**Home Work 3**

2. Read the boxes “Can You Beat the Market? Part I” and “Can You Beat the Market? Part II”.

**~~Can you Beat the Market? part I~~**

ave you ever dreamed of getting rich quickly by beating the stock market? If you think that

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the market will be going up, you should buy stocks today and sell them later, before the market turns down. If you are good at forecasting swings in stock prices, then this active trading strategy will produce better returns than a passive “buy and hold” strat- egy in which you purchase stocks and just hang onto them. The trick, of course, is having a reliable fore- cast of future stock returns.

Forecasts based on past values of stock returns are sometimes called “momentum” forecasts: If the value of a stock rose this month, perhaps it has momentum and will also rise next month. If so, then returns will be autocorrelated, and the autoregressive model will provide useful forecasts. You can implement a momentum-based strategy for a specific stock or for a stock index that measures the overall value of the market.

**TABLE 14.2 Autoregressive Models of Monthly Excess Stock Returns, 1960:M1–2002:M12**

**Dependent variable: excess returns on the CrSp value-weighted index**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **(1)** | **(2)** | **(3)** |
| Specification | AR(1) | AR(2) | AR(4) |
| Regressors |  |  |  |
| *excess returnt* - 1 | 0.050  (0.051) | 0.053  (0.051) | 0.054  (0.051) |
| *excess returnt* - 2 |  | –0.053  (0.048) | –0.054  (0.048) |
| *excess returnt* - 3 |  |  | 0.009  (0.050) |
| *excess returnt* - 4 |  |  | −0.016  (0.047) |
| Intercept | 0.312 | 0.328 | 0.331 |
|  | (0.197) | (0.199) | (0.202) |
| *F-*statistic for coefficients on- | 0.968 | 1.342 | 0.707 |
| lags of *excess return* (*p*-value) | (0.325) | (0.261) | (0.587) |
| *R* 2 | 0.0006 | 0.0014 | –0.0022 |

*Note:* Excess returns are measured in percentage points per month. The data are described in Appendix 14.1. All regressions are estimated over 1960:M1–2002:M12 (*T* = 516 observations), with earlier observations used for initial values of lagged variables. Entries in the regressor rows are coefficients, with standard errors in parentheses. The final two rows report the

*F*-statistic testing the hypothesis that the coefficients on lags of *excess return* in the regression are zero, with its *p*-value in parentheses, and the adjusted *R*2.

Next, you will find an extended version of the data set described in the boxes; the data are in the file **Stock\_Returns\_1931\_2002** and are described in the file **Stock\_Returns\_1931\_2002\_Description**.

**a.** Repeat the calculations reported in Table 14.2, using regressions estimated over the 1932:M1–2002:M12 sample period.

**b.** Repeat the calculations reported in Table 14.6, using regressions estimated over the 1932:M1–2002:M12 sample period.

**c.** Is the variable ln(*dividend yield*) highly persistent? Explain.

**d.** Construct pseudo out-of-sample forecasts of excess returns over the 1983:M1–2002:M12 period, using regressions that begin in 1932:M1.

**e.** Do the results in (a) through (d) suggest any important changes to the conclusions reached in the boxes? Explain.