert and Stambaugh (1987), daily values of the FT-Actuaries All Share Index were used to estimate the monthly variance of stock market returns from January 1965 to October 1994. The estimate of the monthly variance is,

$$\hat{\sigma}_t^2 = \sum_{i=1}^{N_t} TR_{i,t}^2 + 2\sum_{i=1}^{N_{t-1}} TR_{i,t}TR_{i+1,t}, \qquad (15)$$

where N_t is the number of trading days in the month t, $TR_{i,t}$ is the total return on the FT-Actuaries All Share Index on day 1 in month t. In Equation 15 the cross product term adjusts for non synchronous trading of securities.

Under the null hypothesis of a random walk, the estimate of the standard deviations of the errors term in equation 1 and 2 is given by,

$$\hat{\sigma}_{t,t+k} = \left[\hat{\sigma}_t^2 + \hat{\sigma}_{t+1}^2 + \dots \hat{\sigma}_{t+k}^2 \right]^{\frac{1}{2}} \qquad (16)$$

The WLS bootstrap test follows steps 1 to 8 above. The only difference is that the monthly returns are bootstrapped together with their respective variance estimates. The bootstrapped returns and variances are then summed to form the longer horizon returns and variances. The reciprocal of the long-horizon standard deviations are used as weights, and the WLS β and correlation coefficient is recalculated for each shuffling.

The results of the bootstrap estimates of the p factors is shown in Table 5. Column 4 shows the OLS bootstrap p factors and column 5 the WLS bootstrap p factors. The table shows that making allowance for the effect of the lagged regressor, serial correlation in the error term and the lack of normality in the data causes the p factors to increase dramatically. None of the p factors for dividend yields are significant at the 5% level. However for the 3, 6 and 12 months data, the bootstrap OLS p factors are only just in excess of the 5% level. Thus while they do not meet the

criteria generally set by econometricians for rejecting the null hypothesis, these variables may well possess economic significance in terms of developing forecasting models. The bootstrap WLS statistics generally show some further increases in the p factors suggesting that heteroscedasticity may cause the conventional standard errors to be understated.

The p factors of the regression coefficients for the CBI variables also increased when they were estimated by bootstrapping. A number of the β's were however still significant. Correction for heteroscedasticity greatly reduces this number and only very few of the coefficients remain significant. Given the rather modest $\overline{R}^2$ for the CBI data which for the business optimism series ranges from 0.048 for 3 months returns to 0.166 for 36 months returns, it seems unlikely that CBI data might be usefully used to forecast future returns.

7 Results for Split Samples

The sample period was split into two approximately equal sub-samples so that the stability of the regression coefficients could be examined. The first sample period ran from 1966 to 1981 and the second from 1981 to 1997. Results for each of the sub-samples are shown in Table 6. Since the results for all four CBI series are broadly similar only those for the business optimism series are shown.

The explanatory power of the dividend yield variable was found to be exceptional in the first period. $\overline{R}^2$ increased from 0.145 for 3 months returns to 0.772

for 36 months returns. In the second period explanatory power was relatively low $\bar{R}^2$ increased from 0.030 to 0.274. The p factors derived from the conventional OLS regressions were all highly significant in both periods. However when the p factors were estimated by bootstrapping, none of the β coefficients in either period were significant.

A rather similar picture emerges for the CBI variable. $\bar{R}^2$ increased from 0.046 for 3 months horizons to 0.336 for 36 months horizons in the 1966 to 1981 period but were nearly zero in the second. The p factors in the first sub-period were generally significant when estimated by conventional means, but were rather less significant when estimated by bootstrapping.

In marked contrast to the 1966 to 1981 period, none of the coefficients of the CBI optimism variable were significant in the 1981 to 1997 period when either conventional or bootstrap methodology was employed. It is clear that any relationship between future returns and CBI data is entirely a feature of the first sub-period.

To further explore the impact of individual observations on the regression results the leverage measure of the regression as in Belsley et al. (1980) was computed. This is given by:

$$ h_i - \tfrac{1}{n} = \tilde{h}_i = \tilde{\mathbf{x}}_i (\tilde{\mathbf{X}}^T \tilde{\mathbf{X}})^{-1} \tilde{\mathbf{x}}_i^T \qquad (17) $$

where **X** is the $n \times p$ matrix of explanatory variables, and the matrix is transposed by the superscript T. $\widetilde{\mathbf{X}}$ indicates the matrix formed by centring the columns of **X** about their respective column means[11].

The leverage measure of the regressions of 3 months returns on dividend yields is shown in Figure 1. The graph dramatically demonstrates that the most important observations occurred in the period prior to May 1975. The calculation was repeated replacing 3 months returns with 12 and 36 months returns. In both cases very similar results to those revealed in Figure 1 were obtained.

Figure 2 shows the leverage measures of the regression for 3 months returns on CBI data. The figure indicates that the observation including the results of the April 1980 survey were extremely influential.

Earlier in the paper reference was made to the unexpected negative sign for the coefficient of each of the CBI variables. To explore this apparent anomaly further a scattergraph showing the CBI optimism series against three months future returns was prepared. This is shown in Figure 3. It is clear from this the two observations appear as outliers and dominate the results. They appear in the bottom on right hand side of this figure and relate to the 3 months returns following the publication of the CBI surveys in November 1974 and February 1975. Over the previous two years the

---

[11]   Belsley et al. (1980) suggest 3 different methods by which influential observations might be identified and argue that as with all empirical procedures, this question is ultimately answered by judgement and intuition in choosing reasonable cut-offs most suitable for the problem at hand guided wherever possible by statistical theory. The three methods are external scaling, internal scaling and gaps. For external scaling they argue that a suitable cut-off would be that where $h_i > 2\sqrt{(p/n)}$, where p equals the number of regressors and n equals the number of observations in the sample. For external scaling they suggest the interquartile range $\widetilde{s}$ for each series is computed. Extreme values are those which exceed $(7/2)\ \widetilde{s}$. If these diagnostics were Gaussian they would occur less than 1% of the time. Finally they suggest that the researcher identifies points at which the diagnostic measure appears to be singularly different from the others.

stock market had suffered the largest falls in its history[12]. The Government had attempted to reduce the rapid inflation which followed the Oil crises by introducing strict price controls. This, accompanied by the effect of taxation on illusory stock holding gains, lead to a liquidity crisis. The Banking system itself was under considerable pressure from the collapse of property values and therefore afforded little further support to industry. Furthermore some members of the government appeared to be openly hostile to the free market system. In the event the government decided in November 1974 to afford a degree of relief to companies by relaxing price controls and removing the tax charge on illusory stock holding gains. The highly pessimistic CBI business optimism returns in November 1974 and February 1975 were followed by a dramatic recovery in the market in early 1975. The Financial Times-Actuaries All Share Index increased from 63.3 in January 1975 to 149.8 in June 1975. Investors who had the foresight or luck to predict this recovery were certainly well rewarded.

To assess the effect of this episode on the results relating to the CBI data the observations for November 1974 and February 1975 were deleted. This β coefficient in Table 1 for the CBI optimism series for 3 months returns halved and the OLS p factor increases to 0.20. It is clear that the negative coefficients for the CBI data are largely caused by a small number of observations in this dramatic era in UK stock market history.

8   **Summary and Conclusions**

The 1966 to 1997 period provides interesting data on which to test the relationship between the explanatory variables, dividend yields and CBI survey data on business trends and future returns. The market in this period was influenced by two major episodes. In the first half of the sample period it collapsed following the oil price increase and a liquidity crisis. The fall was gradual and started in August 1972 when

---

[12]   The falls were even larger than those in the two years prior to the fall of Dunkirk in May 1940.

the FT-Actuaries index was 220 and ended in January 1992 when it reached a low of 63.2. In February of that year the index recovered to 101.9 a dramatic increase of 61%. In contrast despite the 1987 crash when the stock market fell by 29% over 6 trading days, the market in the UK was relatively stable in the 1981 to 1997 period.

The results of the ordinary least squares regressions suggest a highly significant relationship between dividend yields and future returns. When adequate allowance was made for econometric difficulties in the data by using appropriate numerical techniques, the relationship was no longer significant at conventional levels. Furthermore the relationship was shown to be mainly a feature of the 1966 to 1981 period and to be particularly heavily influenced by the recovery of the market in 1975.

Confederation of Business Industries Survey data was only modestly related to future returns. Allowance for the econometric difficulties in the data further lessened the statistical significance of its regression coefficients which were opposite from those hypothesised. Again most of the relationship was derived from the first sample period. The negative coefficients for the CBI variables were shown to be almost entirely due to business optimism being extremely low in the period prior to the market recovery in 1975.

It is well known that failure to reject a null hypothesis does not imply that it is true. Nevertheless the extremely high p factors derived from the bootstrap technique together with the evidence that regression results are highly dependent on a unique era in stock market history which seems unlikely to be repeated, suggests that these two variables are unlikely to be useful in developing forecasting models which can generate excess returns.

REFERENCES

Akaike, H. (1973). "Information Theory and an Extension of the Maximum Likelyhood Principle". In: *2nd International Symposium on Information Theory*, B.N. Petrov and F. Csaki, eds., Budapest.

Belsley, D.A., E. Kuh and R. Welsch. (1980). *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity*, John Wiley and Sons, New York.

Boudoukh, J. and M. Richardson. (1994). "The Statistics of Long-Horizon Regressions Revisited". <u>Mathematical Finance</u>, vol. 4, no.2, 103-119.

Campbell, J. Y. and R.J. Shiller, (1988). "Stock Prices, Earnings, and Expected Dividends". <u>Journal of Finance</u>, vol. 43, no.3, 661-676.

Dickey, D. A. and W. Fuller. (1979). "Distribution of the Estimators for Autoregressive Time Series with a Unit Root." <u>Journal of the American Statistical Association</u>. vol. 74, 427-31.

Fama, E. F. (1965). "The Behaviour of Stock Market Prices". <u>Journal of Business</u>, vol. 38, 34-105.

Fama, E. F. and K. French. (1988). "Dividend Yields and Expected Stock Returns." <u>Journal of Financial Economics</u>, vol. 22, 3-25.

French, K. R., G.W. Schwert and R.F. Stambaugh. (1987). "Expected Stock Returns and Volatility". <u>Journal of Financial Economics</u>, vol.19, 3-29.

Goetzmann, W.N. and P. Jorion. (1993). "Testing the Predictive Power of Dividend Yields". <u>Journal of Finance</u>, vol. 48, no.2, 663-679.

Goetzmann, W.N. and P. Jorion. (1995). "A Longer Look at Dividend Yields ". <u>Journal of Business</u>, vol. 68, no.4, 483-508.

Hansen, L. P., and R. Hodrick. (1980) "Forward Exchange Rates as Optimal Predictors of Future Spot Rates: An Econometric Analysis". <u>Journal of Political Economy</u>, vol. 88, 829-853.

McQueen, G. (1992). "Long Horizon Mean Reverting Stock Prices Revisited". <u>Journal of Financial and Quantitative Analysis</u>, vol. 27, no. 1, 1-18.

McWilliams, D.F. (1983). *How the CBI Interprets the Industrial Trends Survey*. In Twenty Five Years of 'ups and 'downs', Confederation of British Industries London, 11 - 22.

Nelson, C. R., and M. Kim. (1993). "Predictable Stock Returns, the Role of Small Sample Bias". <u>Journal of Finance</u>, vol. 48, no 2, 641-661.

Newey, W. and K. West. (1987), "A Simple Positive Semi-Definite, Heteroscedastic and Autocorrelation Consistent Covariance Matrix". Econometrica, vol. 55, 703-708

Noreen, E. (1989). *Computer-Intensive Methods for Testing Hypotheses: An Introduction*, John Wiley and Sons, New York: .

Pesaran M. H. (1987). *The Limits to Rational Expectations*, Basil Blackwell, Oxford.

Pesaran M.H. and A. Timmermann, (1995) "Predictability of Stock Returns: Robustness and Economic Significance". Journal of Finance, vol. 50, no. 4, 1201-1228.

Pesaran M.H. and A. Timmermann, (1996) "A Recursive Modelling Approach to Predicting UK Stock Returns ". Working Paper No. 9625, Department of Applied Economics, University of Cambridge.

Schwarz, G. (1978). "Estimating the Dimensions of a Model". Annals of Statistics, Vol.6, 461-464.

Stambaugh, R. F. (1986). Bias in Regressions with Lagged Stochastic Regressors, Working Paper no. 156, Centre for Research in Security Prices, University of Chicago, Chicago IL.

Thomas, D.G. (1995) "Output Expectations in Manufacturing Industry". Applied Economics, vol. 27, 403-408.

Wood, J. (1992). Full Industrial Trends Survey. Confederation of British Industries. April

APPENDIX

Abbreviated Version of CBI Questionnaire

1	Optimism over the general business situation, more, same, less	**Included**
2	Optimism over export prospects more, same, less	Excluded
3	More, same or less capital expenditure on a plant b buildings	 **Included** **Included**
4	Is your present level of output below capacity, yes, no?	Excluded
5	Present order book, above normal, normal, below normal	Excluded
6	Numbers employed, up, same, down	Excluded
7	Volume of total new orders, up, same, down a trend over last 4 months b expected trend over next 4 months	 **Included**
8	Volume of output, up, same, down a trend over last 4 months b expected trend over next 4 months	Excluded
9	Volume of deliveries, up same down	Excluded
10	Volume of stocks, up, same, down	Excluded
11	Average costs per unit of output, up, same, down	Excluded
12	Average prices, up, same, down	Excluded
13	Month's production accounted for by present order book	Excluded
14	Factors likely to limit output	Excluded
15	Factors likely to limit export orders	Excluded
16	Is your capacity - more than adequate, adequate, less than adequate?	Excluded

TABLE 1

OLS Regression Results

$$TR_{t,t+T} = \alpha_T + \beta_T GDY_t + \varepsilon_{t,t+T}, \qquad\qquad (1)$$

$$TR_{t,t+T} = \alpha_T + \beta_T CBI_t + \varepsilon_{t,t+T}, \qquad\qquad (2)$$

	Months	β	t	p	$\bar{R}^2$	DW
Dividend	3	3.967	4.062	0.000	0.118	1.95
yield	6	8.000	6.135	0.000	0.242	1.06
	12	13.801	8.160	0.000	0.367	0.60
	24	16.664	8.290	0.000	0.383	0.46
	36	29.653	11.823	0.000	0.569	0.39
CBI	3	-0.120	-2.628	0.010	0.048	2.04
Optimism	6	-0.194	-2.981	0.004	0.064	1.25
	12	-0.337	-3.736	0.000	0.103	0.80
	24	-0.448	-4.203	0.000	0.133	0.51
	36	-0.729	-4.679	0.000	0.166	0.52
CBI	3	-0.213	-2.717	0.008	0.052	2.16
Inv. in	6	-0.420	3.829	0.000	0.106	1.34
Buildings	12	-0.717	-4.743	0.000	0.160	0.86
	24	-0.720	-3.831	0.000	0.111	0.49
	36	-1.014	-3.631	0.000	0.104	0.50
CBI	3	-0.150	-2.534	0.013	0.045	2.14
Inv in	6	-0.277	-3.296	0.001	0.079	1.32
Plant	12	-0.474	-4.057	0.000	0.120	0.82
	24	-0.456	-3.159	0.002	0.076	0.48
	36	-0.598	-2.771	0.007	0.060	0.49
CBI	3	-0.128	-2.220	0.028	0.033	2.08
Future	6	-0.207	-2.491	0.014	0.043	1.28
Orders	12	-0.380	-3.297	0.001	0.080	0.80
	24	-0.555	-4.125	0.000	0.128	0.52
	36	-1.009	-5.278	0.000	0.204	0.58

1   The $B\ p$ column shows the marginal probability of β calculated by the classical ordinary least squares methodology.

2   DW is the Durbin Watson test statistic.

TABLE 2

Correlation Matrix

	3 months returns	Dividend yield	CBI Optimism	CBI Buildings	CBI Plant	CBI F. Orders
3 months returns	1.000	0.354	-0.238	-0.245	-0.230	-0.203
Dividend yield	0.354	1.000	-0.652	-0.496	-0.476	-0.577
CBI optimism	-0.238	-0.652	1.000	0.638	0.696	0.879
CBI buildings	-0.246	-0.497	0.638	1.000	0.956	0.744
CBI plant	-0.230	-0.477	0.691	0.956	1.000	0.782
CBI F. Orders	-0.203	-0.577	0.879	0.743	0.782	1.000

TABLE 3

OLS Multiple Regression Results

$$TR_{t,t+T} = \alpha_T + \beta_T GDY_t + \beta_T CBI_t + \varepsilon_{t,t+T,} \qquad (3)$$

	Dividend yield		CBI Business Optimism			
Months	β	$\beta\ p$	β	$\beta\ p$	$\overline{R}^2$	p of F
3	3.878	0.003	-0.006	0.917	0.110	0.001
6	9.020	0.000	0.070	0.366	0.240	0.000
12	15.500	0.000	0.117	0.246	0.369	0.000
24	17.794	0.000	0.077	0.524	0.380	0.000
36	33.183	0.000	0.241	0.104	0.576	0.000

1   The $B\ p$ column shows the marginal probability of β calculated by the classical ordinary least squares methodology.

TABLE 4

Model selection criteria

Univariate regression

$$R_{t,t+T} = \alpha_T + \beta_T GDY_t + \varepsilon_{t,t+T},\qquad (1)$$

Months	$\overline{R}^2$	A.I.C.	S.B.C.
3	0.118	53.2	58.7
6	0.242	118.8	124.3
12	0.367	173.8	179.3
24	0.383	200.5	205.9
36	0.569	234.1	239.5

Multiple regression

$$R_{t,t+T} = \alpha_T + \beta_T GDY_t + \beta_T CBI_t + \varepsilon_{t,t+T},\qquad (3)$$

Months	$\overline{R}^2$	A.I.C.	S.B.C.
3	0.110	55.2	63.4
6	0.240	119.9	128.2
12	0.369	174.4	182.6
24	0.379	202.1	210.2
36	0.576	233.4	241.4

Inclusion of CBI variable justified

Months	$\overline{R}^2$	A.I.C.	S.B.C.
3	No	No	No
6	No	No	No
12	Yes	No	No
24	No	No	No
36	Yes	Yes	No

1   A.I.C. is Akaike's Information Criterion, see Akaike (1973).
2   B.I.C. is the Bayesian Information Criterion, see Schwarz (1978).
3   The criteria require that R^2 is maximised or A.I.C. and S.B.C. are minimised.

Table 5

Bootstrap p

$$TR_{t,t+T} = \alpha_T + \beta_T GDY_t + \varepsilon_{t,t+T}, \qquad (1)$$

$$TR_{t,t+T} = \alpha_T + \beta_T CBI_t + \varepsilon_{t,t+T}, \qquad (2)$$

	Months	β	OLS βp	bootstrap OLS p	bootstrap WLS p	$\bar{R}^2$
	1	2	3	4	5	6
Dividend	3	3.967	0.000	0.054	0.128	0.118
Yield	6	8.000	0.000	0.053	0.083	0.242
	12	13.801	0.000	0.088	0.143	0.367
	24	16.664	0.000	0.278	0.265	0.383
	36	29.653	0.000	0.244	0.330	0.569
CBI	3	-0.120	0.010	0.008	0.108	0.048
Business	6	-0.194	0.000	0.022	0.077	0.064
Optimism	12	-0.337	0.000	0.033	0.072	0.103
	24	-0.448	0.000	0.097	0.159	0.133
	36	-0.729	0.000	0.073	0.137	0.166
CBI	3	-0.213	0.008	0.009	0.118	0.052
Investment	6	-0.420	0.000	0.009	0.024	0.106
in Buildings	12	-0.717	0.000	0.020	0.033	0.160
	24	-0.720	0.000	0.126	0.143	0.111
	36	-1.014	0.000	0.122	0.145	0.104
CBI	3	-0.150	0.013	0.014	0.146	0.045
Investment	6	-0.277	0.001	0.039	0.062	0.079
in Plant	12	-0.474	0.000	0.034	0.075	0.120
	24	-0.456	0.002	0.159	0.199	0.076
	36	-0.598	0.007	0.170	0.198	0.060
CBI	3	-0.128	0.028	0.012	0.144	0.033
Future	6	-0.207	0.014	0.034	0.072	0.043
Orders	12	-0.380	0.001	0.053	0.075	0.080
	24	-0.555	0.000	0.109	0.138	0.128
	36	-1.009	0.000	0.076	0.067	0.204

1   β, OLS βp, and $\bar{R}^2$ are the OLS statistics taken from table 1.

2   Bootstrap OLS p is the marginal probability of the OLS β computed by the bootstrap technique.

3   Bootstrap WLS p is the marginal probability of β computed by the bootstrap WLS technique.

TABLE 6

Results for sub-sample 1

1966 - 1981

$$R_{t,t+T} = \alpha_T + \beta_T GDY_t + \varepsilon_{t,t+T},$$

$$R_{t,t+T} = \alpha_T + \beta_T CBI_t + \varepsilon_{t,t+T},$$

	Months	β	p OLS	p bootstrap	$\bar{R}^2$	DW
Dividend	3	4.489	0.002	0.142	0.145	1.84
Yield	6	9.208	0.000	0.145	0.299	0.97
	12	16.406	0.000	0.171	0.461	0.54
	24	19.047	0.000	0.420	0.513	0.51
	36	33.222	0.000	0.371	0.772	0.48
CBI	3	-0.132	0.063	0.038	0.046	1.95
Business	6	-0.226	0.030	0.048	0.069	1.22
Optimism	12	-0.467	0.002	0.056	0.158	0.85
	24	-0.670	0.000	0.094	0.281	0.62
	36	-1.041	0.000	0.053	0.336	0.72

Results for sub-sample 2

1981 - 1997

	Months	β	p OLS	p bootstrap	$\bar{R}^2$	DW
Dividend	3	3.473	0.037	0.062	0.030	2.19
Yield	6	6.397	0.003	0.070	0.123	1.30
	12	8.547	0.002	0.227	0.145	0.83
	24	14.764	0.000	0.326	0.204	0.55
	36	26.203	0.000	0.315	0.274	0.40
CBI	3	-0.100	0.095	0.046	0.035	2.29
Business	6	-0.134	0.191	0.111	0.031	1.37
Optimism	12	-0.067	0.510	0.357	-0.010	0.89
	24	-0.003	0.984	0.483	-0.018	0.64
	36	-0.063	0.798	0.451	-0.019	0.47

1   β, OLS βp, $\bar{R}^2$ and DW are the OLS statistics.

2   Bootstrap OLS p is the marginal probability of β computed by the bootstrap technique described in section 6.

Figure 1

3 Months Returns and Dividend Yield
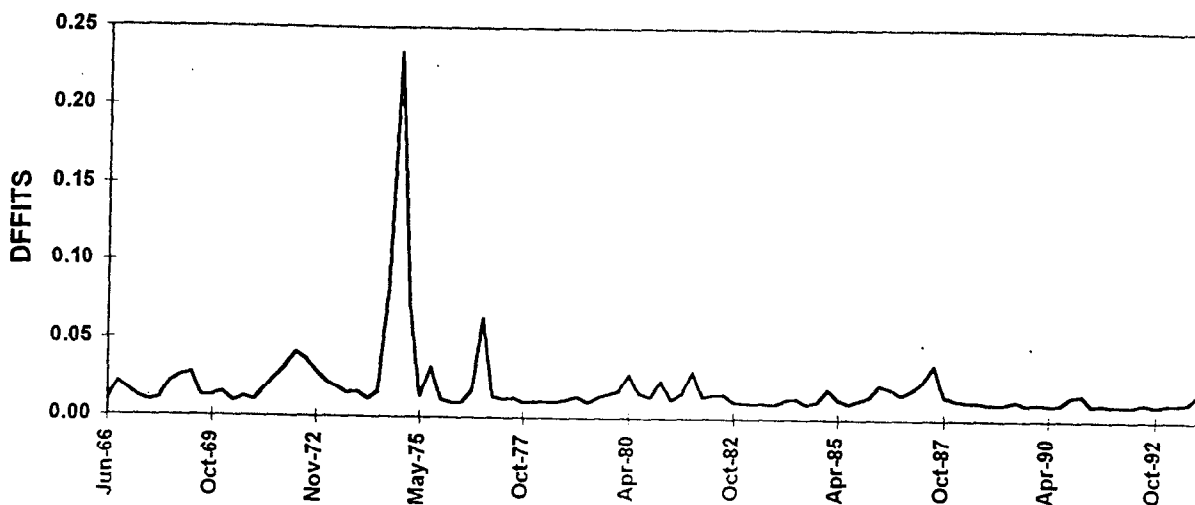**Influential data points**

Figure 2

3 Months Returns and CBI Business Optimism
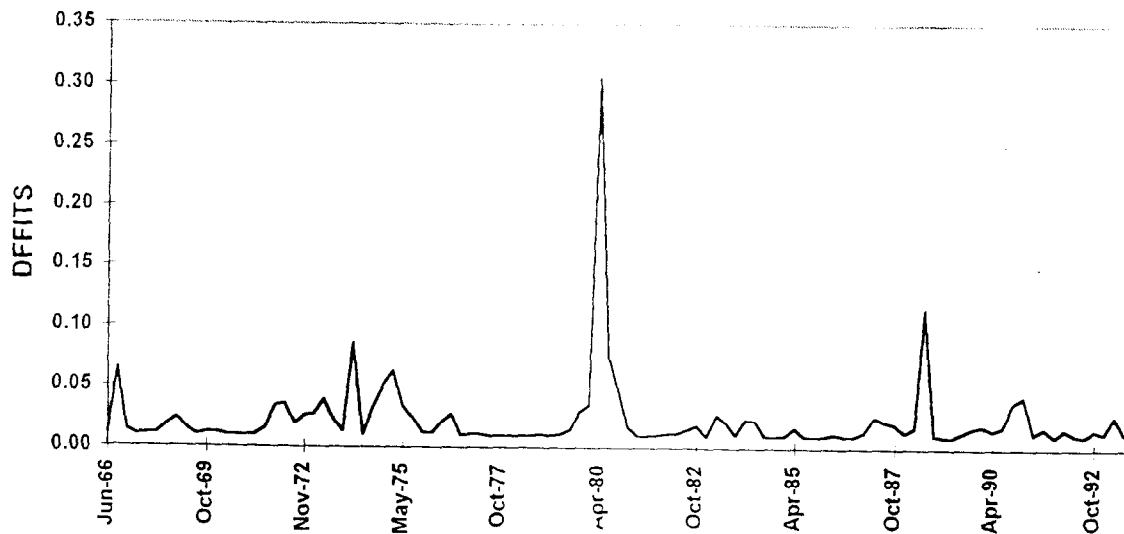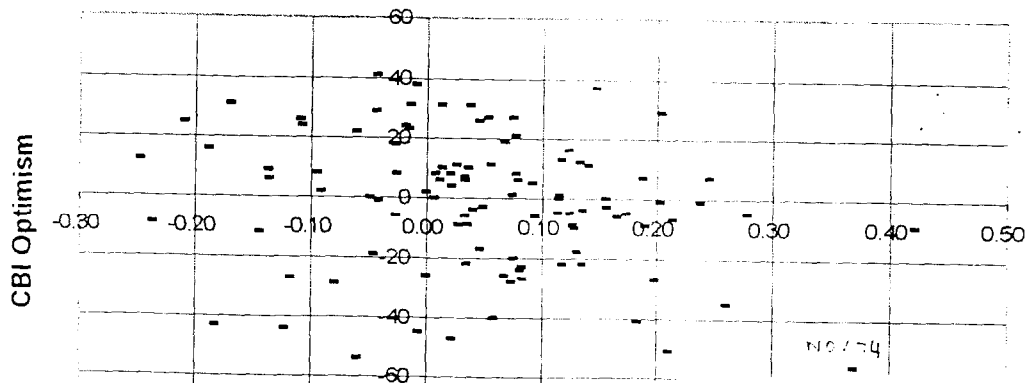**Influential Data Points**

Figure 3

CBI Optimism v 3 months future returns

CRANFIELD SCHOOL OF MANAGEMENT
WORKING PAPER SERIES
List No 6, 1992

SWP 1/92 Mike Sweeney
"How to Perform Simultaneous Process
Engineering"

SWP 2/92 Paul Burns
"The Management of General Practice"

SWP 3/92 Paul Burns
"Management in General Practice: A Selection
of Articles"

SWP 4/92 Simon Knox & David Walker
"Consumer Involvement with Grocery Brands"

SWP 5/92 Deborah Helman & Adrian Payne
"Internal Marketing: Myth versus Reality?"

SWP 6/92 Leslie de Chernatony & Simon Knox
"Brand Price Recall and the Implications for
Pricing Research"

SWP 7/92 Shai Vyakarnam
"Social Responsibility in the UK Top 100
Companies"

SWP 8/92 Susan Baker, Simon Knox & Leslie de
Chernatony
"Product Attributes and Personal Values: A
Review of Means-End Theory and Consumer
Behaviour"

SWP 9/92 Mark Jenkins
"Making Sense of Markets: A Proposed
Research Agenda"

SWP 10/92 Mike Sweeney & Ian Oram
"Information Technology for Management
Education: The Benefits and Barriers"

SWP 11/92 Keith Thompson (Silsoe College)
"International Competitiveness and British
Industry post-1992. With Special Reference to
the Food Industry"

SWP 12/92 Keith Thompson (Silsoe College)
"The Response of British Supermarket
Companies to the Internationalisation of the
Retail Grocery Industry"

SWP 13/92 Richard Kay
"The Metaphors of the Voluntary/Non-Profit
Sector Organising"

SWP 14/92 Robert Brown & Philip Poh
"Aniko Jewellers Private Limited - Case Study
and Teaching Notes"

SWP 15/92 Mark Jenkins & Gerry Johnson
"Representing Managerial Cognition: The Case
for an Integrated Approach"

SWP 16/92 Paul Burns
"Training across Europe: A Survey of Small
and Medium-Sized Companies in Five
European Countries"

SWP 17/92 Chris Brewster & Henrik Holt Larsen
"Human Resource Management in Europe -
Evidence from Ten Countries"

SWP 18/92 Lawrence Cummings
"Customer Demand for 'Total Logistics
Management' - Myth or Reality?"

SWP 19/92 Ariane Hegewisch & Irene Bruegel
"Flexibilisation and Part-time Work in Europe"

SWP 20/92 Kevin Daniels & Andrew Guppy
"Control, Information Seeking Preference,
Occupational Stressors and Psychological
Well-being"

SWP 21/92 Kevin Daniels & Andrew Guppy
"Stress and Well-Being in British University
Staff"

SWP 22/92 Colin Armistead & Graham Clark
"The Value Chain in Service Operations
Strategy"

SWP 23/92 David Parker
"Nationalisation, Privatisation, and Agency
Status within Government: Testing for the
Importance of Ownership"

SWP 24/92 John Ward
"Assessing and Managing the Risks of IS/IT
Investments"

SWP 25/92 Robert Brown
"Stapleford Park: Case Study and Teaching
Notes"

SWP 26/92 Paul Burns & Jean Harrison
"Management in General Practice - 2"

SWP 27/92 Paul Burns & Jean Harrison
"Management in General Practice - 3"

SWP 28/92 Kevin Daniels, Leslie de Chernatony &
Gerry Johnson
"Theoretical and Methodological Issues
concerning Managers' Mental Models of
Competitive Industry Structures"

SWP 29/92 Malcolm Harper & Alison Rieple
"Ex-Offenders and Enterprise"

SWP 30/92 Colin Armistead & Graham Clark
"Service Quality: The Role of Capacity
Management"

SWP 31/92 Kevin Daniels & Andrew Guppy
"Stress, Social Support and Psychological
Well-Being in British Chartered Accountants"

SWP 32/92 Kevin Daniels & Andrew Guppy
"The Dimensionality and Well-Being
Correlates of Work Locus of Control"

SWP 33/92 David Ballantyne, Martin Christopher,
Adrian Payne and Moira Clark
"The Changing Face of Service Quality
Management"

SWP 34/92 Chris Brewster
"Choosing to Adjust: UK and Swedish
Expatriates in Sweden and the UK"

SWP 35/92 Robert Brown
"Goldsmiths Fine Foods - Case Study and
Teaching Notes"

SWP 36/92 Mike Sweeney
"Strategic Manufacturing Management:
Restructuring Wasteful Production to World
Class"

SWP 37/92 Andy Bailey & Gerry Johnson
"An Integrated Exploration of Strategic
Decision-Making"

SWP 38/92 Chris Brewster
"European Human Resource Management:
Reflection of, or Challenge to, the American
Concept"

SWP 39/92 Ute Hanel, Kurt Volker, Ariane Hegewisch
& Chris Brewster
"Personnel Management in East Germany"

SWP 40/92 Lawrence Cummings
"Logistics goes Global - The Role of Providers
and Users"

SWP 41/92 Roger Seaton & Martin Cordey-Hayes
"Interactive Models of Industrial Technology
Transfer: A Process Approach"

SWP 42/92 Susan Segal-Horn
"The Logic of International Growth for Service
Firms"

SWP 43/92 Mike Sweeney
"Benchmarking for Strategic Manufacturing
Management"

SWP 44/92 Paul Burns
"Financing SMEs in Europe: A Five Country
Study"

SWP 45/92 Robert Brown
"The Graduate Enterprise Programme - Has it
been Worthwhile?"

CRANFIELD WORKING PAPERS
List No 7, 1993

SWP 1/93 John Mapes
"The Effect of Limited Production Capacity on
Safety Stock Requirements for Periodic Review
Inventory Systems"

SWP 2/93 Shai Vyakarnam & Alison Rieple
"Corporate Entrepreneurship: A Review"

SWP 3/93 Cliff Bowman & David Faulkner
"Pushing on a String: Uncertain Outcomes
from Intended Competitive Strategies"

SWP 4/93 Susan Baker & Mark Jenkins
"The Role of Values in the Design and
Conduct of Management Research:
Perspectives on Managerial and Consumer
Cognition"

SWP 5/93 Kevin Daniels, Leslie de Chernatony &
Gerry Johnson
"Validating a Method for Mapping Managers'
Mental Models of Competitive Industry
Structures"

SWP 6/93 Kevin Daniels & Andrew Guppy
"Occupational Stress, Social Support, Job
Control and Psychological Well-Being"

SWP 7/93 Colin Fletcher, Ruth Higginbotham & Peter
Norris
"The Inter-Relationships of Managers' Work
Time and Personal Time"

SWP 8/93 Mike Sweeney
"A Framework for the Strategic Management
of both Service and Manufacturing Operations"

SWP 9/93 Colin Armistead & Graham Clark
"The 'Coping' Capacity Management Strategy
in Services and the Influence on Quality
Performance"

SWP 10/93 Ariane Hegewisch
"Equal Opportunities Policies and
Developments in Human Resource
Management: A Comparative European
Analysis"

SWP 11/93 Paula Stanley
"Service to the Courts: The Offender's
Perspective"

SWP 12/93 Mark Jenkins
"Thinking about Growth: A Cognitive
Mapping Approach to Understanding Small
Business Development"

SWP 13/93 Mike Clarke
"Metro-Freight: The Automation of Freight
Transportation"

SWP 14/93 John Hailey
"Growing Competitiveness of Corporations
from the Developing World: Evidence from the
South"

SWP 15/93 Noeleen Doherty, Shaun Tyson & Claire
Viney
"A Positive Policy? Corporate Perspectives on
Redundancy and Outplacement"

SWP 16/93 Shai Vyakarnam
"Business Plans or Plans for Business"

SWP 17/93 Mark Jenkins, Eric le Cerf & Thomas Cole
"Defining the Market: An Exploration of
Marketing Managers' Cognitive Frameworks"

SWP 18/93 John Hailey
"Localisation and Expatriation: The
Continuing Role of Expatriates in Developing
Countries"

SWP 19/93 Kevin Daniels & Andrew Guppy
"Reversing the Occupational Stress Process:
Some Consequences of Employee
Psychological Well-Being"

SWP 20/93 Paul Burns, Andrew Myers & Andy Bailey
"Cultural Stereotypes and Barriers to the
Single Market"

SWP 21/93 Terry Lockhart & Andrew Myers
"The Social Charter: Implications for
Personnel Managers"

SWP 22/93 Kevin Daniels, Gerry Johnson & Leslie de
Chernatony
"Differences in Cognitive Models of Buyers
and Sellers"

SWP 23/93 Peter Boey & Richard Saw
"Evaluation of Automated Warehousing
Policies: Total Systems Approach"

SWP 24/93 John Hailey
"Training for Entrepreneurs: International
Perspectives on the Design of Enterprise
Development Programmes"

SWP 25/93 Tim Denison & Simon Knox
"Pocketing the Change from Loyal Shoppers:
The Double Indemnity Effect"

SWP 26/93 Simon Knox
"Consumers and Grocery Brands: Searching
for Attitudes - Behaviour Correspondence at
the Category Level"

SWP 27/93 Simon Knox
"Processing Ideas for Innovation: The Benefits
of a Market-Facing Approach"

SWP 28/93 Joe Nellis
"The Changing Structure and Role of Building
Societies in the UK Financial Services Sector"

SWP 29/93 Kevin Daniels, Gerry Johnson & Leslie de
Chernatony
"Similarity or Understanding: Differences in
the Cognitive Models of Buyers and Sellers. A
Paper outlining Issues in Mapping and
Homogeneity"

SWP 30/93 Habte Selassie & Roy Hill
"The Joint Venture Formation Environment in
a Sub-Saharan African Country: A Case Study
of Government Policy and Host Partner
Capability"

SWP 31/93 Colin Armistead, Graham Clark and Paula
Stanley
"Managing Service Recovery"

SWP 32/93 Mike Sweeney
"The Strategic Management of International
Manufacturing and Sourcing"

SWP 33/93 Julia Newton
"An Integrated Perspective on Strategic
Change"

SWP 34/93 Robert Brown
"The Graduate Enterprise Programme:
Attempting to Measure the Effectiveness of
Small Business Training"

CRANFIELD WORKING PAPERS
List No 8, 1994

SWP 1/94 Keith Goffin
"Repertory Grids in Market Research: An Example

SWP 2/94 Mark Jenkins
"A Methodology for Creating and Comparing Strategic Causal Maps"

SWP 3/94 Simon Knox
"Re-engineering the Brand"

SWP 4/94 Robert Brown
Encouraging Rural Enterprise in Great Britain
- Britain's "Venturecash" Competition

SWP 5/94 Andy Bytheway, Bernard Dyer & Ashley Braganza
"Beyond the Value Chain: A New Framework for Business Modelling"

SWP 6/94 Joe Nellis
"Challenges and Prospects for the European Financial Services Industry"

SWP 7/94 Keith Thompson, Panagiotis Alekos & Nikolaos Haziris
"Reasoned Action Theory applied to the Prediction of Olive Oil Usage"

SWP 8/94 Sanjoy Mukherjee & Ashley Braganza
"Core Process Redesign in the Public Sector"

SWP 9/94 Mike Sweeney
"A Methodology for the Strategic Management of International Manufacturing and Sourcing"

SWP 10/94 Ariane Hegewisch & Henrik Holt Larsen
"European Developments in Public Sector Human Resource Management"

SWP 11/94 Valerie Bence
"Telepoint: Lessons in High Technology Product Marketing"

SWP 12/94 Andy Bytheway
"Seeking Business Improvement: A Systematic Approach"

SWP 13/94 Chris Edwards & Ashley Braganza
"Classifying and Planning BPR Initiatives: The BPR Web"

SWP 14/94 Mark Jenkins & Malcolm McDonald
"Defining and Segmenting Markets: Archetypes and Research Agendas"

SWP 15/94 Chris Edwards & Joe Peppard
"Forging a Link between Business Strategy and Business Re-engineering"

SWP 16/94 Andrew Myers, Andrew Kakabadse, Colin Gordon & Siobhan Alderson
"Effectiveness of French Management: Analysis of the Behaviour, Attitudes and Business Impact of Top Managers"

SWP 17/94 Malcolm Harper
Micro-Credit - The Benign Paradox

CRANFIELD WORKING PAPERS
List No 9, 1995

SWP 1/95 Andy Bytheway
"Information in the Supply Chain: Measuring Supply Chain Performance"

SWP 2/95 John Ward & Joe Peppard
"Reconciling the IT/Business Relationship: A Troubled Marriage in Need of Guidance"

SWP 3/95 Kevin Daniels, Gerry Johnson, & Leslie de Chernatony
"Collective Frames of Reference, Recognition, and Managers' Mental Models of Competition: A Test of Two Industries"

SWP 4/95 Alison Rieple
"Staffing as a Lever of Strategic Change - The Influence of Managerial Experience, Behaviour and Values"

SWP 5/95 Grafton Whyte & Andy Bytheway
"Factors Affecting Information Systems Success"

SWP 6/95 Andy Bailey & Gerry Johnson
"The Processes of Strategy Development"

SWP 7/95 Valerie Bence
"The Changing Market for Distribution: Implications for Exel Logistics"

SWP 8/95 Valerie Bence
"The Evolution of a Distribution Brand: The Case of Exel Logistics"

SWP 9/95 Andy Bytheway
"A Review of EDI Research"

SWP 10/95 Andy Bytheway
"A Review of Current Logistics Practice"

SWP 11/95 Joe Peppard
"Broadening Visions of BPR: The Imperative of Strategic Integration"

SWP 12/95 Simon Knox & David Walker
"Empirical Developments in the Measurement
of Involvement, Brand Loyalty and their
Structural Relationships in Grocery Markets"

SWP 13/95 Ashley Braganza & Andrew Myers
"Issues and Dilemmas Facing Public and
Private Sector Organisations in the Effective
Implementation of BPR"

SWP 14/95 John Mapes
"Compatibility and Trade-Off Between
Performance: An Alternative View"

SWP 15/95 Mike Sweeney & Marek Szwejczewski
"Manufacturing Standards of Performance for
Success"

SWP 16/95 Keith Thompson, Nicholas Thompson &
Roy Hill
"The Role of Attitudinal, Normative and
Control Beliefs in Drink Choice Behaviour"

SWP 17/95 Andy Bytheway
"Information Modelling for Management"

SWP 18/95 Mike Sweeney & Marek Szwejczewski
"Manufacturing Strategy and Performance: A
Study of the UK Engineering Industry"

SWP 19/95 Valerie Bence
"St.James's Hospital and Lucas Engineering
Systems Ltd - A Public/Private Sector
Collaboration in BPR Project A - Elective
Admissions"

SWP 20/95 Valerie Bence
"St.James's Hospital and Lucas Engineering
Systems Ltd - A Public/Private Sector
Collaboration in BPR Project B - The Re-
Organisation of Purchasing and Supplies"

SWP 21/95 Simon Knox & David Walker
"New Empirical Perspectives on Brand
Loyalty: Implications for Segmentation
Strategy and Equity"

CRANFIELD WORKING PAPERS
List No 10, 1996

SWP 1/96 Andy Bailey & Gerry Johnson
"Patterns of Strategy Development"

SWP 2/96 Simon Knox & David Walker
"Understanding Consumer Decision Making in
Grocery Markets: New Evidence from the
Fishbein Model"

SWP 3/96 Kim James, Michael Jarrett & Donna Lucas
"Psychological Dynamics and Organisational
Learning: from the Dysfunctional Organisation
to the Healthy Organisation"

SWP 4/96 Mike Sweeney & Marek Szwejczewski
"The Search for Generic Manufacturing
Strategies in the UK Engineering Industry"

SWP 5/96 John Baker
"Agility and Flexibility: What's the
Difference"

SWP 6/96 Stephen Adamson, Noeleen Doherty & Claire
Viney
"30 Years On - What Have We Learned About
Careers?"

SWP 7/96 Keith Goffin, Marek Szwejczewski & Colin
New
"Supplier Base Management: An Empirical
Investigation"

SWP 8/96 Keith Goffin
"Operations Management Teaching on
European MBA Programmes"

SWP 9/96 Janet Price, Ashley Braganza & Oscar Weiss
"The Change Initiative Diamond: A
Framework to Balance Business Process
Redesign with other Change Initiatives"

CRANFIELD WORKING PAPERS
List No 11, 1997

SWP 1/97 Helen Peck
"Towards A Framework of Relationship
Marketing: A Research Methodology"

SWP 2/97 Helen Peck
"Towards A Framework of Relationship
Marketing: An Initial Case Study"

SWP 3/97 Chris Edwards & Joe Peppard
"A Critical Issue in Business Process Re-
Engineering: Focusing the Initiative"

SWP 4/97 Joe Peppard and Don Fitzgerald
"The Transfer of Culturally-Grounded
Management Techniques: The Case of
Business Re-Engineering in Germany"

SWP 5/97 Claire Viney & Shaun Tyson
"Aligning HRM with Service Delivery"

SWP 6/97 Andy Bailey & Gerry Johnson
"Logical or Processual? Defining
Incrementalism"

SWP 7/97 Keith Goffin
"Evaluating Customer Support Requirements
at the Product Design Stage"

SWP 8/97 Keith Goffin, Colin New & Marek
Szwejczewski
"How Innovative are UK Manufacturing
Companies?"

SWP 9/97 Kim James
"Beyond Individual Stress Management
Programmes: Towards an Organisational
System Approach"

SWP 10/97 Mark Hambly & Richard Reeves
"The Application of Foresight in UK Research
and Development"

SWP 11/97 Leslie Falkingham & Richard Reeves
"Context Analysis - A Technique For
Analysing Research in a Field, Applied to
Literature on The Management of R&D at the
Section Level"

SWP 12/97 Ali Jawad & Richard Reeves
"Successful Acquisition of IT Systems"

SWP 13/97 Richard Reeves
"Managing Research and Development"

SWP 14/97 Leslie Falkingham & Richard Reeves
"The Four Schools of Thought in Research and
Development Management and the
Relationship of the Literature to Practitioners'
Needs"

SWP 15/97 Val Singh
"A Qualitative Study of the Relationship
between Gender and Managerial Perceptions of
Engineers' Commitment: Cases from the UK
and Sweden"

SWP 16/97 John Fielding
"Dividend Yields, Business Optimism and the
Predictability of Long Horizon Returns in the
UK"