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ANALYSIS OF PREDICTABLE BEHAVIOUR OF SECURITY RETURNS ON THE JSE

By

Simon Muzenda

Thesis submitted in fulfilment of the requirements for the degree of
Master of Management in Finance & Investment

in the

FACULTY OF COMMERCE LAW AND MANAGEMENT
WITS BUSINESS SCHOOL

at the

UNIVERSITY OF THE WITWATERSRAND

SUPERVISOR: PROFESSOR E. SCHALING

DECLARATION

I, Simon Muzenda declare that the research work reported in this dissertation is my own, except where otherwise indicated and acknowledged. It is submitted for the degree of Master of Management in Finance and Investment in the University of the Witwatersrand, Johannesburg. This thesis has not, either in whole or in part, been submitted for a degree or diploma to any other universities.

_____ Date:

Simon V. Muzenda

ABSTRACT

This paper replicates Jegadeesh`s (1990) paper entitled “Evidence of Predictable Behavior of Security Returns”. Jegadeesh (1990) states that by using the observed systematic behaviour of stock returns it is possible to make “one-step-ahead return forecasts”. That is forecast the return one month in the future.

The aim of this research is to assess the predictability of monthly returns on the Johannesburg Stock Exchange (JSE) by analysing the monthly returns of stocks and portfolios of stocks from the JSE.

This thesis will show that it is not possible to accurately or reliably forecast future returns for individual stocks or portfolios of stocks from the JSE. In addition the findings in this paper also indicate that stocks and portfolios of stocks from the JSE follow the random walk theory.

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ANALYSIS OF PREDICTABLE BEHAVIOUR OF SECURITY RETURNS ON THE JSE

1. CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

The random walk theory has been extensively analysed and debated by researchers. The validity or lack thereof of the theory has important implications for security traders and financial security models.

The random walk theory asserts that new information is immediately reflected in the securities price. In statistical terms the theory states that successive price changes are independently, identically distributed random variables. More simply this implies that the series of price changes has no memory. Therefore if the random walk theory is valid, security price changes should be unpredictable and random (e.g., Malkiel, 2003; Fama, 1970; Roberts, 1959; Kendall and Hill, 1953; Working, 1934; and others).

This thesis will look into previous research that claims to have uncovered methodology to forecast stock returns and the counter arguments that rebuff those claims and prove that stock returns cannot be forecasted.

1.2 RESEARCH OBJECTIVES

This thesis replicates Jegadeesh`s (1990) paper entitled “Evidence of Predictable Behaviour of Security Returns”. Jegadeesh (1990) states that by using the observed systematic behaviour of stock returns it is possible to make “one-step-ahead return forecasts”. Hence this thesis will assess the predictability of monthly returns on the Johannesburg Stock Exchange (JSE). In other words can we forecast the returns of stocks listed on the JSE? This thesis will show that it is not possible to forecast stock returns. Therefore this thesis will be of interest to investors who employ buy and hold strategies and short sellers.

Investors who employ buy and hold strategies will benefit from this thesis as the thesis looks at the performance of stocks over three year horizons. Investors who short sell stocks will also benefit from this thesis as they continuously seek to identify stocks that will lose value in the short term.

Predictability will be tested by analysing the monthly return of all stock returns available on the JSE between January 1999 and December 2010. The forecast model will be tested on individual stocks from different market sectors and on portfolios of stocks. Two portfolio sets will be formed by ranking stocks on market returns and market capitalisation. The forecast for month t+1 will be calculated at month t. Hence the model`s accuracy will be tested by comparing the forecasted return for month t with respect to t+1.

The rest of this thesis is outlined as follows: Chapter 2 will discuss previous research related to the random walk theory and forecasting stock returns. Chapter 3 will explain the data sampling set and research methodology. Chapter 4 will report on the statistical findings and Chapter 5 will give the overall conclusion.

2. CHAPTER 2: LITERATURE REVIEW

2.1 BENEFITS OF STOCK EXCHANGES

Stock markets are believed to be very proficient in allocating capital to its highest-value users. Therefore if stock markets proficiently allocate capital, there will be improved economic productivity. Stock markets also play an important role in encouraging savings and investment, therefore if markets are not proficient in allocating capital there will be little incentive for people to save and invest their money (Claessens *et al.,* 1995).

Carvalho and Pennacchi (2010) state that companies listed on a stock exchange achieve higher standards of corporate behaviour. The listing requirements imposed by the stock exchange ensure that management take decisions that are not harmful to shareholders.

In countries where minority shareholders are poorly protected by the legal environment, controlling shareholders and management[1] can extract value from the company to the detriment of the minority shareholders. The controlling shareholders value this right to control the company[2] (Doidge, 2004). Fuerst (1998) then states that managers that commit to a policy of better disclosure reduce managers expected future private benefits. This enhances minority shareholders value as the increased disclosure reduces agency costs.

Therefore companies that list on stock exchanges protect their minority shareholders, reduce agency costs and maintain high standards of corporate behaviour.

[1] Those entitled to the private benefits of control. Reese and Weisbach (2002) add that the quality of legal protection affects the ability of parties to expropriate resources from one another ex post, and thus influences the contracts that will be observed ex ante,

[2] Value would vary from country to country, depending on the level of legal protection.

2.2 PREVIOUS RESEARCH

According to Poshakwale (1996) the idea that security prices might follow a random walk was brought forward by Bachelier (1900). The random walk theory is used to describe successive securities price changes which are independent of each other. In other words, this implies that the series of price changes has no memory. Tomorrow's price change (and therefore, the next day's price) cannot be predicted by looking at historical price changes (Poshakwale, 1996).

Proofs of non-predictability have taken several forms. Hameed and Kusnadi (2002) test the profitability of predicting stock returns using the momentum variable in six Asian stock markets. They found that adopting the momentum variable does not yield above normal profits. Karemera *et al,* (1999) employed multiple variance tests to analyse the stochastic properties of 15 emerging markets. Karemera *et al,* (1999) found that 10 of the 15 emerging market stock exchanges followed the random walk theory. Ojah and Karemera (1999) employ multiple variance and auto-regressive fractionally integrated moving average tests. They adopt this approach to clarify conflicting results from previous studies on equity price dynamics and market efficiency. Ojah and Karemera (1999) found that investors cannot use historical information to design systematically profitable trading strategies as long term returns are not dependent on past returns.

However there are studies that claim to have uncovered evidence that shows that stock returns can be predicted. For example Fama (1965) states that all chartist theories make the same basic assumption. They all assume that the past behaviour of a security's price contains information concerning its future behaviour. They hold on to the belief that history repeats itself in that patterns of past security price behaviour will tend to recur in the future.[3] Therefore price chart analysis should be able to predict future share price movements and increase expected gains for investors.

[3] For example: the January anomaly, turn of the month anomaly and the weekend anomaly.

Fama and French (1988) examine autocorrelations of returns from 1926 to 1985. They analyse the mean reversion of stock returns for industry portfolios and found that the predictable variation in stock returns is about 35% for 3-5 year return variances. They go on to say that returns are more predictable for portfolios of small firms.[4] Poshakwale (1996) conducted non-parametric tests to adjust for the non-normality of the Bombay stock Exchange (BSE). Poshakwale (1996) found that the stocks on the BSE exhibit day of the week anomaly.

Regression analysis has found variables that have been reported to have the ability to predict security returns. Some of the variables are accounting ratios, momentum effect, investor sentiment and economic links across firms (e.g., Kang *et al.,* 2002; Hameed and Kusnadi, 2002; Schiereck *et al.,* 1999; Rouwenhorst, 1999; Rouwenhorst, 1998; Fama and French, 1996; and others).

Accounting ratios like return on equity (ROE), price/earnings ratio (P/E) and ratios based on firm size or book-to-market, have been found to have strong predicting power for security returns. Rouwenhorst (1999) examined the cross-section of returns of 20 emerging markets. He found that small stocks outperform large stocks and value stocks outperform growth stocks. Brennan *et al.* (1998) conducted risk adjusted regressions on returns of developed markets. They uncovered evidence that size and book-to-market effects have a significant negative relationship with returns and trading volumes. Ferson and Harvey (1997) conduct time series tests on portfolios of US common stock. They found that firm size and book-to-market ratios have significant explanatory power. Lakonishok *et al.* (1994) analysed US stocks and found that value stocks with high book-to-market, earnings-to-price or cash-flow-to-price ratios outperform growth stocks with low book-to-market, earnings-to-price or cash-flow-to-price.

Tests on the momentum effect has proven that the momentum effect is capable of predicting returns in numerous markets (e.g., Kang *et al.,* 2002; Hameed and Kusnadi, 2002; Schiereck *et al.,* 1999; Rouwenhorst, 1999; Rouwenhorst, 1998; and others). The momentum effect is defined as a variable that tracks a specific aspect of a company's stock, e.g. earnings, price and profits. Therefore an earnings

[4] My sample is too short to try and replicate Fama and French (1988).

momentum strategy would identify and track companies that have had positive earnings and a profit momentum strategy would identify and track companies that have had positive profits.

Investors' sentiment towards a company's returns in relation to the availability of information, or the information environment surrounding the company may create anomalies in the securities price.[5] This may give substantial explanatory power to prediction from book-to-market ratios and the momentum effect variable. Investors inattention to economic links between firms may also give rise to significant explanatory power to prediction from accounting ratios and the momentum effect (e.g., Cohen and Frazzini, 2008; Ang *et al.*, 2006; Nagel, 2005; Hirshleifer *et al.,* 2004; and others).

However security mispricing or irrational behaviour driven by investor sentiment does not necessarily imply that the random walk theory does not hold. Security mispricing and market anomalies in stock returns do appear over time and may even persist for a limited period in the market. Malkiel (2003) argues that the market cannot be perfectly efficient, or there would be no incentive for investors to uncover the information that gets so quickly reflected in market prices. Therefore if there are enough superior investors in the market, they will trade away any security mispricing to bring the company's stock back to its fair price, earning the traders arbitrage profits. Assuming that everyone in the market has access to the same information the presence of superior traders in the market will always ensure that the true security price will always emerge. This will occur because superior traders are able to adjust to the effects of new information on intrinsic values faster than average traders (Fama, 1965).

It has also been argued that once successful predicting models and anomalies become public knowledge, they tend to disappear due to changes in investor behaviour based on the profitability of the forecast models and anomalies (e.g., Dimson and Marsh, 1999; Bossaert and Hillion, 1999; Brock *et al.*, 1992; Fama, 1991; and others). Researchers have discovered that some anomalies that have

[5] Largely due to erratic trading.

been identified are not true profitability opportunities (i.e., investors profits are eroded by transaction costs) or are a result of data-snooping.

Data snooping occurs when a given set of data is used more than once for purposes of inference or model selection. When such data reuse occurs, there is always the possibility that any satisfactory results obtained may simply be due to chance rather than to any merit inherent in the method yielding the results. If data-snooping has occurred, it is highly unlikely that the anomaly will resurface in the future (Timmermann and Granger, 2004; Malkiel, 2003; Lo and MacKinlay, 1990; and others).

2.2.1 Competency of the JSE

The competence of the JSE has consistently been improved to ensure that all relevant information is instantly available to the general public and trades are executed timely. To improve the competency of the JSE, the board has ensured that all trades are executed electronically, and that all relevant company news are published via SENS. The SENS releases all relevant company information that is price sensitive as soon as the information has been verified (http://www.jse.co.za/How-To-List/Main-Board.aspx, 2011). Despite the efforts undertaken by management at the JSE, there is mixed evidence that the JSE reflects all available information.

Previous research on the JSE has uncovered anomalies like the January effect. This implies that it is possible to earn an excess return above the market return on the JSE (Philpott and Firer, 1995; and Page and Way, 1993). Mangani (2011) found that adopting movements in the short-term interest rate forecast models, increases predictive power for stock returns on the JSE. In contrast to Mangani`s (2011) findings, there is evidence that is not possible to forecast future returns and outperform the market portfolio (Mabhunu, 1994; Simons and Laryea, 2006; Magnusson and Wydick, 2002).

3. CHAPTER 3: METHODOLOGY

3.1 REGRESSION DATA SET

All data is retrieved from Inet Bridge®. The statistical package Microfit® will run all the statistical regressions and forecast estimates.

The sample comprises of all stocks listed on the JSE that have monthly market returns from January 1999 until December 2010. All stocks listed on the JSE after January 1999 and all stocks that delisted before December 2010 are excluded from the data set. This restrictive criterion is maintained to limit portfolio readjustments when a stock lists or delists from the JSE. Therefore the data sat analysed in this thesis is comprised of stock returns of 154 companies.

Analysing stock returns from January 1999 until December 2010 enables the statistical research to replicate and investigate Jegadeesh`s (1990) findings.

3.2 RESEARCH METHODOLOGY

This section describes the forecast model and the serial correlation properties of individual securities. The model adapts and improves a model first brought forward by Jegadeesh (1990) in his paper titled “Evidence of predictable behaviour of security returns”.

Equation 1 defines the return on security i in month t as $\tilde{R}_{it}$, which is equal to the unconditional expected return on security i ($E(R_i)$) and the unexpected return or error term in month t (ε_{it}).

$$\tilde{R}_{it} = E(R_i) + \varepsilon_{it} \quad (1)$$

Therefore Equation 2 is the cross-section regression model that represents security i`s return in month t as the summation of lagged terms (R_{it-j}) scaled by its coefficient (α_{jt}) and the unexpected return of security i in month t (ε_{it}).

$$\tilde{R}_{it} = \alpha_{ot} + \sum_{j=1}^{J} \alpha_{jt} R_{it-j} + \varepsilon_{it} \quad (2)$$

The expression above gives the expected return of security i as a function of lagged actual return plus an error term. In other words equation (2) states that lagged returns contain information that explains the current return of security i. The expression below[6] is for the slope coefficients in the multivariate regression above.

$$\begin{bmatrix} \alpha_{1t} \\ \vdots \\ \alpha_{Jt} \end{bmatrix} = \left[cov_i \begin{Bmatrix} R_{it-1} \\ \vdots \\ R_{it-J} \end{Bmatrix} \right]^{-1} \begin{bmatrix} cov_i(R_{it}, R_{it-1}) \\ \vdots \\ cov_i(R_{it}, R_{it-j}) \end{bmatrix} \quad (3)$$

Equation 3 shows that each slope coefficient (α_{jt}) is represented by the covariance of the return of security i with its lagged returns divided by security i`s covariance.[7]

[6] Please refer to the appendix for an example of a security with two lagged terms.

[7] Jegadeesh (1990) states that by expanding the components of the second term on the right-hand side, of equation (3), using equation (1) and taking expectations, we get:

The dependent variable in equation (2) in now redefined in the equation below:

$$\check{R}_{it+1} = \alpha_{ot} + \sum_{j=1}^{J} \alpha_{jt} R_{it-j} + \varepsilon_{it} \quad (4)$$

Equation (4) is identical to equation (2) except for the dependent variable. Therefore equation (4) is a different cross-section regression from equation (2). The dependent variable $\check{R}_{it}$ is now defined as the predicted return of security i in month t+1 that is one month into the future.[8] If lagged returns contain information that explains security return movements, they will be able to predict future returns (Jegadeesh, 1990). The coefficients α_{jt} will still be defined as specified in equation (2). The slope coefficients will be statistically different from zero only if the security returns are serially correlated.

To test the suitability of the forecast model equation (4) will be tested against actual stock returns. To estimate $\check{R}_{it+1}$ the forecast model will update the lagged terms (R_{it-j}) by discarding the last or oldest lagged term and replacing it with the return from month t. The lagged terms will be updated monthly over the testing window to incorporate the most relevant information regarding stock returns and to allow for stock splits (Fama and MacBeth, 1973). The estimated $\check{R}_{it+1}$ will then be compared against the actual return for month t+1.

$cov_i(R_{it}, R_{it-j}) = cov_i(\eta_{it}, \eta_{it-j}) + var_i(E(R_i))$. The first component is the average serial covariance of individual security returns. The second component is the cross-sectional variance of unconditionally expected returns. While the first component will be zero in (cont.) the absence of serial correlation, the second component will be positive as long as the expected returns vary across the securities in the cross-section.

[8] The covariance between the dependent variable and the j[th] independent variable will now be: $cov_i(R_{it}, R_{it-j}) = cov_i(\eta_{it}, \eta_{it-j})$.

3.3 WHY USE PORTFOLIOS

Ang *et al.,* (2010) stated that the motivation for adopting portfolios was originally brought forward by Blume (1973). Blume (1973) stated that coefficients are estimated with errors and this estimation error is diversified away by aggregating stocks into portfolios. Numerous authors, including Black *et al.,* (1972), Fama and MacBeth (1973), and Fama and French (1993), use this motivation to choose portfolios as base assets in factor model tests. The authors suggest that more precise estimates of factor loadings should translate into more precise coefficient estimates, and lower standard errors of factor risk premia (Ang *et al.,* 2010). Therefore portfolios will be formed to analyse the forecast models suitability to predict future returns for portfolios of stocks.

The traditional way to sort stocks into portfolios is to rank the stocks based on a certain criteria and running tests based on the same set of data. For example if we formed portfolios on the basis of stock returns[9], stocks that consistently outperform the market return tend to be bunched in portfolios that overstate the true market return and cause positive sampling errors. The result would be that high return portfolios would tend to overstate the true market return while low return portfolios would understate the true market return (Fama and MacBeth, 1973). To reduce the possible sampling error, Fama and MacBeth (1973) suggest that portfolios should be formed over a five-to-seven year period. Then estimate the portfolio coefficients (α_{jt}) for the portfolios over the next five-to-eight year period. This study will form portfolios from January 2004 to December 2007 and then portfolio forecasts will be tested monthly from January 2008 to December 2010. This will produce 36 regressions to be analysed.

[9] That is the data sample based on a cross section of security returns.

3.4 PORTFOLIO FORMATION

To construct the portfolios, stocks will be ranked from lowest to highest and evenly distributed to form ten portfolios. For example to illustrate how portfolios ranked on market returns are formed, all 154 companies are sorted in ascending order. That is the first security has the lowest average return on the JSE between January 2004 and December 2007. The second security has the second lowest average return on the JSE between January 2004 to December 2007 up to the 154^{th} security which has the highest average return on the JSE between January 2004 and December 2007. After sorting the securities, ten portfolios are created by placing 15 securities in each portfolio except for portfolio 1, 2, 9 and 10 which are given an extra security each. Portfolio one will comprise of securities that have the lowest market return between January 1999 and December 2003. Portfolio two will comprise securities that have the second lowest market return until portfolio 10 is formed which will comprise stocks that have the highest market return. The same procedure is repeated to portfolios ranked on market capitalization or firm size.

Regression analysis will be run monthly over a three year horizon, from January 2008 to December 2012. This will produce 36 regression outputs to be analysed. The regression output tests if the forecast model is capable of forecasting the return for month t+1.

Two separate portfolio sets will be formed by ranking stocks on average market returns and average market capitalisation. Forming portfolios based on market capitalization allows this study to take firm size into account. The market-cap portfolios will test the findings of Rouwenhorst (1999), Brennan *et al.* (1998) and Ferson and Harvey (1997). All three papers found that firm size played a significant role in predicting a securities return.

3.5 STATISTICAL HYPOTHESIS

The F-statistic (Regression P-value) will be analysed to determine the overall regression fit. The F-statistic analyses if lagged returns are suitable variables to explain future returns. The null and alternative hypotheses for the F-statistic are defined below:

- Null hypothesis: All the slope coefficients are equal to zero.
- Alternative hypothesis: The slope coefficients are all not equal to zero.

If I fail to reject the null hypothesis that all the slope coefficients are equal to zero then I may conclude that lagged returns are not a suitable variable to explain stock returns.

If I reject the null hypothesis that the slope coefficients are all not equal to zero then I may conclude that that lagged returns may be a suitable variable to explain actual stock returns for month t+1.

To minimise biases being introduced from correlated alpha coefficients adjusted R squared ($\bar{R}^2$) will be analysed instead of the R squared (R^2).

R squared describes how well the lagged returns can forecast the return for month t+1. If the alpha coefficients are correlated the R squared given will be biased and give a false impression that lagged returns may predict the return for month t+1. Therefore the adjusted R squared will be used as it adjusts for the number of variables in the analysis and any possible correlation between the alpha coefficients (Meier *et al.,* 2011).

3.5.1 Durbin Watson Test

The DW test[10] is employed to confirm that the alpha coefficients are not correlated. To test if the alpha coefficients are correlated, the Durbin-Watson (DW) test will analyse the 1st order serial correlation (autocorrelation) properties of the residuals or prediction errors from the regression analysis.

To test if the random walk theory holds for securities on the JSE, the DW test will analyse the relationship between alpha coefficients. The DW test applies a statistic to the prediction errors from the regression analysis, and develops bounds to test for the null hypothesis and the alternative hypothesis which are defined below: (Seddighi *et al*., 2000).

- Null hypothesis: The prediction errors are serially independent.
- Alternative hypothesis: The prediction errors follow a first order autoregressive process.

The DW test sets the statistic interval between 0 and 4. A test statistic that is either equal to or close to 2 indicates that no autocorrelation is present. Hence I fail to reject the null hypothesis.

A test statistic below 1 or above 3 indicates that autocorrelation is present. Hence I reject the null hypothesis. If returns on the JSE follow the random walk theory the DW test should have test statistics that are either equal to or close to 2 (Seddighi *et al*., 2000).

[10] The DW test is not sophisticated enough to pick up the complex patterns viewed in stock prices. Therefore it will be limited to indicating if stocks follow a random walk.

4. CHAPTER 4: ANALYSIS OF RESULTS

4.1 PRELIMINARY MODEL TESTS

Preliminary model tests were conducted to indicate if the model is suitable to forecast the return for month t+1. The tests identified that five lags are the only significant regression with a P-value of 0.04.[11] The difference between the R bar ($\bar{R}^2$) which has a value of 18.2% and the R squared (R^2) which has a value of 30.5% indicates that the lagged terms may be correlated.

Further tests[12] to identify the optimal number of monthly lags shows that 46 monthly lags are the most suitable for the data set in this thesis. [13]

The preliminary analysis may be interpreted as evidence that the random walk theory does not hold for the JSE. However the above findings do not have grounds to claim that the random walk theory does not hold for stocks on the JSE. The above findings prove that stocks are not perfectly efficient (Malkiel; 2003).

If markets were perfectly efficient there would be no incentive for investors to uncover the information that is so quickly reflected in market prices. Therefore the regressions where the F-statistic rejected the null hypothesis indicate that the market is adjusting to new information.

Equation (5) below is the forecast model that has been identified by the preliminary tests.

$$\check{R}_{pt+1} = \alpha_{ot} + \sum_{j=1}^{5} \alpha_{jt} R_{it-46} + \varepsilon_{it} \qquad (5)$$

[11] Please refer to Table 35 in Appendix A.2 for detailed regression results.
[12] Please refer to Table 36 in Appendix A.2 for detailed regression results.
[13] Jegadeesh (1990) found twelve lags with twenty-six monthly observations were the most statistically significant for his sample.

To test the suitability of the forecast model equation (5) will be tested against actual stock returns. The estimated $\check{R}_{pt}$ will then be compared against the actual return in month t. To estimate $\check{R}_{pt+1}$ the forecast model will update the lagged terms (R_{it-46}) by discarding the last or oldest lagged term and replacing it with the return from month t. The lagged terms will be updated monthly over the 3 year testing window to incorporate the most relevant information regarding stock returns and to allow for stock splits (Fama and MacBeth, 1973).

The regression analysis will be run monthly over a three year horizon, from January 2008 to December 2010. This will produce 36 regression outputs to be analysed.

4.2 DESCRIPTIVE STATISTICS FOR ENTIRE SAMPLE

The descriptive statistics cover the entire sample period from January 2004 to December 2010. Table 1 below summarises the key statistics.

The mean of the sample is -0.0078, which shows that stocks on the JSE had a negative return over the 6 year period. The median for the sample is -0.0109 and the sum of all the data points are -1.1105. The mean, median and sum verify that the distributions of returns are negatively skewed.

The variance for the sample is 0.0018 which is relatively small. This indicates that there is little dispersion or scatter from the mean value of -0.0078.

Table 1: Descriptive Statistics

Mean	-0.00777
Standard Error	0.003584
Median	-0.01089
Mode	#N/A
Standard Deviation	0.042862
Sample Variance	0.001837
Kurtosis	0.61503
Skewness	0.546435
Range	0.242579
Minimum	-0.10921
Maximum	0.133371
Sum	-1.11053
Count	143
Largest(1)	0.133371
Smallest(1)	-0.10921

The skewness for the sample is greater than zero with a value of 0.5464, hence the distribution of returns is marginally left skewed and the tail extends to the right. The kurtosis for the sample is 0.6150, which shows that the sample is marginally leptokurtic, indicating that the sample has a slightly higher peak than the normal distribution curve with longer and fatter tails.

Figure 1: Histogram and Normal curve

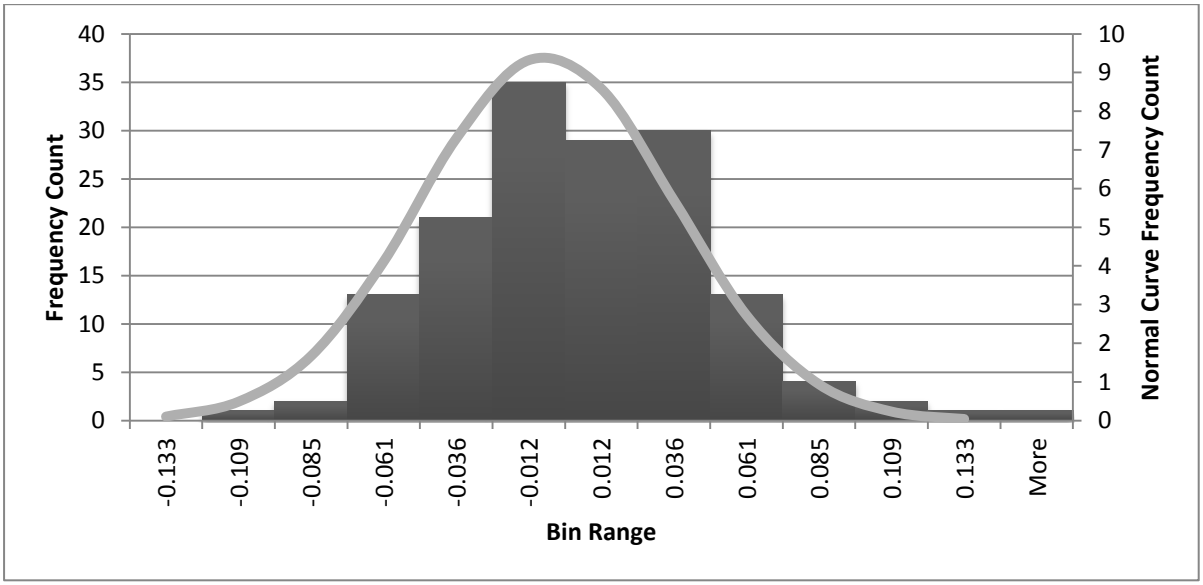


Figure 1 plots the histogram of returns with the normal curve superimposed to highlight the statistical properties of the data sample. As pointed out by the tests for skewness and kurtosis the data sample has a longer right handed tail with marginally higher peaks.

The correlation matrix below shows that there is little correlation between the lagged terms. The highest correlation of 0.348 is between lag 1 and lag 5. This indicates that there is little correlation between lag 1 and lag 5. The correlations between the other variables are all below 0.348 indicating that there is very little correlation between all five lagged terms.

Table 2: Correlation matrix for aggregated sample

	Lag_1	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	0.320620	1			
Lag_3	0.241985	0.322206	1		
Lag_4	0.162581	0.243258	0.331113	1	
Lag_5	0.348291	0.163096	0.242674	0.333854	1

4.3 AGGREGATED RESULTS FOR ENTIRE SAMPLE

Figure 2 shows the monthly plot of average returns for all securities in the sample for all months under statistical analysis. The aggregated plots are created by finding the average return of securities per month. For example to calculate the aggregated return for January 2004, the average return for all securities in January 2004 is calculated. The monthly aggregated returns for all the months from January 1999 to December 2010 will also be used for the forecast analysis.

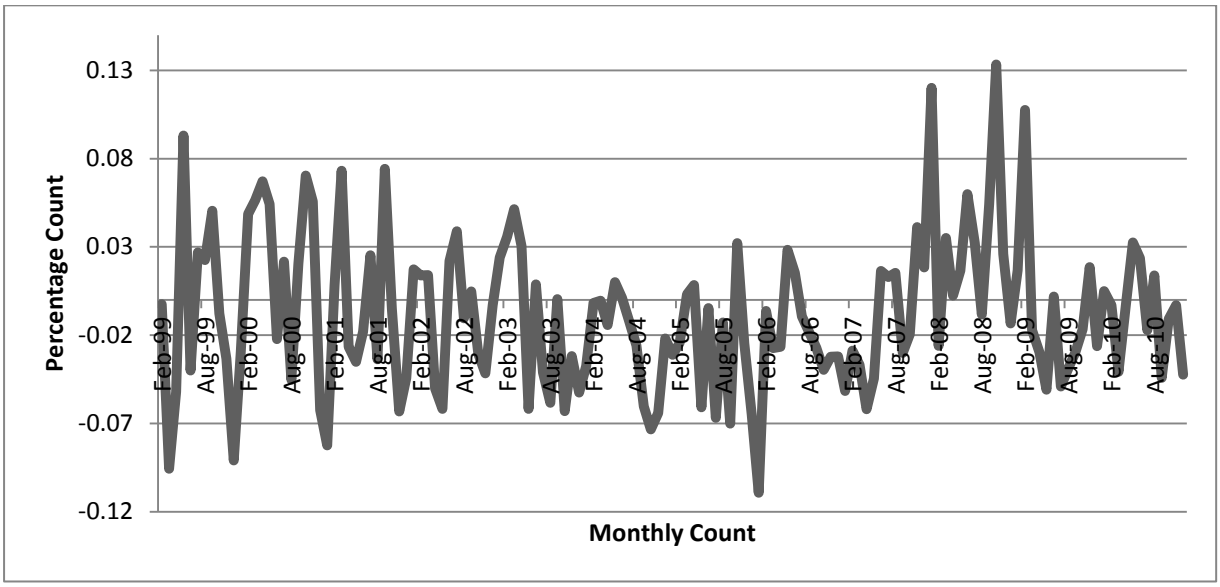
The plot shows that stock returns on the JSE exhibit a random walk without trend or drift[14].

[14] In other words stocks on the JSE do not have a memory.

The Dickey-Fuller (DF)[15] test examines if a unit root is present in an auto-regressive model. The DF test has defined the critical t-value for a model that does not drift or have a deterministic trend as -2.89. If the t-statistic is more negative than -2.89, this indicates that the series is stationary and that the random-walk theory holds.

The DF test indicates that stocks on the JSE are stationary[16] as the t-statistics for all aggregated regressions run is more negative than -2.89 at the 5% confidence level.

Figure 2: Plot of Stock Returns (January 1999 – December 2012)



Regression analysis will be run monthly over a 36 month horizon. The regression output tests if the forecast model is capable of forecasting the return for month t+1. Only four of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. This low number indicates that lagged returns may not be a reliable variable to forecast stock returns. This finding also suggests that returns on JSE may not be predictable.

[15] The DF Test is not sophisticated enough to definitively rule out if a unit root is present or not. Therefore the DF test is limited to indicating if a unit root is present or not. The DF test examined unit roots of returns from January 2004 to December 2010.
[16] Please refer to Table 38 in Appendix A.5 for detailed regression results.

The DW test shows that there is no serial correlation as all the regressions have statistics that are either two or very close to two. Hence all regressions support the null hypothesis of no serial correlation. The correlation matrix confirmed that the lagged returns are not correlated. Therefore I fail to reject the null hypothesis and conclude that stocks on the JSE follow the random walk theory.

In addition to the low number of significant regressions the average adjusted R-squared is very low with a value of 10.97%. In other words the five lagged returns explain on average 10.97% of month t's stock returns.[17]

Figure 3: Prediction Error and Cumulative Error for the Entire Portfolio

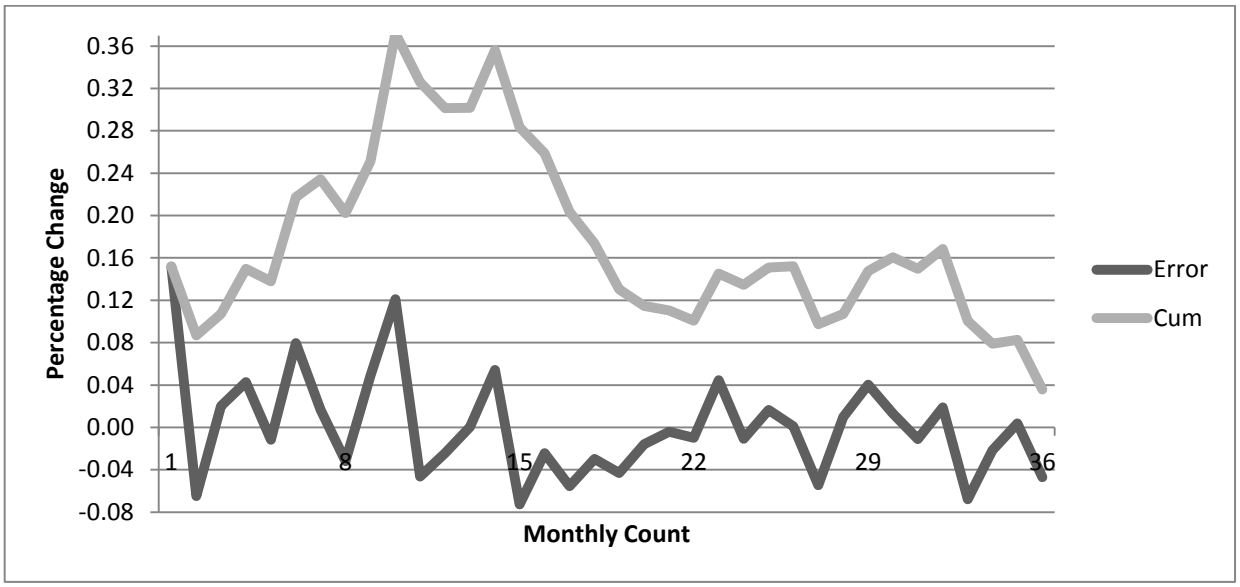


Figure 3 graphically illustrates the accuracy of the monthly forecasts calculated by the forecast model against the actual monthly return. The black line is the forecast error line. It is calculated by subtracting month t+1`s return by the forecasted return for month t+1. Positive values indicate that the forecast model underestimated month t+1`s return and negative values indicate that the forecast model overestimated month t+1`s return. The x-axis measures the monthly count over the 36 month testing period. The y-axis measures the percentage return of portfolios.

[17] Jegadeesh (1990) found the average adjusted R squared for his sample to be 10.8%.

The grey line is the cumulative forecast error line. The cumulative forecast error graph is employed to show the accuracy of the forecast model over the three year testing horizon. It is simply the cumulative addition of the forecast errors from January 2008 to December 2010. If the forecast model accurately forecasts month t+1`s return, the forecast error graph should hover around zero.

The highest and lowest forecast errors are recorded between January 2008 and August 2009. The errors range from a maximum (forecast underestimation) of 15.17%[18] to a minimum (forecast overestimation) of -7.28%. The cumulative forecast error graph confirms the volatile forecast errors between January 2008 and August 2009 by attaining a maximum value of 0.3722 in October 2008.

The volatile stock performance is most likely a result of the global recession in 2007-2008. This period was characterised by erratic stock performance which would have made it difficult for the forecast model to accurately estimate month t+1's return. After August 2009 the abnormal returns[19] accumulated are reversed and stock returns drift at a return average of -0.0105. The forecast model makes smaller errors in estimating month t+1's return hence the forecast error graph hovers around zero.

Despite the volatile errors of January 2008 to August 2009 the average forecast error over the entire testing sample is 0.000099. The overall forecast errors are fairly small over the three year horizon, despite the large short term fluctuations largely due to the global recession of 2007-2008.

[18] The percentage is calculated by finding the percentage difference between time t and time t+1.
[19] Abnormal returns refer to returns that have excessively large positive and negative returns.

4.4 MARKET RETURNS WEIGHTED PORTFOLIO REGRESSION RESULTS[20]

4.4.1 Portfolio 1

Portfolio 1 comprises of stocks that had the lowest returns on the JSE between January 2004 and December 2007. The mean, median and sum of the portfolio are all negative indicating that the distributions of the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are 1.101 and 1.857 respectively. Therefore the distribution of the portfolios returns has a longer right hand tail and a taller peak than the normal distribution.

Table 3: Descriptive Statistics for Portfolio 1

Mean	-0.0112
Standard Error	0.00596
Median	-0.0272
Mode	#N/A
Standard Deviation	0.05459
Sample Variance	0.00298
Kurtosis	1.85726
Skewness	1.10096
Range	0.30368
Minimum	-0.1
Maximum	0.20363
Sum	-0.9377
Count	84
Largest(1)	0.20363
Smallest(1)	-0.1

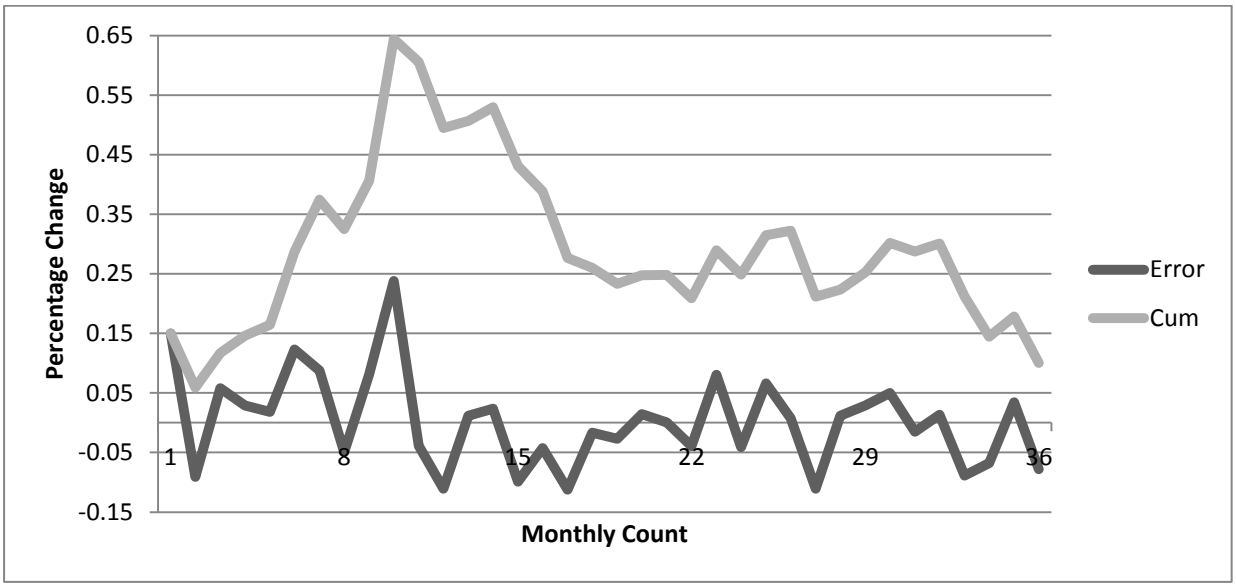
None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very

[20] For confirmation of regression findings, all summarised coefficient estimates will be presented in appendix A.6.

close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

The highest and lowest forecast errors are recorded between January 2008 and May 2009. The highest forecast error is 23.78% and the lowest forecast error is -11.22%. Figure 4 shows that after the volatile forecast error period between January 2008 and May 2009 the stock returns reverse the abnormal returns accumulated. The forecast error graph begins to hover around zero and the cumulative errors reduce from the May 2009 peak.

Figure 4: Prediction Error and Cumulative Error for Portfolio 1



The average adjusted R-squared for the portfolio is 5.93%. Therefore the forecast model only explains 5.93% of month t+1's return. The average forecast error over the entire testing sample is 0.280%. Hence the forecast model underestimated month t+1's return by 0.280% over the three year forecasting period.

4.4.2 Portfolio 2

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.647 and 0.59 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a slightly taller peak than the normal distribution.

Table 4: Descriptive Statistics for Portfolio 2

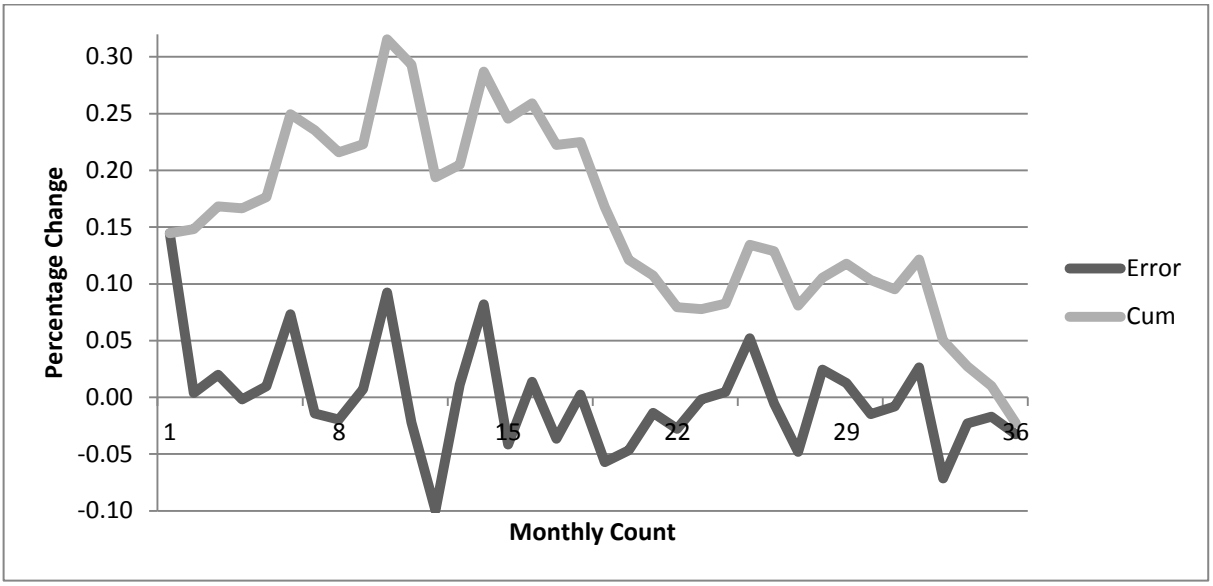
Mean	-0.0088
Standard Error	0.00434
Median	-0.0163
Mode	#N/A
Standard Deviation	0.0398
Sample Variance	0.00158
Kurtosis	0.59204
Skewness	0.6467
Range	0.21814
Minimum	-0.1014
Maximum	0.11673
Sum	-0.7418
Count	84
Largest(1)	0.11673
Smallest(1)	-0.1014

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

Figure 5 illustrates that portfolio 2 forecast errors follow the same trend as portfolio 1. The most volatile forecast error period is recorded between January 2008 and April 2009. The highest forecast error is 14.46% and the lowest forecast error is -9.96%. After February 2008 the forecast model repeatedly overestimated month t+1's return.

The cumulative error graph shows that forecast returns reverse the high forecast errors by decreasing to the lowest cumulative value of -2.25% in December 2010.

Figure 5: Prediction Error and Cumulative Error for Portfolio 2



The average adjusted R-squared for the portfolio is 6.89%. Therefore the forecast model only explains 6.89% of month t+1's return. The average forecast error over the entire testing sample is -0.063%. Hence the forecast model overestimated month t+1's return by 0.063% over the three year forecasting period.

4.4.3 Portfolio 3

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are 1.852 and 7.584 respectively, indicating that the distribution of the portfolios returns has a longer right hand tail and a taller peak than the normal distribution.

Table 5: Descriptive Statistics for Portfolio 3

Mean	-0.0126
Standard Error	0.00622
Median	-0.0176
Mode	#N/A
Standard Deviation	0.05701
Sample Variance	0.00325
Kurtosis	7.58485
Skewness	1.85191
Range	0.40142
Minimum	-0.1267
Maximum	0.27471
Sum	-1.0592
Count	84
Largest(1)	0.27471
Smallest(1)	-0.1267

Three of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Figure 6: Prediction Error and Cumulative Error for Portfolio 3

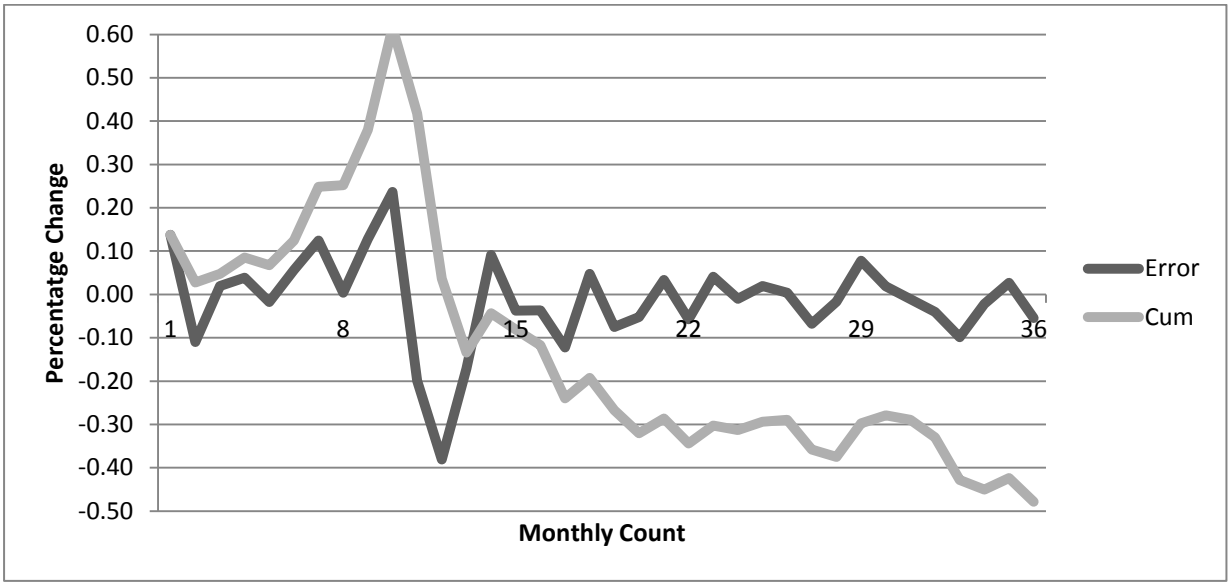


Figure 6 shows that the most volatile forecast errors are recorded between January 2008 and March 2009. The highest forecast error is 23.66% and the lowest forecast error is -38.13%. After January 2009 the cumulative forecast error graph decreases steadily to the lowest cumulative error value of -47.82% in December 2010. This decrease shows that the forecast model has consistently overestimated month t+1's return.

The average adjusted R-squared for the portfolio is 5.28%. Therefore the forecast model only explains 5.28% of month t+1's return. The average forecast error for the portfolio is -1.329%. Hence the forecast model overestimated month t+1's return by 1.329% over the three year forecasting period.

4.4.4 Portfolio 4

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

Table 6: Descriptive Statistics for Portfolio 4

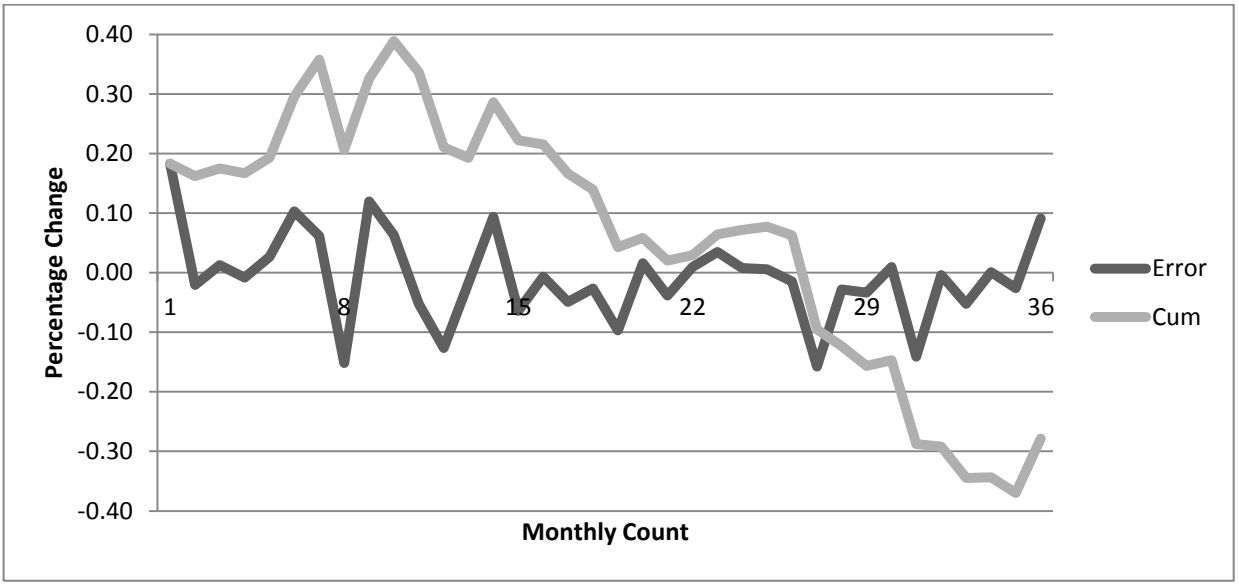
Mean	-0.0096
Standard Error	0.00525
Median	-0.0163
Mode	#N/A
Standard Deviation	0.04815
Sample Variance	0.00232
Kurtosis	1.70464
Skewness	0.93436
Range	0.25897
Minimum	-0.1125
Maximum	0.14648
Sum	-0.8049
Count	84
Largest(1)	0.14648
Smallest(1)	-0.1125

The test statistics for skewness and kurtosis are 0.934 and 1.704 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a taller peak than the normal distribution.

Four of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

The most volatile forecasts are recorded between January 2008 and March 2009. The highest forecast error is 18.29% and the lowest forecast error is -15.15%. Figure 7 shows that from October 2008 the forecast model continuously overestimated month t+1's return and the cumulative forecast error graph gradually decreases. The forecast error graph has an average value of -2.39% between April 2009 and December 2010.

Figure 7: Prediction Error and Cumulative Error for Portfolio 4



The average adjusted R-squared for the portfolio is 10.23%. Therefore the forecast model only explains 10.23% of month t+1's return. The average forecast error over the entire testing sample is -0.774%. Hence the forecast model overestimated month t+1's return by 0.774% over the three year forecasting period.

4.4.5 Portfolio 5

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.173 and 0.429 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a slightly taller peak than the normal distribution.

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

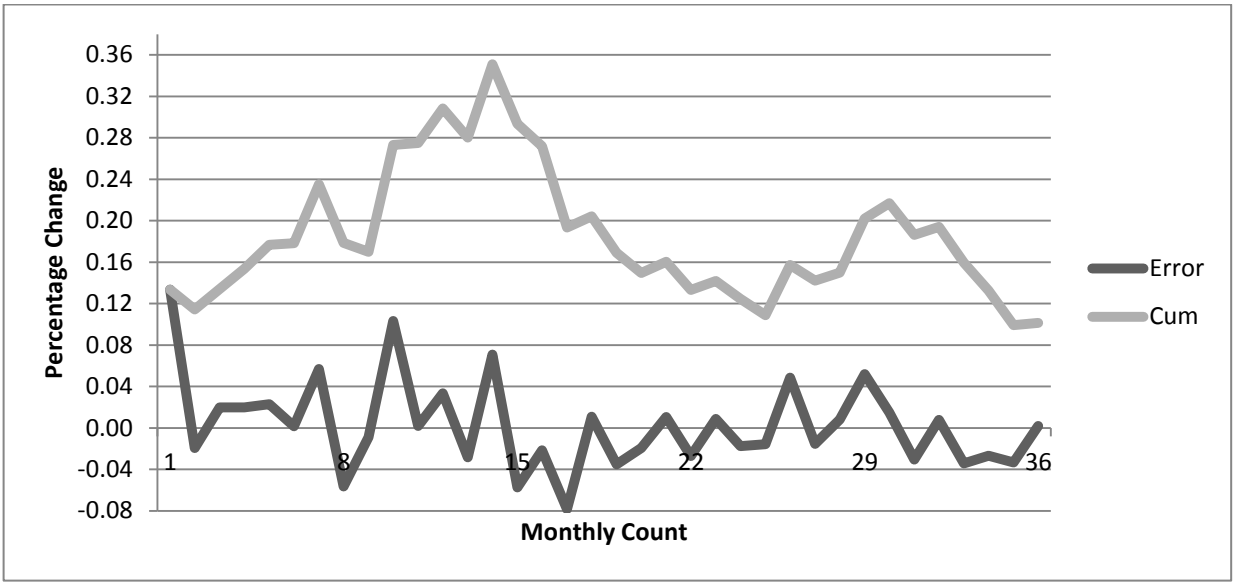
Table 7: Descriptive Statistics for Portfolio 5

Mean	-0.0098
Standard Error	0.00437
Median	-0.0134
Mode	0.01444
Standard Deviation	0.04008
Sample Variance	0.00161
Kurtosis	0.42885
Skewness	0.17259
Range	0.20961
Minimum	-0.1058
Maximum	0.10379
Sum	-0.8208
Count	84
Largest(1)	0.10379
Smallest(1)	-0.1058

Figure 8 illustrates that the forecast errors in portfolio 5 do not exhibit any discernible pattern. The cumulative forecast errors graph shows two periods of high underestimated forecasts. This is unlike the previous portfolios where cumulative forecast errors would either hover around a mean value or continuously overestimate month t+1's return to give a continuously decreasing cumulative error graph. The

most volatile period is between January 2008 and May 2009. The highest forecast error is 13.35% and the lowest forecast error is -7.85%.

Figure 8: Prediction Error and Cumulative Error for Portfolio 5



The average adjusted R-squared for the portfolio is 1.34%. Therefore the forecast model only explains 1.34% of month t+1's return. The average forecast error over the entire testing sample 0.281%. Hence the forecast model underestimated month t+1's return by 0.281% over the three year forecasting period.

4.4.6 Portfolio 6

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.510 and 0.467 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a slightly taller peak than the normal distribution.

Table 8: Descriptive Statistics for Portfolio 6

Mean	-0.0055
Standard Error	0.0043
Median	-0.0115
Mode	#N/A
Standard Deviation	0.0394
Sample Variance	0.00155
Kurtosis	0.46687
Skewness	0.51047
Range	0.19801
Minimum	-0.086
Maximum	0.11198
Sum	-0.4615
Count	84
Largest(1)	0.11198
Smallest(1)	-0.086

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

Figure 9: Prediction Error and Cumulative Error for Portfolio 6

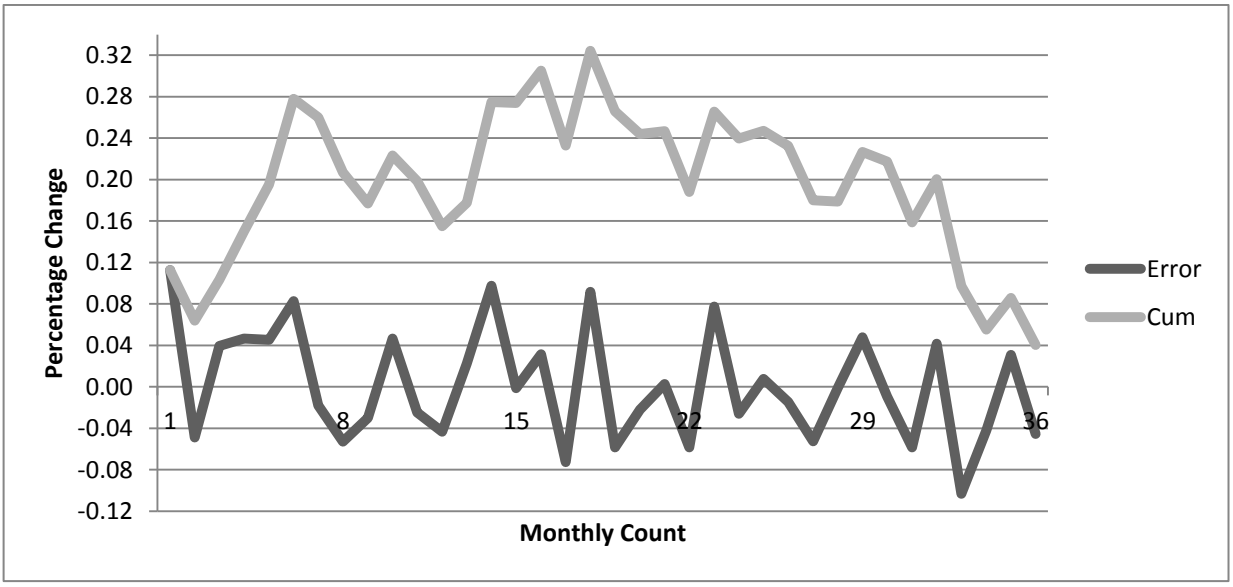


Figure 9 shows that portfolio 6 forecast errors are highly volatile. The cumulative forecast errors graph confirms that portfolio 6 forecast errors remain high over the majority of the three year testing window.

The forecast errors range from a minimum of -10.32% to a maximum of 11.26%. The cumulative error graph shows that forecast errors were consistently high by maintaining a cumulative forecast error average of 22.31% from May 2008 to September 2010.

The average adjusted R-squared for the portfolio is 2.99%. Therefore the forecast model only explains 2.99% of month t+1's return. The average forecast error over the entire testing sample is 0.112%. Hence the forecast model underestimated month t+1's return by 0.112% over the three year forecasting period.

4.4.7 Portfolio 7

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

Table 9: Descriptive Statistics for Portfolio 7

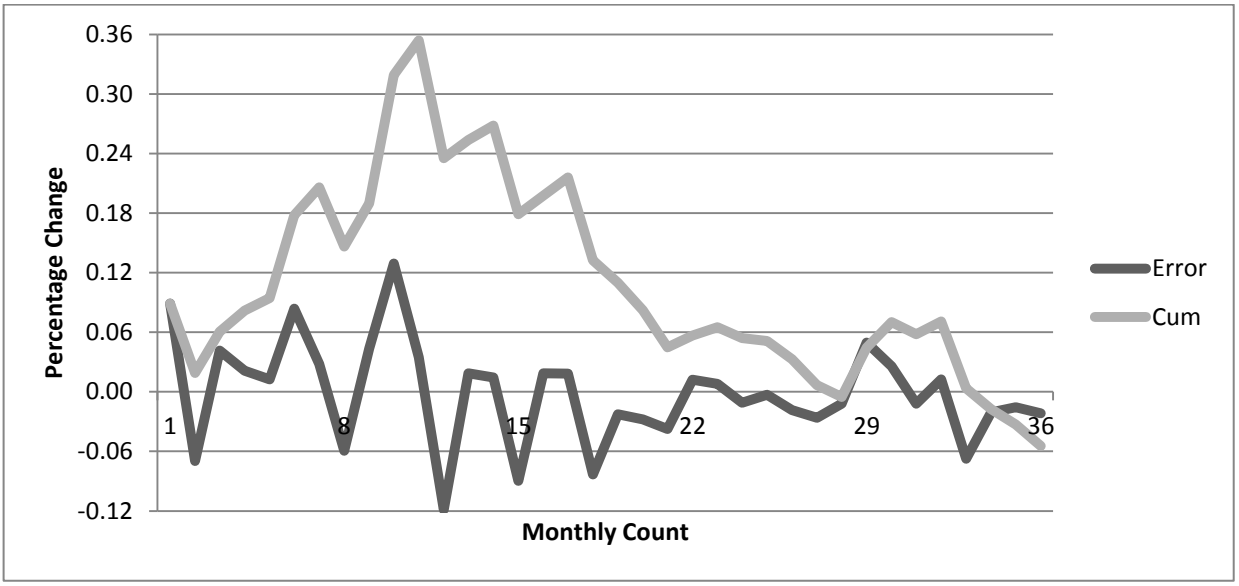
Mean	-0.0132
Standard Error	0.00408
Median	-0.0194
Mode	#N/A
Standard Deviation	0.03738
Sample Variance	0.0014
Kurtosis	1.04362
Skewness	0.72539
Range	0.20079
Minimum	-0.0872
Maximum	0.11358
Sum	-1.1067
Count	84
Largest(1)	0.11358
Smallest(1)	-0.0872

The test statistics for skewness and kurtosis are 0.725 and 1.043 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a taller peak than the normal distribution.

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

The highest and lowest forecast errors are recorded between January 2008 and June 2009. The highest forecast error is 12.91% and the lowest forecast error is -11.86%. Figure 9 shows that the abnormal returns accumulated before June 2009 are reversed. The forecast model makes smaller errors in estimating month t+1's return hence the forecast error graph hovers around zero.

Figure 10: Prediction Error and Cumulative Error for Portfolio 7



The average adjusted R-squared for the portfolio is 0.75%. Therefore the forecast model only explains 0.75% of month t+1's return. The average forecast error over the entire testing sample is -0.151%. Hence the forecast model overestimated month t+1's return by 0.151% over the three year forecasting period.

4.4.8 Portfolio 8

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.425 and 0.839 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a slightly taller peak than the normal distribution.

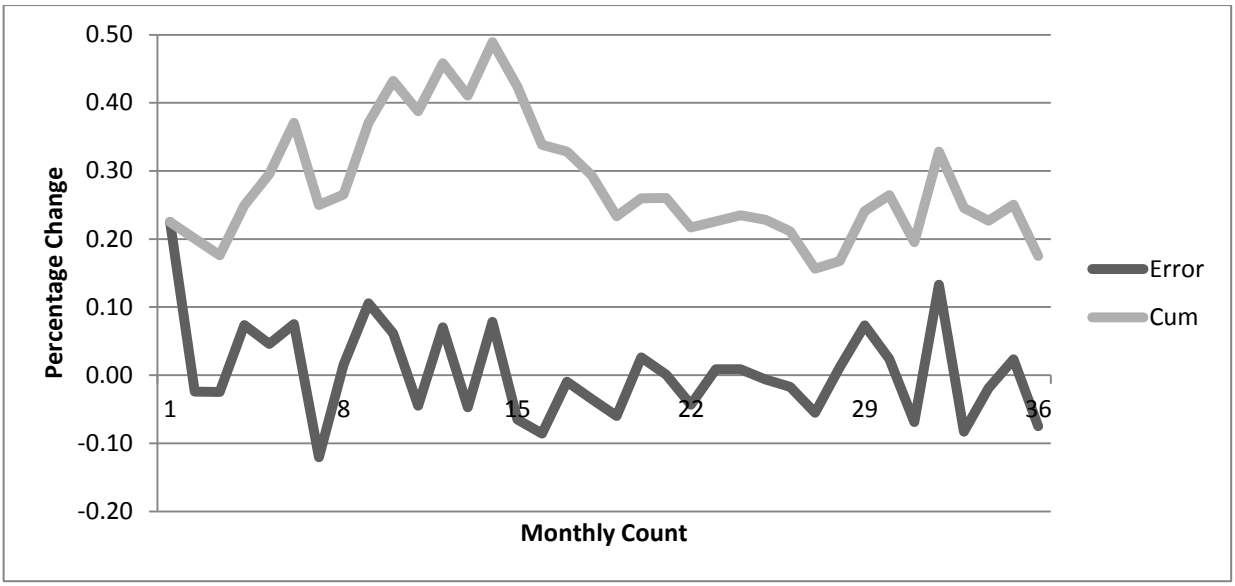
Table 10: Descriptive Statistics for portfolio 8

Mean	-0.0117
Standard Error	0.00651
Median	-0.0198
Mode	#N/A
Standard Deviation	0.05966
Sample Variance	0.00356
Kurtosis	0.83913
Skewness	0.4248
Range	0.31554
Minimum	-0.1561
Maximum	0.1594
Sum	-0.9869
Count	84
Largest(1)	0.1594
Smallest(1)	-0.1561

Nine of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

The highest and lowest forecast errors are recorded between January 2008 and April 2009. The highest forecast error is 22.49% and the lowest forecast error is -12.05%. Figure 11 shows that after April 2009 the forecast errors graph begin to hover around zero. The forecast errors have an average value of 0.955%.

Figure 11: Prediction Error and Cumulative Error for Portfolio 8



The average adjusted R-squared for the portfolio is 14.07%. Therefore the forecast model only explains 14.07% of month t+1's return. The average forecast error over the entire testing sample is 0.487%. Hence the forecast model underestimated month t+1's return by 0.487% over the three year forecasting period.

4.4.9 Portfolio 9

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

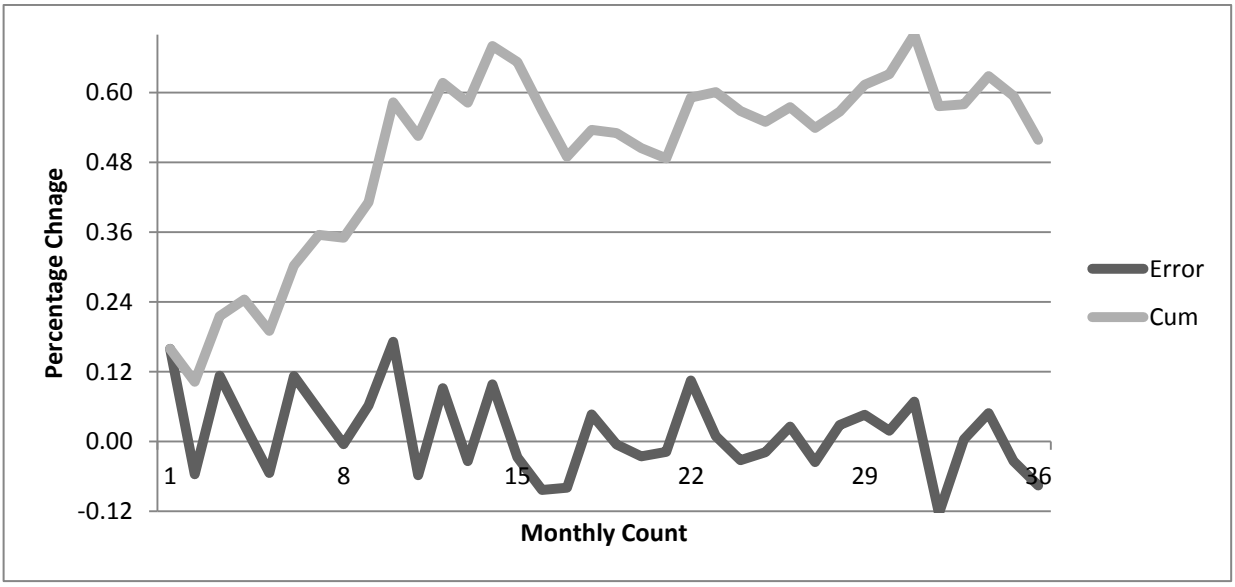
The test statistics for skewness and kurtosis are -0.082 and 0.253 respectively, indicating that the distribution of the portfolios returns has a slightly longer left hand tail and a slightly taller peak than the normal distribution.

Table 11: Descriptive Statistics for Portfolio 9

Mean	-0.008
Standard Error	0.00664
Median	-0.0058
Mode	#N/A
Standard Deviation	0.0609
Sample Variance	0.00371
Kurtosis	0.25263
Skewness	-0.0820
Range	0.31774
Minimum	-0.1668
Maximum	0.15099
Sum	-0.6723
Count	84
Largest(1)	0.15099
Smallest(1)	-0.1668

None of the thirty-six regressions tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test fail to reject the null hypothesis for all regressions.

Figure 12: Prediction Error and Cumulative Error for Portfolio 9



The highest and lowest forecast errors are recorded between January 2008 and April 2009. The highest forecast error is 17.16% and the lowest forecast error is -12.36%.

Figure 12 shows that after April 2009 the forecast errors begin to hover around zero. However the cumulative forecast error graph increases gradually as the forecast model underestimated month t+1`s return. The forecast errors have an average value of 0.889%.

The average adjusted R-squared for the portfolio is 0.92%. Therefore the forecast model only explains 0.92% of month t+1's return. The average forecast error over the entire testing sample is 1.441%. Hence the forecast model underestimated month t+1's return by 1.441% over the three year forecasting period.

4.4.10 Portfolio 10

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

Table 12: Descriptive Statistics for Portfolio 10

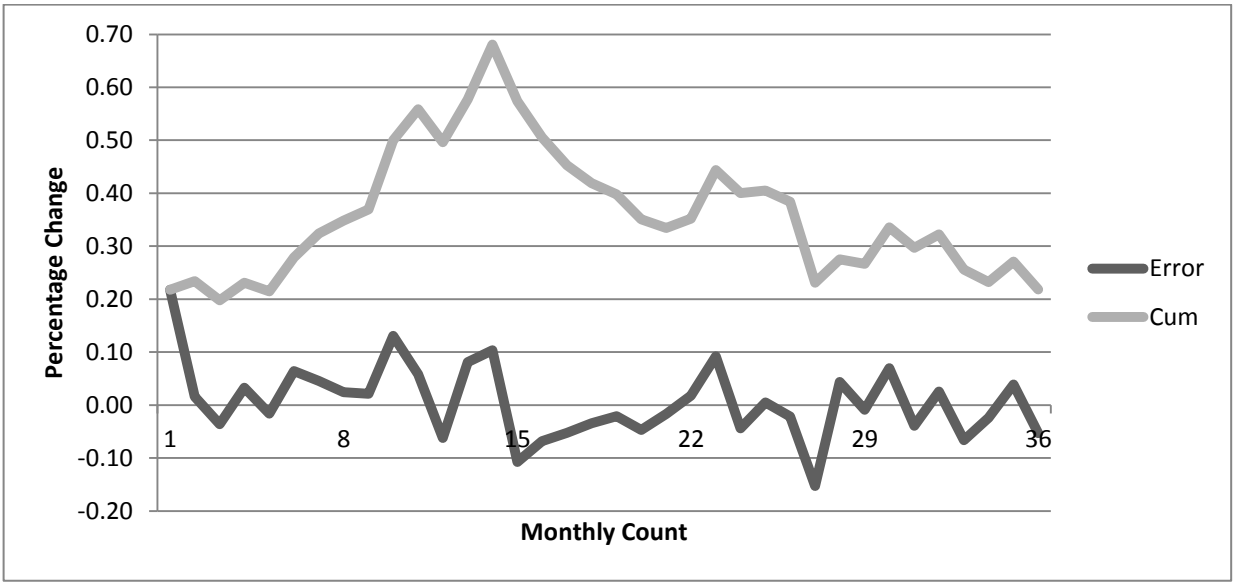
Mean	-0.0103
Standard Error	0.00735
Median	-0.0112
Mode	#N/A
Standard Deviation	0.06736
Sample Variance	0.00454
Kurtosis	1.25551
Skewness	0.06695
Range	0.38234
Minimum	-0.1993
Maximum	0.183
Sum	-0.8644
Count	84
Largest(1)	0.183
Smallest(1)	-0.1993

The test statistics for skewness and kurtosis are 0.067 and 1.256 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a taller peak than the normal distribution.

Only one of the thirty-six regression tests has an F-statistic that is significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

The highest and lowest forecast errors are recorded between January 2008 and March 2009. The highest forecast error is 21.76% and the lowest forecast error is -15.26%. Figure 13 shows that after March 2009 the abnormal returns are reversed and the forecast error graph begins to hover around zero. The forecast errors have an average value of 1.365%.

Figure 13: Prediction Error and Cumulative Error for Portfolio 10



The average adjusted R-squared for the portfolio is 5.68%. Therefore the forecast model only explains 5.68% of month t+1's return. The average forecast error over the entire testing sample is 0.606%. Hence the forecast model underestimated month t+1's return by 0.606% over the three year forecasting period.

4.5 SUMMARY

The statistical properties of the 10 portfolios largely follow the general properties of the entire sample. The mean, median and sum values for all 10 portfolios are negative, stating that the returns for the portfolios are negatively skewed. Apart from portfolio 9 the statistics for skewness and kurtosis state that the distribution of portfolio returns have longer right hand tails and taller peaks than the normal distribution. Portfolio 9 has a longer left hand tail with a taller peak than the normal distribution.

The global recession of 2007-2008 has significantly affected the performance and accuracy of the forecast model proposed in this thesis. The forecast model`s accuracy in attempting to predict month t+1`s is highly unstable, as it makes large errors throughout 2008 and the first six to eight months of 2009.

The regression analysis has shown that the forecast model cannot forecast month t+1's return from portfolios. The portfolio average adjusted R-squared was far too low to acknowledge that past returns contain information that may help to predict future returns. Therefore the forecast model is not able to forecast month t+1`s return.

The DW test has failed to reject the null hypothesis for all the regressions run over the three year testing horizon. Therefore no autocorrelation is evident in the 1st order serial properties of the residuals or prediction errors.

The F-statistic has shown that some portfolios have regressions where the null hypothesis has been rejected. Rejecting the null hypothesis states that the slope coefficients are not equal to zero and the lagged returns have information that is pertinent to predict the return for month t+1. Given that only a small number of regressions rejected the null hypothesis, it may seem logical to argue that past returns may have information that helps forecast the future. Malkiel (2003) argues that it would be incorrect to make that conclusion as markets as markets must adjust to new information as it becomes publicly available.

If markets perfectly adjusted to new information there would be no incentive for investors to uncover that information. Therefore rejecting the F-statistic indicates that the market is adjusting to new information.

4.6 MARKET CAPITALISATION WEIGHTED PORTFOLIO REGRESSION RESULTS[21]

4.6.1 Portfolio 1

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

Table 13: Descriptive Statistics for Portfolio 1

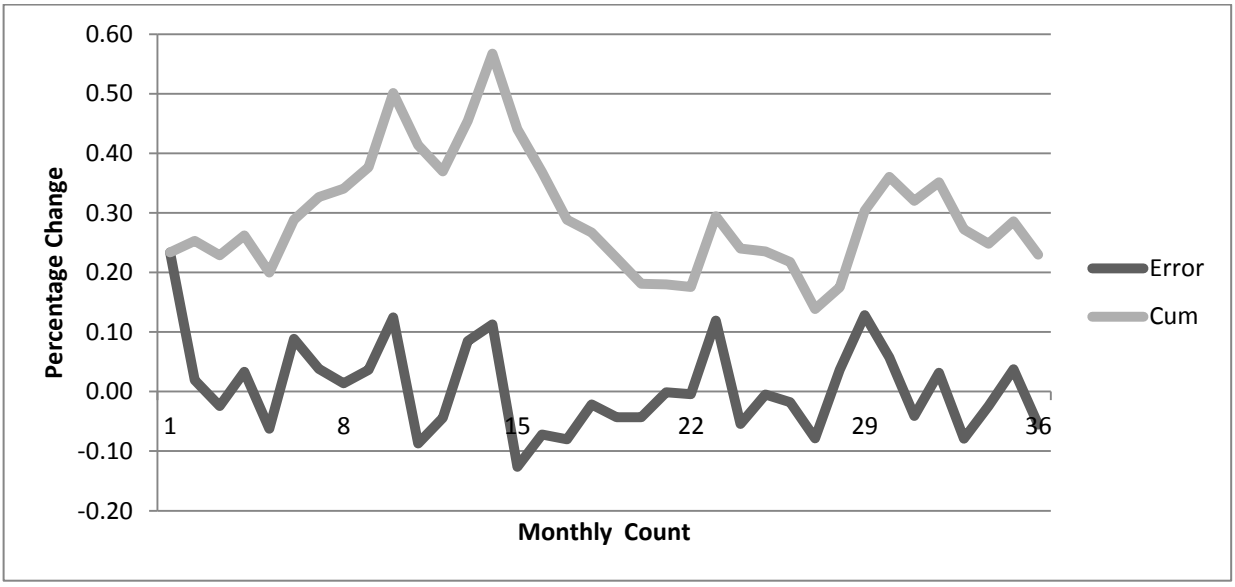
Mean	-0.0100
Standard Error	0.0076
Median	-0.0134
Mode	#N/A
Standard Deviation	0.0697
Sample Variance	0.0049
Kurtosis	1.3985
Skewness	0.0885
Range	0.4013
Minimum	-0.2030
Maximum	0.1983
Sum	-0.8413
Count	84
Largest(1)	0.1983
Smallest(1)	-0.2030

[21] For confirmation of regression findings, all summarised coefficient estimates will be presented in appendix A.7.

The test statistics for skewness and kurtosis are 0.0885 and 1.399 respectively, indicating that the distribution of the portfolios returns has a marginally longer right hand tail and a taller peak than the normal distribution.

Only one of the thirty-six regression tests has an F-statistic that is significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Figure 14: Prediction Error and Cumulative Error for Portfolio 1



The highest and lowest forecast errors are recorded between January 2008 and June 2009. The forecast errors range from a maximum value of 23.36% and a minimum value of -12.64%. Figure 14 shows that after June 2009 the stock returns reverse the abnormal returns accumulated from the volatile period. Despite this the forecast model does not smoothly forecast month t+1's return and continues to make large errors.

The average adjusted R-squared for the portfolio is 2.96%. Therefore the forecast model only explains 2.96% of month t+1's return. The average forecast error over the entire testing sample is -0.639%. Hence the forecast model overestimated month t+1's return by 0.639% over the three year forecasting period.

4.6.2 Portfolio 2

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are -0.595 and 1.152 respectively, indicating that the distribution of the portfolios returns has a slightly longer left hand tail and a taller peak than the normal distribution.

Table 14: Descriptive Statistics for Portfolio 2

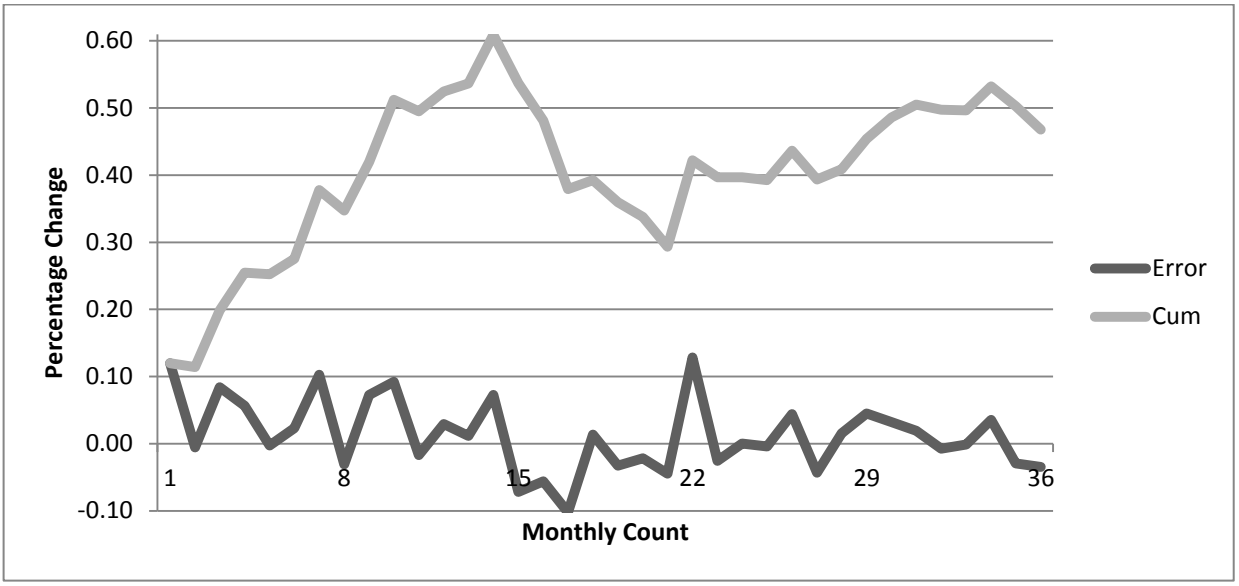
Mean	-0.0109
Standard Error	0.0062
Median	-0.0064
Mode	#N/A
Standard Deviation	0.0568
Sample Variance	0.0032
Kurtosis	1.1521
Skewness	-0.5957
Range	0.3224
Minimum	-0.2033
Maximum	0.1191
Sum	-0.9182
Count	84
Largest(1)	0.1191
Smallest(1)	-0.2033

Eight of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

The forecast errors range from a maximum value of 12.86% and a minimum value of -10.21%. Figure 15 shows that the abnormal returns accumulated before November 2009 are marginally reversed. The forecast model makes smaller errors in estimating

month t+1's return hence the forecast error graph hovers around zero. The forecast errors have an average value of 0.916%.

Figure 15: Prediction Error and Cumulative Error for Portfolio 2



The average adjusted R-squared for the portfolio is 12.53%. Therefore the lagged model only explains 12.53% of month t+1's return. The average forecast error over the entire testing sample is 1.300%. Hence the forecast model underestimated month t+1's return by 1.300% over the three year forecasting period.

4.6.3 Portfolio 3

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

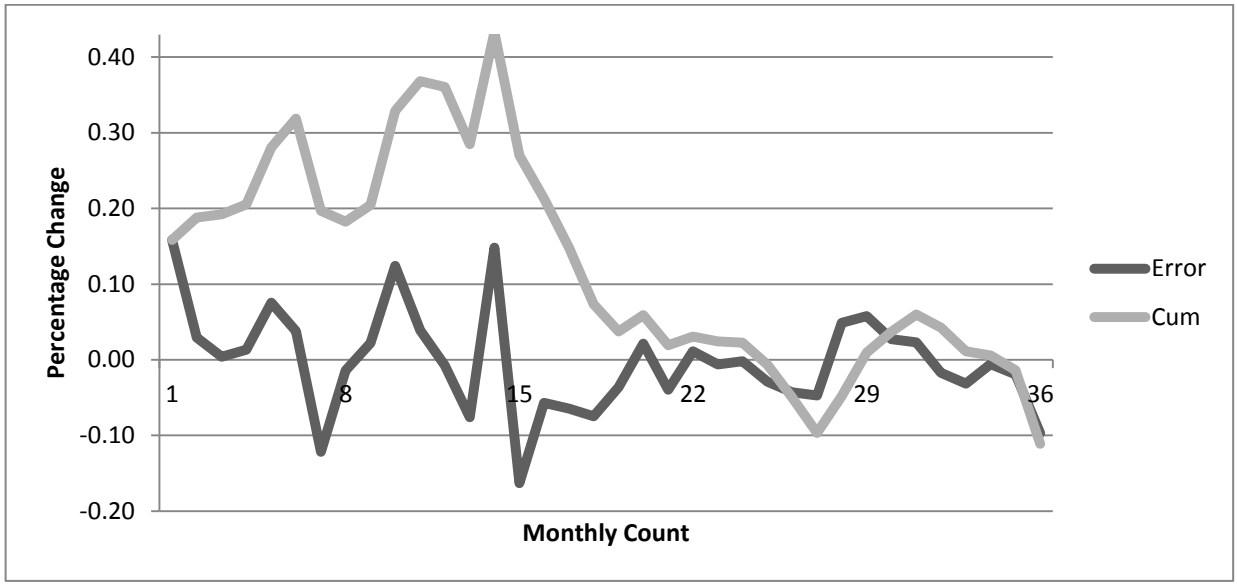
The test statistics for skewness and kurtosis are 0.375 and 4.501 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a taller peak than the normal distribution.

Four of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Table 15: Descriptive Statistics for Portfolio 3

Mean	-0.0146
Standard Error	0.0056
Median	-0.0160
Mode	#N/A
Standard Deviation	0.0510
Sample Variance	0.0026
Kurtosis	4.5014
Skewness	0.3750
Range	0.3816
Minimum	-0.2070
Maximum	0.1747
Sum	-1.2301
Count	84.0000
Largest(1)	0.1747
Smallest(1)	-0.2070

Figure 16: Prediction Error and Cumulative Error for Portfolio 3



The most volatile forecast errors occur between January 2008 and April 2009. The highest forecast error is 18.79% and the lowest forecast error is 16.31%. Figure 16 shows that after April 2009 the abnormal returns accumulated from the volatile period are reversed. The forecast model makes smaller errors in estimating month t+1's return. The cumulative forecast error graph confirms this by closely tracking the forecast error graph.

The average adjusted R-squared for the portfolio is 9.11%. Therefore the forecast model only explains 9.11% of month t+1's return. The average forecast error over the entire testing sample is -0.308%. In other words the forecast model overestimated month t+1's return by 0.308% over the three year forecasting period.

4.6.4 Portfolio 4

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

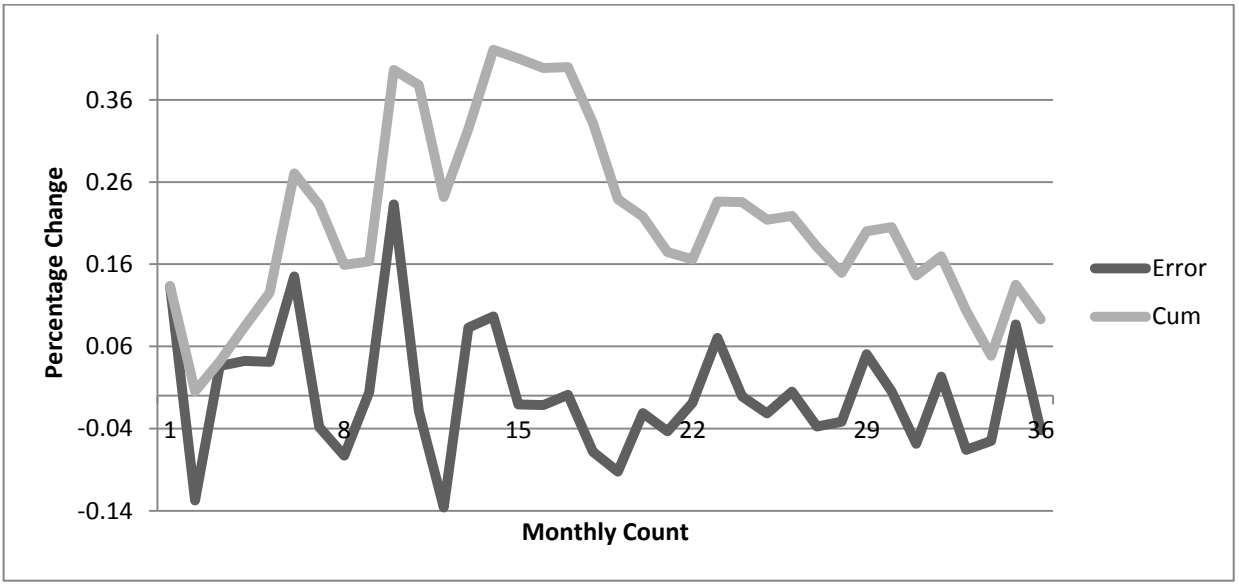
Table 16: Descriptive Statistics for Portfolio 4

Mean	-0.0124
Standard Error	0.0051
Median	-0.0224
Mode	#N/A
Standard Deviation	0.0465
Sample Variance	0.0022
Kurtosis	1.0913
Skewness	0.9506
Range	0.2201
Minimum	-0.0959
Maximum	0.1242
Sum	-1.0416
Count	84
Largest(1)	0.1242
Smallest(1)	-0.0959

The test statistics for skewness and kurtosis are 0.951 and 1.091 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a taller peak than the normal distribution.

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test fail to reject the null hypothesis for all regressions.

Figure 17: Prediction Error and Cumulative Error for Portfolio 4



The highest and lowest forecast errors are recorded between January 2008 and July 2009. The highest forecast error is 23.27% and the lowest forecast error is -13.62%.

Figure 17 shows that after July 2009 stock returns reverse the abnormal returns accumulated from the volatile period, and the forecast model makes smaller errors in estimating month t+1's return. The forecast errors have an average value of -0.552%.

The average adjusted R-squared for the portfolio is 0.08%. Therefore the forecast model only explains 0.08% of month t+1's return. The average forecast error over

the entire testing sample is 0.258%. Hence the forecast model underestimated month t+1's return by 0.258% over the three year forecasting period.

4.6.5 Portfolio 5

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

Table 17: Descriptive Statistics for Portfolio 5

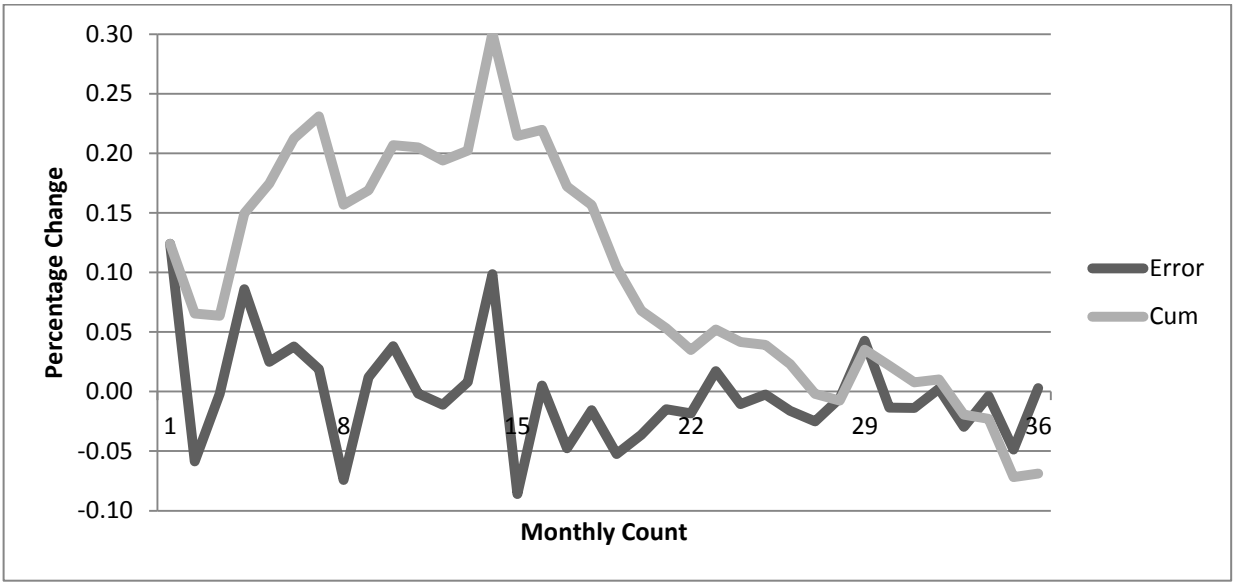
Mean	-0.0076
Standard Error	0.0039
Median	-0.0108
Mode	#N/A
Standard Deviation	0.0353
Sample Variance	0.0012
Kurtosis	1.7415
Skewness	0.6612
Range	0.2037
Minimum	-0.0819
Maximum	0.1218
Sum	-0.6343
Count	84
Largest(1)	0.1218
Smallest(1)	-0.0819

The test statistics for skewness and kurtosis are 0.661 and 1.742 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a taller peak than the normal distribution.

Only one of the thirty-six regression tests has an F-statistic that is significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

The highest and lowest forecast errors are recorded between January 2008 and March 2009. The highest forecast error is 12.41% and the lowest forecast error is -8.61%. Figure 18 shows that after the volatile period the forecast model overestimated month t+1's return. The forecast error graph begins to hover beneath zero with less volatility. The cumulative forecast error graph confirms this continuous forecast overestimation by continuously decreasing after February 2009 until December 2010.

Figure 18: Prediction Error and Cumulative Error for Portfolio 5



The average adjusted R-squared for the portfolio is 2.88%. Therefore the forecast model only explains 2.88% of month t+1's return. The average forecast error over the entire testing sample is -0.192%. Hence the forecast model overestimated month t+1's return by 0.192% over the three year forecasting period.

4.6.6 Portfolio 6

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

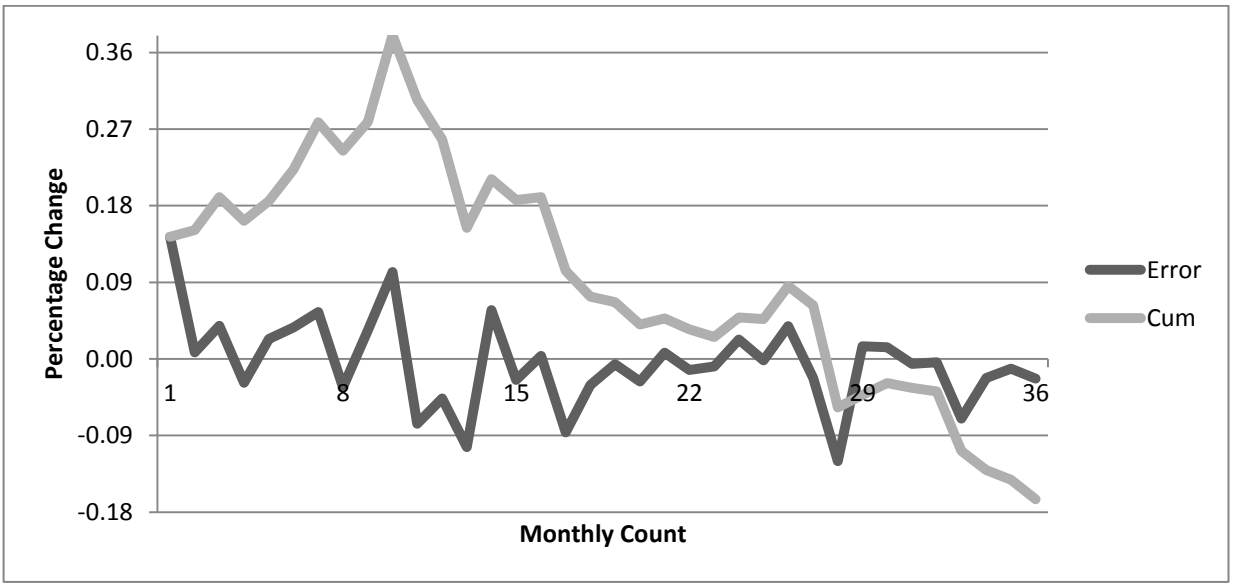
The test statistics for skewness and kurtosis are 0.544 and 1.169 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a taller peak than the normal distribution.

Two of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Table 18: Descriptive Statistics for Portfolio 6

Mean	-0.0082
Standard Error	0.0047
Median	-0.0140
Mode	#N/A
Standard Deviation	0.0431
Sample Variance	0.0019
Kurtosis	1.1685
Skewness	0.5441
Range	0.2448
Minimum	-0.1099
Maximum	0.1350
Sum	-0.6904
Count	84
Largest(1)	0.1350
Smallest(1)	-0.1099

Figure 19: Prediction Error and Cumulative Error for Portfolio 6



The highest and lowest forecast errors are recorded between January 2008 and May 2009. The highest forecast error is 14.33% and the lowest forecast error is -12.02%. Figure 19 illustrates that the forecast model overestimated month t+1's return after May 2009. The cumulative forecast error graph confirms the overestimation of month t+1's return by consistently decreasing.

The average adjusted R-squared for the portfolio is 8.15%. Therefore the forecast model only explains 8.15% of month t+1's return. The average forecast error over the entire testing sample is -0.458%. Hence the forecast model overestimated month t+1's return by 0.458% over the three year forecasting period.

4.6.7 Portfolio 7

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

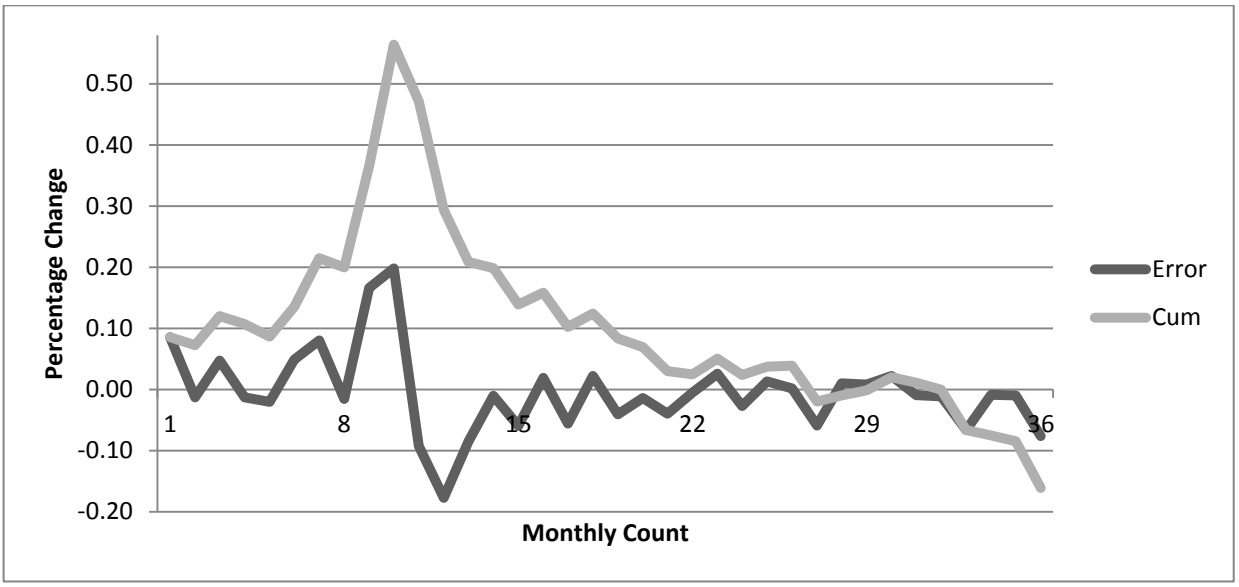
Table 19: Descriptive Statistics for Portfolio 7

Mean	-0.0071
Standard Error	0.0055
Median	-0.0104
Mode	#N/A
Standard Deviation	0.0502
Sample Variance	0.0025
Kurtosis	6.0238
Skewness	1.4583
Range	0.3613
Minimum	-0.1390
Maximum	0.2223
Sum	-0.5958
Count	84
Largest(1)	0.2223
Smallest(1)	-0.1390

The test statistics for skewness and kurtosis are 1.458 and 6.012 respectively, indicating that the distribution of the portfolios returns has a longer right hand tail and a taller peak than the normal distribution.

Eight of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Figure 20: Prediction Error and Cumulative Error for Portfolio 7



The highest and lowest forecast errors are recorded between January 2008 and February 2009. The highest forecast error is 19.82% and the lowest forecast error is -17.75%. Figure 20 shows that after the volatile period the forecast errors overestimated month t+1's return. The cumulative forecast error graph confirms this by gradually decreasing until December 2010.

The average adjusted R-squared for the portfolio is 12.44%. Therefore the forecast model only explains 12.44% of month t+1's return. The average forecast error over the entire testing sample is -0.448%. Hence the forecast model overestimated month t+1's return by 0.448% over the three year forecasting period.

4.6.8 Portfolio 8

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.743 and 0.485 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a slightly taller peak than the normal distribution.

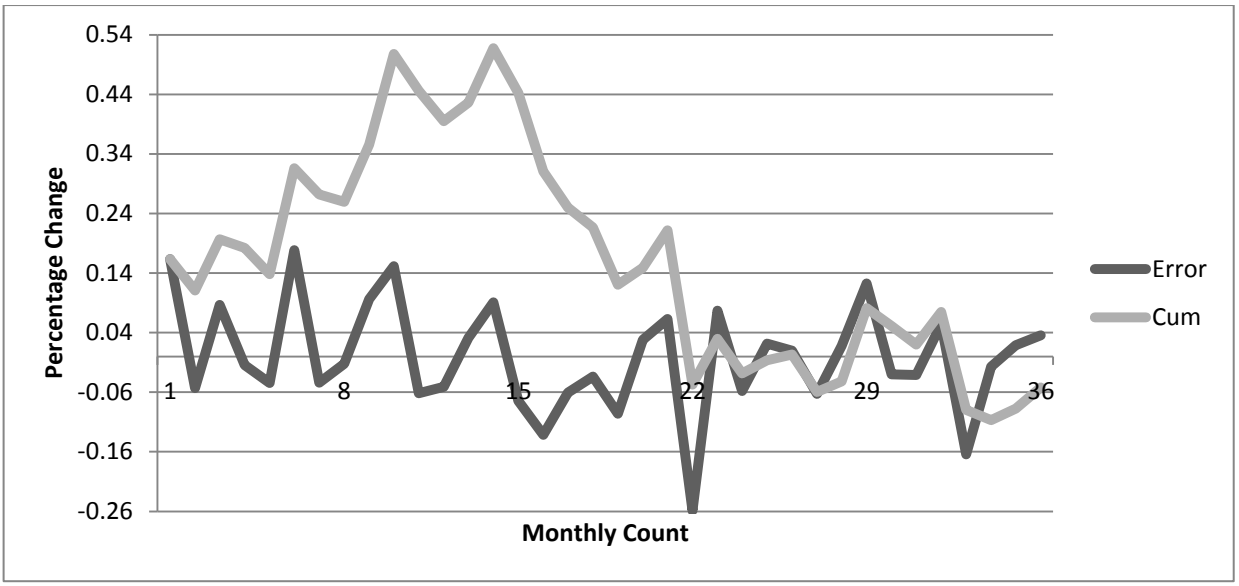
Table 20: Descriptive Statistics for Portfolio 8

Mean	-0.0091
Standard Error	0.0066
Median	-0.0177
Mode	#N/A
Standard Deviation	0.0609
Sample Variance	0.0037
Kurtosis	0.4851
Skewness	0.7427
Range	0.2812
Minimum	-0.1200
Maximum	0.1612
Sum	-0.7646
Count	84
Largest(1)	0.1612
Smallest(1)	-0.1200

Eight of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

The highest and lowest forecast errors are recorded between January 2008 and October 2009. The forecast errors range from a maximum value of 17.82% and a minimum value of -25.91%. Figure 21 illustrates that after October 2009, stock returns reverse the abnormal returns accumulated from the volatile period. The forecast model then makes smaller errors in forecasting month t+1's return. The cumulative forecast error graph confirms this by closely tracking the forecast errors.

Figure 21: Prediction Error and Cumulative Error for Portfolio 8



The average adjusted R-squared for the portfolio is 10.20%. Therefore the forecast model only explains 10.20% of month t+1's return. The average forecast error over the entire testing sample is -0.144%. Hence the forecast model overestimated month t+1's return by 0.144% over the three year forecasting period.

4.6.9 Portfolio 9

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

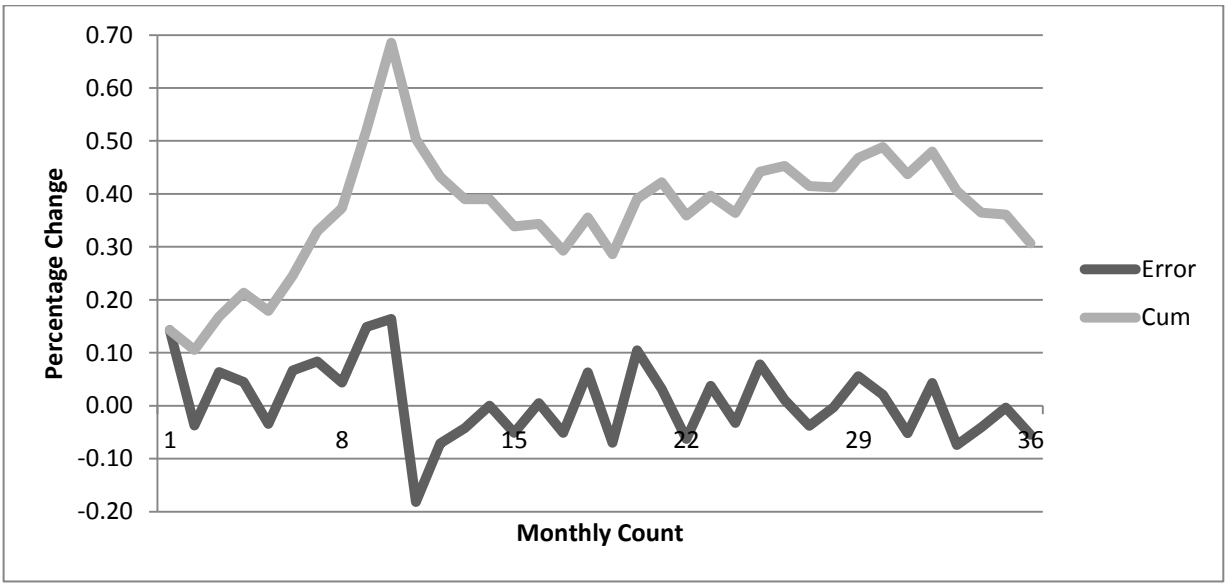
The test statistics for skewness and kurtosis are 0.671 and 1.620 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a slightly taller peak than the normal distribution.

Two of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Table 21: Descriptive Statistics for Portfolio 9

Mean	-0.0118
Standard Error	0.0056
Median	-0.0146
Mode	#N/A
Standard Deviation	0.0515
Sample Variance	0.0027
Kurtosis	1.6203
Skewness	0.6708
Range	0.3028
Minimum	-0.1354
Maximum	0.1675
Sum	-0.9935
Count	84
Largest(1)	0.1675
Smallest(1)	-0.1354

Figure 22: Prediction Error and Cumulative Error for Portfolio 9



The highest and lowest forecast errors are recorded between January 2008 and December 2008. The forecast errors range from a maximum value of 16.37% and a

minimum value of -18.16%. Figure 22 shows that after December 2008 the forecast errors have an average value of -0.55%.

The average adjusted R-squared for the portfolio is 2.93%. Therefore the forecast model only explains 2.93% of month t+1's return. The average forecast error over the entire testing sample is 0.851%. Hence the forecast model underestimated month t+1's return by 0.851% over the three year forecasting period.

4.6.10 Portfolio 10

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

Table 22: Descriptive Statistics for Portfolio 10

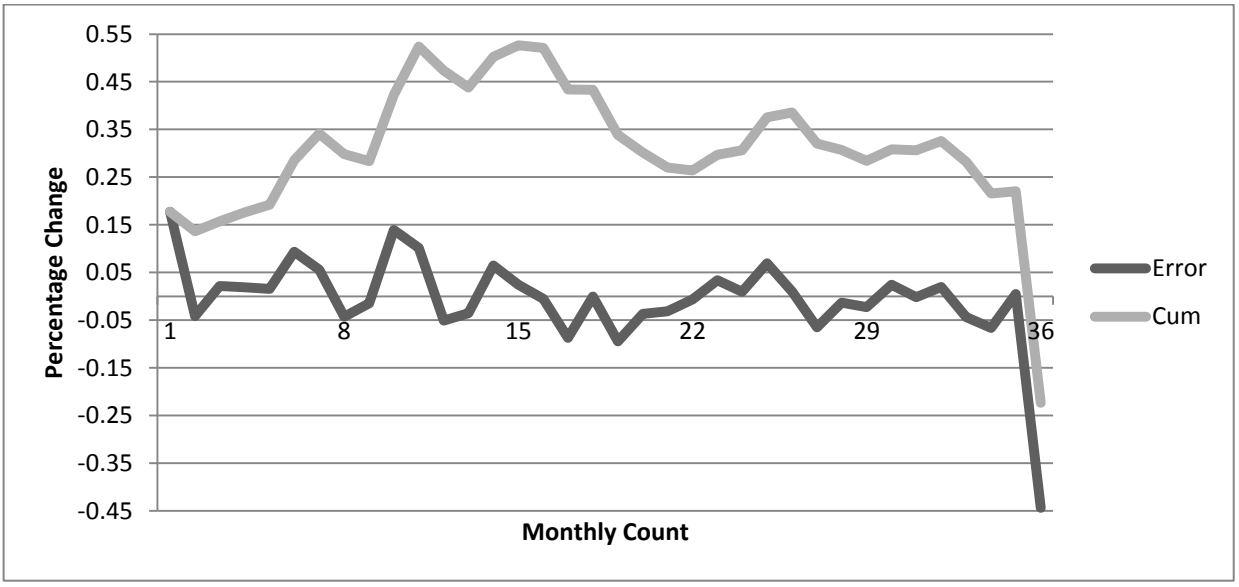
Mean	-0.0086
Standard Error	0.0049
Median	-0.0080
Mode	#N/A
Standard Deviation	0.0451
Sample Variance	0.0020
Kurtosis	1.1777
Skewness	0.5573
Range	0.2576
Minimum	-0.1219
Maximum	0.1357
Sum	-0.7222
Count	84
Largest(1)	0.1357
Smallest(1)	-0.1219

The test statistics for skewness and kurtosis are 0.557 and 1.178 respectively, indicating that the distribution of the portfolios returns has a slightly longer right hand tail and a taller peak than the normal distribution.

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

The forecast errors range from a maximum value of 17.76% and a minimum value of -44.42%. Figure 23 shows that the highest forecast error recorded is in January 2008 with the rest of the graph exhibiting no tendency for the forecast errors to normalise.

Figure 23: Prediction Error and Cumulative Error for Portfolio 10



The average adjusted R-squared for the portfolio is 0.47%. Therefore the forecast model only explains 0.47% of month t+1's return. The average forecast error for over the entire testing sample is -0.621%. Hence the forecast model overestimated month t+1's return by 0.621% over the three year forecasting period.

4.7 SUMMARY

The statistical properties of the 10 portfolios largely follow the general properties of the entire sample. The mean, median and sum values for all 10 portfolios are negative, stating that the returns for the portfolios are negatively skewed. Apart from portfolio 2 the statistics for skewness and kurtosis state that the distribution of portfolio returns have longer right hand tails and taller peaks than the normal distribution. Portfolio 2 has a longer left hand tail with a taller peak than the normal distribution.

The results from portfolios ranked on market capitalisation do not differ much from portfolios ranked on market return. The global recession of 2007-2008 has also significantly affected the accuracy of the forecast model. The forecast model`s accuracy in attempting to predict month t+1`s return is highly inaccurate throughout 2008 and the first six to eight months of 2009. With the exception of portfolio 10 there is evidence that the portfolios revert back to their long run average rate.

The regression analysis has shown again that the forecast model is not capable of forecasting month t+1's return from portfolios. The portfolio average adjusted R-squared was far too low to acknowledge that past returns contain information that may help to predict future returns. Therefore the forecast model is not able to forecast month t+1`s return.

The DW test has failed to reject the null hypothesis for all the regressions run over the three year testing horizon. Therefore no autocorrelation is evident in the 1st order serial properties of the residuals or prediction errors.

The F-statistic has shown that there are some regressions where the null hypothesis has been rejected. This confirms that the JSE readjusts to new information (Malkiel, 2003).

Analysing portfolios formed by market cap has proved that firm size does not play a significant role in predicting a securities return. Therefore this thesis does not agree

with the findings from Rouwenhorst (1999), Brennan *et al.* (1998) and Ferson and Harvey (1997).

4.8 INDIVIDUAL REGRESSION RESULTS

Due to the numerous regressions[22] that must be run to forecast individual stocks over the three year horizon, six stocks from different market sectors have been picked to test the suitability of the forecast model on individual stocks.

The selected stocks are listed below:

- Banking – Standard Bank Group Limited
- Farming - Afgri Limited
- Industrial - Iliad Africa Limited
- Mining – Drdgold Limited
- Retail – Cashbuild Limited
- Telecoms – MTN Group Limited

4.8.1 Standard Bank Group Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.062 and 0.471 respectively, indicating that the distribution of the stock returns has a slightly longer right hand tail and a slightly taller peak than the normal distribution.

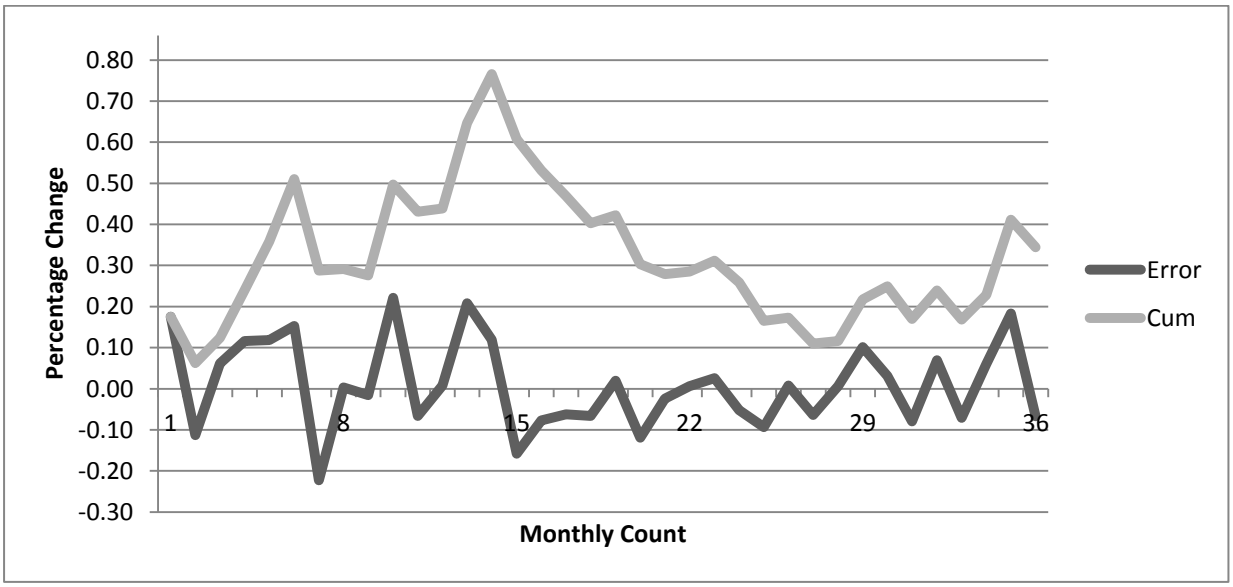
[22] For confirmation of regression findings, all summarised coefficient estimates will be presented in appendix A.8.

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two.

Table 23: Descriptive Statistics for Standard Bank Group Limited

Mean	-0.0120
Standard Error	0.0079
Median	-0.0134
Mode	#N/A
Standard Deviation	0.0725
Sample Variance	0.0053
Kurtosis	0.4705
Skewness	0.0618
Range	0.3958
Minimum	-0.2014
Maximum	0.1945
Sum	-1.0098
Count	84
Largest(1)	0.1945
Smallest(1)	-0.2014

Figure 24: Prediction Error and Cumulative Error for Standard Bank Group Limited



The highest and lowest forecast errors are recorded between January 2008 and March 2009. The errors range from a maximum of 22.14% to a minimum of -22.28%. After March 2009 the abnormal returns accumulated from the global recession are reversed and the stock returns revert back to its long run return average of -1.43%.

Hence the forecast model makes smaller errors in estimating month t+1's returns. Figure 24 shows that the forecast errors hover around zero indicating that the forecast model is making fewer errors.

The average adjusted R-squared for Standard Bank Group Limited is 1.40%. Therefore the forecast model only explains 1.40% of month t+1's return. The average forecast error over the entire testing sample is 0.957%. Hence the forecast model underestimated month t+1's returns by 0.957% over the three year forecasting period.

4.8.2 Afgri Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.037 and 1.147 respectively, indicating that the distribution of the stock returns has a slightly longer right hand tail and a taller peak than the normal distribution.

Two of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions

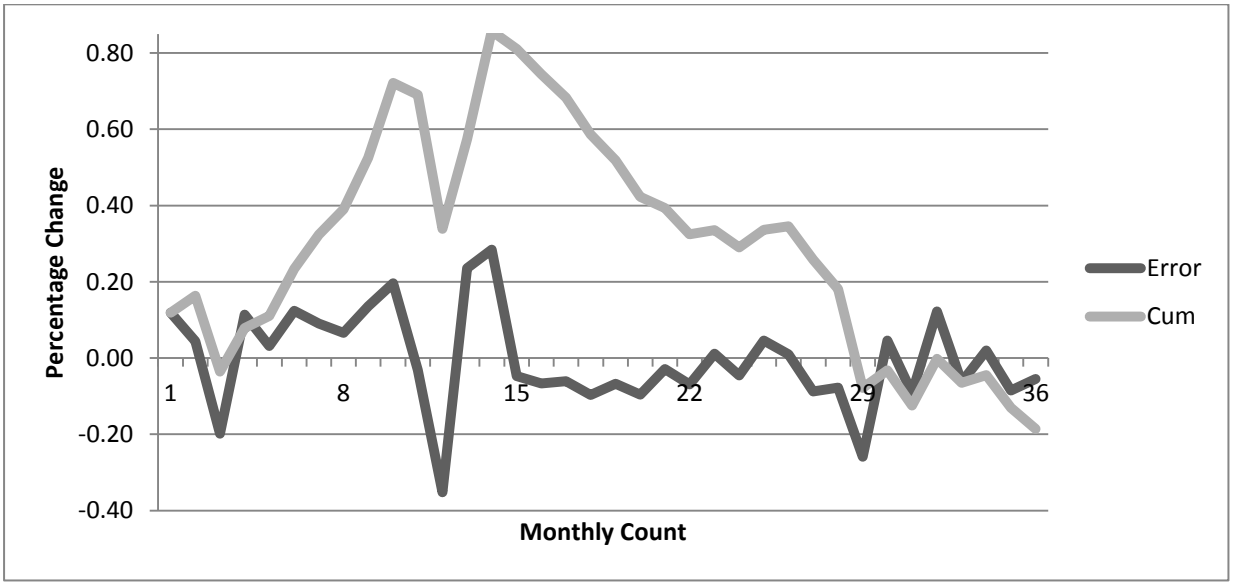
The highest and lowest forecast errors are recorded between January 2008 and March 2009. The errors range from a maximum of 28.40% to a minimum of -35.19%.

Figure 25 shows that after March 2009 stock returns reverse the abnormal returns accumulated before March 2009. Hence the forecast model makes smaller errors in estimating month t+1's return.

Table 24: Descriptive Statistics for Afgri Limited

Mean	-0.0035
Standard Error	0.0096
Median	-0.0025
Mode	0.0000
Standard Deviation	0.0878
Sample Variance	0.0077
Kurtosis	1.1467
Skewness	0.0372
Range	0.5172
Minimum	-0.3102
Maximum	0.2070
Sum	-0.2965
Count	84
Largest(1)	0.2070
Smallest(1)	-0.3102

Figure 25: Prediction Error and Cumulative Error for Afgri Limited



The average adjusted R-squared for Afgri Limited is 5.20%. Therefore the forecast model only explains 5.20% of month t+1's return. The average forecast error over the entire testing sample is 0.516%. Hence the forecast model underestimated month t+1's return on average by 0.516% over the three year forecasting period.

4.8.3 Iliad Africa Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

Table 25: Descriptive Statistics for Iliad Africa Limited

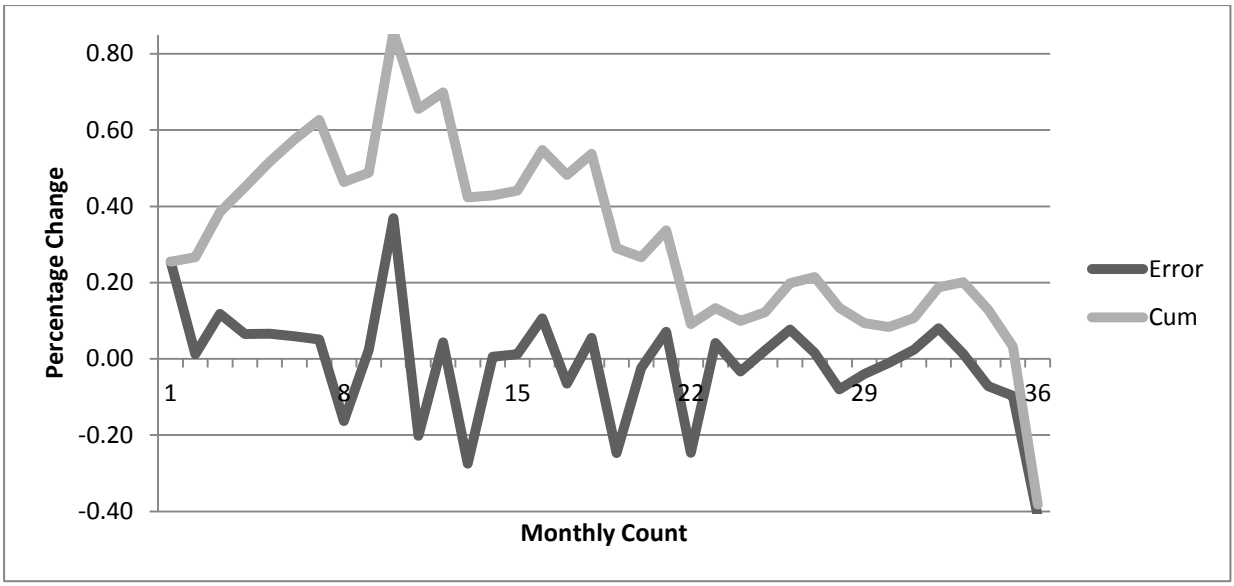
Mean	-0.0088
Standard Error	0.0123
Median	-0.0085
Mode	#N/A
Standard Deviation	0.1127
Sample Variance	0.0127
Kurtosis	2.4151
Skewness	0.4114
Range	0.7802
Minimum	-0.3629
Maximum	0.4173
Sum	-0.7376
Count	84
Largest(1)	0.4173
Smallest(1)	-0.3629

The test statistics for skewness and kurtosis are 0.411 and 2.415 respectively, indicating that the distribution of the stock returns has a slightly longer right hand tail and a taller peak than the normal distribution.

Eight of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

The most volatile forecast error period is between January 2008 and July 2009. The errors range from a maximum of 36.90% to a minimum of -38.21%. Figure 26 shows that the abnormal returns accumulated before July 2009 are slowly reversed. There is still some volatility present in the stock's performance hence the forecast model does not smoothly forecast month t+1's return.

Figure 26: Prediction Error and Cumulative Error for Iliad Africa Limited



The average adjusted R-squared for IIiad Africa Limited is 11.96%. Therefore the forecast model only explains 11.96% of month t+1's return. The average forecast error over the entire testing sample is -1.061%. Hence the forecast model overestimated month t+1's return on average by 1.061% over the three year forecasting period.

4.8.4 Drdgold Limited

The mean, median and sum of the portfolio are all positive indicating that the stock returns are positively skewed.

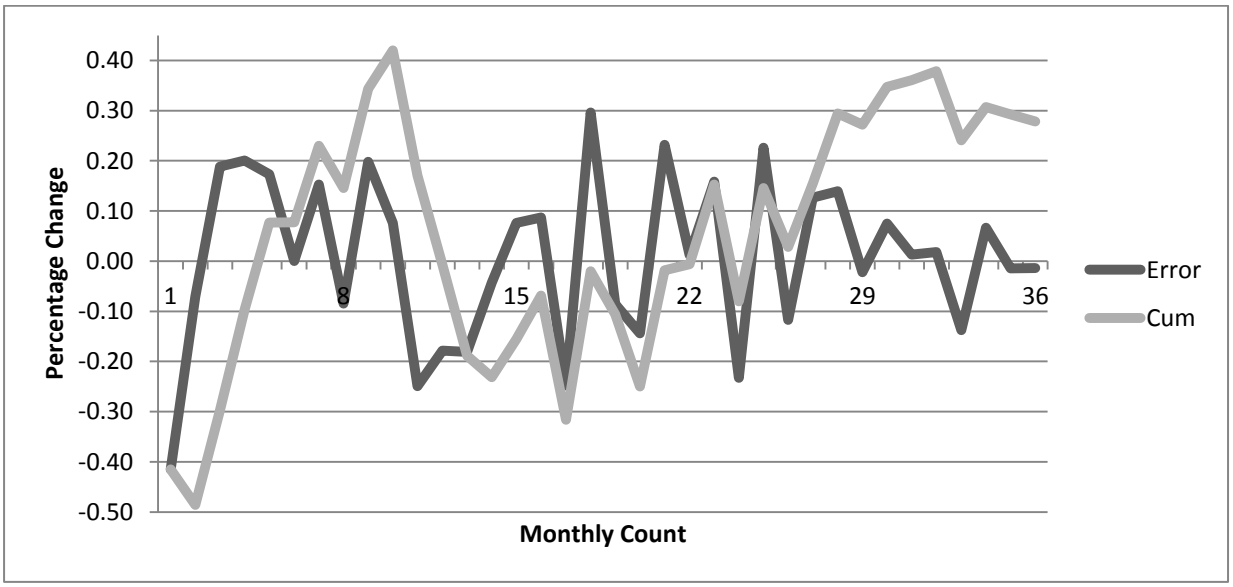
The test statistics for skewness and kurtosis are -0.659 and 0.860 respectively, indicating that the distribution of the stock returns has a slightly longer left hand tail and a slightly taller peak than the normal distribution.

Fifteen of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Table 26: Descriptive Statistics for Drdgold Limited

Mean	0.0214
Standard Error	0.0184
Median	0.0432
Mode	#N/A
Standard Deviation	0.1690
Sample Variance	0.0286
Kurtosis	0.8599
Skewness	-0.6591
Range	0.8584
Minimum	-0.5164
Maximum	0.3421
Sum	1.8015
Count	84
Largest(1)	0.3421
Smallest(1)	-0.5164

Figure 27: Prediction Error and Cumulative Error for Drdgold Limited



The forecast errors remain highly volatile throughout the three year horizon. The errors range from a maximum of 29.63% to a minimum of -41.50%. The cumulative forecast error graph confirms the volatile forecast errors throughout the three year horizon by showing no tendency to normalise.

The average adjusted R-squared for Drdgold Limited is 17.09%. Therefore the forecast model only explains 17.09% of month t's return. The average forecast error over the entire testing sample is 0.773%. Hence the forecast model underestimated month t's return on average by 0.773% over the three year forecasting period.

4.8.5 Cashbuild Limited

The mean, median and sum of the portfolio are all negative indicating that the portfolio returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.083 and 0.216 respectively, indicating that the distribution of the stock returns has a slightly longer right hand tail and a slightly taller peak than the normal distribution.

Table 27: Descriptive Statistics for Cashbuild Limited

Mean	-0.0181
Standard Error	0.0088
Median	-0.0225
Mode	-0.0317
Standard Deviation	0.0806
Sample Variance	0.0065
Kurtosis	0.2162
Skewness	0.0834
Range	0.4139
Minimum	-0.2122
Maximum	0.2017
Sum	-1.5189
Count	84
Largest(1)	0.2017
Smallest(1)	-0.2122

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

Figure 28: Prediction Error and Cumulative Error for Cashbuild Limited

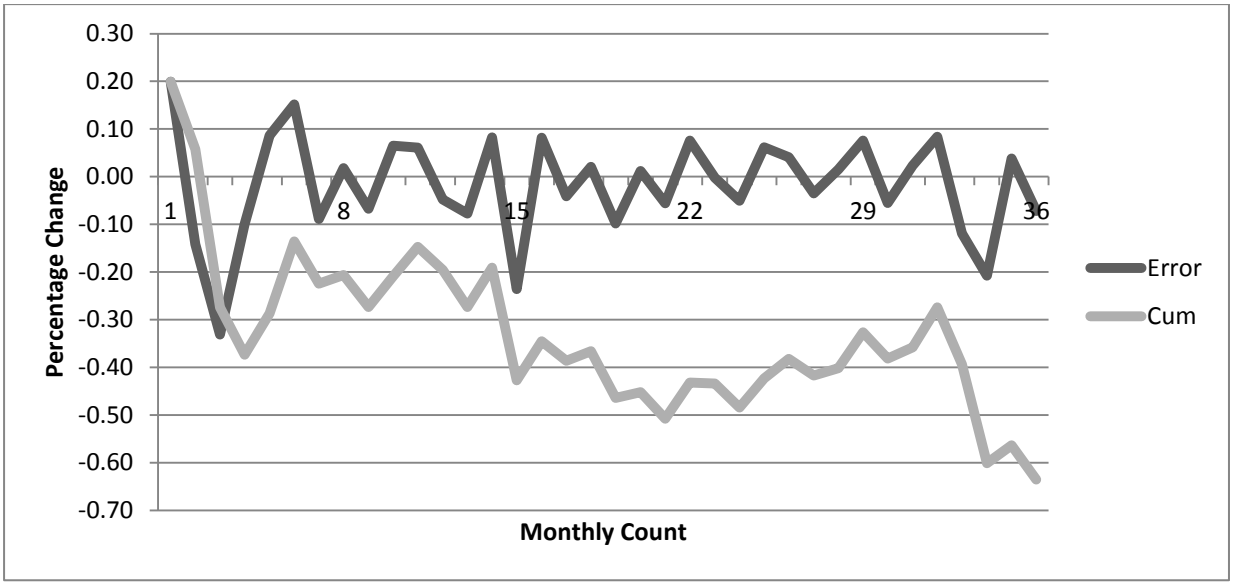


Figure 28 illustrates that the forecast errors overestimated month t's return throughout the three year horizon. The errors range from a maximum of 15.14% to a minimum of -33.15%. The cumulative forecast error graph confirms the overestimation of month t+1's return by consistently decreasing.

The average adjusted R-squared for Cashbuild`s Limited is 0.38%. Therefore the forecast model only explains 0.38% of month t+1's return. The average forecast error over the entire testing sample is -1.766%. Hence the forecast model overestimated month t+1's return on average by 1.766% over the three year forecasting period.

4.8.6 MTN Group Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

The test statistics for skewness and kurtosis are -0.113 and 0.185 respectively, indicating that the distribution of the stock returns has a slightly longer left hand tail and a slightly taller peak than the normal distribution.

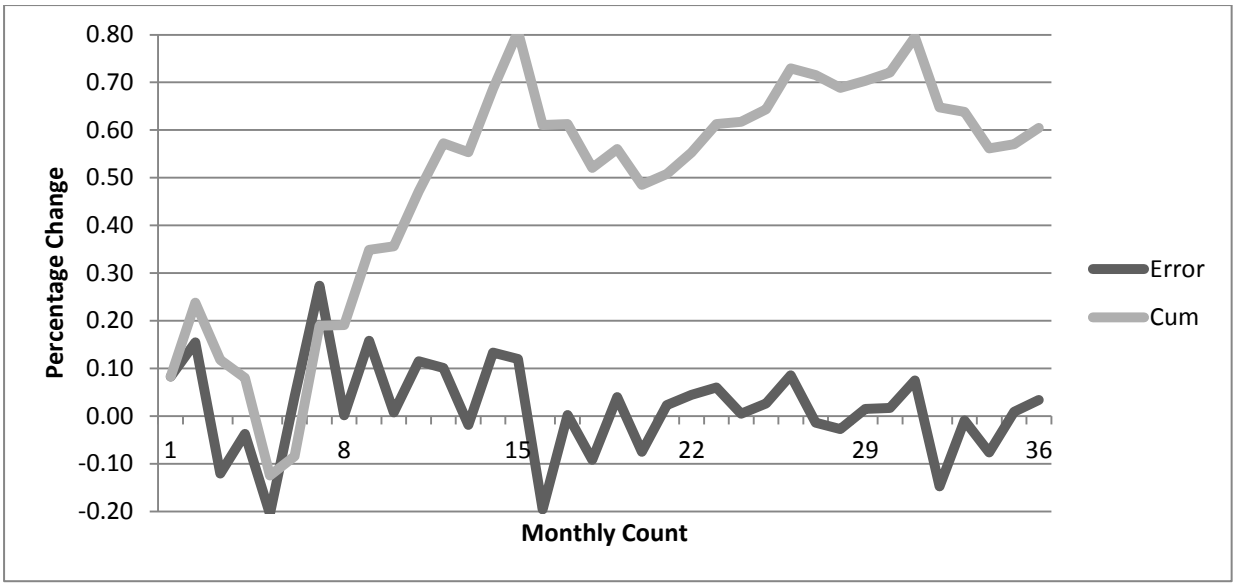
Table 28: Descriptive Statistics for MTN Group Limited

Mean	-0.0183
Standard Error	0.0084
Median	-0.0157
Mode	#N/A
Standard Deviation	0.0772
Sample Variance	0.0060
Kurtosis	0.1849
Skewness	-0.1131
Range	0.4004
Minimum	-0.1996
Maximum	0.2008
Sum	-1.5389
Count	84
Largest(1)	0.2008
Smallest(1)	-0.1996

Four of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

The highest and lowest forecast errors are recorded between January 2008 and April 2009. The errors range from a maximum of 27.37% to a minimum of -20.51%. Figure 29 shows that after March 2009 stock returns marginally reverse the abnormal returns accumulated before March 2009 but the forecast error graph hovers around zero.

Figure 29: Prediction Error and Cumulative Error for MTN Group Limited



The average adjusted R-squared for MTN Group Limited is 3.15%. Therefore the forecast model only explains 3.15% of month t+1's return. The average forecast error over the entire testing sample is 1.679%. Hence the forecast model underestimated month t+1's return on average by 1.679% over the three year forecasting period.

4.9 SUMMARY

The statistical properties of the individual stocks somewhat differ from the properties of the entire sample. For example the distribution of returns for DRD Gold indicates the returns are positively skewed whereas the distribution of returns for the remaining 6 stocks are negatively skewed.

Apart from the returns of MTN and DRD Gold, the statistics for skewness and kurtosis state that the distribution of portfolio returns have longer right hand tails and taller peaks than the normal distribution. MTN and DRD Gold have a longer left hand tails with taller peaks than the normal distribution.

The regression analysis has shown that lagged returns are cannot forecast month t+1's return for individual stocks. The portfolio average adjusted R-squared was yet again far too low to acknowledge that past returns contain information that may help to predict future returns.

The DW test has failed to reject the null hypothesis for all the regressions run over the three year testing horizon. Therefore no autocorrelation is evident in the 1st order serial properties of the residuals or prediction errors.

The F-statistic has shown that there are some regressions where the null hypothesis has been rejected. This confirms that the JSE readjusts to new information (Malkiel, 2003).

The global recession of 2007-2008 has continued to significantly affect the performance of stocks on the JSE. Stock returns are highly volatile throughout 2008 and continue to be volatile in the first six to eight months of 2009.

The global recession of 2007-2008 has significantly affected the performance and accuracy of the forecast model. The forecast model`s accuracy in attempting to predict month t+1`s return continues to be highly inaccurate.

4.10 INDIVIDUAL REGRESSION RESULTS ON DATA FROM JANUARY 1999 TO DECEMBER 2005

Due to the effect that the global recession of 2007-2008 has had on stock performance and the accuracy of the forecast model, this section will repeat the regression analysis on the six individual stocks on data from January 1999 to December 2005. This will eliminate the impact that the recession of 2007-2008 has had and allow the forecast model to be accurately tested.[23]

[23] For confirmation of regression findings, all summarised coefficient estimates will be presented in appendix A.9.

4.10.1 Standard Bank Group Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

The test statistics for skewness and kurtosis are -0.089 and -0.123 respectively, indicating that the distribution of the stock returns has a slightly longer right hand tail and a flatter peak than the normal distribution.

Five of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Table 29: Descriptive Statistics for Standard Bank Group Limited

Mean	-0.0167
Standard Error	0.0071
Median	-0.0168
Mode	#N/A
Standard Deviation	0.0644
Sample Variance	0.0042
Kurtosis	-0.1229
Skewness	-0.0890
Range	0.3033
Minimum	-0.1679
Maximum	0.1354
Sum	-1.3864
Count	83
Largest(1)	0.1354
Smallest(1)	-0.1679

Figure 30 illustrates that the forecast model overestimated month t+1's return throughout the three year testing horizon. The cumulative forecast error graph confirms the model overestimation by decreasing over the three year testing horizon.

Figure 30: Prediction Error and Cumulative Error for Standard Bank Group Limited



The average adjusted R-squared for the sample is 9.48%. Therefore the forecast model only explains 9.48% of month t+1's return. The average forecast error over the entire testing sample is 1.399%. Hence the forecast model underestimated month t+1's return by 1.399% over the three year forecasting period.

4.10.2 Afgri Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.644 and 4.210 respectively, indicating that the distribution of the stock returns has a slightly longer right hand tail and a taller peak than the normal distribution.

Only one of the thirty-six regression tests has an F-statistic that is significant at the 5% confidence level. All the regressions have DW statistics that are either two or

very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Table 30: Descriptive Statistics for Afgri Limited

Mean	-0.0071
Standard Error	0.0107
Median	-0.0124
Mode	#N/A
Standard Deviation	0.0972
Sample Variance	0.0095
Kurtosis	4.2101
Skewness	0.6436
Range	0.7362
Minimum	-0.3355
Maximum	0.4008
Sum	-0.5911
Count	83
Largest(1)	0.4008
Smallest(1)	-0.3355

Figure 31: Prediction Error and Cumulative Error for Afgri Limited

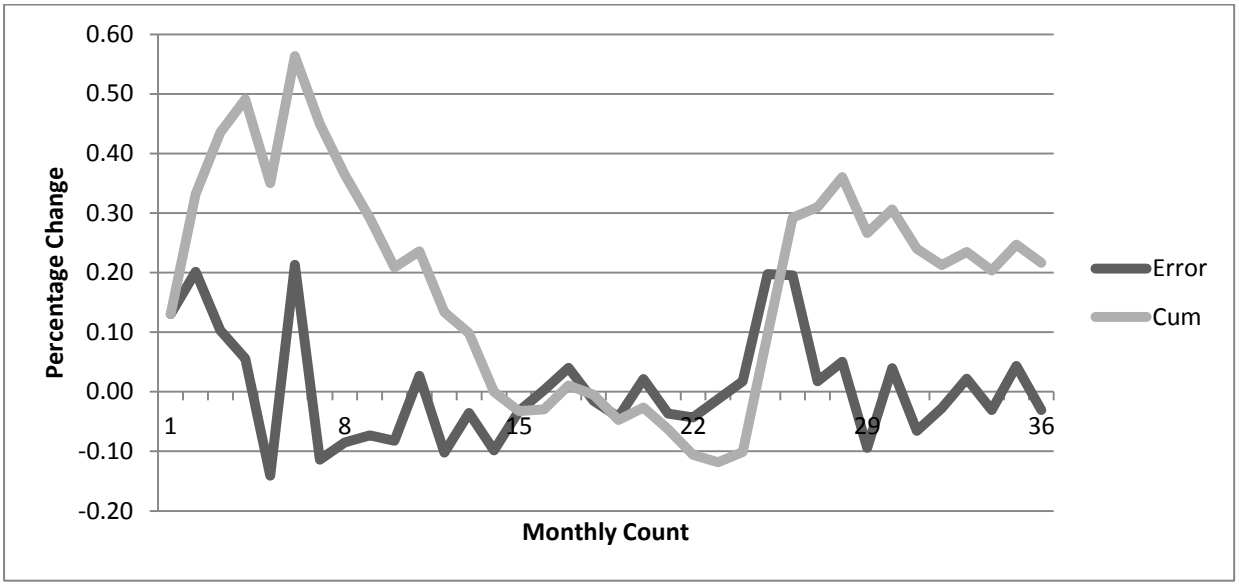


Figure 31 shows that between January 2003 and November 2003 Afrgi forecast errors are highly volatile and the forecast model makes large errors. Between

November 2003 and December 2004 the abnormal gains are reversed and the forecast errors are very small. The cumulative forecast error graph confirms the small errors by closely tracking the forecast error graph. After December 2004 the forecast model begins to underestimate month t+1's return, thereby the cumulative forecast error graph increases.

The average adjusted R-squared for the sample is 1.96%. Therefore the forecast model only explains 1.96% of month t+1's return. The average forecast error over the entire testing sample is 0.601%. Hence the forecast model underestimated month t+1's return by 0.601% over the three year forecasting period.

4.10.3 Iliad Africa Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

Table 31: Descriptive Statistics for Iliad Africa Limited

Mean	-0.0345
Standard Error	0.0129
Median	-0.0345
Mode	0.0000
Standard Deviation	0.1176
Sample Variance	0.0138
Kurtosis	1.8398
Skewness	0.3426
Range	0.7647
Minimum	-0.3651
Maximum	0.3996
Sum	-2.8600
Count	83
Largest(1)	0.3996
Smallest(1)	-0.3651

The test statistics for skewness and kurtosis are 0.343 and 1.84 respectively, indicating that the distribution of the stock returns has a slightly longer right hand tail and a taller peak than the normal distribution.

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

Figure 32: Prediction Error and Cumulative Error for Iliad Africa Limited

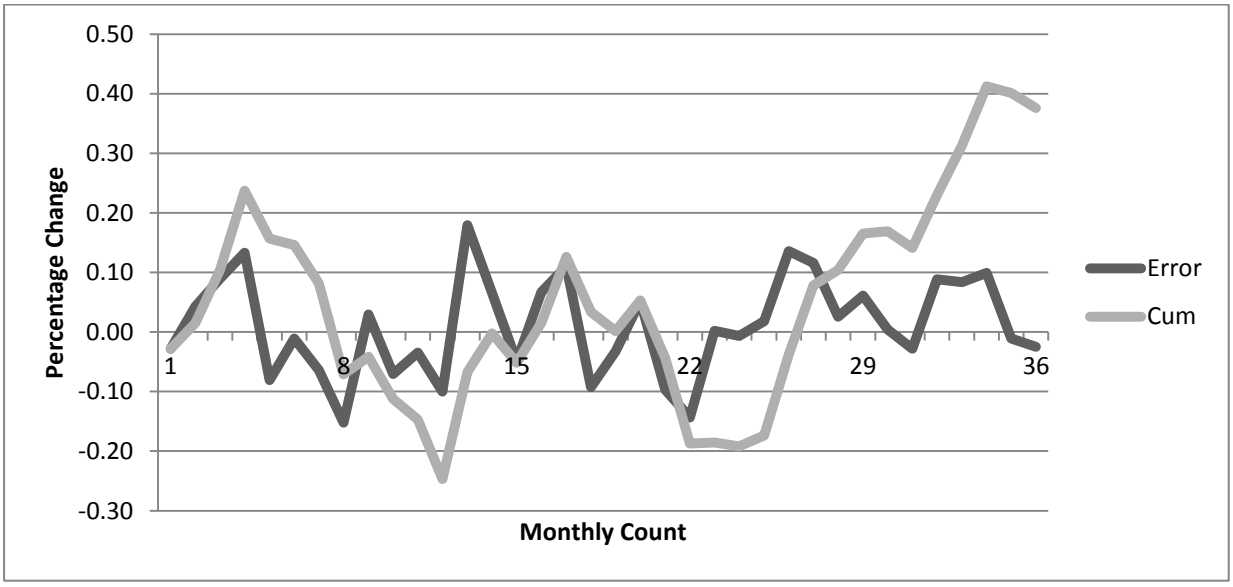


Figure 32 shows that the forecast models accuracy for Iliad Africa is volatile over the three year testing horizon. The forecast model consistently makes large errors throughout the three year horizon. The cumulative forecast error graph confirms the volatile performance by showing no tendency to normalise.

The average adjusted R-squared for the sample is 2.86%. Therefore the forecast model only explains 2.86% of month t+1's return. The average forecast error over the entire testing sample is 1.045%. Hence the forecast model underestimated month t+1's return by 1.045% over the three year forecasting period.

4.10.4 Drdgold Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

The test statistics for skewness and kurtosis are -0.180 and -0.191 respectively, indicating that the distribution of the stock returns has a longer left hand tail and a flatter peak than the normal distribution.

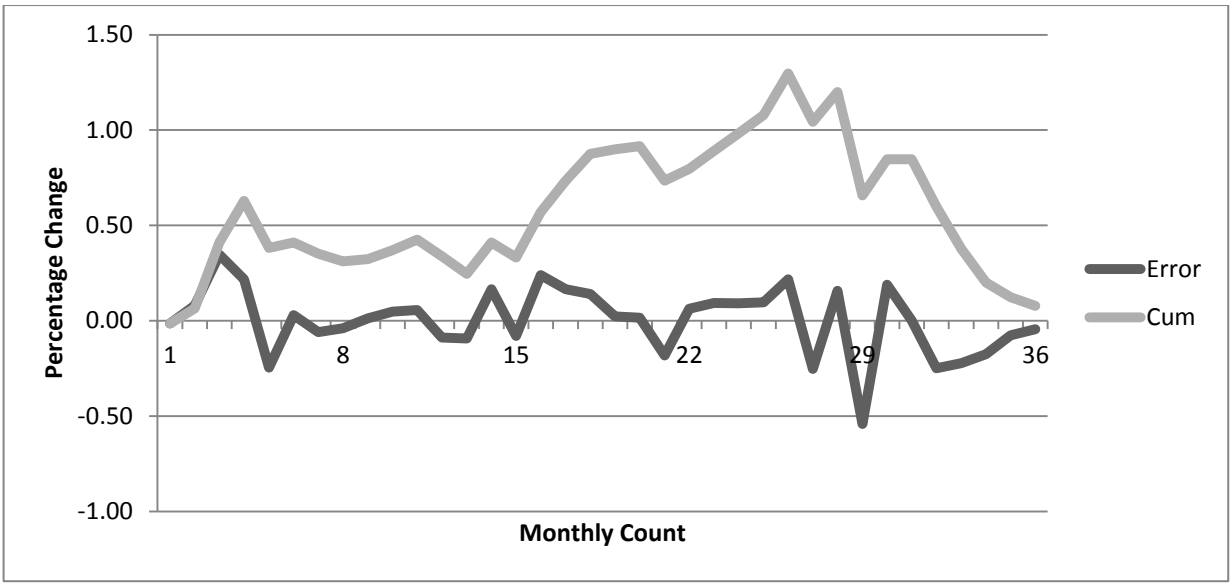
Table 32: Descriptive Statistics for DRDgold Limited

Mean	0.0049
Standard Error	0.0203
Median	0.0161
Mode	0.0588
Standard Deviation	0.1851
Sample Variance	0.0343
Kurtosis	-0.1905
Skewness	-0.1799
Range	0.8420
Minimum	-0.4439
Maximum	0.3981
Sum	0.4090
Count	83
Largest(1)	0.3981
Smallest(1)	-0.4439

Only one of the thirty-six regression tests has an F-statistic that is significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Figure 33 illustrates that the forecast model made relatively small errors between January 2003 and February 2005. After February 2005 the forecast model makes larger errors and the cumulative forecast error graph rises.

Figure 33: Prediction Error and Cumulative Error for DRDgold Limited



The average adjusted R-squared for the sample is 4.08%. Therefore the forecast model only explains 4.08% of month t+1's return. The average forecast error over the entire testing sample is 0.219%. Hence the forecast model underestimated month t+1's return by 0.219% over the three year forecasting period.

4.10.5 Cashbuild Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

The test statistics for skewness and kurtosis are 0.476 and 2.535 respectively, indicating that the distribution of the stock returns has a slightly longer right hand tail and a taller peak than the normal distribution.

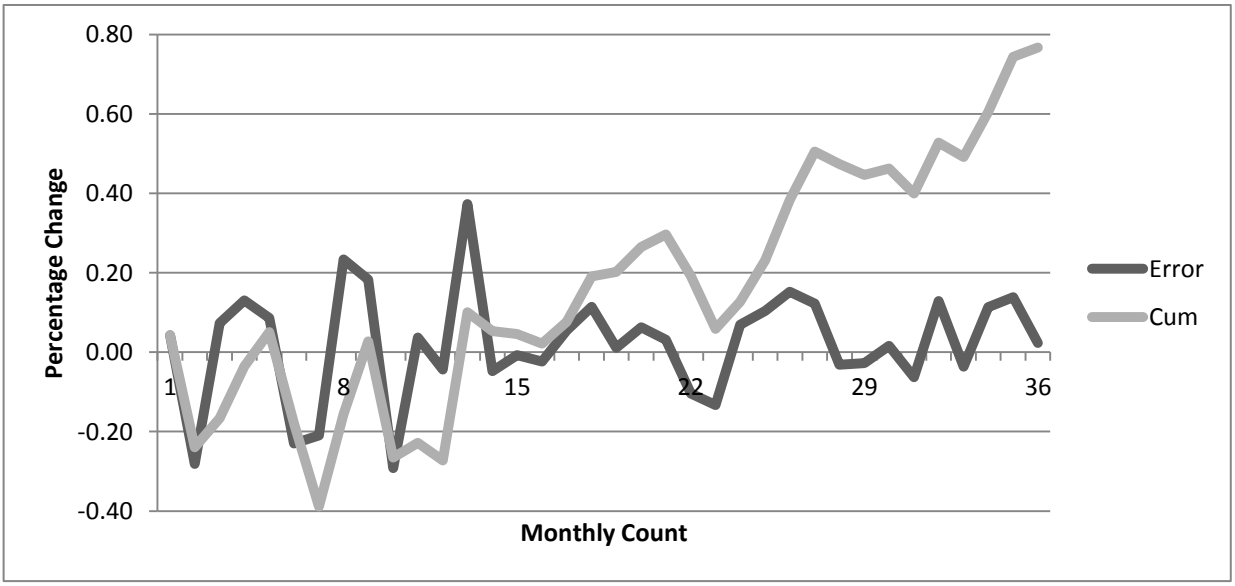
Eight of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two, hence the DW test fails to reject the null hypothesis for all regressions.

Table 33: Descriptive Statistics for Cashbuild Limited

Mean	-0.0378
Standard Error	0.0163
Median	-0.0293
Mode	0.0000
Standard Deviation	0.1485
Sample Variance	0.0221
Kurtosis	2.5352
Skewness	0.4762
Range	0.9985
Minimum	-0.4595
Maximum	0.5390
Sum	-3.1376
Count	83
Largest(1)	0.5390
Smallest(1)	-0.4595

Figure 34 illustrates that the forecast model makes large errors between January 2003 and January 2004. After January 2004 the forecast model makes fewer errors but continuously underestimating month t+1's return. The cumulative forecast graph confirms this by continuously increasing.

Figure 34: Prediction Error and Cumulative Error for Cashbuild Limited



The average adjusted R-squared for the sample is 7.52%. Therefore the forecast model only explains 7.52% of month t+1's return. The average forecast error over the entire testing sample is 2.129%. Hence the forecast model underestimated month t+1's return by 2.129% over the three year forecasting period.

4.10.6 MTN Group Limited

The mean, median and sum of the portfolio are all negative indicating that the stock returns are negatively skewed.

The test statistics for skewness and kurtosis are -0.129 and 0.932 respectively, indicating that the distribution of the stock returns has a slightly longer left hand tail and a taller peak than the normal distribution.

None of the thirty-six regression tests have F-statistics that are significant at the 5% confidence level. All the regressions have DW statistics that are either two or very close to two. Therefore the F-statistic and DW test both fail to reject the null hypothesis for all regressions.

Table 34: Descriptive Statistics for MTN Group Limited

Mean	-0.0234
Standard Error	0.0139
Median	-0.0134
Mode	#N/A
Standard Deviation	0.1264
Sample Variance	0.0160
Kurtosis	0.9323
Skewness	-0.1290
Range	0.7398
Minimum	-0.4034
Maximum	0.3365
Sum	-1.9413
Count	83
Largest(1)	0.3365
Smallest(1)	-0.4034

Figure 35: Prediction Error and Cumulative Error for MTN Group Limited

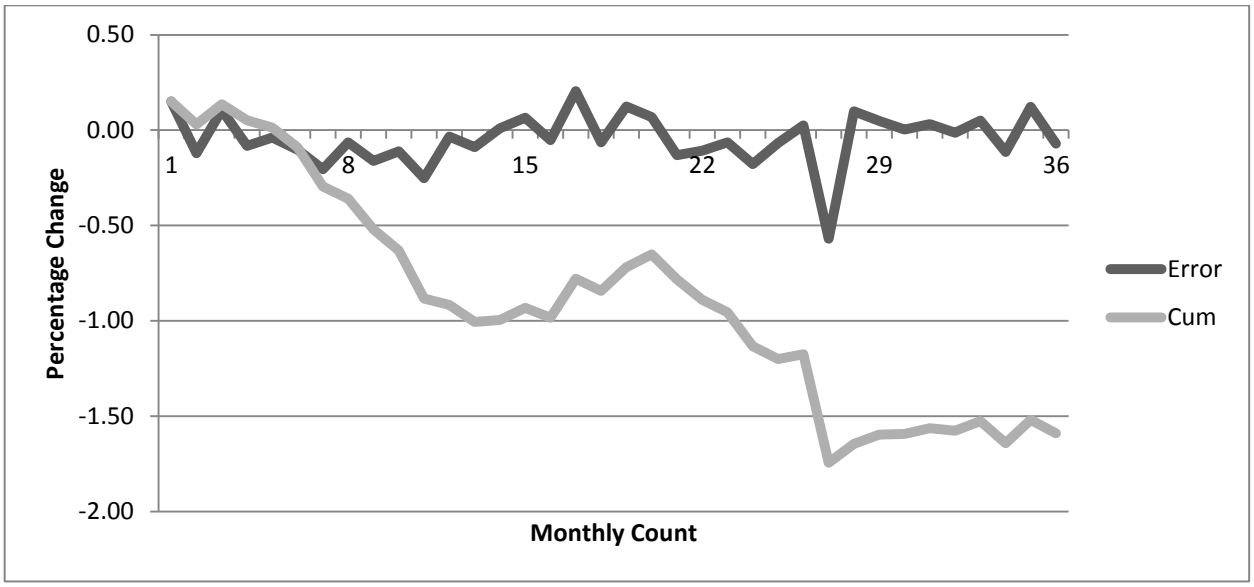


Figure 35 illustrates that the forecast error graph underestimated month t+1's return throughout the three year testing horizon. The cumulative forecast error graph confirms the model overestimation by continuously decreasing over the testing horizon.

The average adjusted R-squared for the sample is 0.06%. Therefore the forecast model only explains 0.06% of month t+1's return. The average forecast error over the entire testing sample is 4.418%. Hence the forecast model underestimated month t+1's return by 4.418% over the three year forecasting period.

4.11 SUMMARY

Testing the forecast model on data that excludes the global recession of 2007-2008 has shown that the forecast model cannot forecast month t+1's return for individual stocks. The average adjusted R-squared remains very low further acknowledging

that lagged returns do not contain information that is relevant to explain month t+1`s return.

The F-statistic has also shown that there are some regressions where the null hypothesis has been rejected. This does not reject the null hypothesis that all the slope coefficients are equal to zero.

The DW test has also failed to reject the null hypothesis for all the regressions run over the three year testing horizon for all stocks. The correlation matrix also confirms that there is no correlation between the lagged returns. This confirms that no autocorrelation is evident in the 1^{st} order serial properties of the residuals or prediction errors.

5. CHAPTER 5: CONCLUSION

This paper replicates Jegadeesh`s (1990) paper entitled “Evidence of Predictable Behavior of Security Returns”. Jegadeesh (1990) states that by using the observed systematic behavior of stock returns it is possible to make one-step-ahead return forecasts. Hence the aim of this research is to assess the predictability of monthly returns on the Johannesburg Stock Exchange (JSE) by analysing the monthly returns of stocks on the JSE.

The forecast model is tested on six individual stocks and two different portfolio sets. The global recession of 2007-2008 has significantly affected the performance of stocks hence the accuracy of the forecast model is highly volatile in 2008 and throughout the first six to eight months of 2009. After the phase of volatile returns there is evidence that stock returns revert back to their long run average return rate. However this reversion is not strong enough to support the findings from Fama and French (1988). The long run reversion exhibited by portfolios ranked on firm size (market capitalization) was driven by the global market crash where degrees of long run reversion were also evidenced in portfolios ranked by market returns.

Therefore analysing portfolios ranked by market capitalization has proved that firm size does not play a significant role in predicting a securities return. This thesis does not agree with the findings from Rouwenhorst (1999), Brennan *et al.* (1998) and Ferson and Harvey (1997) who all found that firm size has significant explanatory in predicting future returns.

The average forecast errors over the three year testing horizon of the forecast model is wide-ranging, indicating that the forecast model does not consistently estimate month t+1`s return. The proclamation by chartist theories, that the past behaviour of a securities price contains information concerning its future movement is not evident in this thesis (Fama, 1965). The average adjusted R-squared remained low, which confirms that that lagged returns do not contain information that is relevant to explain month t+1`s return.

Further to the findings from the average adjusted R-squared, the DW test failed to reject the null hypothesis for all the regressions run. Over the three year testing horizon and the correlation matrix[24] for selected stocks and portfolios confirms that lagged returns are not correlated. This confirms that the lagged returns do not contain any information concerning future stock returns.

The F-statistic has shown that some regressions have rejected the null hypothesis that all slope coefficients are equal to zero. This seems to suggest that lagged returns may be a suitable variable to forecast future returns. Malkiel (2003) argues that it would be incorrect to conclude that the stocks may not follow the random walk theory and may not be weak form efficient, as markets cannot be perfectly efficient.

To eliminate the impact of the global recession of 2007-2008 the forecast model was tested on six individual stocks, on data from January 1999 to December 2005. The results did not differ from the analysis run on data that included the global recession of 2007-2008.

The average forecast error for all regressions continues to be wide-ranging and the average adjusted R-squared remained low. The DW test failed to reject the null hypothesis for all the regressions and the F-statistic suggests that the past returns cannot help forecast future returns.

Therefore testing the forecast model on data that excluded returns from the global recession of 2007-2008 confirms that the forecast model cannot forecast month t+1`s return.

[24] Please refer to Appendix - A.2

6. APPENDIX

A.1 SLOPE COEFFICIENTS FOR MULTIVARIATE REGRESSION

The coefficients for the multivariate regression (2) exhibit similar properties to CAPM`s beta.

The example below looks at the multivariate regression of security i with two lagged terms.

$$\begin{bmatrix}\alpha_{1t}\\ \alpha_{2t}\end{bmatrix} = \left[cov_i \begin{Bmatrix}R_{it-1}\\ R_{it-2}\end{Bmatrix}\right]^{-1} \begin{bmatrix}cov_i\,(R_{it}, R_{it-1})\\ cov_i(R_{it}, R_{it-2})\end{bmatrix} \qquad \text{(a.1)}$$

Expanding the two brackets and multiplying the two brackets we get the following equation:

$$\begin{bmatrix}\alpha_{1t}\\ \alpha_{2t}\end{bmatrix} = \begin{bmatrix}(R_{it-1})^2 & 0\\ 0 & (R_{it-2})^2\end{bmatrix}^{-1} \begin{bmatrix}cov_i(R_{it}, R_{it-1})\\ cov_i(R_{it}, R_{it-2})\end{bmatrix} \qquad \text{(a.2)}$$

$$\begin{bmatrix}\alpha_{1t}\\ \alpha_{2t}\end{bmatrix} = \begin{bmatrix}cov_i(R_{it}, R_{it-1})/(R_{it-1})^2\\ cov_i(R_{it}, R_{it-2})/(R_{it-2})^2\end{bmatrix} \qquad \text{(a.3)}$$

A.2 PRELIMINARY LAG TESTS

Table 35: Preliminary lag terms tests

8 Lagged Terms																					
α0		α1		α2		α3		α4		α5		α6		α7		α8		R2	R-bar	F-stat	
-0.037	(0.00)	0.742	(0.00)	-0.491	(0.04)	-0.077	(0.76)	0.084	(0.71)	-0.575	(0.02)	0.276	(0.28)	-0.100	(0.68)	-0.213	(0.27)	0.388	0.191	(0.08)	
7 Lagged Terms																					
α0		α1		α2		α3		α4		α5		α6		α7		R2	R-bar	F-stat			
-0.031	(0.00)	0.866	(0.00)	-0.676	(0.01)	0.136	(0.58)	0.004	(0.99)	-0.555	(0.03)	0.383	(0.11)	-0.288	(0.12)	0.364	0.194	(0.06)			
6 Lagged Terms																					
α0		α1		α2		α3		α4		α5		α6		R2	R-bar	F-stat					
-0.033	(0.00)	0.375	(0.04)	-0.065	(0.70)	-0.231	(0.17)	0.134	(0.43)	-0.483	(0.01)	0.056	(0.76)	0.300	0.147	(0.09)					
5 Lagged Terms																					
α0		α1		α2		α3		α4		α5		R2	R-bar	F-stat							
-0.034	(0.00)	0.324	(0.04)	-0.038	(0.81)	-0.237	(0.14)	0.139	(0.39)	-0.471	(0.00)	0.305	0.182	(0.04)							
4 Lagged Terms																					
α0		α1		α2		α3		α4		R2	R-bar	F-stat									
-0.026	(0.02)	0.017	(0.92)	0.126	(0.44)	-0.227	(0.17)	0.065	(0.70)	0.107	-0.017	(0.52)									
3 Lagged Terms																					
α0		α1		α2		α3		R2	R-bar	F-stat											
-0.024	(0.00)	0.165	(0.30)	0.143	(0.37)	-0.246	(0.13)	0.108	0.014	(0.35)											
2 Lagged Terms																					
α0		α1		α2		R2	R-bar	F-stat													
-0.014	(0.00)	0.820	(0.00)	-0.379	(0.01)	0.120	0.054	(0.16)													
1 Lagged Term																					
α0		α1		R2	R-bar	F-stat															
-0.029	(0.00)	-0.200	(0.19)	0.056	0.011	(0.30)															

Table 36: Preliminary lag length tests

	α_0		α_1		α_2		α_3		α_4		α_5		R2	R-bar	F-stat
55 lags	-0.004	(0.45)	0.492	(0.00)	0.191	(0.27)	-0.196	(0.26)	0.125	(0.47)	0.071	(0.66)	0.20	0.09	(0.12)
50 lags	-0.016	(0.08)	0.322	(0.05)	0.208	(0.30)	-0.290	(0.15)	0.152	(0.46)	-0.154	(0.44)	0.152	0.018	(0.36)
47 lags	-0.029	(0.00)	0.407	(0.02)	-0.097	(0.59)	-0.157	(0.38)	0.202	(0.27)	-0.412	(0.02)	0.206	0.070	(0.20)
46 lags	-0.034	(0.00)	0.324	(0.04)	-0.038	(0.81)	-0.237	(0.14)	0.139	(0.39)	-0.471	(0.00)	0.305	0.182	(0.04)
45 lags	-0.035	(0.00)	0.322	(0.04)	-0.039	(0.81)	-0.238	(0.14)	0.136	(0.41)	-0.469	(0.01)	0.304	0.177	(0.05)
44 lags	-0.034	(0.00)	0.309	(0.05)	-0.019	(0.91)	-0.219	(0.19)	0.120	(0.48)	-0.482	(0.01)	0.310	0.181	(0.10)
40 lags	-0.035	(0.00)	0.269	(0.12)	-0.011	(0.95)	-0.172	(0.32)	0.127	(0.47)	-0.454	(0.01)	0.279	0.124	(0.14)
35 lags	-0.034	(0.00)	0.298	(0.11)	-0.038	(0.84)	-0.210	(0.26)	0.135	(0.47)	-0.467	(0.01)	0.314	0.135	(0.15)
30 lags	-0.043	(0.00)	0.302	(0.15)	-0.139	(0.53)	-0.242	(0.27)	0.126	(0.56)	-0.546	(0.02)	0.359	0.146	(0.18)
25 lags	-0.038	(0.01)	0.421	(0.14)	-0.216	(0.50)	-0.324	(0.30)	0.428	(0.21)	-0.574	(0.13)	0.361	0.066	(0.36)
20 lags	-0.039	(0.01)	0.105	(0.74)	0.344	(0.28)	-0.429	(0.26)	0.314	(0.51)	-0.699	(0.14)	0.496	0.118	(0.35)

A.3 CORRELATION MATRIX FOR SELECTED STOCKS AND PORTFOLIOS

Figure 36: Correlation matrix for aggregated sample

	Lag_1	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	0.320620	1			
Lag_3	0.241985	0.322206	1		
Lag_4	0.162581	0.243258	0.331113	1	
Lag_5	0.348291	0.163096	0.242674	0.333854	1

Figure 37: Correlation matrix for MTN Group Limited

MTN	*Lag_1*	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	0.043507	1			
Lag_3	-0.04554	0.043632	1		
Lag_4	0.146777	-0.05253	0.041991	1	
Lag_5	-0.09944	0.153019	-0.05025	0.066574	1

Figure 38: Correlation matrix for Afgri Limited

AFR	*Lag_1*	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	-0.05243	1			
Lag_3	-0.12501	-0.0498	1		
Lag_4	-0.11041	-0.12986	-0.04238	1	
Lag_5	0.017528	-0.10615	-0.14203	-0.02781	1

Figure 39: Correlation matrix for Portfolio 1 (market weighted)

P. 1	*Lag_1*	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	0.177224	1			
Lag_3	0.11601	0.172311	1		
Lag_4	0.165237	0.122951	0.179964	1	
Lag_5	0.311673	0.161392	0.118628	0.186096	1

Figure 40: Correlation matrix for Portfolio 10 (market weighted returns)

P. 10	*Lag_1*	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	0.06052	1			
Lag_3	0.143241	0.061553	1		
Lag_4	0.222564	0.142842	0.066571	1	
Lag_5	0.177897	0.223175	0.142231	0.069112	1

Figure 41: Correlation matrix for Portfolio 3 (market capitalisation weighting)

P. 3	*Lag_1*	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	0.215267	1			
Lag_3	0.171462	0.215667	1		
Lag_4	0.116516	0.171788	0.216211	1	
Lag_5	0.306432	0.116039	0.172135	0.216459	1

Figure 42: Correlation matrix for Portfolio 7 (market capitalisation weighting)

P. 7	*Lag_1*	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	0.351303	1			
Lag_3	0.161374	0.350125	1		
Lag_4	0.211589	0.16185	0.352706	1	
Lag_5	0.318607	0.211432	0.161538	0.352931	1

Figure 43: Correlation matrix for Standard Bank Group Limited

SBK	*Lag_1*	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	0.045734	1			
Lag_3	-0.06863	0.054059	1		
Lag_4	-0.21278	-0.06118	0.052666	1	
Lag_5	-0.17760	-0.21154	-0.06114	0.052722	1

Figure 44: Correlation matrix for Iliad Africa Limited

ILA	*Lag_1*	*Lag_2*	*Lag_3*	*Lag_4*	*Lag_5*
Lag_1	1				
Lag_2	-0.15645	1			
Lag_3	-0.01549	-0.15572	1		
Lag_4	0.209082	-0.01228	-0.15479	1	
Lag_5	-0.04978	0.214155	-0.01115	-0.15941	1

A.4 CORRELATION MATRIX FOR SELECTED STOCKS AND PORTFOLIOS

Table 37: Regression estimates for the entire sample

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.027	(0.01)	0.312	(0.06)	-0.040	(0.82)	-0.186	(0.28)	0.210	(0.24)	-0.358	(0.04)	0.060	(0.24)
Feb-08	-0.035	(0.18)	-0.337	(0.09)	-0.052	(0.80)	-0.227	(0.29)	-0.020	(0.93)	-0.223	(0.28)	0.062	(0.23)
Mar-08	-0.011	(0.21)	0.523	(0.00)	0.100	(0.66)	-0.287	(0.21)	0.238	(0.31)	-0.152	(0.46)	0.009	(0.41)
Apr-08	-0.001	(0.30)	0.358	(0.04)	0.233	(0.20)	-0.279	(0.19)	0.228	(0.30)	-0.106	(0.61)	0.030	(0.33)
May-08	-0.009	(0.43)	0.017	(0.92)	0.259	(0.13)	-0.094	(0.59)	0.182	(0.37)	-0.028	(0.89)	-0.008	(0.48)
Jun-08	-0.009	(0.35)	0.108	(0.53)	0.266	(0.13)	-0.108	(0.53)	0.162	(0.36)	-0.045	(0.83)	0.007	(0.41)
Jul-08	-0.002	(0.80)	0.351	(0.06)	0.236	(0.21)	-0.159	(0.40)	0.122	(0.51)	0.119	(0.50)	0.018	(0.37)
Aug-08	0.000	(0.96)	0.893	(0.00)	-0.348	(0.14)	0.143	(0.55)	-0.002	(0.99)	0.143	(0.41)	0.064	(0.22)
Sep-08	-0.001	(0.79)	0.873	(0.00)	-0.365	(0.12)	0.162	(0.50)	-0.028	(0.90)	0.179	(0.31)	0.069	(0.21)
Oct-08	0.001	(0.90)	0.927	(0.00)	-0.437	(0.07)	0.282	(0.26)	-0.122	(0.61)	0.219	(0.22)	0.108	(0.01)
Nov-08	0.005	(0.53)	0.284	(0.13)	0.242	(0.20)	-0.061	(0.75)	0.267	(0.16)	0.147	(0.46)	0.125	(0.10)
Dec-08	-0.003	(0.72)	0.235	(0.18)	0.214	(0.27)	-0.028	(0.88)	0.261	(0.18)	0.116	(0.55)	0.117	(0.11)
Jan-09	0.002	(0.73)	0.309	(0.08)	0.060	(0.73)	-0.026	(0.89)	0.329	(0.85)	0.062	(0.78)	0.102	(0.14)
Feb-09	0.002	(0.72)	0.305	(0.08)	0.061	(0.07)	-0.026	(0.88)	0.330	(0.08)	0.063	(0.74)	0.105	(0.13)
Mar-09	0.006	(0.49)	0.036	(0.83)	0.024	(0.88)	0.007	(0.96)	0.388	(0.02)	0.198	(0.29)	0.178	(0.05)
Apr-09	0.002	(0.77)	0.174	(0.32)	0.011	(0.95)	0.075	(0.66)	0.374	(0.03)	0.053	(0.77)	0.146	(0.07)
May-09	0.002	(0.73)	0.859	(0.00)	-0.519	(0.02)	0.360	(0.12)	0.152	(0.50)	-0.070	(0.69)	0.174	(0.05)
Jun-09	0.002	(0.75)	0.684	(0.00)	-0.235	(0.25)	0.055	(0.78)	0.359	(0.09)	-0.151	(0.39)	0.165	(0.06)
Jul-09	0.003	(0.76)	0.026	(0.88)	0.042	(0.79)	0.028	(0.85)	0.280	(0.08)	0.110	(0.53)	0.654	(0.22)
Aug-09	0.001	(0.88)	0.433	(0.02)	-0.014	(0.93)	0.027	(0.88)	0.306	(0.09)	-0.108	(0.51)	0.068	(0.21)
Sep-09	0.001	(0.88)	0.592	(0.00)	-0.136	(0.48)	0.063	(0.74)	0.294	(0.12)	-0.143	(0.38)	0.080	(0.18)
Oct-09	0.000	(0.91)	0.987	(0.00)	-0.636	(0.01)	0.457	(0.06)	0.087	(0.69)	-0.100	(0.53)	0.147	(0.07)
Nov-09	-0.001	(0.79)	0.572	(0.00)	-0.116	(0.53)	0.047	(0.80)	0.393	(0.04)	-0.114	(0.46)	0.153	(0.07)
Dec-09	0.000	(0.99)	-0.280	(0.10)	-0.046	(0.78)	-0.031	(0.85)	0.352	(0.03)	0.262	(0.13)	0.146	(0.07)
Jan-10	-0.001	(0.96)	-0.294	(0.09)	-0.050	(0.76)	-0.027	(0.87)	0.357	(0.03)	0.274	(0.10)	0.152	(0.07)
Feb-10	-0.001	(0.95)	-0.383	(0.03)	-0.116	(0.49)	-0.073	(0.67)	0.335	(0.05)	0.285	(0.09)	0.153	(0.07)
Mar-10	0.001	(0.78)	0.812	(0.00)	-0.366	(0.09)	0.186	(0.40)	0.328	(0.13)	-0.202	(0.24)	0.168	(0.05)
Apr-10	0.000	(0.97)	-0.224	(0.19)	0.018	(0.94)	0.018	(0.91)	0.372	(0.03)	0.263	(0.13)	0.125	(0.10)
May-10	0.001	(0.92)	-0.250	(0.14)	-0.020	(0.90)	0.015	(0.92)	0.369	(0.03)	0.282	(0.10)	0.125	(0.10)
Jun-10	0.002	(0.62)	0.733	(0.00)	-0.354	(0.09)	0.189	(0.38)	0.290	(0.17)	-0.130	(0.45)	0.119	(0.11)
Jul-10	0.005	(0.61)	-0.180	(0.28)	-0.028	(0.86)	-0.004	(0.98)	0.365	(0.03)	0.236	(0.17)	0.091	(0.16)
Aug-10	0.006	(0.61)	-0.206	(0.22)	-0.043	(0.78)	-0.013	(0.94)	0.365	(0.03)	0.244	(0.15)	0.085	(0.18)
Sep-10	0.004	(0.37)	0.774	(0.00)	-0.442	(0.04)	0.231	(0.30)	0.250	(0.24)	-0.142	(0.40)	0.099	(0.14)
Oct-10	0.004	(0.41)	0.603	(0.00)	-0.255	(0.20)	0.064	(0.76)	0.305	(0.14)	-0.113	(0.51)	0.026	(0.34)
Nov-10	0.008	(0.51)	-0.332	(0.05)	-0.106	(0.52)	-0.078	(0.63)	0.273	(0.10)	0.220	(0.18)	0.009	(0.40)
Dec-10	0.009	(0.50)	-0.375	(0.03)	-0.141	(0.40)	-0.098	(0.56)	0.257	(0.12)	0.221	(0.18)	0.011	(0.40)

A.5 T-STATISTIC FOR DICKEY-FULLER TEST

Table 38: T-statistics for aggregated regressions

Year	T-Statistic
Jan-08	-2.9369
Feb-08	-2.9369
Mar-08	-2.9369
Apr-08	-2.9369
May-08	-2.9369
Jun-08	-2.9369
Jul-08	-2.9369
Aug-08	-2.9369
Sep-08	-2.9369
Oct-08	-2.9369
Nov-08	-2.9369
Dec-08	-2.9369
Jan-09	-2.9369
Feb-09	-2.9369
Mar-09	-2.9369
Apr-09	-2.9350
May-09	-2.9369
Jun-09	-2.9369
Jul-09	-2.9369
Aug-09	-2.9369
Sep-09	-2.9369
Oct-09	-2.9369
Nov-09	-2.9369
Dec-09	-2.9369
Jan-10	-2.9369
Feb-10	-2.9369
Mar-10	-2.9369
Apr-10	-2.9369
May-10	-2.9369
Jun-10	-2.9369
Jul-10	-2.9369
Aug-10	-2.9369
Sep-10	-2.9369
Oct-10	-2.9369
Nov-10	-2.9350
Dec-10	-2.9369

A.6 REGRESSION ESTIMATES FOR MARKET WEIGHTED PORTFOLIOS

Table 39: Regression estimates for portfolio 1

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.032	(0.01)	0.274	(0.12)	-0.184	(0.34)	0.043	(0.82)	-0.080	(0.68)	-0.174	(0.35)	-0.113	(0.92)
Feb-08	-0.022	(0.13)	0.161	(0.41)	0.125	(0.52)	-0.053	(0.80)	-0.046	(0.83)	-0.088	(0.67)	-0.132	(0.97)
Mar-08	-0.026	(0.04)	0.247	(0.17)	0.047	(0.82)	-0.187	(0.38)	0.045	(0.84)	-0.137	(0.52)	-0.127	(0.96)
Apr-08	-0.022	(0.91)	0.111	(0.51)	0.160	(0.37)	-0.178	(0.39)	0.131	(0.52)	-0.120	(0.57)	-0.101	(0.88)
May-08	-0.016	(0.81)	0.534	(0.00)	-0.131	(0.49)	-0.034	(0.86)	0.136	(0.54)	-0.147	(0.45)	-0.084	(0.82)
Jun-08	-0.029	(0.79)	-0.342	(0.05)	0.099	(0.59)	-0.094	(0.60)	0.109	(0.55)	-0.004	(0.98)	-0.062	(0.72)
Jul-08	-0.009	(0.31)	0.369	(0.05)	0.077	(0.68)	-0.120	(0.52)	0.061	(0.75)	0.083	(0.64)	-0.091	(0.85)
Aug-08	-0.037	(0.25)	-0.629	(0.00)	-0.187	(0.41)	-0.273	(0.24)	-0.165	(0.46)	-0.060	(0.75)	-0.052	(0.65)
Sep-08	-0.005	(0.43)	0.815	(0.00)	-0.407	(0.07)	0.251	(0.28)	-0.200	(0.37)	0.250	(0.17)	0.003	(0.43)
Oct-08	-0.044	(0.39)	-0.867	(0.00)	-0.412	(0.06)	-0.391	(0.07)	-0.373	(0.09)	-0.286	(0.11)	0.075	(0.20)
Nov-08	0.007	(0.48)	0.403	(0.05)	0.194	(0.35)	0.042	(0.84)	0.253	(0.24)	0.096	(0.66)	0.025	(0.34)
Dec-08	0.006	(0.55)	0.315	(0.07)	0.208	(0.32)	0.083	(0.68)	0.230	(0.27)	0.071	(0.74)	0.048	(0.27)
Jan-09	0.003	(0.75)	0.284	(0.11)	0.035	(0.84)	0.100	(0.64)	0.349	(0.10)	-0.030	(0.89)	0.012	(0.39)
Feb-09	0.004	(0.66)	0.194	(0.27)	0.060	(0.73)	0.106	(0.54)	0.381	(0.07)	-0.003	(0.99)	0.048	(0.27)
Mar-09	0.007	(0.53)	0.077	(0.66)	0.058	(0.73)	0.113	(0.51)	0.417	(0.02)	0.067	(0.75)	0.120	(0.11)
Apr-09	0.001	(0.87)	0.272	(0.13)	-0.006	(0.97)	0.177	(0.32)	0.373	(0.04)	-0.128	(0.50)	0.229	(0.09)
May-09	0.000	(1.00)	-0.264	(0.13)	-0.073	(0.66)	0.128	(0.44)	0.481	(0.01)	0.093	(0.61)	0.109	(0.13)
Jun-09	-0.001	(0.90)	0.652	(0.00)	-0.209	(0.30)	0.174	(0.39)	0.290	(0.18)	-0.236	(0.21)	0.080	(0.18)
Jul-09	-0.001	(0.94)	0.499	(0.01)	-0.069	(0.71)	0.103	(0.57)	0.323	(0.08)	-0.227	(0.22)	0.039	(0.30)
Aug-09	-0.001	(0.87)	0.522	(0.00)	-0.067	(0.71)	0.111	(0.55)	0.327	(0.08)	-0.257	(0.13)	0.064	(0.22)
Sep-09	0.000	(0.96)	0.433	(0.01)	-0.017	(0.93)	0.070	(0.69)	0.343	(0.06)	-0.230	(0.18)	0.060	(0.23)
Oct-09	-0.002	(0.72)	0.882	(0.00)	-0.500	(0.02)	0.432	(0.06)	0.007	(0.59)	-0.196	(0.23)	0.157	(0.06)
Nov-09	-0.004	(0.61)	0.524	(0.00)	-0.078	(0.66)	0.122	(0.49)	0.369	(0.04)	-0.231	(0.15)	0.120	(0.11)
Dec-09	-0.001	(0.83)	0.657	(0.00)	-0.182	(0.36)	0.161	(0.41)	0.315	(0.11)	-0.263	(0.12)	0.104	(0.13)
Jan-10	-0.001	(0.83)	0.739	(0.00)	-0.277	(0.20)	0.254	(0.24)	0.242	(0.25)	-0.242	(0.16)	0.115	(0.12)
Feb-10	0.001	(0.86)	0.667	(0.00)	-0.184	(0.36)	0.201	(0.32)	0.322	(0.11)	-0.312	(0.06)	0.139	(0.08)
Mar-10	0.001	(0.82)	0.665	(0.00)	-0.179	(0.36)	0.197	(0.32)	0.331	(0.10)	-0.311	(0.06)	0.139	(0.08)
Apr-10	0.000	(0.94)	0.607	(0.00)	-0.216	(0.27)	0.238	(0.22)	0.274	(0.17)	-0.220	(0.20)	0.087	(0.17)
May-10	0.001	(0.92)	0.607	(0.00)	-0.219	(0.26)	0.245	(0.21)	0.267	(0.18)	-0.217	(0.21)	0.072	(0.20)
Jun-10	0.002	(0.78)	0.712	(0.00)	-0.378	(0.07)	0.369	(0.08)	0.168	(0.43)	-0.191	(0.27)	0.088	(0.17)
Jul-10	0.003	(0.60)	0.580	(0.00)	-0.228	(0.23)	0.203	(0.29)	0.300	(0.13)	-0.228	(0.18)	0.060	(0.24)
Aug-10	0.003	(0.62)	0.582	(0.00)	-0.237	(0.22)	0.209	(0.28)	0.304	(0.12)	-0.232	(0.17)	0.061	(0.23)
Sep-10	0.004	(0.49)	0.617	(0.00)	-0.292	(0.14)	0.238	(0.23)	0.274	(0.17)	-0.242	(0.15)	0.067	(0.22)
Oct-10	0.004	(0.59)	0.540	(0.00)	-0.205	(0.28)	0.148	(0.44)	0.295	(0.13)	-0.222	(0.19)	0.014	(0.39)
Nov-10	0.002	(0.72)	0.552	(0.00)	-0.208	(0.28)	0.169	(0.38)	0.268	(0.17)	-0.227	(0.19)	-0.014	(0.50)
Dec-10	0.003	(0.67)	0.509	(0.00)	-0.191	(0.31)	0.162	(0.39)	0.265	(0.16)	-0.200	(0.24)	-0.022	(0.54)

Table 40: Regression estimates for portfolio 2

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.037	(0.02)	-0.288	(0.09)	-0.233	(0.20)	-0.258	(0.15)	0.014	(0.94)	-0.330	(0.07)	0.044	(0.28)
Feb-08	-0.010	(0.38)	0.139	(0.46)	0.198	(0.30)	-0.134	(0.50)	0.037	(0.85)	-0.117	(0.56)	-0.035	(0.60)
Mar-08	-0.027	(0.26)	-0.396	(0.02)	-0.127	(0.52)	-0.236	(0.23)	-0.141	(0.50)	-0.272	(0.16)	0.003	(0.43)
Apr-08	-0.021	(0.34)	-0.071	(0.68)	0.159	(0.36)	-0.087	(0.64)	0.031	(0.87)	-0.155	(0.43)	-0.009	(0.48)
May-08	-0.011	(0.35)	-0.089	(0.60)	0.141	(0.41)	-0.122	(0.48)	0.034	(0.85)	-0.134	(0.47)	-0.010	(0.48)
Jun-08	-0.021	(0.41)	-0.471	(0.01)	-0.172	(0.34)	-0.299	(0.10)	-0.171	(0.35)	-0.244	(0.16)	0.029	(0.33)
Jul-08	0.001	(0.85)	1.107	(0.00)	-0.753	(0.00)	0.477	(0.08)	-0.354	(0.17)	0.333	(0.07)	0.046	(0.28)
Aug-08	-0.001	(0.90)	0.052	(0.00)	0.070	(0.72)	-0.220	(0.26)	0.124	(0.53)	0.113	(0.53)	0.007	(0.41)
Sep-08	-0.001	(0.78)	1.081	(0.00)	-0.746	(0.00)	0.457	(0.08)	-0.306	(0.20)	0.326	(0.05)	0.156	(0.07)
Oct-08	-0.010	(0.82)	-0.590	(0.00)	-0.351	(0.06)	-0.507	(0.01)	-0.344	(0.07)	-0.264	(0.11)	0.142	(0.08)
Nov-08	0.002	(0.69)	1.081	(0.00)	-0.679	(0.01)	0.410	(0.13)	-0.189	(0.45)	0.239	(0.17)	0.118	(0.11)
Dec-08	0.001	(0.72)	1.061	(0.00)	-0.685	(0.01)	0.454	(0.11)	-0.243	(0.34)	0.262	(0.13)	0.108	(0.13)
Jan-09	-0.001	(0.89)	0.383	(0.04)	0.047	(0.80)	-0.147	(0.45)	0.242	(0.20)	0.009	(0.96)	-0.004	(0.46)
Feb-09	0.000	(0.98)	0.561	(0.00)	-0.088	(0.66)	-0.129	(0.52)	0.266	(0.20)	0.009	(0.96)	0.006	(0.42)
Mar-09	0.002	(0.95)	-0.489	(0.01)	-0.492	(0.01)	-0.524	(0.01)	-0.126	(0.53)	-0.093	(0.61)	0.114	(0.12)
Apr-09	0.001	(0.95)	0.167	(0.32)	-0.033	(0.84)	-0.070	(0.67)	0.326	(0.06)	0.055	(0.75)	0.065	(0.22)
May-09	0.001	(0.78)	0.644	(0.00)	-0.253	(0.17)	-0.056	(0.98)	0.296	(0.13)	-0.040	(0.81)	0.076	(0.19)
Jun-09	0.002	(0.77)	0.557	(0.00)	-0.146	(0.44)	-0.123	(0.50)	0.345	(0.06)	-0.033	(0.85)	0.093	(0.16)
Jul-09	0.003	(0.67)	0.198	(0.24)	-0.022	(0.89)	-0.091	(0.58)	0.246	(0.13)	0.076	(0.64)	0.012	(0.39)
Aug-09	0.001	(0.85)	0.224	(0.21)	0.012	(0.94)	-0.090	(0.59)	0.252	(0.14)	0.020	(0.90)	-0.006	(0.47)
Sep-09	0.002	(0.86)	0.125	(0.46)	-0.067	(0.69)	-0.060	(0.71)	0.227	(0.17)	0.076	(0.65)	0.155	(0.38)
Oct-09	-0.001	(0.85)	1.045	(0.00)	-0.778	(0.00)	0.462	(0.06)	0.037	(0.87)	-0.008	(0.96)	0.124	(0.10)
Nov-09	-0.002	(0.79)	0.180	(0.28)	0.016	(0.92)	-0.087	(0.59)	0.343	(0.04)	0.097	(0.53)	0.111	(0.12)
Dec-09	-0.002	(0.78)	0.145	(0.40)	0.018	(0.91)	-0.085	(0.60)	0.340	(0.04)	0.111	(0.52)	0.116	(0.11)
Jan-10	-0.002	(0.80)	0.154	(0.37)	0.019	(0.91)	-0.088	(0.59)	0.336	(0.04)	0.106	(0.54)	0.117	(0.11)
Feb-10	0.000	(0.92)	0.985	(0.00)	-0.629	(0.01)	0.287	(0.27)	0.182	(0.44)	-0.118	(0.50)	0.107	(0.13)
Mar-10	0.001	(0.84)	0.760	(0.00)	-0.327	(0.12)	0.012	(0.96)	0.376	(0.08)	-0.153	(0.37)	0.117	(0.11)
Apr-10	0.000	(0.95)	0.631	(0.00)	-0.238	(0.23)	-0.028	(0.89)	0.381	(0.06)	-0.087	(0.62)	0.105	(0.13)
May-10	0.001	(0.80)	0.643	(0.00)	-0.270	(0.18)	0.004	(0.99)	0.354	(0.09)	-0.086	(0.63)	0.091	(0.16)
Jun-10	0.002	(0.71)	0.573	(0.00)	-0.224	(0.24)	-0.031	(0.87)	0.369	(0.06)	-0.077	(0.66)	0.085	(0.17)
Jul-10	0.003	(0.74)	0.064	(0.71)	-0.056	(0.73)	-0.093	(0.56)	0.331	(0.05)	0.107	(0.53)	0.073	(0.20)
Aug-10	0.002	(0.83)	0.002	(0.99)	-0.062	(0.70)	-0.094	(0.56)	0.334	(0.04)	0.134	(0.43)	0.088	(0.17)
Sep-10	0.003	(0.52)	0.527	(0.00)	-0.213	(0.24)	-0.043	(0.82)	0.355	(0.06)	-0.097	(0.56)	0.076	(0.19)
Oct-10	0.002	(0.68)	0.397	(0.03)	-0.117	(0.52)	-0.077	(0.67)	0.323	(0.08)	-0.040	(0.82)	0.017	(0.37)
Nov-10	0.005	(0.70)	-0.161	(0.34)	-0.178	(0.29)	-0.126	(0.44)	0.222	(0.18)	0.080	(0.62)	0.035	(0.31)
Dec-10	0.001	(0.90)	0.556	(0.00)	-0.214	(0.24)	0.022	(0.91)	0.296	(0.11)	-0.073	(0.66)	0.041	(0.29)

Table 41: Regression estimates for portfolio 3

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.018	(0.03)	0.601	(0.00)	-0.257	(0.19)	0.001	(0.99)	0.306	(0.12)	-0.297	(0.09)	-0.031	(0.58)
Feb-08	-0.003	(0.69)	0.947	(0.00)	-0.547	(0.04)	0.457	(0.11)	-0.080	(0.76)	0.017	(0.93)	-0.014	(0.50)
Mar-08	-0.019	(0.18)	-0.121	(0.50)	0.185	(0.35)	-0.080	(0.69)	0.227	(0.27)	0.003	(0.99)	-0.093	(0.84)
Apr-08	-0.016	(0.20)	-0.010	(0.55)	0.224	(0.21)	-0.079	(0.70)	0.244	(0.23)	0.010	(0.96)	-0.041	(0.62)
May-08	-0.009	(0.35)	0.129	(0.46)	-0.069	(0.39)	-0.069	(0.70)	0.307	(0.14)	0.001	(0.99)	-0.044	(0.64)
Jun-08	-0.015	(0.24)	-0.218	(0.21)	0.128	(0.42)	-0.007	(0.97)	0.262	(0.15)	0.084	(0.68)	-0.318	(0.58)
Jul-08	-0.007	(0.43)	0.207	(0.24)	0.136	(0.43)	-0.045	(0.80)	0.221	(0.21)	0.102	(0.57)	-0.030	(0.57)
Aug-08	-0.003	(0.77)	0.190	(0.32)	0.211	(0.26)	0.004	(0.98)	0.290	(0.13)	0.007	(0.97)	-0.007	(0.47)
Sep-08	-0.004	(0.97)	0.037	(0.83)	0.234	(0.20)	0.055	(0.77)	0.324	(0.08)	0.010	(0.96)	0.012	(0.39)
Oct-08	0.005	(0.33)	0.929	(0.00)	-0.445	(0.06)	0.570	(0.02)	-0.246	(0.31)	0.255	(0.19)	0.248	(0.01)
Nov-08	0.021	(0.08)	0.291	(0.15)	0.490	(0.02)	0.385	(0.88)	0.416	(0.08)	-0.091	(0.70)	0.297	(0.01)
Dec-08	0.014	(0.24)	0.040	(0.83)	0.349	(0.11)	0.505	(0.04)	0.329	(0.18)	-0.055	(0.83)	0.198	(0.03)
Jan-09	0.008	(0.62)	-0.088	(0.63)	0.027	(0.88)	0.680	(0.10)	0.511	(0.07)	-0.123	(0.64)	0.118	(0.11)
Feb-09	-0.005	(0.77)	-0.111	(0.53)	0.091	(0.61)	0.169	(0.35)	0.226	(0.33)	-0.179	(0.52)	0.059	(0.24)
Mar-09	0.003	(0.82)	0.055	(0.75)	0.090	(0.59)	0.114	(0.50)	0.305	(0.07)	-0.056	(0.80)	0.072	(0.20)
Apr-09	0.001	(0.92)	0.064	(0.71)	0.094	(0.57)	0.130	(0.44)	0.312	(0.07)	-0.111	(0.52)	0.074	(0.20)
May-09	0.001	(0.96)	0.202	(0.24)	0.065	(0.70)	0.120	(0.48)	0.300	(0.08)	-0.144	(0.41)	0.069	(0.21)
Jun-09	-0.001	(0.91)	0.464	(0.01)	0.017	(0.93)	0.019	(0.92)	0.300	(0.12)	-0.195	(0.28)	0.058	(0.24)
Jul-09	0.002	(0.90)	0.089	(0.60)	0.091	(0.59)	0.045	(0.79)	0.290	(0.09)	-0.083	(0.64)	0.018	(0.37)
Aug-09	-0.001	(0.96)	0.241	(0.17)	0.126	(0.46)	0.038	(0.83)	0.301	(0.09)	-0.175	(0.32)	0.039	(0.30)
Sep-09	-0.001	(0.93)	0.450	(0.01)	0.008	(0.96)	0.067	(0.71)	0.291	(0.13)	-0.219	(0.22)	0.050	(0.26)
Oct-09	0.000	(0.98)	0.486	(0.01)	-0.034	(0.86)	0.097	(0.60)	0.263	(0.16)	-0.219	(0.21)	0.040	(0.29)
Nov-09	-0.002	(0.83)	0.374	(0.03)	0.053	(0.76)	0.090	(0.61)	0.265	(0.14)	-0.165	(0.33)	0.040	(0.30)
Dec-09	-0.001	(0.93)	0.514	(0.00)	-0.034	(0.86)	0.093	(0.62)	0.242	(0.21)	-0.188	(0.28)	0.036	(0.31)
Jan-10	-0.001	(0.93)	0.545	(0.00)	-0.057	(0.76)	0.101	(0.60)	0.237	(0.22)	-0.189	(0.28)	0.039	(0.30)
Feb-10	0.000	(0.99)	0.529	(0.00)	-0.042	(0.82)	0.095	(0.61)	0.241	(0.21)	-0.203	(0.24)	0.036	(0.31)
Mar-10	0.001	(0.95)	0.598	(0.00)	-0.106	(0.59)	0.124	(0.53)	0.225	(0.25)	-0.211	(0.22)	0.039	(0.30)
Apr-10	0.000	(0.97)	0.483	(0.01)	-0.033	(0.86)	0.095	(0.61)	0.244	(0.19)	-0.182	(0.29)	0.277	(0.34)
May-10	0.000	(0.99)	0.489	(0.01)	-0.035	(0.85)	0.094	(0.61)	0.247	(0.19)	-0.183	(0.29)	0.029	(0.33)
Jun-10	0.002	(0.80)	0.569	(0.00)	-0.143	(0.47)	0.143	(0.46)	0.230	(0.24)	-0.200	(0.25)	0.020	(0.36)
Jul-10	0.003	(0.75)	0.529	(0.00)	-0.082	(0.57)	0.114	(0.55)	0.247	(0.20)	-0.199	(0.25)	0.011	(0.40)
Aug-10	0.002	(0.77)	0.520	(0.00)	-0.010	(0.58)	0.114	(0.55)	0.252	(0.19)	-0.199	(0.25)	0.009	(0.40)
Sep-10	0.003	(0.69)	0.600	(0.00)	-0.177	(0.36)	0.144	(0.46)	0.232	(0.24)	-0.216	(0.21)	0.015	(0.38)
Oct-10	0.002	(0.77)	0.523	(0.00)	-0.105	(0.58)	0.096	(0.62)	0.206	(0.29)	-0.172	(0.32)	-0.026	(0.55)
Nov-10	0.003	(0.78)	0.401	(0.02)	-0.022	(0.90)	0.067	(0.71)	0.219	(0.23)	-0.166	(0.34)	-0.038	(0.61)
Dec-10	0.002	(0.86)	0.567	(0.00)	-0.140	(0.47)	0.131	(0.50)	0.178	(0.36)	-0.158	(0.35)	-0.024	(0.55)

Table 42: Regression estimates for portfolio 4

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.022	(0.02)	0.225	(0.21)	0.149	(0.38)	0.266	(0.13)	-0.309	(0.07)	-0.271	(0.16)	0.131	(0.09)
Feb-08	-0.005	(0.57)	0.783	(0.00)	-0.039	(0.86)	0.123	(0.58)	-0.394	(0.10)	0.157	(0.47)	0.083	(0.18)
Mar-08	-0.006	(0.50)	0.482	(0.01)	0.156	(0.43)	0.111	(0.06)	-0.361	(0.07)	0.108	(0.58)	0.119	(0.11)
Apr-08	-0.005	(0.53)	0.411	(0.02)	0.213	(0.22)	0.117	(0.55)	-0.343	(0.08)	0.076	(0.69)	0.114	(0.12)
May-08	-0.006	(0.46)	0.267	(0.13)	0.239	(0.16)	0.135	(0.43)	-0.325	(0.09)	0.038	(0.84)	0.085	(0.17)
Jun-08	-0.012	(0.55)	-0.401	(0.02)	0.021	(0.90)	0.161	(0.33)	-0.156	(0.35)	0.082	(0.64)	0.095	(0.15)
Jul-08	0.000	(0.98)	0.166	(0.36)	0.265	(0.13)	0.191	(0.28)	-0.206	(0.24)	0.170	(0.33)	0.107	(0.13)
Aug-08	0.000	(0.96)	0.107	(0.53)	0.252	(0.15)	0.194	(0.28)	-0.196	(0.25)	0.136	(0.43)	0.115	(0.12)
Sep-08	-0.001	(0.88)	0.550	(0.00)	0.015	(0.93)	0.148	(0.42)	-0.234	(0.22)	0.270	(0.11)	0.128	(0.10)
Oct-08	0.002	(0.65)	0.756	(0.00)	-0.175	(0.41)	0.365	(0.09)	-0.402	(0.07)	0.332	(0.07)	0.193	(0.04)
Nov-08	0.005	(0.46)	0.526	(0.00)	0.088	(0.65)	0.249	(0.20)	-0.201	(0.30)	0.217	(0.24)	0.203	(0.03)
Dec-08	0.004	(0.54)	0.531	(0.00)	0.009	(0.96)	0.320	(0.11)	-0.225	(0.27)	0.192	(0.29)	0.189	(0.04)
Jan-09	0.003	(0.75)	0.239	(0.19)	0.049	(0.79)	0.191	(0.27)	0.009	(0.96)	0.117	(0.54)	0.096	(0.15)
Feb-09	0.002	(0.82)	0.270	(0.12)	0.048	(0.79)	0.186	(0.29)	-0.025	(0.89)	0.119	(0.55)	0.093	(0.16)
Mar-09	0.007	(0.50)	0.180	(0.31)	-0.061	(0.70)	0.185	(0.30)	0.006	(0.98)	0.297	(0.10)	0.126	(0.10)
Apr-09	0.005	(0.70)	-0.057	(0.73)	-0.092	(0.60)	0.227	(0.19)	0.058	(0.74)	0.306	(0.09)	0.103	(0.14)
May-09	0.005	(0.69)	-0.038	(0.82)	-0.097	(0.56)	0.229	(0.19)	0.052	(0.77)	0.307	(0.09)	0.099	(0.14)
Jun-09	0.005	(0.49)	0.506	(0.00)	-0.180	(0.34)	0.188	(0.32)	-0.021	(0.92)	0.164	(0.36)	0.057	(0.24)
Jul-09	0.008	(0.51)	-0.040	(0.80)	-0.073	(0.65)	0.171	(0.27)	-0.002	(0.99)	0.305	(0.08)	0.046	(0.27)
Aug-09	0.005	(0.71)	-0.087	(0.61)	-0.049	(0.77)	0.183	(0.26)	0.015	(0.77)	0.207	(0.22)	0.013	(0.39)
Sep-09	0.006	(0.65)	-0.058	(0.73)	-0.040	(0.82)	0.180	(0.27)	0.040	(0.81)	0.195	(0.24)	0.009	(0.40)
Oct-09	0.010	(0.76)	-0.471	(0.01)	-0.364	(0.05)	-0.103	(0.59)	-0.061	(0.73)	0.161	(0.32)	0.060	(0.23)
Nov-09	0.001	(0.92)	0.361	(0.04)	-0.026	(0.88)	0.155	(0.38)	0.029	(0.87)	0.170	(0.30)	0.041	(0.29)
Dec-09	0.002	(0.84)	-0.017	(0.92)	0.001	(1.00)	0.167	(0.31)	0.061	(0.71)	0.252	(0.14)	0.049	(0.27)
Jan-10	0.003	(0.83)	-0.202	(0.23)	-0.092	(0.59)	0.150	(0.37)	0.078	(0.64)	0.267	(0.11)	0.063	(0.23)
Feb-10	0.005	(0.72)	-0.135	(0.42)	-0.043	(0.79)	0.178	(0.28)	0.047	(0.78)	0.257	(0.12)	0.068	(0.21)
Mar-10	0.002	(0.96)	-0.498	(0.00)	-0.449	(0.02)	-0.177	(0.36)	-0.166	(0.36)	0.180	(0.27)	0.153	(0.07)
Apr-10	0.004	(0.72)	0.037	(0.82)	-0.054	(0.73)	0.181	(0.24)	0.024	(0.88)	0.317	(0.05)	0.115	(0.12)
May-10	0.004	(0.73)	0.015	(0.92)	-0.039	(0.81)	0.169	(0.28)	0.034	(0.83)	0.315	(0.05)	0.105	(0.13)
Jun-10	0.004	(0.73)	0.003	(0.98)	-0.064	(0.69)	0.190	(0.23)	0.019	(0.90)	0.329	(0.04)	0.113	(0.12)
Jul-10	0.005	(0.63)	-0.009	(0.96)	-0.072	(0.66)	0.168	(0.29)	0.033	(0.84)	0.317	(0.05)	0.087	(0.17)
Aug-10	0.007	(0.58)	-0.128	(0.43)	-0.122	(0.45)	0.144	(0.37)	0.026	(0.87)	0.348	(0.03)	0.100	(0.14)
Sep-10	0.006	(0.64)	-0.119	(0.46)	-0.111	(0.49)	0.151	(0.34)	0.032	(0.84)	0.358	(0.03)	0.103	(0.14)
Oct-10	0.006	(0.68)	-0.158	(0.33)	-0.135	(0.41)	0.113	(0.49)	0.045	(0.78)	0.361	(0.03)	0.105	(0.13)
Nov-10	0.006	(0.67)	-0.171	(0.29)	-0.143	(0.39)	0.107	(0.52)	0.042	(0.80)	0.359	(0.03)	0.116	(0.12)
Dec-10	-0.027	(0.00)	0.173	(0.32)	0.214	(0.19)	0.247	(0.13)	-0.417	(0.02)	-0.269	(0.14)	0.201	(0.03)

Table 43: Regression estimates for portfolio 5

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.021	(0.02)	0.367	(0.03)	-0.275	(0.15)	0.018	(0.93)	0.057	(0.75)	-0.020	(0.26)	-0.028	(0.56)
Feb-08	-0.034	(0.17)	-0.381	(0.04)	-0.324	(0.09)	-0.239	(0.25)	-0.055	(0.78)	-0.172	(0.34)	-0.022	(0.54)
Mar-08	-0.009	(0.26)	0.520	(0.00)	-0.153	(0.46)	0.015	(0.94)	0.086	(0.69)	-0.110	(0.56)	-0.055	(0.69)
Apr-08	-0.009	(0.26)	0.520	(0.00)	-0.153	(0.46)	0.015	(0.94)	0.086	(0.69)	-0.110	(0.56)	-0.055	(0.69)
May-08	-0.008	(0.34)	0.391	(0.03)	-0.046	(0.80)	-0.013	(0.95)	0.135	(0.49)	-0.114	(0.54)	-0.069	(0.75)
Jun-08	-0.005	(0.57)	0.264	(0.13)	-0.034	(0.85)	0.058	(0.74)	0.147	(0.43)	-0.038	(0.83)	-0.072	(0.76)
Jul-08	-0.005	(0.56)	0.175	(0.31)	-0.018	(0.92)	0.054	(0.76)	0.157	(0.36)	-0.028	(0.88)	-0.064	(0.73)
Aug-08	-0.001	(0.84)	0.382	(0.04)	-0.055	(0.77)	0.079	(0.67)	0.133	(0.48)	0.034	(0.84)	-0.047	(0.66)
Sep-08	-0.004	(0.61)	0.194	(0.27)	-0.004	(0.98)	0.057	(0.76)	0.142	(0.44)	0.063	(0.73)	-0.073	(0.77)
Oct-08	-0.004	(0.57)	0.220	(0.21)	-0.016	(0.93)	0.057	(0.76)	0.139	(0.45)	0.059	(0.74)	-0.073	(0.77)
Nov-08	-0.017	(0.63)	-0.576	(0.00)	-0.562	(0.01)	-0.268	(0.22)	-0.080	(0.70)	0.077	(0.67)	0.067	(0.22)
Dec-08	0.000	(0.99)	0.064	(0.69)	-0.104	(0.54)	0.168	(0.32)	0.151	(0.38)	0.162	(0.36)	0.012	(0.39)
Jan-09	0.001	(0.89)	0.115	(0.50)	-0.066	(0.68)	0.172	(0.31)	0.122	(0.48)	0.176	(0.31)	0.011	(0.40)
Feb-09	0.002	(0.75)	0.498	(0.01)	-0.282	(0.22)	0.213	(0.72)	0.065	(0.72)	0.132	(0.45)	0.026	(0.34)
Mar-09	0.004	(0.49)	0.426	(0.02)	-0.200	(0.30)	0.139	(0.47)	0.197	(0.27)	0.078	(0.65)	0.024	(0.35)
Apr-09	0.004	(0.78)	-0.382	(0.02)	-0.292	(0.10)	-0.016	(0.93)	0.110	(0.52)	0.251	(0.12)	0.008	(0.41)
May-09	0.003	(0.85)	-0.409	(0.02)	-0.336	(0.06)	-0.032	(0.86)	0.091	(0.60)	0.253	(0.14)	0.010	(0.40)
Jun-09	-0.007	(0.73)	-0.407	(0.02)	-0.232	(0.22)	-0.078	(0.68)	0.117	(0.52)	0.214	(0.21)	0.066	(0.22)
Jul-09	0.002	(0.72)	0.658	(0.00)	-0.258	(0.02)	0.099	(0.61)	0.102	(0.59)	-0.072	(0.65)	0.012	(0.39)
Aug-09	0.001	(0.94)	-0.262	(0.11)	0.012	(0.94)	0.012	(0.94)	0.111	(0.49)	0.132	(0.40)	-0.075	(0.78)
Sep-09	0.000	(0.99)	0.634	(0.00)	-0.133	(0.51)	0.078	(0.68)	0.096	(0.61)	-0.080	(0.61)	-0.059	(0.71)
Oct-09	0.001	(0.96)	-0.388	(0.03)	-0.079	(0.67)	0.017	(0.92)	0.100	(0.54)	0.139	(0.37)	-0.050	(0.67)
Nov-09	0.000	(0.99)	-0.566	(0.00)	-0.281	(0.16)	-0.156	(0.42)	0.000	(1.00)	0.160	(0.30)	-0.010	(0.48)
Dec-09	-0.001	(0.97)	-0.385	(0.03)	-0.082	(0.65)	0.009	(0.96)	0.121	(0.50)	0.209	(0.20)	-0.032	(0.58)
Jan-10	-0.005	(0.75)	-0.475	(0.01)	-0.134	(0.46)	-0.048	(0.79)	0.132	(0.46)	0.313	(0.06)	0.060	(0.23)
Feb-10	-0.010	(0.66)	-0.575	(0.00)	-0.245	(0.20)	-0.119	(0.53)	0.066	(0.72)	0.285	(0.09)	0.074	(0.20)
Mar-10	-0.004	(0.83)	-0.511	(0.00)	-0.174	(0.36)	-0.046	(0.81)	0.094	(0.61)	0.315	(0.06)	0.030	(0.33)
Apr-10	-0.011	(0.70)	-0.654	(0.00)	-0.354	(0.09)	-0.201	(0.33)	-0.015	(0.94)	0.268	(0.11)	0.038	(0.30)
May-10	0.001	(0.94)	-0.335	(0.04)	-0.004	(0.98)	0.077	(0.65)	0.177	(0.29)	0.351	(0.04)	0.019	(0.37)
Jun-10	0.005	(0.69)	-0.402	(0.02)	-0.075	(0.66)	0.074	(0.66)	0.177	(0.31)	0.359	(0.03)	0.017	(0.38)
Jul-10	0.006	(0.63)	-0.415	(0.01)	-0.093	(0.60)	0.058	(0.74)	0.179	(0.30)	0.361	(0.03)	0.011	(0.40)
Aug-10	0.006	(0.64)	3E+05	(0.01)	-0.116	(0.51)	0.032	(0.85)	0.182	(0.29)	0.334	(0.05)	-0.022	(0.54)
Sep-10	0.007	(0.58)	-0.442	(0.01)	-0.137	(0.43)	0.018	(0.92)	0.166	(0.35)	0.327	(0.05)	-0.027	(0.56)
Oct-10	0.006	(0.65)	-0.428	(0.01)	-0.116	(0.51)	0.017	(0.92)	0.139	(0.43)	0.302	(0.07)	-0.051	(0.67)
Nov-10	0.006	(0.67)	-0.451	(0.01)	-0.146	(0.42)	-0.001	(1.00)	0.123	(0.49)	0.282	(0.09)	-0.062	(0.72)
Dec-10	0.007	(0.71)	-0.607	(0.00)	-0.310	(0.11)	-0.134	(0.50)	0.047	(0.81)	0.257	(0.12)	-0.008	(0.48)

Table 44: Regression estimates for portfolio 6

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.019	(0.10)	-0.276	(0.13)	0.001	(1.00)	-0.068	(0.73)	0.011	(0.95)	-0.245	(0.19)	-0.078	(0.79)
Feb-08	-0.020	(0.43)	-0.522	(0.01)	-0.227	(0.31)	-0.290	(0.22)	-0.107	(0.61)	-0.275	(0.16)	0.029	(0.33)
Mar-08	-0.007	(0.33)	0.301	(0.08)	0.081	(0.67)	-0.177	(0.37)	0.194	(0.33)	-0.206	(0.30)	-0.044	(0.64)
Apr-08	-0.006	(0.47)	-0.024	(0.88)	0.197	(0.24)	-0.081	(0.65)	0.167	(0.39)	-0.213	(0.28)	-0.015	(0.51)
May-08	-0.004	(0.70)	-0.159	(0.35)	0.118	(0.49)	0.018	(0.92)	0.229	(0.21)	-0.170	(0.39)	-0.025	(0.55)
Jun-08	-0.001	(0.93)	-0.163	(0.35)	0.128	(0.46)	-0.016	(0.93)	0.300	(0.09)	-0.103	(0.58)	0.023	(0.35)
Jul-08	0.003	(0.73)	0.084	(0.64)	0.240	(0.17)	-0.016	(0.93)	0.265	(0.14)	-0.014	(0.94)	-0.001	(0.44)
Aug-08	0.002	(0.77)	0.060	(0.73)	0.228	(0.19)	-0.024	(0.89)	0.250	(0.16)	-0.004	(0.98)	-0.003	(0.46)
Sep-08	0.000	(0.97)	0.019	(0.92)	0.187	(0.27)	-0.059	(0.74)	0.247	(0.17)	-0.013	(0.94)	-0.017	(0.52)
Oct-08	0.001	(0.78)	1.011	(0.00)	-0.716	(0.00)	0.504	(0.04)	-0.266	(0.26)	0.212	(0.23)	0.088	(0.17)
Nov-08	0.003	(0.74)	0.005	(0.98)	0.184	(0.27)	-0.106	(0.53)	0.249	(0.14)	0.031	(0.86)	-0.006	(0.47)
Dec-08	0.001	(0.86)	0.028	(0.87)	0.191	(0.25)	-0.101	(0.55)	0.250	(0.14)	0.010	(0.96)	-0.008	(0.47)
Jan-09	0.000	(1.00)	-0.597	(0.00)	-0.461	(0.02)	-0.408	(0.04)	-0.032	(0.87)	-0.170	(0.30)	0.082	(0.18)
Feb-09	-0.005	(0.89)	-0.555	(0.00)	-0.484	(0.01)	-0.377	(0.06)	-0.066	(0.73)	-0.249	(0.13)	0.095	(0.15)
Mar-09	0.012	(0.68)	-0.444	(0.15)	-0.538	(0.01)	-0.409	(0.05)	-0.020	(0.92)	-0.242	(0.16)	0.111	(0.12)
Apr-09	0.011	(0.70)	-0.436	(0.01)	-0.537	(0.01)	-0.397	(0.06)	-0.012	(0.95)	-0.237	(0.17)	0.105	(0.13)
May-09	0.009	(0.83)	-0.500	(0.00)	-0.517	(0.01)	-0.465	(0.02)	-0.030	(0.88)	-0.259	(0.12)	0.142	(0.08)
Jun-09	0.005	(0.40)	0.333	(0.05)	-0.008	(0.96)	-0.196	(0.23)	0.429	(0.01)	-0.176	(0.29)	0.096	(0.15)
Jul-09	0.008	(0.39)	-0.037	(0.82)	-0.010	(0.95)	-0.162	(0.30)	0.280	(0.08)	-0.063	(0.71)	0.012	(0.40)
Aug-09	0.005	(0.58)	0.030	(0.87)	0.049	(0.75)	-0.168	(0.29)	0.298	(0.68)	-0.138	(0.41)	0.029	(0.33)
Sep-09	0.004	(0.57)	0.176	(0.31)	0.032	(0.85)	-0.167	(0.29)	0.314	(0.06)	-0.162	(0.33)	0.025	(0.34)
Oct-09	0.013	(0.59)	-0.417	(0.01)	-0.301	(0.09)	-0.469	(0.01)	0.049	(0.77)	-0.146	(0.36)	0.120	(0.11)
Nov-09	0.001	(0.93)	0.242	(0.15)	0.082	(0.61)	-0.197	(0.22)	0.380	(0.03)	-0.085	(0.59)	0.078	(0.19)
Dec-09	0.003	(0.68)	0.261	(0.15)	0.062	(0.72)	0.062	(0.22)	0.306	(0.08)	-0.067	(0.72)	0.001	(0.44)
Jan-10	0.002	(0.74)	0.360	(0.04)	0.046	(0.80)	-0.210	(0.23)	0.324	(0.08)	-0.069	(0.69)	-0.004	(0.46)
Feb-10	0.002	(0.62)	0.613	(0.00)	-0.121	(0.53)	-0.151	(0.44)	0.346	(0.09)	-0.151	(0.38)	0.001	(0.44)
Mar-10	0.003	(0.48)	0.678	(0.00)	-0.212	(0.28)	-0.102	(0.61)	0.380	(0.06)	-0.183	(0.28)	0.038	(0.30)
Apr-10	0.004	(0.61)	0.164	(0.34)	0.091	(0.59)	-0.175	(0.29)	0.292	(0.09)	0.017	(0.92)	-0.011	(0.49)
May-10	0.003	(0.62)	0.177	(0.31)	0.089	(0.59)	-0.176	(0.29)	0.294	(0.08)	0.012	(0.95)	-0.009	(0.48)
Jun-10	0.005	(0.41)	0.357	(0.05)	-0.008	(0.96)	-0.212	(0.23)	0.339	(0.06)	-0.054	(0.75)	-0.009	(0.48)
Jul-10	0.005	(0.38)	0.384	(0.03)	-0.022	(0.03)	-0.214	(0.23)	0.335	(0.07)	-0.067	(0.70)	-0.014	(0.50)
Aug-10	0.006	(0.42)	0.203	(0.25)	-0.012	(0.94)	-0.194	(0.26)	0.311	(0.08)	-0.023	(0.90)	-0.035	(0.60)
Sep-10	0.007	(0.33)	0.021	(0.23)	-0.024	(0.89)	-0.162	(0.34)	0.301	(0.10)	-0.053	(0.77)	-0.058	(0.70)
Oct-10	0.006	(0.45)	0.093	(0.61)	0.064	(0.72)	-0.175	(0.33)	0.190	(0.30)	0.026	(0.89)	-0.105	(0.90)
Nov-10	0.003	(0.60)	0.393	(0.03)	-0.047	(0.80)	-0.123	(0.51)	0.232	(0.24)	-0.054	(0.77)	-0.104	(0.89)
Dec-10	0.004	(0.57)	0.230	(0.19)	0.007	(0.97)	-0.123	(0.49)	0.204	(0.27)	-0.013	(0.95)	-0.110	(0.91)

Table 45: Regression estimates for portfolio 7

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.034	(0.05)	-0.443	(0.01)	-0.051	(0.78)	-0.024	(0.90)	-0.129	(0.48)	-0.011	(0.95)	-0.012	(0.49)
Feb-08	-0.009	(0.23)	0.449	(0.02)	0.242	(0.21)	-0.060	(0.75)	-0.176	(0.36)	-0.041	(0.82)	0.056	(0.25)
Mar-08	-0.012	(0.08)	0.307	(0.09)	0.253	(0.22)	-0.081	(0.70)	-0.145	(0.47)	-0.066	(0.73)	-0.013	(0.50)
Apr-08	-0.009	(0.11)	0.518	(0.00)	0.032	(0.87)	-0.061	(0.79)	0.041	(0.86)	-0.156	(0.39)	0.033	(0.32)
May-08	-0.010	(0.22)	-0.099	(0.56)	0.340	(0.05)	0.017	(0.93)	-0.089	(0.64)	-0.004	(0.99)	-0.040	(0.62)
Jun-08	-0.009	(0.23)	-0.113	(0.51)	0.351	(0.04)	0.010	(0.96)	-0.061	(0.73)	0.009	(0.98)	-0.028	(0.57)
Jul-08	-0.008	(0.50)	-0.437	(0.05)	0.163	(0.41)	0.086	(0.66)	-0.075	(0.68)	0.190	(0.31)	-0.020	(0.53)
Aug-08	-0.012	(0.58)	-0.714	(0.00)	-0.154	(0.46)	-0.124	(0.56)	-0.144	(0.48)	0.138	(0.44)	0.024	(0.35)
Sep-08	-0.010	(0.36)	-0.358	(0.03)	0.137	(0.46)	0.028	(0.89)	-0.015	(0.94)	0.157	(0.39)	-0.039	(0.61)
Oct-08	-0.003	(0.55)	0.544	(0.00)	0.031	(0.88)	0.039	(0.84)	-0.074	(0.71)	0.043	(0.81)	-0.001	(0.45)
Nov-08	0.002	(0.88)	-0.406	(0.04)	0.073	(0.73)	0.069	(0.72)	0.019	(0.36)	0.311	(0.11)	-0.002	(0.45)
Dec-08	0.004	(0.73)	-0.365	(0.04)	0.111	(0.58)	0.059	(0.79)	0.018	(0.41)	0.334	(0.09)	0.057	(0.24)
Jan-09	-0.003	(0.87)	-0.543	(0.00)	-0.270	(0.18)	-0.191	(0.40)	0.187	(0.45)	0.424	(0.04)	0.008	(0.41)
Feb-09	-0.002	(0.91)	0.705	(0.00)	-0.274	(0.18)	-0.155	(0.45)	0.213	(0.35)	0.426	(0.00)	0.005	(0.42)
Mar-09	-0.001	(0.97)	-0.594	(0.00)	-0.327	(0.10)	-0.190	(0.37)	0.210	(0.32)	0.435	(0.03)	0.047	(0.27)
Apr-09	-0.011	(0.61)	-0.664	(0.00)	-0.423	(0.04)	-0.109	(0.60)	0.237	(0.29)	0.389	(0.05)	-0.036	(0.31)
May-09	-0.012	(0.60)	-0.713	(0.00)	-0.463	(0.03)	-0.158	(0.47)	0.172	(0.41)	0.359	(0.06)	0.027	(0.34)
Jun-09	-0.011	(0.64)	-0.709	(0.00)	-0.465	(0.03)	-0.145	(0.50)	0.183	(0.39)	0.340	(0.06)	-0.006	(0.47)
Jul-09	-0.003	(0.79)	-0.362	(0.04)	-0.011	(0.53)	0.161	(0.34)	0.230	(0.19)	0.270	(0.12)	-0.064	(0.73)
Aug-09	-0.003	(0.79)	-0.459	(0.01)	-0.181	(0.31)	0.130	(0.46)	0.263	(0.14)	0.278	(0.10)	-0.050	(0.67)
Sep-09	-0.005	(0.74)	-0.545	(0.00)	-0.251	(0.18)	0.088	(0.64)	0.264	(0.15)	0.324	(0.05)	-0.021	(0.53)
Oct-09	-0.007	(0.69)	-0.622	(0.00)	-0.354	(0.07)	0.008	(0.97)	0.213	(0.27)	0.309	(0.07)	-0.001	(0.45)
Nov-09	-0.009	(0.71)	-0.745	(0.00)	-0.512	(0.02)	-0.146	(0.51)	0.099	(0.63)	0.260	(0.12)	0.008	(0.41)
Dec-09	-0.004	(0.81)	-0.592	(0.00)	-0.339	(0.09)	-0.004	(0.98)	0.194	(0.32)	0.281	(0.10)	-0.035	(0.60)
Jan-10	-0.004	(0.74)	-0.442	(0.01)	-0.181	(0.31)	0.128	(0.47)	0.262	(0.14)	0.296	(0.08)	-0.030	(0.57)
Feb-10	-0.006	(0.64)	-0.436	(0.01)	-0.182	(0.30)	0.135	(0.44)	0.282	(0.11)	0.305	(0.07)	-0.014	(0.50)
Mar-10	-0.009	(0.53)	-0.526	(0.00)	-0.258	(0.16)	0.072	(0.70)	0.264	(0.15)	0.329	(0.05)	0.001	(0.44)
Apr-10	-0.008	(0.54)	-0.453	(0.01)	-0.186	(0.29)	0.127	(0.48)	0.280	(0.12)	0.321	(0.06)	-0.002	(0.50)
May-10	-0.012	(0.44)	-0.550	(0.00)	-0.291	(0.12)	0.044	(0.82)	0.242	(0.20)	0.305	(0.07)	0.007	(0.41)
Jun-10	-0.005	(0.67)	-0.375	(0.03)	-0.158	(0.36)	0.141	(0.41)	0.275	(0.11)	0.281	(0.09)	-0.017	(0.52)
Jul-10	-0.005	(0.68)	-0.393	(0.23)	-0.192	(0.28)	0.121	(0.49)	0.260	(0.14)	0.275	(0.10)	-0.021	(0.53)
Aug-10	-0.003	(0.78)	-0.279	(0.10)	-0.145	(0.39)	0.170	(0.31)	0.255	(0.13)	0.263	(0.11)	-0.021	(0.53)
Sep-10	-0.003	(0.79)	-0.305	(0.07)	-0.157	(0.35)	0.171	(0.31)	0.256	(0.14)	0.268	(0.11)	-0.023	(0.54)
Oct-10	-0.001	(0.89)	0.163	(0.34)	-0.127	(0.46)	0.210	(0.21)	0.113	(0.51)	0.166	(0.33)	-0.040	(0.62)
Nov-10	-0.003	(0.78)	-0.336	(0.04)	-0.175	(0.30)	0.143	(0.40)	0.206	(0.23)	0.247	(0.14)	-0.038	(0.61)
Dec-10	-0.003	(0.73)	-0.273	(0.11)	-0.123	(0.47)	0.159	(0.34)	0.214	(0.20)	0.230	(0.17)	-0.046	(0.65)

Table 46: Regression estimates for portfolio 8

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.024	(0.00)	0.993	(0.00)	-0.779	(0.00)	0.444	(0.07)	-0.266	(0.22)	-0.066	(0.68)	0.329	(0.00)
Feb-08	-0.058	(0.14)	-0.465	(0.01)	-0.135	(0.51)	-0.316	(0.09)	-0.117	(0.53)	-0.254	(0.12)	0.244	(0.02)
Mar-08	-0.010	(0.37)	0.519	(0.00)	0.240	(0.15)	-0.342	(0.04)	0.223	(0.18)	-0.102	(0.53)	0.177	(0.05)
Apr-08	-0.017	(0.22)	0.101	(0.54)	0.388	(0.02)	-0.209	(0.20)	0.091	(0.58)	-0.104	(0.51)	0.204	(0.03)
May-08	-0.012	(0.37)	0.006	(0.97)	0.379	(0.03)	-0.047	(0.78)	0.101	(0.54)	0.130	(0.43)	0.133	(0.09)
Jun-08	-0.007	(0.59)	0.053	(0.76)	0.033	(0.06)	-0.094	(0.59)	0.235	(0.16)	-0.103	(0.54)	0.186	(0.04)
Jul-08	-0.018	(0.67)	-0.607	(0.00)	-0.128	(0.49)	-0.291	(0.12)	0.000	(1.00)	0.044	(0.78)	0.242	(0.02)
Aug-08	-0.012	(0.53)	-0.315	(0.08)	0.160	(0.36)	-0.138	(0.45)	0.203	(0.26)	0.201	(0.25)	0.132	(0.09)
Sep-08	-0.011	(0.55)	-0.338	(0.05)	0.153	(0.06)	-0.130	(0.47)	0.204	(0.26)	0.206	(0.23)	0.116	(0.11)
Oct-08	-0.002	(0.86)	-0.101	(0.57)	0.157	(0.37)	-0.056	(0.76)	0.349	(0.05)	0.184	(0.31)	0.102	(0.14)
Nov-08	0.001	(0.95)	-0.029	(0.86)	0.176	(0.32)	-0.121	(0.49)	0.369	(0.04)	0.224	(0.22)	0.155	(0.06)
Dec-08	-0.006	(0.75)	-0.248	(0.14)	0.035	(0.08)	-0.142	(0.43)	0.364	(0.05)	0.319	(0.08)	0.160	(0.06)
Jan-09	0.002	(0.88)	-0.139	(0.40)	0.110	(0.49)	-0.043	(0.79)	0.380	(0.03)	0.265	(0.14)	0.139	(0.08)
Feb-09	0.000	(0.99)	-0.066	(0.70)	0.156	(0.33)	0.070	(0.66)	0.335	(0.04)	0.230	(0.20)	0.120	(0.11)
Mar-09	0.004	(0.77)	-0.101	(0.56)	0.173	(0.29)	-0.102	(0.53)	0.382	(0.02)	0.309	(0.08)	0.191	(0.04)
Apr-09	0.001	(0.96)	-0.237	(0.16)	0.138	(0.41)	-0.112	(0.51)	0.397	(0.02)	0.324	(0.01)	0.176	(0.05)
May-09	-0.003	(0.86)	-0.280	(0.10)	0.032	(0.85)	-0.133	(0.44)	0.364	(0.04)	0.369	(0.04)	0.136	(0.09)
Jun-09	0.001	(0.82)	0.799	(0.00)	-0.742	(0.08)	0.057	(0.79)	0.449	(0.04)	-0.191	(0.27)	0.203	(0.03)
Jul-09	0.003	(0.83)	-0.137	(0.38)	0.085	(0.56)	-0.101	(0.49)	0.319	(0.04)	0.339	(0.05)	0.117	(0.11)
Aug-09	0.000	(0.97)	-0.405	(0.01)	-0.020	(0.89)	-0.115	(0.44)	0.347	(0.03)	0.367	(0.02)	0.148	(0.07)
Sep-09	0.002	(0.90)	-0.487	(0.00)	-0.097	(0.55)	-0.149	(0.33)	0.307	(0.05)	0.357	(0.02)	0.158	(0.06)
Oct-09	0.002	(0.91)	-0.539	(0.00)	-0.157	(0.04)	-0.195	(0.25)	0.276	(0.09)	0.347	(0.02)	0.165	(0.06)
Nov-09	-0.001	(0.98)	-0.397	(0.02)	-0.010	(0.95)	-0.069	(0.67)	0.371	(0.24)	0.354	(0.02)	0.157	(0.06)
Dec-09	-0.001	(0.97)	-0.407	(0.01)	-0.015	(0.93)	-0.071	(0.66)	0.376	(0.03)	0.374	(0.03)	0.145	(0.08)
Jan-10	-0.001	(0.97)	-0.399	(0.02)	-0.107	(0.95)	-0.070	(0.66)	0.376	(0.02)	0.370	(0.03)	0.146	(0.07)
Feb-10	-0.002	(0.92)	-0.406	(0.02)	-0.108	(0.95)	-0.071	(0.66)	0.373	(0.03)	0.372	(0.02)	0.150	(0.07)
Mar-10	-0.001	(0.97)	-0.375	(0.02)	0.010	(0.95)	-0.075	(0.64)	0.379	(0.02)	0.374	(0.02)	0.150	(0.07)
Apr-10	-0.006	(0.08)	-0.425	(0.01)	-0.038	(0.82)	-0.096	(0.56)	0.370	(0.03)	0.385	(0.02)	0.153	(0.07)
May-10	0.000	(0.97)	-0.211	(0.19)	0.066	(0.66)	-0.043	(0.78)	0.394	(0.01)	0.300	(0.07)	0.116	(0.11)
Jun-10	0.004	(0.71)	-0.143	(0.40)	0.055	(0.72)	-0.071	(0.65)	0.389	(0.02)	0.259	(0.13)	0.093	(0.16)
Jul-10	0.007	(0.49)	-0.123	(0.45)	0.003	(0.98)	-0.088	(0.55)	0.366	(0.02)	0.250	(0.13)	0.075	(0.20)
Aug-10	0.008	(0.50)	-0.286	(0.09)	-0.052	(0.73)	-0.129	(0.40)	0.369	(0.02)	0.313	(0.05)	0.100	(0.14)
Sep-10	0.014	(0.34)	-0.370	(0.04)	-0.079	(0.64)	-0.075	(0.65)	0.380	(0.03)	0.294	(0.09)	0.032	(0.32)
Oct-10	0.007	(0.26)	0.450	(0.01)	-0.197	(0.32)	-0.009	(0.97)	0.355	(0.09)	-0.105	(0.56)	0.010	(0.40)
Nov-10	0.017	(0.31)	-0.563	(0.00)	-0.202	(0.25)	-0.178	(0.32)	0.233	(0.19)	0.280	(0.10)	0.003	(0.43)
Dec-10	0.022	(0.29)	-0.656	(0.00)	-0.309	(0.10)	-0.238	(0.21)	0.166	(0.38)	0.252	(0.15)	-0.002	(0.45)

Table 47: Regression estimates for portfolio 9

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.042	(0.01)	0.270	(0.11)	-0.217	(0.22)	-0.292	(0.10)	0.098	(0.58)	-0.135	(0.46)	0.062	(0.23)
Feb-08	-0.029	(0.10)	0.319	(0.09)	-0.121	(0.09)	-0.225	(0.23)	0.019	(0.92)	-0.004	(0.98)	0.035	(0.31)
Mar-08	-0.063	(0.03)	-0.223	(0.20)	-0.281	(0.14)	-0.347	(0.06)	-0.187	(0.32)	-0.019	(0.92)	0.047	(0.27)
Apr-08	-0.015	(0.24)	0.541	(0.00)	-0.202	(0.32)	-0.118	(0.59)	0.101	(0.63)	0.016	(0.93)	-0.032	(0.58)
May-08	-0.024	(0.21)	-0.022	(0.90)	-0.047	(0.78)	-0.165	(0.33)	0.009	(0.96)	0.125	(0.49)	-0.039	(0.62)
Jun-08	0.028	(0.13)	-0.031	(0.86)	-0.083	(0.63)	-0.138	(0.41)	-0.037	(0.83)	0.101	(0.58)	-0.055	(0.69)
Jul-08	-0.023	(0.23)	-0.076	(0.67)	-0.059	(0.74)	-0.069	(0.69)	-0.108	(0.53)	0.203	(0.26)	-0.051	(0.67)
Aug-08	-0.026	(0.25)	-0.181	(0.29)	-0.147	(0.42)	-0.139	(0.44)	-0.151	(0.39)	0.158	(0.37)	-0.030	(0.57)
Sep-08	-0.016	(0.31)	0.156	(0.36)	-0.043	(0.80)	-0.063	(0.72)	-0.076	(0.67)	0.224	(0.21)	-0.027	(0.56)
Oct-08	-0.015	(0.35)	0.055	(0.75)	-0.035	(0.75)	-0.028	(0.87)	-0.106	(0.55)	0.246	(0.17)	-0.018	(0.52)
Nov-08	-0.003	(0.86)	0.252	(0.17)	-0.020	(0.92)	-0.005	(0.98)	0.035	(0.85)	0.214	(0.27)	-0.018	(0.52)
Dec-08	-0.041	(0.49)	-0.483	(0.01)	-0.494	(0.01)	-0.950	(0.05)	-0.395	(0.17)	0.067	(0.70)	0.064	(0.22)
Jan-09	0.003	(0.79)	0.446	(0.01)	-0.083	(0.64)	0.027	(0.89)	0.505	(0.79)	0.168	(0.34)	0.005	(0.42)
Feb-09	0.001	(0.88)	0.455	(0.01)	-0.085	(0.64)	0.000	(1.00)	0.052	(0.79)	0.163	(0.35)	-0.023	(0.54)
Mar-09	0.004	(0.65)	0.551	(0.00)	-0.091	(0.65)	-0.021	(0.92)	0.145	(0.45)	0.141	(0.43)	0.004	(0.43)
Apr-09	0.002	(0.84)	0.334	(0.05)	0.028	(0.88)	0.051	(0.78)	0.099	(0.57)	0.181	(0.27)	0.035	(0.31)
May-09	0.011	(0.79)	-0.492	(0.01)	-0.314	(0.10)	-0.174	(0.36)	-0.082	(0.65)	0.051	(0.75)	0.045	(0.28)
Jun-09	0.000	(0.95)	0.732	(0.00)	-0.259	(0.22)	0.143	(0.49)	0.006	(0.98)	0.007	(0.96)	0.033	(0.32)
Jul-09	0.003	(0.82)	0.106	(0.52)	0.081	(0.62)	0.084	(0.62)	0.073	(0.65)	0.044	(0.79)	-0.059	(0.71)
Aug-09	0.002	(0.84)	0.146	(0.40)	0.084	(0.62)	0.081	(0.63)	0.066	(0.69)	0.037	(0.81)	-0.061	(0.71)
Sep-09	0.002	(0.78)	0.374	(0.04)	-0.025	(0.89)	0.057	(0.75)	0.065	(0.72)	0.033	(0.84)	-0.067	(0.74)
Oct-09	0.005	(0.87)	-0.465	(0.01)	-0.266	(0.14)	-0.165	(0.37)	0.005	(0.98)	0.121	(0.45)	-0.021	(0.53)
Nov-09	0.001	(0.84)	0.615	(0.00)	-0.196	(0.34)	0.103	(0.62)	0.138	(0.50)	-0.003	(0.98)	-0.036	(0.60)
Dec-09	0.003	(0.82)	-0.033	(0.85)	0.061	(0.72)	0.046	(0.79)	0.155	(0.36)	0.159	(0.35)	-0.041	(0.62)
Jan-10	0.002	(0.89)	-0.109	(0.52)	0.018	(0.91)	0.054	(0.76)	0.169	(0.32)	0.177	(0.30)	-0.041	(0.62)
Feb-10	0.001	(0.95)	-0.198	(0.25)	-0.031	(0.86)	0.027	(0.88)	0.179	(0.31)	0.201	(0.25)	-0.036	(0.60)
Mar-10	0.002	(0.87)	-0.101	(0.55)	0.009	(0.96)	0.049	(0.77)	0.197	(0.24)	0.172	(0.33)	-0.038	(0.61)
Apr-10	0.002	(0.79)	0.561	(0.00)	-0.181	(0.36)	0.114	(0.57)	0.171	(0.39)	-0.013	(0.94)	-0.037	(0.61)
May-10	0.005	(0.69)	-0.043	(0.80)	0.029	(0.86)	0.055	(0.74)	0.192	(0.25)	0.166	(0.33)	-0.039	(0.61)
Jun-10	0.006	(0.63)	0.002	(0.99)	0.028	(0.87)	0.067	(0.69)	0.183	(0.28)	0.146	(0.39)	-0.043	(0.64)
Jul-10	0.007	(0.48)	0.141	(0.41)	0.006	(0.97)	0.059	(0.73)	0.170	(0.32)	0.110	(0.52)	-0.048	(0.66)
Aug-10	0.010	(0.40)	0.079	(0.65)	0.027	(0.88)	0.065	(0.70)	0.161	(0.34)	0.139	(0.42)	-0.051	(0.67)
Sep-10	0.007	(0.25)	0.734	(0.00)	-0.492	(0.03)	0.301	(0.19)	-0.014	(0.95)	0.047	(0.78)	-0.009	(0.48)
Oct-10	0.011	(0.12)	0.484	(0.01)	-0.260	(0.18)	0.088	(0.66)	0.114	(0.56)	0.006	(0.97)	-0.064	(0.73)
Nov-10	0.015	(0.06)	0.293	(0.09)	-0.215	(0.21)	0.069	(0.70)	0.094	(0.61)	0.059	(0.72)	-0.104	(0.89)
Dec-10	0.024	(0.05)	-0.260	(0.12)	-0.174	(0.28)	-0.007	(0.97)	0.089	(0.57)	0.152	(0.35)	-0.105	(0.89)

Table 48: Regression estimates for portfolio 10

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.033	(0.03)	0.141	(0.40)	0.039	(0.82)	-0.081	(0.61)	0.108	(0.49)	0.153	(0.32)	-0.088	(0.83)
Feb-08	-0.022	(0.29)	-0.106	(0.60)	0.194	(0.34)	0.014	(0.95)	0.158	(0.39)	-0.077	(0.68)	-0.090	(0.84)
Mar-08	-0.021	(0.29)	-0.085	(0.62)	0.202	(0.31)	0.016	(0.94)	0.159	(0.43)	-0.074	(0.69)	-0.093	(0.85)
Apr-08	-0.016	(0.32)	0.113	(0.51)	0.171	(0.32)	-0.044	(0.83)	0.185	(0.35)	-0.056	(0.78)	-0.083	(0.81)
May-08	-0.021	(0.31)	-0.299	(0.09)	0.120	(0.50)	0.048	(0.79)	0.187	(0.36)	0.023	(0.91)	-0.081	(0.80)
Jun-08	-0.022	(0.25)	-0.273	(0.12)	0.139	(0.43)	0.139	(0.82)	0.404	(0.32)	0.030	(0.88)	-0.071	(0.76)
Jul-08	-0.006	(0.49)	0.561	(0.00)	-0.122	(0.53)	0.053	(0.79)	0.126	(0.51)	0.007	(0.97)	-0.025	(0.55)
Aug-08	-0.007	(0.58)	0.076	(0.66)	0.216	(0.20)	-0.038	(0.82)	0.161	(0.34)	0.069	(0.68)	-0.053	(0.68)
Sep-08	-0.005	(0.63)	0.133	(0.44)	0.213	(0.21)	-0.048	(0.78)	0.165	(0.33)	0.068	(0.69)	-0.049	(0.66)
Oct-08	-0.004	(0.67)	0.212	(0.22)	0.203	(0.25)	-0.043	(0.81)	0.161	(0.35)	0.064	(0.71)	-0.037	(0.60)
Nov-08	0.000	(0.99)	0.252	(0.17)	0.205	(0.27)	0.012	(0.95)	0.216	(0.24)	0.049	(0.79)	0.005	(0.42)
Dec-08	-0.001	(0.96)	-0.227	(0.19)	0.237	(0.20)	0.140	(0.46)	0.293	(0.12)	0.149	(0.41)	0.032	(0.32)
Jan-09	0.000	(0.97)	0.107	(0.53)	0.239	(0.17)	0.051	(0.78)	0.228	(0.21)	0.036	(0.85)	0.008	(0.41)
Feb-09	0.005	(0.48)	0.770	(0.00)	-0.425	(0.05)	0.507	(0.03)	0.113	(0.61)	0.113	(0.52)	0.141	(0.08)
Mar-09	0.014	(0.41)	-0.319	(0.04)	0.047	(0.77)	0.243	(0.14)	0.465	(0.01)	0.165	(0.32)	0.201	(0.03)
Apr-09	0.006	(0.63)	-0.041	(0.81)	0.112	(0.47)	0.275	(0.09)	0.363	(0.03)	-0.034	(0.84)	0.135	(0.09)
May-09	0.004	(0.75)	0.062	(0.72)	0.060	(0.71)	0.230	(0.15)	0.352	(0.04)	-0.072	(0.68)	0.102	(0.14)
Jun-09	-0.005	(0.86)	-0.504	(0.01)	0.239	(0.19)	0.145	(0.45)	0.357	(0.05)	0.114	(0.49)	0.126	(0.10)
Jul-09	0.003	(0.73)	0.193	(0.24)	0.053	(0.73)	0.304	(0.05)	0.135	(0.37)	-0.143	(0.36)	0.069	(0.21)
Aug-09	0.002	(0.82)	0.393	(0.03)	-0.012	(0.94)	0.321	(0.05)	0.081	(0.63)	-0.175	(0.25)	0.088	(0.17)
Sep-09	0.001	(0.90)	0.548	(0.00)	-0.114	(0.55)	0.350	(0.05)	0.032	(0.86)	0.032	(0.30)	0.090	(0.16)
Oct-09	0.002	(0.93)	-0.476	(0.01)	-0.218	(0.23)	0.122	(0.51)	0.285	(0.11)	0.035	(0.83)	0.086	(0.17)
Nov-09	0.000	(0.98)	0.357	(0.38)	0.037	(0.84)	0.260	(0.13)	0.166	(0.34)	-0.184	(0.25)	0.088	(0.17)
Dec-09	0.002	(0.83)	0.266	(0.13)	0.069	(0.69)	0.234	(0.17)	0.167	(0.34)	-0.172	(0.32)	0.049	(0.26)
Jan-10	0.002	(0.88)	0.136	(0.43)	0.097	(0.58)	0.230	(0.18)	0.205	(0.23)	-0.136	(0.43)	0.042	(0.29)
Feb-10	-0.001	(0.98)	-0.532	(0.00)	-0.326	(0.09)	0.010	(0.09)	0.267	(0.16)	0.030	(0.85)	0.138	(0.08)
Mar-10	0.003	(0.77)	0.146	(0.37)	0.068	(0.66)	0.237	(0.13)	0.257	(0.11)	-0.189	(0.25)	0.113	(0.12)
Apr-10	0.001	(0.92)	0.326	(0.06)	0.029	(0.86)	0.257	(0.11)	0.189	(0.25)	-0.219	(0.19)	0.108	(0.13)
May-10	0.002	(0.84)	0.317	(0.07)	0.276	(0.88)	0.258	(0.12)	0.177	(0.29)	-0.198	(0.23)	0.096	(0.15)
Jun-10	0.002	(0.76)	0.484	(0.01)	-0.051	(0.78)	0.251	(0.17)	0.147	(0.42)	-0.211	(0.20)	0.100	(0.14)
Jul-10	0.005	(0.50)	0.493	(0.01)	-0.064	(0.73)	0.258	(0.16)	0.092	(0.62)	-0.181	(0.28)	0.060	(0.23)
Aug-10	0.005	(0.49)	0.421	(0.02)	-0.026	(0.89)	0.239	(0.19)	0.140	(0.45)	-0.205	(0.23)	0.051	(0.26)
Sep-10	0.006	(0.26)	0.780	(0.00)	-0.460	(0.04)	0.484	(0.03)	-0.097	(0.65)	-0.088	(0.58)	0.093	(0.16)
Oct-10	0.008	(0.20)	0.624	(0.00)	-0.305	(0.14)	0.316	(0.12)	0.005	(0.98)	-0.113	(0.48)	0.020	(0.37)
Nov-10	0.011	(0.17)	0.219	(0.19)	-0.012	(0.94)	0.138	(0.40)	0.147	(0.38)	-0.160	(0.31)	-0.077	(0.79)
Dec-10	0.026	(0.17)	-0.494	(0.01)	-0.221	(0.19)	0.065	(0.69)	0.209	(0.19)	-0.004	(0.98)	-0.061	(0.71)

A.7 REGRESSION ESTIMATES FOR MARKET CAPITALISATION WEIGHTED PORTFOLIOS

Table 49: Regression estimates for portfolio 1

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.027	(0.04)	0.356	(0.04)	-0.091	(0.61)	0.022	(0.89)	0.143	(0.40)	-0.222	(0.16)	-0.061	(0.72)
Feb-08	0.016	(0.41)	0.064	(0.75)	0.205	(0.30)	0.020	(0.92)	0.234	(0.22)	-0.125	(0.52)	-0.058	(0.70)
Mar-08	-0.012	(0.46)	0.152	(0.38)	0.183	(0.35)	0.023	(0.91)	0.260	(0.20)	-0.139	(0.47)	-0.056	(0.69)
Apr-08	-0.013	(0.43)	0.090	(0.60)	0.167	(0.32)	0.013	(0.95)	0.265	(0.18)	-0.092	(0.62)	-0.049	(0.66)
May-08	-0.013	(0.49)	-0.182	(0.30)	0.157	(0.36)	0.094	(0.59)	0.285	(0.16)	0.001	(1.00)	-0.047	(0.65)
Jun-08	-0.019	(0.30)	-0.258	(0.14)	0.136	(0.44)	0.090	(0.61)	0.219	(0.22)	0.009	(0.97)	-0.061	(0.71)
Jul-08	-0.006	(0.55)	0.457	(0.01)	-0.044	(0.82)	0.067	(0.82)	0.172	(0.36)	-0.029	(0.87)	-0.027	(0.56)
Aug-08	-0.006	(0.64)	0.008	(0.96)	0.199	(0.24)	0.033	(0.85)	0.197	(0.25)	0.057	(0.74)	-0.050	(0.66)
Sep-08	-0.006	(0.66)	-0.050	(0.77)	0.206	(0.22)	0.045	(0.79)	0.201	(0.24)	0.070	(0.69)	-0.045	(0.64)
Oct-08	-0.004	(0.74)	0.035	(0.84)	0.216	(0.21)	0.048	(0.78)	0.194	(0.26)	0.060	(0.73)	-0.036	(0.60)
Nov-08	0.000	(0.98)	0.122	(0.50)	0.213	(0.23)	0.067	(0.71)	0.249	(0.16)	0.033	(0.85)	-0.002	(0.45)
Dec-08	0.002	(0.89)	-0.188	(0.28)	0.216	(0.23)	0.146	(0.43)	0.313	(0.09)	0.142	(0.43)	0.023	(0.35)
Jan-09	0.001	(0.90)	0.076	(0.66)	0.207	(0.22)	0.079	(0.66)	0.266	(0.14)	0.047	(0.80)	0.007	(0.41)
Feb-09	0.005	(0.48)	0.733	(0.00)	-0.378	(0.08)	0.459	(0.04)	-0.037	(0.87)	0.063	(0.72)	0.134	(0.09)
Mar-09	0.016	(0.36)	-0.315	(0.05)	0.066	(0.68)	0.241	(0.14)	0.460	(0.01)	0.207	(0.22)	0.181	(0.04)
Apr-09	0.008	(0.56)	-0.087	(0.62)	0.105	(0.50)	0.255	(0.12)	0.367	(0.03)	0.032	(0.85)	0.104	(0.13)
May-09	0.007	(0.67)	-0.212	(0.23)	0.002	(0.99)	0.212	(0.18)	0.408	(0.02)	0.092	(0.60)	0.075	(0.20)
Jun-09	0.044	(0.89)	-0.537	(0.00)	-0.225	(0.23)	0.123	(0.53)	0.339	(0.07)	0.164	(0.33)	0.087	(0.17)
Jul-09	0.005	(0.65)	0.201	(0.22)	0.062	(0.70)	0.247	(0.12)	0.127	(0.41)	-0.094	(0.56)	0.012	(0.39)
Aug-09	0.002	(0.78)	0.471	(0.01)	-0.052	(0.76)	0.286	(0.10)	0.072	(0.68)	-0.157	(0.31)	0.037	(0.30)
Sep-09	0.002	(0.82)	0.626	(0.00)	-0.194	(0.33)	0.346	(0.06)	0.010	(0.96)	-0.138	(0.39)	0.048	(0.27)
Oct-09	0.006	(0.83)	-0.504	(0.01)	-0.213	(0.25)	0.093	(0.62)	0.283	(0.11)	0.095	(0.55)	0.034	(0.32)
Nov-09	0.000	(0.98)	0.512	(0.00)	-0.065	(0.73)	0.249	(0.18)	0.136	(0.47)	-0.161	(0.31)	0.047	(0.27)
Dec-09	0.003	(0.73)	0.598	(0.00)	-0.143	(0.49)	0.256	(0.20)	0.080	(0.69)	-0.148	(0.40)	-0.003	(0.45)
Jan-10	0.010	(0.73)	-0.526	(0.00)	-0.199	(0.30)	0.051	(0.79)	0.257	(0.17)	0.141	(0.41)	0.008	(0.41)
Feb-10	0.003	(0.93)	-0.560	(0.00)	-0.289	(0.13)	0.012	(0.95)	0.280	(0.14)	0.134	(0.42)	0.080	(0.18)
Mar-10	0.004	(0.67)	0.306	(0.01)	0.055	(0.74)	0.173	(0.30)	0.226	(0.19)	-0.178	(0.29)	0.037	(0.30)
Apr-10	0.001	(0.88)	0.523	(0.00)	-0.070	(0.70)	0.234	(0.19)	0.136	(0.45)	-0.189	(0.26)	0.035	(0.31)
May-10	0.002	(0.77)	0.642	(0.00)	-0.204	(0.31)	0.304	(0.12)	0.071	(0.71)	-0.157	(0.34)	0.035	(0.31)
Jun-10	0.004	(0.63)	0.617	(0.00)	-0.165	(0.41)	0.247	(0.21)	0.108	(0.58)	-0.171	(0.30)	0.048	(0.27)
Jul-10	0.006	(0.43)	0.487	(0.01)	-0.062	(0.74)	0.199	(0.28)	0.109	(0.56)	-0.151	(0.36)	-0.011	(0.49)
Aug-10	0.006	(0.47)	0.482	(0.01)	-0.070	(0.71)	0.201	(0.28)	0.128	(0.50)	-0.161	(0.34)	-0.016	(0.51)
Sep-10	0.008	(0.24)	0.695	(0.00)	-0.334	(0.11)	0.315	(0.13)	0.036	(0.86)	-0.132	(0.41)	0.036	(0.31)
Oct-10	0.009	(0.19)	0.534	(0.00)	-0.175	(0.37)	0.160	(0.41)	0.093	(0.63)	0.126	(0.43)	-0.028	(0.56)
Nov-10	0.011	(0.14)	0.366	(0.04)	-0.080	(0.66)	0.117	(0.51)	0.098	(0.59)	-0.122	(0.44)	-0.118	(0.93)
Dec-10	0.029	(0.17)	-0.548	(0.00)	-0.212	(0.22)	0.031	(0.85)	0.155	(0.35)	0.067	(0.67)	-0.103	(0.89)

Table 50: Regression estimates for portfolio 2

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.054	(0.02)	-0.145	(0.39)	-0.121	(0.47)	-0.273	(0.11)	-0.213	(0.23)	0.186	(0.30)	0.021	(0.36)
Feb-08	-0.046	(0.06)	-0.103	(0.56)	-0.073	(0.68)	-0.226	(0.20)	-0.287	(0.12)	0.242	(0.20)	0.077	(0.19)
Mar-08	-0.048	(0.05)	-0.123	(0.09)	0.616	(0.62)	-0.234	(0.18)	-0.295	(0.10)	0.237	(0.21)	0.081	(0.18)
Apr-08	-0.044	(0.09)	-0.208	(0.23)	-0.060	(0.72)	-0.204	(0.24)	-0.272	(0.13)	0.269	(0.15)	0.051	(0.26)
May-08	-0.026	(0.21)	-0.051	(0.76)	0.002	(0.99)	-0.125	(0.45)	-0.181	(0.31)	0.344	(0.06)	0.035	(0.31)
Jun-08	-0.039	(0.15)	-0.289	(0.08)	-0.149	(0.37)	-0.205	(0.21)	-0.258	(0.13)	0.316	(0.07)	0.099	(0.14)
Jul-08	-0.029	(0.19)	-0.170	(0.30)	-0.056	(0.73)	-0.139	(0.38)	-0.221	(0.17)	0.381	(0.03)	0.122	(0.11)
Aug-08	-0.015	(0.41)	0.035	(0.83)	0.031	(0.85)	-0.082	(0.61)	-0.149	(0.35)	0.390	(0.02)	0.087	(0.17)
Sep-08	-0.017	(0.32)	0.038	(0.82)	0.016	(0.92)	-0.082	(0.61)	-0.152	(0.34)	0.379	(0.02)	0.083	(0.18)
Oct-08	-0.011	(0.49)	0.064	(0.69)	0.046	(0.78)	-0.040	(0.80)	-0.148	(0.37)	0.395	(0.02)	0.082	(0.18)
Nov-08	0.005	(0.73)	0.181	(0.27)	0.048	(0.77)	-0.010	(0.95)	-0.117	(0.48)	0.430	(0.01)	0.100	(0.14)
Dec-08	-0.058	(0.50)	-0.288	(0.00)	-0.463	(0.01)	-0.453	(0.01)	-0.509	(0.00)	-0.027	(0.90)	0.279	(0.01)
Jan-09	0.002	(0.84)	0.291	(0.04)	0.076	(0.59)	-0.043	(0.77)	-0.112	(0.44)	0.437	(0.00)	0.204	(0.03)
Feb-09	0.003	(0.78)	0.342	(0.03)	0.061	(0.67)	-0.042	(0.77)	-0.104	(0.47)	0.437	(0.00)	0.201	(0.03)
Mar-09	0.006	(0.59)	0.251	(0.11)	0.062	(0.70)	-0.018	(0.90)	-0.067	(0.63)	0.449	(0.00)	0.209	(0.03)
Apr-09	0.001	(0.92)	0.272	(0.07)	0.055	(0.72)	0.086	(0.58)	-0.113	(0.42)	0.399	(0.01)	0.219	(0.02)
May-09	0.000	(0.99)	0.367	(0.02)	-0.016	(0.92)	0.096	(0.55)	-0.177	(0.27)	0.407	(0.01)	0.212	(0.03)
Jun-09	-0.002	(0.85)	0.464	(0.01)	0.007	(0.97)	0.001	(1.00)	-0.153	(0.37)	0.308	(0.06)	0.143	(0.08)
Jul-09	-0.003	(0.83)	-0.012	(0.94)	0.053	(0.73)	0.077	(0.62)	-0.189	(0.21)	0.286	(0.07)	0.150	(0.07)
Aug-09	-0.005	(0.71)	0.086	(0.60)	0.011	(0.47)	0.066	(0.67)	-0.214	(0.17)	0.312	(0.05)	0.160	(0.06)
Sep-09	-0.004	(0.78)	0.056	(0.73)	0.049	(0.76)	0.042	(0.78)	-0.173	(0.26)	0.353	(0.03)	0.174	(0.05)
Oct-09	-0.012	(0.69)	-0.262	(0.11)	-0.169	(0.30)	-0.138	(0.40)	-0.243	(0.13)	0.309	(0.06)	0.228	(0.02)
Nov-09	-0.003	(0.94)	-0.388	(0.03)	-0.269	(0.14)	-0.191	(0.28)	-0.291	(0.11)	0.207	(0.23)	0.143	(0.08)
Dec-09	-0.004	(0.77)	0.062	(0.70)	0.081	(0.62)	0.050	(0.76)	-0.148	(0.37)	0.384	(0.02)	0.128	(0.10)
Jan-10	-0.006	(0.70)	-0.042	(0.79)	0.041	(0.80)	0.050	(0.76)	-0.122	(0.46)	0.374	(0.03)	0.135	(0.09)
Feb-10	-0.005	(0.71)	-0.016	(0.92)	0.054	(0.73)	0.051	(0.75)	-0.123	(0.45)	0.374	(0.03)	0.129	(0.10)
Mar-10	-0.004	(0.78)	-0.049	(0.76)	0.038	(0.81)	0.042	(0.79)	-0.093	(0.56)	0.357	(0.04)	0.117	(0.11)
Apr-10	-0.005	(0.71)	-0.004	(0.98)	0.065	(0.69)	0.049	(0.76)	-0.090	(0.57)	0.330	(0.05)	0.099	(0.14)
May-10	-0.001	(0.95)	0.002	(0.99)	0.061	(0.69)	0.027	(0.86)	-0.054	(0.73)	0.359	(0.03)	0.134	(0.09)
Jun-10	0.000	(0.99)	0.040	(0.81)	0.069	(0.66)	0.031	(0.84)	-0.054	(0.73)	0.356	(0.03)	0.132	(0.09)
Jul-10	0.003	(0.83)	0.086	(0.59)	0.050	(0.76)	0.027	(0.86)	-0.052	(0.74)	0.351	(0.03)	0.130	(0.09)
Aug-10	0.003	(0.83)	0.063	(0.70)	0.044	(0.78)	0.038	(0.81)	-0.051	(0.74)	0.352	(0.03)	0.138	(0.08)
Sep-10	0.005	(0.42)	0.783	(0.00)	-0.374	(0.07)	0.193	(0.34)	-0.126	(0.52)	0.214	(0.16)	0.163	(0.06)
Oct-10	0.007	(0.32)	0.340	(0.03)	0.004	(0.98)	-0.007	(0.97)	-0.057	(0.72)	0.242	(0.10)	0.039	(0.30)
Nov-10	0.011	(0.25)	0.063	(0.70)	0.039	(0.80)	0.023	(0.88)	-0.072	(0.63)	0.297	(0.05)	0.010	(0.40)
Dec-10	0.013	(0.27)	-0.092	(0.57)	-0.026	(0.87)	0.024	(0.87)	-0.062	(0.67)	0.283	(0.06)	-0.010	(0.48)

Table 51: Regression estimates for portfolio 3

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.032	(0.05)	0.011	(0.95)	0.100	(0.57)	-0.051	(0.77)	-0.104	(0.55)	0.045	(0.80)	-0.078	(0.79)
Feb-08	-0.021	(0.29)	-0.116	(0.56)	0.167	(0.40)	0.047	(0.81)	-0.034	(0.87)	0.091	(0.65)	-0.083	(0.81)
Mar-08	-0.074	(0.37)	-0.625	(0.00)	-0.371	(0.05)	-0.239	(0.20)	-0.294	(0.11)	-0.011	(0.95)	0.223	(0.02)
Apr-08	-0.003	(0.63)	0.499	(0.00)	0.006	(0.97)	0.063	(0.71)	-0.107	(0.54)	0.147	(0.34)	0.131	(0.09)
May-08	-0.007	(0.52)	-0.143	(0.35)	0.231	(0.09)	0.123	(0.36)	-0.071	(0.64)	0.134	(0.38)	0.030	(0.33)
Jun-08	0.000	(0.97)	0.256	(0.15)	0.277	(0.11)	0.045	(0.76)	-0.010	(0.95)	0.110	(0.47)	0.049	(0.27)
Jul-08	0.003	(0.69)	0.265	(0.13)	0.298	(0.10)	0.066	(0.71)	-0.016	(0.91)	0.157	(0.27)	0.100	(0.14)
Aug-08	-0.002	(0.78)	0.040	(0.83)	0.186	(0.32)	0.158	(0.43)	0.130	(0.48)	0.089	(0.56)	0.013	(0.39)
Sep-08	-0.011	(0.58)	-0.570	(0.00)	-0.175	(0.38)	0.018	(0.93)	0.232	(0.24)	0.317	(0.06)	0.076	(0.19)
Oct-08	-0.010	(0.62)	-0.562	(0.00)	-0.198	(0.29)	0.055	(0.78)	0.289	(0.14)	0.372	(0.04)	0.094	(0.15)
Nov-08	0.002	(0.92)	-0.387	(0.03)	-0.042	(0.82)	-0.015	(0.94)	0.343	(0.09)	0.470	(0.02)	0.136	(0.09)
Dec-08	0.001	(0.95)	-0.347	(0.03)	-0.013	(0.09)	-0.011	(0.95)	0.276	(0.15)	0.500	(0.01)	0.172	(0.05)
Jan-09	0.004	(0.79)	-0.292	(0.06)	-0.007	(0.96)	-0.023	(0.89)	0.277	(0.13)	0.533	(0.00)	0.182	(0.04)
Feb-09	0.000	(0.97)	-0.196	(0.22)	0.041	(0.80)	-0.118	(0.46)	0.213	(0.23)	0.473	(0.01)	0.148	(0.07)
Mar-09	0.007	(0.55)	-0.163	(0.35)	0.009	(0.96)	-0.109	(0.53)	0.441	(0.01)	0.556	(0.01)	0.210	(0.03)
Apr-09	0.001	(0.95)	-0.380	(0.03)	0.034	(0.85)	-0.017	(0.93)	0.408	(0.03)	0.412	(0.04)	0.095	(0.15)
May-09	-0.001	(0.95)	-0.413	(0.02)	-0.080	(0.64)	-0.033	(0.86)	0.417	(0.34)	0.428	(0.04)	0.072	(0.20)
Jun-09	0.002	(0.73)	0.622	(0.00)	-0.360	(0.07)	0.229	(0.26)	0.346	(0.13)	-0.118	(0.54)	0.104	(0.13)
Jul-09	0.003	(0.74)	-0.062	(0.71)	0.010	(0.95)	0.039	(0.80)	0.332	(0.04)	0.235	(0.23)	0.049	(0.27)
Aug-09	0.002	(0.91)	-0.552	(0.00)	-0.172	(0.28)	-0.019	(0.91)	0.384	(0.02)	0.400	(0.02)	0.101	(0.14)
Sep-09	0.003	(0.85)	-0.050	(0.00)	-0.133	(0.42)	0.001	(1.00)	0.385	(0.02)	0.369	(0.02)	0.107	(0.13)
Oct-09	0.002	(0.91)	-0.502	(0.00)	-0.146	(0.39)	-0.026	(0.88)	0.374	(0.02)	0.363	(0.02)	0.098	(0.15)
Nov-09	0.000	(0.98)	-0.422	(0.01)	-0.094	(0.56)	0.032	(0.84)	0.434	(0.01)	0.364	(0.02)	0.118	(0.11)
Dec-09	0.000	(1.00)	-0.422	(0.01)	-0.092	(0.57)	0.035	(0.83)	0.436	(0.01)	0.363	(0.03)	0.102	(0.14)
Jan-10	0.000	(1.00)	-0.420	(0.01)	-0.091	(0.57)	0.036	(0.82)	0.436	(0.01)	0.364	(0.03)	0.105	(0.13)
Feb-10	-0.002	(0.90)	-0.409	(0.02)	-0.076	(0.64)	0.036	(0.82)	0.449	(0.01)	0.369	(0.03)	0.119	(0.11)
Mar-10	-0.002	(0.86)	-0.366	(0.03)	-0.047	(0.77)	0.041	(0.80)	0.443	(0.01)	0.356	(0.03)	0.110	(0.12)
Apr-10	-0.004	(0.74)	-0.332	(0.05)	-0.021	(0.90)	0.056	(0.73)	0.456	(0.01)	0.337	(0.05)	0.110	(0.12)
May-10	-0.003	(0.83)	-0.322	(0.06)	-0.025	(0.88)	0.036	(0.82)	0.440	(0.01)	0.325	(0.06)	0.092	(0.16)
Jun-10	0.001	(0.96)	-0.208	(0.22)	-0.003	(0.99)	0.016	(0.92)	0.412	(0.01)	0.271	(0.12)	0.066	(0.22)
Jul-10	0.002	(0.63)	0.635	(0.00)	-0.399	(0.05)	0.258	(0.21)	0.248	(0.21)	-0.049	(0.77)	0.103	(0.14)
Aug-10	0.004	(0.45)	0.405	(0.00)	-0.196	(0.25)	0.081	(0.64)	0.367	(0.04)	-0.048	(0.77)	0.074	(0.20)
Sep-10	0.007	(0.52)	-0.383	(0.02)	-0.084	(0.58)	-0.023	(0.88)	0.384	(0.01)	0.303	(0.06)	0.075	(0.20)
Oct-10	0.006	(0.60)	-0.346	(0.04)	-0.063	(0.69)	-0.014	(0.93)	0.382	(0.01)	0.282	(0.08)	0.067	(0.22)
Nov-10	0.008	(0.52)	-0.409	(0.02)	-0.126	(0.43)	-0.074	(0.64)	0.352	(0.03)	0.282	(0.07)	0.055	(0.25)
Dec-10	0.006	(0.60)	-0.351	(0.04)	-0.093	(0.56)	-0.047	(0.77)	0.375	(0.02)	0.276	(0.08)	0.057	(0.24)

Table 52: Regression estimates for portfolio 4

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.025	(0.05)	-0.072	(0.68)	0.182	(0.32)	0.039	(0.83)	-0.627	(0.73)	-0.242	(0.19)	-0.072	(0.77)
Feb-08	-0.030	(0.20)	-0.391	(0.04)	0.110	(0.61)	-0.017	(0.94)	0.163	(0.47)	-0.248	(0.22)	0.014	(0.39)
Mar-08	-0.010	(0.16)	0.711	(0.00)	-0.249	(0.31)	0.022	(0.93)	-0.051	(0.84)	-0.010	(0.96)	-0.016	(0.51)
Apr-08	-0.012	(0.18)	0.209	(0.22)	0.245	(0.18)	-0.197	(0.35)	0.041	(0.85)	-0.064	(0.75)	-0.030	(0.57)
May-08	-0.014	(0.23)	-0.192	(0.27)	0.238	(0.16)	-0.290	(0.87)	0.010	(0.96)	-0.041	(0.84)	-0.069	(0.75)
Jun-08	-0.010	(0.31)	-0.124	(0.48)	0.271	(0.13)	-0.083	(0.63)	0.069	(0.69)	-0.002	(0.99)	-0.036	(0.60)
Jul-08	-0.001	(0.90)	0.385	(0.04)	0.161	(0.41)	-0.179	(0.36)	-0.048	(0.81)	0.248	(0.17)	-0.018	(0.52)
Aug-08	-0.002	(0.79)	0.353	(0.04)	0.147	(0.46)	-0.165	(0.40)	-0.056	(0.78)	0.269	(0.14)	-0.026	(0.56)
Sep-08	-0.004	(0.54)	0.347	(0.05)	0.085	(0.64)	-0.195	(0.33)	-0.024	(0.90)	0.284	(0.14)	-0.049	(0.66)
Oct-08	-0.003	(0.63)	0.558	(0.00)	-0.112	(0.56)	-0.103	(0.59)	-0.052	(0.80)	0.264	(0.16)	-0.011	(0.49)
Nov-08	-0.001	(0.92)	-0.025	(0.89)	0.159	(0.37)	-0.234	(0.20)	0.083	(0.64)	0.339	(0.08)	-0.016	(0.51)
Dec-08	-0.002	(0.84)	0.001	(1.00)	0.165	(0.35)	-0.234	(0.19)	0.096	(0.59)	0.327	(0.07)	-0.007	(0.47)
Jan-09	-0.015	(0.65)	-0.774	(0.00)	-0.513	(0.02)	-0.592	(0.01)	-0.323	(0.16)	0.030	(0.87)	0.040	(0.29)
Feb-09	-0.002	(0.85)	-0.149	(0.37)	0.084	(0.61)	-0.075	(0.65)	0.116	(0.51)	0.264	(0.14)	-0.071	(0.76)
Mar-09	0.002	(0.86)	-0.101	(0.56)	0.050	(0.77)	-0.059	(0.73)	0.225	(0.19)	0.259	(0.16)	-0.065	(0.73)
Apr-09	0.001	(0.89)	-0.099	(0.56)	0.045	(0.80)	-0.055	(0.75)	0.223	(0.19)	0.246	(0.15)	-0.055	(0.68)
May-09	0.001	(0.91)	-0.114	(0.50)	0.031	(0.85)	-0.059	(0.74)	0.223	(0.20)	0.249	(0.15)	-0.063	(0.73)
Jun-09	0.003	(0.54)	0.517	(0.00)	-0.238	(0.20)	0.012	(0.95)	0.306	(0.10)	0.021	(0.90)	0.016	(0.38)
Jul-09	0.004	(0.69)	-0.242	(0.14)	0.001	(1.00)	-0.101	(0.52)	0.177	(0.27)	0.298	(0.08)	-0.036	(0.60)
Aug-09	0.001	(0.95)	-0.286	(0.10)	-0.034	(0.84)	-0.096	(0.57)	0.156	(0.36)	0.235	(0.16)	-0.080	(0.80)
Sep-09	0.001	(0.96)	-0.332	(0.05)	-0.079	(0.66)	-0.121	(0.48)	0.148	(0.39)	0.240	(0.15)	-0.077	(0.79)
Oct-09	0.000	(0.98)	-0.566	(0.00)	-0.271	(0.16)	-0.286	(0.15)	0.029	(0.88)	0.222	(0.18)	-0.032	(0.58)
Nov-09	-0.001	(0.97)	-0.606	(0.00)	-0.318	(0.11)	-0.321	(0.11)	-0.005	(0.98)	0.205	(0.22)	-0.038	(0.61)
Dec-09	0.000	(0.99)	-0.372	(0.03)	-0.086	(0.63)	-0.152	(0.39)	0.111	(0.53)	0.265	(0.13)	-0.061	(0.72)
Jan-10	0.000	(0.99)	-0.371	(0.03)	-0.085	(0.63)	-0.152	(0.39)	0.111	(0.53)	0.265	(0.12)	-0.061	(0.71)
Feb-10	-0.002	(0.91)	-0.341	(0.05)	-0.079	(0.65)	-0.145	(0.41)	0.134	(0.45)	0.272	(0.11)	-0.056	(0.69)
Mar-10	-0.005	(0.84)	-0.630	(0.00)	-0.367	(0.07)	-0.375	(0.06)	-0.053	(0.79)	0.204	(0.23)	-0.101	(0.49)
Apr-10	-0.002	(0.85)	-0.286	(0.09)	-0.030	(0.86)	-0.127	(0.46)	0.135	(0.43)	0.288	(0.09)	-0.045	(0.64)
May-10	-0.004	(0.78)	-0.284	(0.09)	-0.033	(0.85)	-0.123	(0.48)	0.140	(0.42)	0.274	(0.11)	-0.051	(0.67)
Jun-10	0.001	(0.88)	0.456	(0.01)	-0.183	(0.32)	-0.046	(0.80)	0.214	(0.24)	0.063	(0.71)	-0.068	(0.75)
Jul-10	0.002	(0.78)	0.364	(0.04)	-0.121	(0.50)	-0.091	(0.60)	0.211	(0.35)	0.093	(0.85)	-0.061	(0.72)
Aug-10	0.002	(0.83)	-0.115	(0.49)	-0.044	(0.79)	-0.111	(0.49)	0.140	(0.39)	0.245	(0.14)	-0.068	(0.75)
Sep-10	0.003	(0.78)	-0.116	(0.49)	-0.043	(0.79)	-0.103	(0.53)	0.136	(0.40)	0.235	(0.16)	-0.073	(0.77)
Oct-10	0.003	(0.76)	-0.038	(0.82)	-0.046	(0.78)	-0.122	(0.46)	0.093	(0.57)	0.233	(0.16)	-0.075	(0.78)
Nov-10	0.001	(0.87)	-0.311	(0.07)	-0.364	(0.44)	-0.162	(0.36)	0.046	(0.79)	0.217	(0.20)	-0.081	(0.81)
Dec-10	0.002	(0.83)	-0.032	(0.85)	-0.054	(0.75)	-0.105	(0.53)	0.088	(0.60)	0.217	(0.20)	-0.088	(0.83)

Table 53: Regression estimates for portfolio 5

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.010	(0.82)	0.715	(0.00)	-0.259	(0.21)	0.030	(0.88)	-0.323	(0.11)	0.128	(0.47)	0.114	(0.12)
Feb-08	-0.018	(0.49)	-0.294	(0.11)	-0.057	(0.75)	-0.287	(0.12)	-0.324	(0.08)	-0.268	(0.14)	0.208	(0.03)
Mar-08	-0.007	(0.29)	0.524	(0.00)	0.048	(0.82)	-0.296	(0.17)	-0.005	(0.98)	-0.012	(0.95)	0.115	(0.12)
Apr-08	-0.007	(0.27)	0.459	(0.01)	0.082	(0.66)	-0.292	(0.16)	-0.025	(0.91)	-0.013	(0.95)	0.094	(0.15)
May-08	-0.006	(0.53)	0.153	(0.39)	0.024	(0.89)	-0.027	(0.88)	-0.029	(0.88)	-0.094	(0.64)	0.002	(0.43)
Jun-08	-0.008	(0.59)	-0.173	(0.31)	-0.114	(0.51)	-0.111	(0.51)	-0.017	(0.92)	-0.164	(0.39)	0.024	(0.35)
Jul-08	0.000	(0.93)	1.129	(0.00)	-0.788	(0.00)	0.521	(0.07)	-0.386	(0.16)	0.252	(0.19)	0.050	(0.26)
Aug-08	0.001	(0.86)	1.196	(0.00)	-0.919	(0.00)	0.701	(0.01)	-0.528	(0.04)	0.352	(0.04)	0.122	(0.10)
Sep-08	-0.001	(0.81)	1.093	(0.00)	-0.801	(0.00)	0.565	(0.05)	-0.458	(0.08)	0.344	(0.05)	0.067	(0.22)
Oct-08	-0.012	(0.70)	-0.477	(0.01)	-0.346	(0.06)	-0.334	(0.07)	-0.289	(0.11)	-0.243	(0.16)	0.101	(0.14)
Nov-08	0.000	(1.00)	0.429	(0.01)	-0.020	(0.91)	-0.013	(0.94)	-0.011	(0.96)	0.100	(0.57)	0.007	(0.41)
Dec-08	0.000	(0.97)	0.486	(0.01)	-0.052	(0.78)	-0.102	(0.96)	-0.018	(0.93)	0.109	(0.54)	0.013	(0.39)
Jan-09	0.001	(0.86)	0.680	(0.00)	-0.276	(0.17)	0.095	(0.63)	-0.030	(0.88)	0.124	(0.44)	0.026	(0.34)
Feb-09	0.001	(0.85)	0.858	(0.00)	-0.482	(0.03)	0.258	(0.26)	-0.141	(0.51)	0.171	(0.30)	0.023	(0.35)
Mar-09	0.004	(0.57)	0.396	(0.04)	-0.111	(0.58)	0.049	(0.80)	0.054	(0.78)	0.054	(0.76)	-0.006	(0.47)
Apr-09	0.001	(0.82)	0.921	(0.00)	-0.670	(0.01)	0.510	(0.08)	-0.298	(0.27)	0.211	(0.26)	-0.053	(0.68)
May-09	0.002	(0.63)	1.049	(0.00)	-0.863	(0.00)	0.698	(0.01)	-0.475	(0.08)	0.272	(0.13)	0.012	(0.39)
Jun-09	0.002	(0.56)	0.965	(0.00)	-0.699	(0.00)	0.491	(0.05)	-0.312	(0.20)	0.166	(0.34)	0.011	(0.40)
Jul-09	0.004	(0.60)	0.109	(0.51)	0.042	(0.80)	-0.002	(0.99)	0.023	(0.90)	-0.036	(0.84)	-0.107	(0.90)
Aug-09	0.004	(0.83)	-0.423	(0.02)	-0.203	(0.25)	-0.139	(0.44)	-0.028	(0.87)	-0.209	(0.24)	-0.039	(0.61)
Sep-09	0.001	(0.89)	0.030	(0.86)	0.087	(0.62)	0.024	(0.89)	0.067	(0.68)	0.114	(0.49)	-0.063	(0.73)
Oct-09	0.001	(0.95)	0.052	(0.76)	0.105	(0.54)	0.030	(0.87)	0.075	(0.66)	-0.116	(0.49)	-0.053	(0.68)
Nov-09	-0.006	(0.77)	0.464	(0.01)	-0.023	(0.90)	0.031	(0.87)	0.104	(0.58)	-0.047	(0.77)	-0.044	(0.64)
Dec-09	-0.003	(0.88)	-0.384	(0.03)	-0.148	(0.40)	-0.094	(0.60)	0.051	(0.77)	-0.050	(0.77)	-0.022	(0.54)
Jan-10	0.000	(0.94)	0.436	(0.02)	0.039	(0.83)	0.005	(0.98)	0.118	(0.51)	-0.051	(0.76)	-0.036	(0.60)
Feb-10	0.001	(0.88)	0.996	(0.00)	-0.705	(0.00)	0.616	(0.01)	-0.323	(0.16)	0.156	(0.33)	0.035	(0.31)
Mar-10	0.001	(0.72)	0.619	(0.00)	-0.237	(0.22)	0.178	(0.36)	0.096	(0.62)	-0.010	(0.95)	0.013	(0.39)
Apr-10	0.002	(0.79)	0.174	(0.31)	0.057	(0.73)	0.053	(0.75)	0.206	(0.21)	0.001	(1.00)	-0.032	(0.58)
May-10	0.001	(0.80)	0.163	(0.25)	0.060	(0.73)	0.054	(0.74)	0.207	(0.21)	0.002	(0.99)	-0.038	(0.61)
Jun-10	0.003	(0.64)	0.136	(0.44)	0.038	(0.83)	0.029	(0.86)	0.214	(0.20)	0.000	(1.00)	-0.062	(0.72)
Jul-10	0.002	(0.69)	0.126	(0.47)	0.041	(0.81)	0.038	(0.83)	0.222	(0.20)	0.001	(1.00)	-0.069	(0.75)
Aug-10	0.002	(0.70)	0.121	(0.48)	0.028	(0.87)	0.042	(0.81)	0.223	(0.20)	-0.008	(0.97)	-0.076	(0.78)
Sep-10	0.002	(0.69)	0.112	(0.52)	0.027	(0.87)	0.047	(0.78)	0.222	(0.20)	-0.009	(0.96)	-0.078	(0.79)
Oct-10	0.003	(0.68)	0.057	(0.74)	0.028	(0.87)	0.053	(0.75)	0.191	(0.26)	-0.004	(0.98)	-0.095	(0.86)
Nov-10	0.001	(0.85)	0.898	(0.00)	-0.668	(0.00)	0.561	(0.02)	-0.242	(0.29)	0.178	(0.29)	-0.038	(0.61)
Dec-10	0.000	(0.97)	0.295	(0.10)	0.018	(0.92)	0.047	(0.79)	0.207	(0.25)	-0.003	(0.99)	-0.066	(0.74)

Table 54: Regression estimates for portfolio 6

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.013	(0.06)	0.665	(0.00)	-0.416	(0.03)	0.366	(0.00)	0.062	(0.48)	-0.148	(0.39)	-0.018	(0.52)
Feb-08	-0.005	(0.53)	0.628	(0.00)	-0.146	(0.51)	0.215	(0.32)	-0.039	(0.85)	-0.076	(0.69)	-0.054	(0.68)
Mar-08	-0.004	(0.65)	0.499	(0.01)	-0.076	(0.71)	0.275	(0.17)	-0.059	(0.76)	-0.059	(0.74)	-0.034	(0.59)
Apr-08	-0.001	(0.87)	0.407	(0.02)	0.037	(0.84)	0.247	(0.21)	0.029	(0.89)	-0.094	(0.61)	0.002	(0.43)
May-08	-0.003	(0.67)	0.401	(0.03)	0.034	(0.86)	0.204	(0.27)	0.033	(0.87)	-0.115	(0.54)	-0.023	(0.54)
Jun-08	-0.002	(0.72)	0.670	(0.00)	-0.198	(0.34)	0.339	(0.34)	-0.015	(0.94)	-0.105	(0.58)	0.018	(0.37)
Jul-08	-0.001	(0.96)	-0.387	(0.03)	-0.058	(0.75)	0.223	(0.20)	0.281	(0.11)	0.154	(0.36)	0.061	(0.23)
Aug-08	0.002	(0.77)	0.083	(0.64)	0.169	(0.33)	0.248	(0.15)	0.211	(0.23)	0.014	(0.94)	0.085	(0.17)
Sep-08	0.000	(0.95)	0.165	(0.34)	0.127	(0.47)	0.231	(0.19)	0.211	(0.24)	-0.012	(0.95)	0.082	(0.18)
Oct-08	-0.006	(0.90)	-0.747	(0.00)	-0.438	(0.04)	-0.146	(0.51)	0.153	(0.47)	0.082	(0.62)	0.203	(0.03)
Nov-08	0.007	(0.35)	0.091	(0.60)	0.147	(0.39)	0.292	(0.09)	0.339	(0.06)	0.008	(0.96)	0.217	(0.02)
Dec-08	0.005	(0.50)	0.154	(0.39)	0.106	(0.55)	0.323	(0.08)	0.260	(0.17)	-0.048	(0.80)	0.166	(0.06)
Jan-09	0.003	(0.55)	0.456	(0.01)	-0.114	(0.55)	0.347	(0.08)	0.206	(0.31)	-0.123	(0.51)	0.157	(0.06)
Feb-09	0.002	(0.75)	0.554	(0.00)	-0.100	(0.62)	0.172	(0.38)	0.194	(0.38)	-0.118	(0.56)	0.071	(0.21)
Mar-09	0.008	(0.62)	-0.427	(0.02)	-0.113	(0.52)	0.079	(0.64)	0.349	(0.05)	0.281	(0.12)	0.094	(0.15)
Apr-09	0.005	(0.71)	-0.423	(0.02)	-0.092	(0.59)	0.093	(0.58)	0.375	(0.03)	0.274	(0.13)	0.092	(0.16)
May-09	0.003	(0.89)	-0.536	(0.00)	-0.141	(0.43)	0.042	(0.82)	0.340	(0.06)	0.278	(0.10)	0.130	(0.09)
Jun-09	0.003	(0.51)	0.598	(0.00)	-0.117	(0.55)	0.050	(0.79)	0.297	(0.13)	-0.153	(0.36)	0.119	(0.11)
Jul-09	0.005	(0.67)	-0.343	(0.04)	0.095	(0.55)	0.040	(0.80)	0.268	(0.10)	0.213	(0.20)	0.042	(0.29)
Aug-09	0.005	(0.69)	-0.361	(0.04)	0.087	(0.59)	0.043	(0.79)	0.272	(0.09)	0.210	(0.19)	0.050	(0.26)
Sep-09	0.004	(0.76)	-0.426	(0.02)	0.033	(0.85)	0.048	(0.77)	0.287	(0.08)	0.245	(0.13)	0.061	(0.23)
Oct-09	0.009	(0.70)	-0.637	(0.00)	-0.210	(0.28)	-0.180	(0.35)	0.143	(0.42)	0.252	(0.11)	0.094	(0.15)
Nov-09	0.008	(0.73)	-0.602	(0.00)	-0.160	(0.40)	-0.141	(0.46)	0.176	(0.36)	0.277	(0.09)	0.106	(0.13)
Dec-09	0.002	(0.86)	-0.362	(0.03)	0.099	(0.56)	0.015	(0.93)	0.286	(0.10)	0.320	(0.06)	0.105	(0.13)
Jan-10	0.002	(0.88)	-0.354	(0.04)	0.100	(0.55)	0.030	(0.86)	0.279	(0.10)	0.303	(0.07)	0.105	(0.13)
Feb-10	0.002	(0.86)	-0.343	(0.04)	0.107	(0.52)	0.031	(0.85)	0.274	(0.11)	0.300	(0.07)	0.100	(0.14)
Mar-10	0.004	(0.82)	-0.548	(0.00)	-0.104	(0.58)	-0.082	(0.66)	0.208	(0.27)	0.313	(0.06)	0.116	(0.11)
Apr-10	0.002	(0.85)	-0.389	(0.02)	0.061	(0.72)	0.020	(0.91)	0.266	(0.13)	0.330	(0.05)	0.086	(0.17)
May-10	0.004	(0.72)	-0.303	(0.07)	0.137	(0.40)	0.027	(0.87)	0.277	(0.10)	0.318	(0.05)	0.101	(0.14)
Jun-10	0.005	(0.65)	-0.300	(0.07)	0.132	(0.42)	0.036	(0.83)	0.273	(0.10)	0.317	(0.06)	-0.092	(0.16)
Jul-10	0.007	(0.48)	-0.279	(0.09)	0.116	(0.48)	0.011	(0.95)	0.291	(0.07)	0.300	(0.07)	0.086	(0.17)
Aug-10	0.008	(0.45)	-0.337	(0.05)	0.086	(0.60)	0.000	(1.00)	0.290	(0.08)	0.323	(0.05)	0.087	(0.17)
Sep-10	0.009	(0.44)	-0.337	(0.05)	0.080	(0.63)	-0.003	(0.99)	0.289	(0.08)	0.320	(0.05)	0.067	(0.22)
Oct-10	0.008	(0.53)	-0.353	(0.04)	0.068	(0.69)	-0.040	(0.82)	0.267	(0.12)	0.308	(0.07)	0.052	(0.26)
Nov-10	0.015	(0.62)	-0.713	(0.00)	-0.329	(0.12)	-0.322	(0.13)	0.019	(0.93)	0.210	(0.21)	0.081	(0.18)
Dec-10	0.038	(0.77)	-0.368	(0.03)	0.085	(0.61)	-0.019	(0.91)	0.268	(0.12)	0.340	(0.04)	0.102	(0.14)

Table 55: Regression estimates for portfolio 7

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.016	(0.03)	0.436	(0.01)	-0.202	(0.27)	0.027	(0.88)	0.193	(0.29)	-0.232	(0.17)	-0.103	(0.89)
Feb-08	-0.007	(0.32)	0.688	(0.00)	-0.308	(0.13)	0.199	(0.36)	0.127	(0.54)	-0.138	(0.43)	-0.051	(0.67)
Mar-08	-0.007	(0.34)	0.501	(0.01)	-0.122	(0.53)	0.086	(0.65)	0.219	(0.26)	-0.144	(0.40)	-0.064	(0.73)
Apr-08	-0.003	(0.63)	0.378	(0.03)	-0.015	(0.93)	0.079	(0.67)	0.286	(0.12)	-0.107	(0.55)	-0.035	(0.60)
May-08	-0.014	(0.42)	-0.529	(0.00)	-0.162	(0.38)	-0.005	(0.98)	0.320	(0.09)	0.151	(0.37)	-0.004	(0.46)
Jun-08	-0.006	(0.34)	0.446	(0.01)	-0.050	(0.78)	0.115	(0.53)	0.268	(0.15)	-0.187	(0.30)	-0.018	(0.52)
Jul-08	-0.004	(0.52)	0.401	(0.03)	-0.034	(0.85)	0.151	(0.40)	0.254	(0.17)	-0.122	(0.48)	-0.022	(0.54)
Aug-08	-0.002	(0.76)	0.554	(0.00)	-0.179	(0.37)	0.204	(0.30)	0.282	(0.16)	-0.089	(0.62)	0.058	(0.24)
Sep-08	-0.003	(0.68)	0.124	(0.47)	0.071	(0.68)	0.102	(0.55)	0.382	(0.03)	-0.002	(0.99)	0.039	(0.30)
Oct-08	0.007	(0.92)	-0.910	(0.00)	-0.530	(0.04)	-0.310	(0.26)	-0.001	(1.00)	-0.036	(0.86)	0.175	(0.05)
Nov-08	0.013	(0.16)	0.328	(0.08)	0.307	(0.13)	0.364	(0.08)	0.371	(0.09)	-0.111	(0.62)	0.268	(0.01)
Dec-08	0.012	(0.25)	0.134	(0.45)	0.219	(0.23)	0.447	(0.04)	0.377	(0.09)	-0.065	(0.77)	0.261	(0.01)
Jan-09	0.005	(0.64)	0.161	(0.39)	0.009	(0.96)	0.226	(0.25)	0.455	(0.06)	-0.131	(0.59)	0.158	(0.06)
Feb-09	0.002	(0.83)	0.253	(0.15)	0.026	(0.89)	0.108	(0.54)	0.328	(0.11)	-0.127	(0.61)	0.138	(0.08)
Mar-09	0.003	(0.81)	0.212	(0.22)	0.040	(0.81)	0.115	(0.51)	0.303	(0.08)	-0.123	(0.55)	0.137	(0.09)
Apr-09	0.001	(0.93)	0.332	(0.06)	0.015	(0.09)	0.151	(0.39)	0.291	(0.11)	-0.249	(0.17)	0.140	(0.08)
May-09	0.002	(0.84)	0.298	(0.08)	0.016	(0.93)	0.154	(0.37)	0.287	(0.11)	-0.230	(0.19)	0.141	(0.08)
Jun-09	0.002	(0.72)	1.120	(0.00)	-0.841	(0.00)	0.768	(0.01)	-0.350	(0.18)	0.034	(0.85)	0.169	(0.05)
Jul-09	0.005	(0.67)	0.084	(0.60)	0.017	(0.91)	0.138	(0.36)	0.255	(0.11)	-0.135	(0.41)	0.123	(0.10)
Aug-09	0.003	(0.78)	0.274	(0.11)	0.034	(0.83)	0.140	(0.38)	0.250	(0.12)	-0.203	(0.21)	0.139	(0.08)
Sep-09	0.003	(0.69)	0.536	(0.00)	-0.108	(0.52)	0.161	(0.35)	0.203	(0.24)	-0.229	(0.15)	0.143	(0.08)
Oct-09	0.006	(0.79)	-0.212	(0.21)	-0.123	(0.46)	-0.008	(0.96)	0.292	(0.07)	-0.050	(0.75)	0.149	(0.07)
Nov-09	0.002	(0.88)	0.162	(0.34)	0.044	(0.79)	0.072	(0.65)	0.339	(0.04)	-0.171	(0.28)	0.160	(0.06)
Dec-09	0.003	(0.75)	0.346	(0.05)	0.018	(0.91)	0.065	(0.70)	0.319	(0.06)	-0.246	(0.15)	0.160	(0.06)
Jan-10	0.002	(0.83)	0.348	(0.04)	0.015	(0.93)	0.075	(0.66)	0.319	(0.06)	-0.235	(0.16)	0.157	(0.06)
Feb-10	0.003	(0.70)	0.398	(0.21)	0.003	(0.98)	0.082	(0.63)	0.291	(0.10)	-0.256	(0.13)	0.151	(0.07)
Mar-10	0.004	(0.67)	0.438	(0.01)	-0.013	(0.94)	0.084	(0.63)	0.289	(0.10)	-0.269	(0.11)	0.150	(0.07)
Apr-10	0.005	(0.62)	0.323	(0.06)	-0.021	(0.90)	0.096	(0.55)	0.298	(0.07)	-0.225	(0.17)	0.154	(0.07)
May-10	0.004	(0.62)	0.391	(0.02)	-0.037	(0.82)	0.103	(0.54)	0.289	(0.09)	-0.243	(0.14)	0.151	(0.07)
Jun-10	0.005	(0.51)	0.469	(0.01)	-0.103	(0.56)	0.127	(0.46)	0.262	(0.13)	-0.253	(0.12)	0.143	(0.08)
Jul-10	0.013	(0.48)	-0.149	(0.38)	-0.164	(0.31)	-0.011	(0.95)	0.310	(0.06)	-0.088	(0.60)	0.151	(0.07)
Aug-10	0.008	(0.58)	0.038	(0.82)	-0.056	(0.73)	0.051	(0.74)	0.364	(0.03)	-0.158	(0.34)	0.172	(0.05)
Sep-10	0.006	(0.47)	0.404	(0.02)	-0.054	(0.75)	0.062	(0.71)	0.341	(0.05)	-0.303	(0.07)	0.176	(0.05)
Oct-10	0.005	(0.59)	0.363	(0.04)	-0.025	(0.88)	0.040	(0.81)	0.339	(0.05)	-0.286	(0.09)	0.151	(0.07)
Nov-10	0.010	(0.51)	0.135	(0.93)	-0.091	(0.56)	0.029	(0.85)	0.318	(0.05)	-0.202	(0.23)	0.183	(0.04)
Dec-10	0.005	(0.55)	0.377	(0.03)	-0.038	(0.82)	0.073	(0.66)	0.309	(0.06)	-0.303	(0.07)	0.182	(0.04)

Table 56: Regression estimates for portfolio 8

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.047	(0.03)	-0.226	(0.19)	-0.113	(0.56)	-0.287	(0.12)	-0.020	(0.92)	-0.179	(0.34)	-0.031	(0.58)
Feb-08	-0.014	(0.36)	0.276	(0.15)	0.221	(0.26)	-0.326	(0.11)	0.149	(0.47)	0.008	(0.97)	0.025	(0.35)
Mar-08	-0.016	(0.24)	0.298	(0.09)	0.192	(0.34)	-0.388	(0.06)	0.184	(0.39)	0.003	(0.99)	0.131	(0.39)
Apr-08	-0.006	(0.59)	0.479	(0.01)	0.206	(0.30)	-0.416	(0.06)	0.308	(0.18)	0.159	(0.94)	0.065	(0.22)
May-08	-0.006	(0.55)	0.377	(0.03)	0.259	(0.16)	-0.413	(0.03)	0.269	(0.21)	0.026	(0.90)	0.076	(0.19)
Jun-08	-0.021	(0.21)	-0.191	(0.26)	0.216	(0.20)	-0.243	(0.16)	0.064	(0.72)	-0.061	(0.75)	0.065	(0.22)
Jul-08	0.002	(0.77)	1.006	(0.00)	-0.605	(0.02)	0.314	(0.25)	-0.242	(0.34)	0.353	(0.52)	0.093	(0.16)
Aug-08	0.001	(0.92)	0.929	(0.00)	-0.490	(0.05)	0.212	(0.43)	-0.176	(0.48)	0.313	(0.08)	0.077	(0.19)
Sep-08	0.000	(0.96)	0.933	(0.00)	-0.467	(0.04)	0.158	(0.51)	-0.066	(0.78)	0.288	(0.09)	0.195	(0.03)
Oct-08	-0.013	(0.87)	-0.762	(0.00)	-0.393	(0.05)	-0.530	(0.01)	-0.431	(0.04)	-0.252	(0.15)	0.188	(0.04)
Nov-08	0.006	(0.46)	0.458	(0.01)	0.261	(0.14)	-0.275	(0.12)	0.276	(0.11)	0.168	(0.34)	0.180	(0.04)
Dec-08	0.004	(0.61)	0.411	(0.02)	0.240	(0.20)	-0.253	(0.16)	0.268	(0.14)	0.134	(0.45)	0.170	(0.05)
Jan-09	0.004	(0.63)	0.466	(0.01)	0.117	(0.52)	-0.224	(0.23)	0.315	(0.09)	0.071	(0.69)	0.128	(0.10)
Feb-09	0.005	(0.53)	0.422	(0.02)	0.135	(0.46)	-0.205	(0.25)	0.331	(0.08)	0.081	(0.65)	0.134	(0.09)
Mar-09	0.010	(0.34)	0.221	(0.21)	0.174	(0.32)	-0.182	(0.30)	0.366	(0.04)	0.197	(0.29)	0.191	(0.04)
Apr-09	0.006	(0.55)	0.189	(0.27)	0.152	(0.38)	-0.106	(0.54)	0.359	(0.04)	0.159	(0.37)	0.194	(0.04)
May-09	0.003	(0.69)	0.830	(0.00)	-0.385	(0.07)	0.058	(0.79)	0.400	(0.08)	-0.147	(0.43)	0.162	(0.06)
Jun-09	0.003	(0.72)	0.796	(0.00)	-0.305	(0.15)	-0.065	(0.75)	0.468	(0.03)	-0.177	(0.34)	0.172	(0.05)
Jul-09	0.003	(0.66)	0.916	(0.00)	-0.473	(0.04)	0.087	(0.71)	0.360	(0.11)	-0.176	(0.34)	0.142	(0.08)
Aug-09	0.002	(0.75)	0.828	(0.00)	-0.322	(0.14)	0.007	(0.98)	0.416	(0.06)	-0.255	(0.16)	0.117	(0.11)
Sep-09	0.006	(0.81)	-0.280	(0.09)	-0.072	(0.66)	-0.170	(0.29)	0.288	(0.08)	0.217	(0.22)	0.127	(0.10)
Oct-09	0.001	(0.85)	0.927	(0.00)	-0.473	(0.04)	0.179	(0.45)	0.292	(0.19)	-0.197	(0.24)	0.146	(0.07)
Nov-09	-0.001	(0.90)	0.685	(0.00)	-0.189	(0.35)	0.015	(0.94)	0.373	(0.07)	-0.131	(0.43)	0.117	(0.11)
Dec-09	0.003	(0.90)	-0.391	(0.02)	-0.066	(0.70)	-0.107	(0.53)	0.259	(0.13)	0.271	(0.11)	0.133	(0.09)
Jan-10	0.001	(0.98)	-0.377	(0.30)	-0.099	(0.96)	-0.090	(0.60)	0.270	(0.12)	0.302	(0.08)	0.119	(0.11)
Feb-10	0.001	(0.96)	-0.413	(0.02)	-0.033	(0.85)	-0.115	(0.51)	0.260	(0.14)	0.309	(0.07)	0.119	(0.11)
Mar-10	0.002	(0.92)	-0.394	(0.02)	-0.023	(0.90)	-0.099	(0.56)	0.269	(0.12)	0.309	(0.07)	0.118	(0.11)
Apr-10	0.001	(0.96)	-0.356	(0.04)	-0.001	(1.00)	-0.063	(0.71)	0.283	(0.10)	0.339	(0.05)	0.110	(0.12)
May-10	0.003	(0.88)	-0.344	(0.04)	0.012	(0.94)	-0.054	(0.74)	0.273	(0.11)	0.347	(0.05)	0.088	(0.17)
Jun-10	0.006	(0.42)	0.704	(0.00)	-0.265	(0.21)	0.064	(0.76)	0.317	(0.14)	-0.151	(0.39)	0.044	(0.28)
Jul-10	0.011	(0.51)	-0.227	(0.18)	0.030	(0.86)	-0.039	(0.81)	0.304	(0.07)	0.218	(0.21)	0.017	(0.37)
Aug-10	0.012	(0.51)	-0.261	(0.13)	-0.014	(0.93)	-0.055	(0.74)	0.312	(0.07)	0.233	(0.18)	0.018	(0.37)
Sep-10	0.007	(0.31)	0.681	(0.00)	-0.300	(0.15)	0.111	(0.60)	0.277	(0.19)	-0.146	(0.40)	0.009	(0.41)
Oct-10	0.007	(0.41)	0.506	(0.01)	-0.123	(0.55)	0.025	(0.90)	0.199	(0.34)	-0.060	(0.74)	-0.082	(0.81)
Nov-10	0.001	(0.46)	-0.356	(0.04)	-0.044	(0.80)	-0.034	(0.85)	0.186	(0.29)	0.155	(0.38)	-0.088	(0.83)
Dec-10	0.005	(0.53)	0.474	(0.01)	-0.082	(0.66)	0.032	(0.87)	0.196	(0.32)	-0.044	(0.80)	-0.089	(0.84)

Table 57: Regression estimates for portfolio 9

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.032	(0.00)	0.624	(0.00)	-0.811	(0.00)	0.329	(0.13)	-0.199	(0.32)	-0.174	(0.30)	0.302	(0.01)
Feb-08	0.067	(0.01)	-0.597	(0.00)	-0.442	(0.04)	-0.480	(0.03)	-0.100	(0.64)	-0.205	(0.24)	0.179	(0.04)
Mar-08	0.035	(0.01)	-0.008	(0.96)	-0.124	(0.44)	-0.295	(0.07)	0.141	(0.41)	-0.214	(0.20)	0.090	(0.16)
Apr-08	-0.026	(0.04)	0.083	(0.63)	-0.050	(0.75)	-0.234	(0.14)	0.224	(0.18)	-0.201	(0.25)	0.077	(0.19)
May-08	-0.023	(0.06)	0.005	(0.98)	-0.056	(0.74)	-0.171	(0.26)	0.249	(0.13)	-0.140	(0.41)	0.042	(0.29)
Jun-08	-0.022	(0.04)	0.065	(0.70)	-0.070	(0.67)	-0.188	(0.25)	0.268	(0.09)	-0.162	(0.33)	0.027	(0.34)
Jul-08	-0.018	(0.08)	0.032	(0.85)	-0.037	(0.82)	-0.166	(0.31)	0.184	(0.27)	-0.041	(0.80)	-0.056	(0.69)
Aug-08	-0.059	(0.08)	-0.840	(0.00)	-0.664	(0.00)	-0.655	(0.01)	-0.284	(0.19)	-0.268	(0.11)	0.066	(0.22)
Sep-08	-0.004	(0.52)	0.816	(0.00)	-0.640	(0.01)	0.500	(0.03)	-0.187	(0.36)	0.227	(0.18)	0.050	(0.26)
Oct-08	-0.017	(0.80)	-0.892	(0.00)	-0.566	(0.03)	-0.535	(0.03)	-0.300	(0.20)	-0.220	(0.21)	0.106	(0.13)
Nov-08	0.012	(0.33)	0.192	(0.29)	0.434	(0.03)	0.131	(0.51)	0.335	(0.11)	0.080	(0.70)	0.116	(0.11)
Dec-08	-0.003	(0.81)	-0.016	(0.93)	0.127	(0.51)	0.049	(0.83)	0.233	(0.29)	0.034	(0.88)	-0.042	(0.63)
Jan-09	0.000	(0.96)	0.484	(0.01)	-0.147	(0.43)	-0.005	(0.98)	0.321	(0.14)	-0.021	(0.92)	-0.025	(0.55)
Feb-09	-0.002	(0.85)	0.360	(0.04)	-0.030	(0.87)	-0.111	(0.54)	0.289	(0.14)	0.015	(0.95)	-0.033	(0.59)
Mar-09	-0.002	(0.83)	0.064	(0.71)	0.010	(0.95)	-0.083	(0.62)	0.237	(0.16)	0.067	(0.72)	-0.030	(0.57)
Apr-09	-0.005	(0.65)	0.051	(0.77)	0.009	(0.96)	-0.042	(0.80)	0.236	(0.16)	0.040	(0.81)	-0.037	(0.61)
May-09	-0.002	(0.75)	0.469	(0.01)	-0.113	(0.53)	-0.030	(0.87)	0.229	(0.21)	-0.032	(0.85)	-0.035	(0.59)
Jun-09	-0.003	(0.71)	0.491	(0.01)	-0.093	(0.62)	-0.076	(0.68)	0.240	(0.20)	-0.037	(0.83)	-0.030	(0.57)
Jul-09	-0.002	(0.88)	-0.090	(0.59)	-0.025	(0.88)	-0.065	(0.69)	0.176	(0.29)	0.076	(0.65)	-0.066	(0.74)
Aug-09	-0.004	(0.73)	0.032	(0.86)	0.042	(0.80)	-0.051	(0.76)	0.206	(0.23)	0.034	(0.84)	-0.080	(0.80)
Sep-09	-0.003	(0.75)	0.129	(0.46)	-0.004	(0.98)	-0.045	(0.79)	0.202	(0.24)	0.033	(0.85)	-0.076	(0.78)
Oct-09	-0.010	(0.79)	0.448	(0.01)	-0.141	(0.45)	0.015	(0.94)	0.192	(0.30)	-0.034	(0.84)	-0.083	(0.81)
Nov-09	-0.004	(0.68)	0.176	(0.32)	-0.011	(0.95)	0.008	(0.96)	0.155	(0.38)	0.059	(0.73)	-0.097	(0.87)
Dec-09	-0.004	(0.71)	-0.041	(0.81)	-0.006	(0.97)	0.003	(0.99)	0.127	(0.46)	0.138	(0.44)	-0.100	(0.88)
Jan-10	-0.007	(0.63)	-0.193	(0.26)	-0.044	(0.80)	-0.018	(0.92)	0.131	(0.45)	0.176	(0.31)	-0.089	(0.84)
Feb-10	-0.002	(0.87)	-0.062	(0.72)	0.035	(0.84)	-0.037	(0.83)	0.146	(0.41)	0.130	(0.47)	-0.110	(0.91)
Mar-10	-0.001	(0.91)	-0.030	(0.86)	0.038	(0.83)	-0.033	(0.85)	0.141	(0.42)	0.124	(0.49)	-0.113	(0.92)
Apr-10	-0.001	(0.95)	-0.036	(0.83)	-0.009	(0.96)	-0.016	(0.93)	0.137	(0.43)	0.135	(0.44)	-0.116	(0.93)
May-10	-0.001	(0.95)	-0.252	(0.14)	-0.085	(0.62)	-0.055	(0.75)	0.131	(0.45)	0.175	(0.32)	-0.106	(0.90)
Jun-10	0.001	(0.96)	-0.222	(0.20)	-0.079	(0.65)	-0.047	(0.79)	0.175	(0.31)	-0.154	(0.38)	-0.100	(0.88)
Jul-10	0.003	(0.79)	-0.057	(0.74)	-0.034	(0.84)	-0.057	(0.74)	0.174	(0.30)	0.114	(0.50)	-0.104	(0.89)
Aug-10	0.002	(0.99)	-0.202	(0.25)	-0.102	(0.55)	-0.078	(0.66)	0.176	(0.32)	0.149	(0.39)	-0.102	(0.89)
Sep-10	0.003	(0.66)	0.647	(0.00)	-0.399	(0.06)	0.154	(0.48)	0.139	(0.51)	-0.093	(0.59)	-0.088	(0.83)
Oct-10	0.003	(0.69)	0.509	(0.01)	-0.246	(0.21)	0.009	(0.97)	0.171	(0.40)	-0.073	(0.68)	-0.112	(0.92)
Nov-10	0.004	(0.81)	-0.038	(0.03)	-0.184	(0.31)	-0.135	(0.45)	0.077	(0.67)	0.129	(0.45)	-0.120	(0.94)
Dec-10	0.004	(0.82)	-0.371	(0.04)	-0.177	(0.33)	-0.132	(0.47)	0.081	(0.65)	0.130	(0.45)	-0.127	(0.96)

Table 58: Regression estimates for portfolio 10

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.016	(0.01)	0.735	(0.00)	-0.612	(0.00)	0.468	(0.04)	-0.327	(0.12)	-0.141	(0.43)	0.027	(0.34)
Feb-08	-0.011	(0.24)	0.392	(0.05)	-0.047	(0.82)	0.055	(0.79)	-0.035	(0.87)	-0.160	(0.41)	-0.106	(0.90)
Mar-08	-0.011	(0.18)	0.392	(0.03)	-0.088	(0.67)	0.057	(0.78)	-0.018	(0.93)	-0.152	(0.43)	-0.124	(0.95)
Apr-08	-0.013	(0.26)	-0.079	(0.64)	0.049	(0.77)	0.050	(0.79)	0.045	(0.81)	-0.141	(0.46)	-0.145	(0.99)
May-08	-0.002	(0.22)	0.348	(0.05)	-0.043	(0.81)	0.103	(0.56)	0.009	(0.96)	-0.157	(0.40)	-0.132	(0.97)
Jun-08	-0.009	(0.24)	0.204	(0.24)	0.039	(0.82)	0.081	(0.64)	0.056	(0.74)	-0.161	(0.39)	-0.133	(0.97)
Jul-08	-0.006	(0.51)	0.050	(0.78)	0.082	(0.65)	0.104	(0.56)	0.030	(0.86)	-0.005	(0.98)	-0.151	(0.99)
Aug-08	-0.004	(0.64)	0.104	(0.55)	0.086	(0.63)	0.109	(0.55)	0.050	(0.78)	-0.018	(0.92)	-0.138	(0.98)
Sep-08	-0.004	(0.50)	0.753	(0.00)	-0.473	(0.03)	0.432	(0.05)	-0.272	(0.21)	0.178	(0.32)	-0.104	(0.89)
Oct-08	-0.024	(0.39)	-0.641	(0.00)	-0.421	(0.04)	-0.224	(0.29)	-0.145	(0.45)	-0.145	(0.37)	-0.070	(0.76)
Nov-08	0.000	(1.00)	0.245	(0.21)	-0.021	(0.91)	0.209	(0.27)	0.097	(0.62)	0.003	(0.99)	-0.100	(0.87)
Dec-08	0.000	(0.97)	0.262	(0.13)	-0.028	(0.88)	0.205	(0.27)	0.101	(0.59)	0.010	(0.96)	-0.091	(0.84)
Jan-09	-0.001	(0.94)	-0.159	(0.36)	-0.941	(0.58)	0.228	(0.22)	0.214	(0.24)	0.006	(0.97)	-0.070	(0.76)
Feb-09	-0.003	(0.77)	-0.132	(0.45)	-0.085	(0.62)	0.197	(0.24)	0.180	(0.34)	0.001	(0.99)	-0.076	(0.78)
Mar-09	0.002	(0.88)	-0.119	(0.49)	-0.150	(0.38)	0.173	(0.30)	0.224	(0.19)	0.082	(0.66)	-0.044	(0.64)
Apr-09	0.001	(0.85)	0.224	(0.20)	-0.169	(0.33)	0.221	(0.20)	0.170	(0.33)	0.082	(0.64)	-0.027	(0.56)
May-09	0.002	(0.74)	0.734	(0.00)	0.604	(0.00)	0.522	(0.01)	-0.100	(0.62)	0.115	(0.50)	0.015	(0.38)
Jun-09	0.002	(0.76)	0.610	(0.00)	-0.456	(0.03)	0.291	(0.16)	0.057	(0.78)	0.068	(0.69)	0.024	(0.35)
Jul-09	0.003	(0.73)	-0.113	(0.48)	-0.149	(0.35)	0.077	(0.63)	0.150	(0.34)	0.186	(0.26)	-0.069	(0.75)
Aug-09	0.000	(0.97)	-0.062	(0.73)	-0.063	(0.70)	0.089	(0.59)	0.143	(0.39)	0.106	(0.53)	-0.114	(0.92)
Sep-09	0.000	(0.98)	-0.154	(0.37)	-0.150	(0.40)	0.082	(0.62)	0.159	(0.34)	0.129	(0.44)	-0.091	(0.84)
Oct-09	-0.005	(0.90)	-0.717	(0.00)	-0.632	(0.00)	-0.446	(0.04)	-0.085	(0.64)	0.089	(0.56)	0.065	(0.22)
Nov-09	-0.003	(0.64)	0.136	(0.39)	-0.044	(0.78)	0.074	(0.64)	0.303	(0.07)	0.130	(0.40)	0.004	(0.43)
Dec-09	-0.004	(0.72)	-0.212	(0.21)	-0.093	(0.56)	0.042	(0.79)	0.286	(0.08)	0.273	(0.11)	0.007	(0.41)
Jan-10	-0.005	(0.70)	-0.307	(0.07)	-0.166	(0.32)	0.019	(0.91)	0.272	(0.10)	0.273	(0.09)	0.028	(0.36)
Feb-10	-0.003	(0.88)	-0.467	(0.01)	-0.284	(0.13)	-0.081	(0.67)	0.200	(0.27)	0.254	(0.13)	-0.013	(0.50)
Mar-10	-0.004	(0.87)	-0.599	(0.00)	-0.446	(0.03)	-0.227	(0.28)	0.089	(0.66)	0.213	(0.20)	-0.006	(0.47)
Apr-10	0.001	(0.91)	0.549	(0.00)	-0.370	(0.07)	0.253	(0.21)	0.168	(0.40)	0.031	(0.86)	0.000	(0.44)
May-10	0.001	(0.89)	0.066	(0.69)	-0.114	(0.49)	0.076	(0.65)	0.261	(0.12)	0.167	(0.33)	-0.013	(0.50)
Jun-10	0.001	(0.91)	-0.038	(0.82)	-0.104	(0.52)	0.065	(0.69)	0.247	(0.14)	0.211	(0.22)	-0.023	(0.54)
Jul-10	0.003	(0.76)	-0.135	(0.42)	-0.144	(0.37)	0.030	(0.85)	0.247	(0.13)	0.236	(0.16)	-0.017	(0.51)
Aug-10	0.003	(0.76)	-0.152	(0.37)	-0.148	(0.36)	0.025	(0.88)	0.247	(0.13)	0.240	(0.16)	-0.015	(0.50)
Sep-10	0.005	(0.56)	-0.143	(0.40)	-0.159	(0.34)	-0.011	(0.95)	0.214	(0.19)	0.190	(0.26)	-0.051	(0.66)
Oct-10	0.004	(0.63)	-0.091	(0.59)	-0.140	(0.39)	-0.019	(0.91)	0.217	(0.19)	0.178	(0.29)	-0.048	(0.66)
Nov-10	0.003	(0.78)	-0.252	(0.15)	-0.205	(0.24)	-0.043	(0.80)	0.168	(0.33)	0.204	(0.23)	-0.058	(0.70)
Dec-10	0.002	(0.85)	-0.064	(0.71)	-0.131	(0.44)	0.011	(0.95)	0.193	(0.25)	0.186	(0.28)	-0.061	(0.71)

A.8 REGRESSION ESTIMATES FOR INDIVIDUAL STOCKS

Table 59: Regression estimates for Standard Bank Group Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.043	(0.02)	-0.380	(0.02)	-0.076	(0.68)	0.153	(0.42)	-0.269	(0.16)	-0.469	(0.02)	0.080	(0.18)
Feb-08	-0.045	(0.11)	-0.524	(0.00)	-0.074	(0.70)	-0.064	(0.76)	-0.280	(0.19)	-0.512	(0.01)	0.063	(0.23)
Mar-08	-0.031	(0.04)	-0.201	(0.22)	0.129	(0.45)	-0.058	(0.73)	-0.133	(0.47)	-0.430	(0.04)	-0.023	(0.54)
Apr-08	-0.030	(0.05)	-0.291	(0.08)	0.156	(0.33)	-0.016	(0.93)	-0.094	(0.58)	-0.514	(0.01)	0.070	(0.21)
May-08	-0.018	(0.10)	-0.049	(0.75)	0.040	(0.80)	0.009	(0.95)	-0.012	(0.94)	-0.392	(0.02)	0.031	(0.33)
Jun-08	-0.016	(0.32)	-0.441	(0.01)	-0.018	(0.91)	-0.061	(0.71)	0.043	(0.79)	-0.339	(0.04)	0.044	(0.28)
Jul-08	-0.011	(0.64)	-0.559	(0.00)	-0.134	(0.49)	-0.039	(0.83)	-0.035	(0.85)	-0.301	(0.08)	-0.028	(0.57)
Aug-08	-0.016	(0.32)	-0.427	(0.02)	-0.057	(0.78)	-0.006	(0.98)	0.128	(0.50)	-0.194	(0.31)	-0.091	(0.85)
Sep-08	-0.016	(0.30)	-0.400	(0.02)	-0.036	(0.85)	0.007	(0.97)	-0.117	(0.56)	-0.186	(0.31)	-0.095	(0.86)
Oct-08	-0.016	(0.27)	-0.398	(0.02)	-0.025	(0.89)	0.001	(1.00)	0.110	(0.58)	-0.160	(0.41)	-0.098	(0.87)
Nov-08	-0.008	(0.52)	-0.099	(0.60)	0.040	(0.83)	-0.180	(0.34)	0.014	(0.94)	0.009	(0.97)	-0.090	(0.84)
Dec-08	-0.006	(0.55)	0.179	(0.30)	-0.047	(0.81)	-0.125	(0.52)	0.103	(0.60)	-0.045	(0.81)	-0.035	(0.60)
Jan-09	-0.006	(0.61)	-0.252	(0.14)	0.037	(0.83)	-0.137	(0.47)	0.062	(0.74)	-0.009	(0.96)	-0.033	(0.59)
Feb-09	-0.001	(0.92)	-0.004	(0.98)	-0.019	(0.92)	0.033	(0.86)	0.067	(0.73)	-0.067	(0.74)	-0.084	(0.82)
Mar-09	0.001	(0.91)	0.176	(0.32)	-0.059	(0.75)	0.021	(0.91)	0.165	(0.38)	-0.115	(0.57)	-0.094	(0.86)
Apr-09	-0.003	(0.79)	0.166	(0.35)	-0.178	(0.34)	0.042	(0.83)	0.201	(0.30)	-0.239	(0.22)	-0.013	(0.50)
May-09	-0.003	(0.76)	0.509	(0.01)	-0.483	(0.02)	0.256	(0.23)	0.027	(0.90)	-0.216	(0.27)	0.007	(0.41)
Jun-09	-0.002	(0.83)	0.369	(0.03)	-0.293	(0.10)	0.065	(0.73)	0.133	(0.49)	-0.303	(0.12)	0.031	(0.32)
Jul-09	-0.003	(0.77)	0.361	(0.04)	-0.272	(0.12)	0.086	(0.63)	0.105	(0.57)	-0.331	(0.08)	0.016	(0.38)
Aug-09	-0.002	(0.81)	0.388	(0.02)	-0.312	(0.09)	0.109	(0.55)	0.075	(0.68)	-0.312	(0.08)	0.020	(0.36)
Sep-09	-0.003	(0.76)	0.346	(0.04)	-0.235	(0.19)	0.039	(0.83)	0.147	(0.40)	-0.282	(0.11)	-0.011	(0.49)
Oct-09	-0.004	(0.62)	0.464	(0.01)	-0.322	(0.08)	0.132	(0.48)	0.131	(0.47)	-0.252	(0.13)	0.029	(0.33)
Nov-09	-0.005	(0.58)	0.385	(0.03)	-0.246	(0.17)	0.072	(0.69)	0.172	(0.33)	-0.248	(0.14)	0.000	(0.44)
Dec-09	-0.004	(0.63)	0.384	(0.03)	-0.237	(0.18)	0.056	(0.76)	0.174	(0.32)	-0.258	(0.13)	-0.001	(0.44)
Jan-10	-0.006	(0.53)	0.352	(0.04)	-0.223	(0.21)	0.032	(0.86)	0.205	(0.24)	-0.251	(0.14)	0.003	(0.43)
Feb-10	-0.006	(0.48)	0.365	(0.04)	-0.237	(0.19)	0.050	(0.79)	0.197	(0.26)	-0.229	(0.18)	-0.014	(0.50)
Mar-10	-0.005	(0.56)	0.400	(0.02)	0.268	(0.14)	0.077	(0.68)	0.194	(0.27)	-0.223	(0.19)	0.001	(0.44)
Apr-10	-0.005	(0.58)	0.321	(0.06)	-0.198	(0.26)	0.043	(0.81)	0.219	(0.22)	-0.197	(0.25)	-0.018	(0.52)
May-10	-0.005	(0.61)	0.315	(0.07)	-0.199	(0.25)	0.042	(0.81)	0.218	(0.22)	-0.194	(0.26)	-0.017	(0.52)
Jun-10	-0.002	(0.81)	0.338	(0.05)	-0.275	(0.13)	0.066	(0.71)	0.168	(0.34)	-0.191	(0.27)	-0.007	(0.47)
Jul-10	-0.002	(0.86)	0.311	(0.07)	-0.254	(0.15)	0.034	(0.85)	0.181	(0.30)	-0.203	(0.23)	-0.013	(0.50)
Aug-10	-0.002	(0.81)	0.387	(0.03)	-0.373	(0.05)	0.116	(0.54)	0.119	(0.52)	-0.188	(0.27)	0.010	(0.40)
Sep-10	0.000	(0.99)	0.271	(0.11)	-0.284	(0.11)	0.023	(0.90)	0.163	(0.36)	-0.236	(0.17)	0.032	(0.32)
Oct-10	-0.001	(0.89)	0.257	(0.14)	-0.262	(0.14)	0.003	(0.99)	0.152	(0.40)	-0.230	(0.18)	0.022	(0.36)
Nov-10	-0.001	(0.89)	0.260	(0.13)	-0.242	(0.17)	-0.002	(0.99)	0.176	(0.32)	-0.203	(0.24)	0.033	(0.32)
Dec-10	0.000	(0.96)	0.166	(0.33)	-0.190	(0.27)	-0.026	(0.88)	0.174	(0.31)	-0.167	(0.34)	0.001	(0.44)

Table 60: Regression estimates for Afgri Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.005	(0.01)	-0.183	(0.29)	0.300	(0.07)	-0.210	(0.20)	-0.492	(0.00)	-0.164	(0.93)	0.172	(0.05)
Feb-08	-0.003	(0.00)	-0.135	(0.45)	0.289	(0.08)	-0.245	(0.15)	-0.502	(0.00)	0.061	(0.74)	0.162	(0.06)
Mar-08	-0.001	(0.00)	0.087	(0.61)	0.281	(0.09)	-0.313	(0.06)	-0.436	(0.01)	0.145	(0.43)	0.148	(0.07)
Apr-08	-0.004	(0.00)	-0.033	(0.86)	0.181	(0.28)	-0.214	(0.22)	-0.387	(0.03)	0.070	(0.72)	0.043	(0.29)
May-08	-0.001	(0.00)	-0.197	(0.27)	0.166	(0.33)	-0.127	(0.45)	-0.458	(0.01)	-0.042	(0.82)	0.060	(0.23)
Jun-08	-0.002	(0.00)	0.498	(0.00)	-0.121	(0.51)	0.000	(1.00)	-0.410	(0.05)	0.162	(0.37)	0.116	(0.11)
Jul-08	-0.004	(0.00)	0.378	(0.02)	-0.014	(0.92)	-0.104	(0.53)	-0.265	(0.13)	0.090	(0.58)	0.205	(0.03)
Aug-08	-0.005	(0.01)	-0.039	(0.81)	0.175	(0.22)	-0.104	(0.46)	-0.364	(0.02)	0.085	(0.58)	0.136	(0.09)
Sep-08	-0.005	(0.01)	-0.160	(0.36)	0.182	(0.24)	-0.102	(0.47)	-0.349	(0.02)	0.030	(0.85)	0.115	(0.12)
Oct-08	-0.004	(0.00)	-0.617	(0.00)	-0.023	(0.90)	-0.041	(0.80)	-0.370	(0.02)	-0.057	(0.72)	0.126	(0.10)
Nov-08	0.005	(0.00)	-0.074	(0.69)	0.283	(0.12)	0.065	(0.72)	-0.220	(0.18)	0.081	(0.63)	-0.018	(0.52)
Dec-08	0.004	(0.00)	-0.104	(0.55)	0.259	(0.13)	0.062	(0.73)	-0.237	(0.19)	0.048	(0.77)	-0.021	(0.53)
Jan-09	-0.004	(0.00)	-0.088	(0.67)	0.054	(0.79)	-0.181	(0.39)	-0.288	(0.20)	0.025	(0.92)	-0.084	(0.82)
Feb-09	0.002	(0.00)	0.032	(0.08)	0.003	(0.99)	-0.064	(0.76)	-0.151	(0.49)	0.014	(0.95)	-0.063	(0.74)
Mar-09	0.010	(0.01)	-0.456	(0.02)	-0.335	(0.12)	-0.200	(0.39)	-0.018	(0.94)	0.206	(0.35)	-0.067	(0.75)
Apr-09	0.011	(0.01)	-0.587	(0.00)	-0.459	(0.03)	-0.255	(0.27)	-0.052	(0.83)	0.161	(0.47)	-0.053	(0.68)
May-09	0.008	(0.01)	-0.560	(0.00)	-0.466	(0.02)	-0.266	(0.23)	0.008	(0.97)	0.193	(0.37)	-0.019	(0.52)
Jun-09	0.006	(0.00)	-0.572	(0.00)	-0.048	(0.02)	-0.035	(0.16)	-0.035	(0.88)	0.216	(0.31)	-0.020	(0.53)
Jul-09	0.005	(0.00)	-0.065	(0.70)	-0.246	(0.16)	-0.109	(0.54)	0.042	(0.81)	0.147	(0.43)	-0.031	(0.58)
Aug-09	0.006	(0.01)	-0.324	(0.06)	-0.286	(0.11)	-0.141	(0.44)	0.010	(0.96)	0.154	(0.38)	-0.026	(0.56)
Sep-09	0.006	(0.01)	-0.615	(0.00)	-0.488	(0.02)	-0.277	(0.19)	-0.037	(0.85)	0.168	(0.33)	0.005	(0.42)
Oct-09	0.003	(0.00)	-0.535	(0.00)	-0.409	(0.04)	-0.214	(0.29)	0.008	(0.97)	0.186	(0.27)	-0.011	(0.49)
Nov-09	0.006	(0.01)	-0.780	(0.00)	-0.700	(0.00)	-0.503	(0.04)	-0.217	(0.31)	0.073	(0.67)	0.000	(0.44)
Dec-09	-0.002	(0.00)	-0.623	(0.00)	-0.547	(0.01)	-0.320	(0.14)	-0.054	(0.79)	0.165	(0.32)	0.036	(0.31)
Jan-10	-0.001	(0.00)	-0.448	(0.01)	-0.391	(0.04)	-0.163	(0.40)	0.058	(0.75)	0.208	(0.21)	0.002	(0.43)
Feb-10	-0.002	(0.00)	-0.760	(0.00)	-0.780	(0.00)	-0.507	(0.03)	-0.232	(0.27)	0.066	(0.68)	0.034	(0.32)
Mar-10	0.005	(0.00)	0.182	(0.26)	-0.376	(0.02)	0.102	(0.54)	0.077	(0.62)	0.147	(0.35)	0.045	(0.28)
Apr-10	0.005	(0.00)	-0.210	(0.21)	-0.317	(0.06)	-0.034	(0.84)	0.092	(0.57)	0.211	(0.18)	0.040	(0.30)
May-10	0.004	(0.00)	-0.287	(0.10)	-0.357	(0.05)	-0.649	(0.71)	0.078	(0.65)	0.217	(0.18)	0.031	(0.32)
Jun-10	0.004	(0.00)	-0.373	(0.03)	-0.411	(0.03)	-0.125	(0.51)	0.053	(0.76)	0.200	(0.23)	0.034	(0.31)
Jul-10	0.001	(0.00)	0.326	(0.06)	-0.469	(0.01)	0.175	(0.36)	0.096	(0.59)	0.124	(0.45)	0.055	(0.25)
Aug-10	-0.002	(0.00)	-0.103	(0.54)	-0.292	(0.09)	0.010	(0.95)	0.184	(0.28)	0.246	(0.15)	0.080	(0.18)
Sep-10	0.000	(0.00)	-0.312	(0.07)	-0.320	(0.07)	-0.062	(0.74)	0.139	(0.43)	0.252	(0.15)	0.061	(0.23)
Oct-10	-0.001	(0.00)	-0.245	(0.15)	-0.276	(0.12)	-0.043	(0.81)	0.156	(0.37)	0.255	(0.15)	0.056	(0.24)
Nov-10	0.000	(0.00)	-0.260	(0.14)	-0.270	(0.12)	-0.038	(0.83)	0.165	(0.34)	0.257	(0.14)	0.058	(0.24)
Dec-10	-0.002	(0.00)	-0.251	(0.14)	-0.252	(0.15)	-0.056	(0.76)	0.189	(0.28)	0.238	(0.17)	0.049	(0.27)

Table 61: Regression estimates for Iliad Africa Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.023	(0.09)	0.591	(0.00)	-0.322	(0.12)	0.209	(0.31)	-0.099	(0.64)	-0.285	(0.13)	0.099	(0.14)
Feb-08	-0.010	(0.37)	0.916	(0.00)	-0.606	(0.02)	0.443	(0.10)	-0.076	(0.75)	-0.270	(0.19)	0.121	(0.11)
Mar-08	-0.009	(0.41)	0.782	(0.00)	-0.415	(0.07)	0.244	(0.29)	0.073	(0.74)	-0.316	(0.07)	0.131	(0.09)
Apr-08	-0.004	(0.70)	0.558	(0.00)	-0.013	(0.52)	0.064	(0.76)	0.211	(0.30)	-0.333	(0.07)	0.040	(0.29)
May-08	-0.004	(0.73)	0.554	(0.00)	-0.139	(0.46)	0.080	(0.68)	0.204	(0.31)	-0.331	(0.06)	0.026	(0.34)
Jun-08	-0.001	(0.91)	0.484	(0.01)	-0.083	(0.65)	0.019	(0.92)	0.278	(0.13)	-0.347	(0.05)	0.039	(0.30)
Jul-08	0.002	(0.80)	0.860	(0.00)	-0.498	(0.04)	0.374	(0.12)	0.039	(0.86)	-0.158	(0.36)	0.004	(0.43)
Aug-08	0.003	(0.77)	0.545	(0.00)	-0.117	(0.54)	0.099	(0.61)	0.267	(0.17)	-0.196	(0.25)	0.037	(0.31)
Sep-08	0.001	(0.95)	0.492	(0.01)	-0.148	(0.44)	0.071	(0.72)	0.292	(0.14)	-0.229	(0.21)	0.003	(0.43)
Oct-08	0.002	(0.88)	0.455	(0.01)	-0.110	(0.56)	0.062	(0.75)	0.297	(0.13)	-0.233	(0.21)	0.004	(0.42)
Nov-08	0.015	(0.58)	-0.081	(0.69)	-0.237	(0.22)	0.051	(0.80)	0.470	(0.02)	0.079	(0.71)	0.079	(0.19)
Dec-08	0.007	(0.54)	0.709	(0.00)	-0.581	(0.02)	0.532	(0.06)	0.138	(0.62)	-0.197	(0.36)	0.074	(0.20)
Jan-09	0.017	(0.55)	-0.282	(0.10)	-0.268	(0.11)	0.079	(0.69)	0.471	(0.02)	0.113	(0.60)	0.078	(0.19)
Feb-09	0.004	(0.76)	0.624	(0.00)	-0.359	(0.09)	0.141	(0.52)	0.439	(0.10)	-0.299	(0.18)	0.058	(0.24)
Mar-09	0.004	(0.76)	0.622	(0.00)	-0.358	(0.09)	0.139	(0.51)	0.444	(0.04)	-0.302	(0.15)	0.130	(0.09)
Apr-09	0.004	(0.77)	0.634	(0.00)	-0.380	(0.06)	0.158	(0.45)	0.432	(0.04)	-0.291	(0.11)	0.132	(0.09)
May-09	0.006	(0.64)	0.555	(0.00)	-0.278	(0.13)	0.061	(0.76)	0.459	(0.03)	-0.273	(0.14)	0.115	(0.12)
Jun-09	0.008	(0.50)	0.711	(0.00)	-0.455	(0.03)	-0.455	(0.03)	0.208	(0.33)	-0.287	(0.11)	0.186	(0.04)
Jul-09	0.011	(0.40)	0.471	(0.01)	-0.217	(0.02)	-0.014	(0.94)	0.562	(0.00)	-0.314	(0.07)	0.212	(0.03)
Aug-09	0.007	(0.64)	0.242	(0.18)	-0.041	(0.79)	-0.101	(0.54)	0.603	(0.00)	-0.284	(0.12)	0.189	(0.04)
Sep-09	0.009	(0.58)	0.223	(0.19)	-0.058	(0.70)	-0.104	(0.51)	0.592	(0.00)	-0.271	(0.14)	0.187	(0.04)
Oct-09	0.006	(0.65)	0.484	(0.00)	-0.213	(0.19)	0.033	(0.84)	0.532	(0.00)	-0.334	(0.06)	0.204	(0.03)
Nov-09	-0.002	(0.88)	0.386	(0.03)	-0.141	(0.38)	0.071	(0.66)	0.493	(0.00)	-0.200	(0.24)	0.162	(0.06)
Dec-09	-0.003	(0.86)	0.267	(0.12)	-0.096	(0.54)	0.050	(0.75)	0.497	(0.00)	-0.132	(0.44)	0.149	(0.07)
Jan-10	-0.001	(0.98)	-0.595	(0.00)	-0.283	(0.12)	-0.130	(0.47)	0.426	(0.02)	0.227	(0.17)	0.167	(0.05)
Feb-10	0.004	(0.74)	0.399	(0.03)	-0.154	(0.35)	0.086	(0.61)	0.469	(0.01)	-0.228	(0.18)	0.145	(0.08)
Mar-10	0.006	(0.65)	0.433	(0.01)	-0.174	(0.30)	0.091	(0.59)	0.455	(0.01)	-0.240	(0.16)	0.133	(0.09)
Apr-10	0.008	(0.53)	0.424	(0.01)	-0.180	(0.27)	0.073	(0.66)	0.469	(0.01)	-0.218	(0.19)	0.156	(0.06)
May-10	0.016	(0.63)	-0.474	(0.01)	-0.182	(0.28)	-0.103	(0.54)	0.468	(0.01)	0.235	(0.17)	0.147	(0.07)
Jun-10	0.012	(0.70)	-0.451	(0.01)	-0.171	(0.31)	-0.098	(0.56)	0.472	(0.01)	0.225	(0.18)	0.148	(0.07)
Jul-10	0.008	(0.57)	0.380	(0.03)	-0.155	(0.33)	0.021	(0.90)	0.498	(0.00)	-0.215	(0.20)	0.153	(0.07)
Aug-10	0.009	(0.49)	0.469	(0.01)	-0.229	(0.18)	0.069	(0.69)	0.455	(0.01)	-0.224	(0.18)	0.159	(0.06)
Sep-10	0.015	(0.27)	0.345	(0.04)	-0.164	(0.29)	0.012	(0.93)	0.460	(0.01)	-0.203	(0.21)	0.150	(0.07)
Oct-10	0.016	(0.26)	0.308	(0.08)	-0.146	(0.34)	-0.001	(1.00)	0.467	(0.00)	-0.194	(0.23)	0.142	(0.08)
Nov-10	0.014	(0.19)	0.730	(0.00)	-0.649	(0.00)	0.422	(0.06)	0.108	(0.60)	-0.109	(0.50)	0.178	(0.05)
Dec-10	0.019	(0.17)	0.327	(0.05)	-0.202	(0.20)	-0.057	(0.72)	0.446	(0.01)	-0.219	(0.17)	0.170	(0.05)

Table 62: Regression estimates for Drdgold Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	0.010	(0.62)	0.320	(0.07)	0.026	(0.88)	-0.218	(0.19)	0.414	(0.03)	-0.144	(0.45)	0.125	(0.12)
Feb-08	-0.003	(0.93)	-0.326	(0.08)	-0.018	(0.92)	-0.143	(0.44)	0.442	(0.02)	0.113	(0.57)	0.160	(0.06)
Mar-08	-0.001	(0.95)	0.370	(0.03)	-0.029	(0.86)	-0.141	(0.40)	0.556	(0.00)	0.238	(0.21)	0.162	(0.06)
Apr-08	0.003	(0.88)	0.579	(0.00)	-0.275	(0.11)	-0.041	(0.82)	0.537	(0.01)	-0.361	(0.05)	0.179	(0.04)
May-08	0.005	(0.80)	0.518	(0.00)	-0.217	(0.19)	-0.187	(0.26)	0.589	(0.00)	-0.374	(0.05)	0.221	(0.02)
Jun-08	0.007	(0.70)	0.568	(0.00)	-0.237	(0.16)	-0.183	(0.28)	0.521	(0.00)	-0.373	(0.05)	0.189	(0.04)
Jul-08	0.003	(0.85)	0.767	(0.00)	-0.538	(0.01)	0.042	(0.84)	0.402	(0.05)	-0.411	(0.02)	0.286	(0.01)
Aug-08	0.005	(0.77)	0.708	(0.00)	-0.445	(0.02)	-0.042	(0.83)	0.497	(0.01)	-0.488	(0.00)	0.263	(0.01)
Sep-08	0.004	(0.80)	0.632	(0.00)	-0.359	(0.04)	-0.113	(0.53)	0.526	(0.00)	-0.487	(0.00)	0.255	(0.01)
Oct-08	0.013	(0.89)	-0.657	(0.00)	-0.478	(0.01)	-0.519	(0.01)	0.149	(0.42)	0.120	(0.45)	0.316	(0.00)
Nov-08	0.025	(0.65)	-0.369	(0.03)	-0.253	(0.13)	-0.272	(0.10)	0.354	(0.04)	0.118	(0.42)	0.282	(0.01)
Dec-08	0.003	(0.88)	0.379	(0.03)	-0.168	(0.23)	-0.160	(0.22)	0.431	(0.00)	-0.282	(0.08)	0.186	(0.04)
Jan-09	0.004	(0.79)	0.710	(0.00)	-0.381	(0.01)	-0.089	(0.52)	0.435	(0.00)	-0.431	(0.00)	0.254	(0.01)
Feb-09	0.002	(0.89)	0.740	(0.00)	-0.364	(0.03)	-0.110	(0.48)	0.442	(0.00)	-0.468	(0.00)	0.271	(0.01)
Mar-09	0.002	(0.91)	0.756	(0.00)	-0.370	(0.03)	-0.099	(0.56)	0.439	(0.01)	-0.474	(0.00)	0.215	(0.02)
Apr-09	0.005	(0.77)	0.727	(0.00)	-0.366	(0.03)	-0.144	(0.40)	0.470	(0.01)	-0.503	(0.00)	0.215	(0.02)
May-09	0.008	(0.62)	0.762	(0.00)	-0.425	(0.02)	-0.129	(0.47)	0.432	(0.01)	-0.493	(0.00)	0.224	(0.02)
Jun-09	0.004	(0.82)	0.713	(0.00)	-0.390	(0.04)	-0.126	(0.50)	0.467	(0.01)	-0.449	(0.01)	0.191	(0.04)
Jul-09	0.008	(0.62)	0.742	(0.00)	-0.408	(0.05)	-0.108	(0.61)	0.442	(0.03)	-0.507	(0.00)	0.160	(0.06)
Aug-09	0.007	(0.68)	0.720	(0.00)	-0.382	(0.05)	-0.129	(0.55)	0.446	(0.03)	-0.492	(0.01)	0.120	(0.11)
Sep-09	0.008	(0.62)	0.735	(0.00)	-0.432	(0.02)	-0.072	(0.71)	0.373	(0.05)	-0.451	(0.01)	0.138	(0.08)
Oct-09	0.011	(0.54)	0.745	(0.00)	-0.449	(0.02)	-0.001	(1.00)	0.304	(0.11)	-0.392	(0.02)	0.096	(0.15)
Nov-09	0.013	(0.45)	0.801	(0.00)	-0.537	(0.01)	0.088	(0.68)	0.253	(0.20)	-0.384	(0.02)	0.108	(0.13)
Dec-09	0.014	(0.41)	0.847	(0.00)	-0.581	(0.01)	0.131	(0.57)	0.238	(0.26)	-0.366	(0.03)	0.109	(0.13)
Jan-10	0.011	(0.50)	0.845	(0.00)	-0.605	(0.01)	0.135	(0.58)	0.243	(0.28)	-0.398	(0.02)	0.121	(0.11)
Feb-10	0.016	(0.36)	0.771	(0.00)	-0.499	(0.03)	0.058	(0.81)	0.291	(0.20)	-0.412	(0.02)	0.096	(0.15)
Mar-10	0.014	(0.43)	0.768	(0.00)	-0.472	(0.03)	0.019	(0.94)	0.314	(0.02)	-0.425	(0.02)	0.093	(0.16)
Apr-10	0.014	(0.40)	0.761	(0.00)	-0.450	(0.04)	-0.018	(0.94)	0.351	(0.11)	-0.434	(0.01)	0.112	(0.12)
May-10	0.013	(0.43)	0.794	(0.00)	-0.519	(0.02)	0.075	(0.74)	0.267	(0.20)	-0.382	(0.02)	0.121	(0.11)
Jun-10	0.011	(0.53)	0.722	(0.00)	-0.459	(0.02)	0.010	(0.96)	0.320	(0.11)	-0.398	(0.01)	0.115	(0.12)
Jul-10	0.011	(0.50)	0.725	(0.00)	-0.465	(0.02)	0.022	(0.92)	0.311	(0.12)	-0.395	(0.01)	0.105	(0.13)
Aug-10	0.010	(0.52)	0.729	(0.00)	-0.487	(0.02)	0.027	(0.90)	0.298	(0.13)	-0.379	(0.02)	0.114	(0.12)
Sep-10	0.012	(0.47)	0.776	(0.00)	-0.537	(0.01)	-0.091	(0.68)	0.272	(0.18)	-0.371	(0.02)	0.123	(0.10)
Oct-10	0.011	(0.50)	0.729	(0.00)	-0.475	(0.02)	-0.030	(0.89)	0.325	(0.10)	-0.388	(0.02)	0.120	(0.11)
Nov-10	0.009	(0.55)	0.792	(0.00)	-0.524	(0.01)	0.055	(0.80)	0.314	(0.12)	-0.420	(0.01)	0.155	(0.07)
Dec-10	0.007	(0.63)	0.764	(0.00)	-0.474	(0.02)	0.018	(0.93)	0.334	(0.09)	-0.435	(0.01)	0.155	(0.07)

Table 63: Regression estimates for Cashbuild Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.013	(0.24)	0.790	(0.00)	-0.629	(0.01)	0.433	(0.06)	-0.434	(0.05)	0.198	(0.28)	0.011	(0.40)
Feb-08	-0.005	(0.66)	0.860	(0.00)	-0.537	(0.02)	0.375	(0.13)	-0.406	(0.09)	0.245	(0.22)	0.009	(0.40)
Mar-08	-0.009	(0.39)	0.894	(0.00)	-0.682	(0.01)	0.402	(0.10)	-0.399	(0.09)	0.194	(0.31)	-0.006	(0.46)
Apr-08	-0.007	(0.47)	0.742	(0.00)	-0.500	(0.02)	0.257	(0.02)	-0.288	(0.18)	0.126	(0.49)	0.065	(0.42)
May-08	-0.026	(0.22)	-0.196	(0.23)	-0.107	(0.50)	-0.133	(0.42)	-0.221	(0.20)	-0.160	(0.36)	-0.021	(0.53)
Jun-08	-0.027	(0.29)	-0.315	(0.07)	-0.161	(0.34)	-0.203	(0.22)	-0.203	(0.23)	-0.177	(0.31)	-0.060	(0.71)
Jul-08	-0.006	(0.56)	0.660	(0.00)	-0.352	(0.09)	0.055	(0.79)	-0.208	(0.30)	-0.181	(0.29)	-0.039	(0.62)
Aug-08	-0.009	(0.41)	0.470	(0.01)	-0.229	(0.26)	0.010	(0.96)	-0.171	(0.39)	0.142	(0.41)	-0.073	(0.77)
Sep-08	-0.007	(0.46)	0.623	(0.00)	-0.358	(0.08)	0.115	(0.60)	-0.219	(0.30)	0.157	(0.37)	-0.072	(0.77)
Oct-08	-0.009	(0.44)	0.433	(0.02)	-0.168	(0.37)	-0.054	(0.78)	-0.126	(0.53)	0.111	(0.54)	-0.075	(0.78)
Nov-08	-0.009	(0.52)	0.117	(0.50)	-0.040	(0.82)	-0.113	(0.51)	-0.109	(0.53)	0.092	(0.61)	-0.105	(0.90)
Dec-08	-0.007	(0.61)	0.168	(0.34)	-0.066	(0.71)	-0.098	(0.57)	-0.118	(0.50)	0.135	(0.43)	-0.090	(0.84)
Jan-09	-0.011	(0.61)	-0.230	(0.17)	-0.196	(0.25)	-0.196	(0.25)	-0.163	(0.34)	0.095	(0.57)	-0.045	(0.64)
Feb-09	-0.015	(0.47)	-0.140	(0.42)	-0.193	(0.25)	-0.172	(0.31)	-0.104	(0.54)	0.093	(0.58)	-0.042	(0.63)
Mar-09	-0.008	(0.66)	-0.066	(0.70)	-0.258	(0.13)	-0.140	(0.39)	-0.119	(0.47)	0.031	(0.85)	-0.031	(0.58)
Apr-09	-0.008	(0.40)	0.584	(0.00)	-0.369	(0.08)	0.104	(0.63)	-0.171	(0.40)	0.140	(0.44)	-0.072	(0.76)
May-09	-0.024	(0.42)	-0.439	(0.02)	-0.321	(0.11)	-0.301	(0.13)	-0.027	(0.17)	-0.112	(0.54)	-0.094	(0.86)
Jun-09	-0.005	(0.57)	0.643	(0.00)	-0.361	(0.08)	0.024	(0.91)	-0.089	(0.67)	0.101	(0.57)	-0.058	(0.70)
Jul-09	-0.005	(0.65)	0.181	(0.28)	-0.025	(0.88)	-0.147	(0.39)	-0.128	(0.49)	0.111	(0.53)	-0.091	(0.84)
Aug-09	-0.006	(0.55)	0.528	(0.00)	-0.227	(0.24)	-0.065	(0.74)	-0.049	(0.80)	0.099	(0.57)	-0.107	(0.90)
Sep-09	-0.007	(0.50)	0.461	(0.01)	-0.151	(0.43)	-0.088	(0.64)	-0.051	(0.78)	-0.090	(0.59)	-0.104	(0.89)
Oct-09	-0.007	(0.41)	0.695	(0.00)	-0.415	(0.05)	0.151	(0.49)	-0.156	(0.45)	0.146	(0.37)	-0.097	(0.87)
Nov-09	-0.007	(0.35)	0.723	(0.00)	-0.515	(0.02)	0.209	(0.33)	-0.162	(0.43)	0.187	(0.25)	-0.051	(0.67)
Dec-09	-0.009	(0.25)	0.624	(0.00)	-0.430	(0.04)	0.121	(0.57)	0.120	(0.55)	0.197	(0.23)	-0.835	(0.81)
Jan-10	-0.009	(0.26)	0.601	(0.00)	-0.392	(0.05)	0.100	(0.63)	-0.087	(0.66)	0.185	(0.26)	-0.084	(0.82)
Feb-10	-0.009	(0.29)	0.589	(0.00)	-0.390	(0.06)	0.108	(0.61)	-0.110	(0.58)	0.183	(0.27)	-0.101	(0.88)
Mar-10	-0.013	(0.28)	0.169	(0.33)	-0.041	(0.81)	-0.170	(0.33)	0.009	(0.96)	0.104	(0.53)	-0.120	(0.94)
Apr-10	-0.007	(0.40)	0.649	(0.00)	-0.046	(0.03)	0.163	(0.45)	-0.127	(0.52)	0.212	(0.20)	-0.077	(0.79)
May-10	-0.005	(0.51)	0.646	(0.00)	-0.463	(0.02)	0.195	(0.36)	-0.180	(0.36)	0.271	(0.11)	-0.051	(0.67)
Jun-10	-0.004	(0.65)	0.655	(0.00)	-0.498	(0.02)	0.239	(0.27)	-0.203	(0.31)	0.268	(0.11)	-0.067	(0.74)
Jul-10	-0.005	(0.56)	0.651	(0.00)	-0.510	(0.02)	0.261	(0.23)	-0.231	(0.26)	0.281	(0.10)	-0.068	(0.75)
Aug-10	-0.002	(0.74)	0.707	(0.00)	-0.619	(0.00)	0.343	(0.11)	-0.325	(0.10)	0.339	(0.04)	0.036	(0.31)
Sep-10	0.001	(0.93)	0.603	(0.00)	-0.547	(0.01)	0.268	(0.19)	-0.319	(0.09)	0.314	(0.05)	0.017	(0.37)
Oct-10	-0.034	(0.38)	-0.834	(0.00)	-0.599	(0.00)	-0.562	(0.01)	-0.511	(0.01)	-0.323	(0.05)	-0.022	(0.54)
Nov-10	-0.041	(0.28)	-0.729	(0.00)	-0.586	(0.01)	-0.553	(0.01)	-0.439	(0.04)	-0.316	(0.08)	-0.067	(0.74)
Dec-10	-0.005	(0.51)	0.684	(0.00)	-0.682	(0.00)	0.355	(0.13)	-0.371	(0.08)	0.292	(0.11)	-0.033	(0.59)

Table 64: Regression estimates for MTN Group Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-08	-0.040	(0.00)	0.402	(0.01)	-0.183	(0.26)	0.364	(0.03)	-0.278	(0.09)	-0.335	(0.03)	0.232	(0.02)
Feb-08	-0.033	(0.00)	0.534	(0.00)	-0.346	(0.04)	0.494	(0.01)	-0.386	(0.03)	-0.266	(0.10)	0.238	(0.02)
Mar-08	-0.030	(0.00)	0.682	(0.00)	-0.517	(0.01)	0.524	(0.01)	-0.396	(0.06)	-0.238	(0.18)	0.160	(0.06)
Apr-08	-0.039	(0.00)	0.372	(0.02)	-0.179	(0.30)	0.212	(0.21)	-0.149	(0.38)	.-.4428	(0.01)	0.175	(0.05)
May-08	-0.029	(0.01)	0.638	(0.00)	-0.485	(0.01)	0.418	(0.03)	-0.232	(0.21)	-0.306	(0.07)	0.265	(0.01)
Jun-08	-0.044	(0.00)	0.205	(0.22)	0.117	(0.49)	0.041	(0.81)	-0.091	(0.59)	-0.361	(0.03)	0.040	(0.30)
Jul-08	-0.042	(0.00)	0.229	(0.17)	-0.117	(0.50)	0.037	(0.83)	-0.066	(0.70)	-0.352	(0.04)	0.028	(0.34)
Aug-08	-0.036	(0.01)	0.194	(0.30)	-0.328	(0.09)	0.142	(0.45)	-0.154	(0.41)	-0.179	(0.33)	-0.022	(0.54)
Sep-08	-0.056	(0.04)	-0.294	(0.08)	-0.410	(0.03)	-0.083	(0.67)	-0.123	(0.50)	-0.227	(0.21)	-0.012	(0.49)
Oct-08	-0.033	(0.07)	0.098	(0.58)	-0.169	(0.33)	0.081	(0.68)	-0.138	(0.48)	-0.162	(0.39)	-0.090	(0.84)
Nov-08	-0.032	(0.06)	0.132	(0.44)	-0.175	(0.32)	0.093	(0.60)	-0.143	(0.46)	-0.163	(0.40)	-0.086	(0.82)
Dec-08	-0.025	(0.12)	0.211	(0.23)	-0.135	(0.45)	0.090	(0.62)	-0.041	(0.81)	-0.192	(0.33)	-0.104	(0.89)
Jan-09	-0.021	(0.19)	0.133	(0.44)	-0.105	(0.55)	0.112	(0.53)	-0.029	(0.87)	-0.099	(0.57)	-0.012	(0.94)
Feb-09	-0.021	(0.20)	0.112	(0.51)	-0.110	(0.53)	0.112	(0.52)	-0.017	(0.92)	-0.105	(0.55)	-0.118	(0.94)
Mar-09	-0.036	(0.29)	-0.441	(0.02)	-0.361	(0.07)	-0.038	(0.85)	-0.023	(0.91)	-0.055	(0.75)	-0.099	(0.88)
Apr-09	-0.016	(0.58)	-0.290	(0.10)	-0.297	(0.12)	0.073	(0.70)	0.019	(0.92)	-0.008	(0.96)	-0.044	(0.64)
May-09	-0.028	(0.27)	-0.208	(0.26)	-0.330	(0.08)	0.131	(0.50)	-0.015	(0.94)	-0.023	(0.90)	-0.048	(0.66)
Jun-09	-0.010	(0.39)	0.518	(0.00)	-0.429	(0.03)	0.384	(0.06)	-0.195	(0.33)	0.023	(0.90)	-0.015	(0.51)
Jul-09	-0.015	(0.31)	0.256	(0.15)	-0.215	(0.23)	0.204	(0.27)	-0.106	(0.58)	-0.036	(0.84)	-0.089	(0.84)
Aug-09	-0.023	(0.34)	-0.232	(0.18)	-0.028	(0.11)	0.065	(0.72)	-0.054	(0.77)	-0.019	(0.92)	-0.087	(0.83)
Sep-09	-0.015	(0.27)	0.253	(0.15)	-0.183	(0.31)	0.188	(0.29)	-0.053	(0.76)	-0.052	(0.77)	-0.099	(0.87)
Oct-09	-0.016	(0.27)	0.242	(0.17)	-0.179	(0.32)	0.184	(0.31)	-0.050	(0.77)	-0.066	(0.70)	-0.099	(0.87)
Nov-09	-0.013	(0.25)	0.483	(0.01)	-0.335	(0.08)	0.266	(0.17)	-0.098	(0.61)	-0.038	(0.82)	-0.081	(0.80)
Dec-09	-0.014	(0.24)	0.430	(0.02)	-0.292	(0.12)	0.218	(0.25)	-0.084	(0.65)	-0.029	(0.87)	-0.098	(0.87)
Jan-10	-0.017	(0.21)	0.274	(0.12)	-0.220	(0.22)	0.171	(0.34)	-0.061	(0.73)	-0.038	(0.82)	-0.106	(0.90)
Feb-10	-0.030	(0.23)	-0.267	(0.13)	-0.282	(0.11)	0.040	(0.82)	-0.007	(0.97)	-0.035	(0.84)	-0.100	(0.88)
Mar-10	-0.009	(0.42)	0.516	(0.01)	-0.350	(0.08)	0.314	(0.12)	-0.109	(0.57)	-0.017	(0.92)	-0.084	(0.82)
Apr-10	-0.009	(0.47)	0.365	(0.04)	-0.249	(0.18)	0.254	(0.18)	-0.041	(0.83)	-0.030	(0.86)	-0.091	(0.85)
May-10	-0.007	(0.56)	0.375	(0.04)	-0.268	(0.15)	0.266	(0.16)	-0.041	(0.83)	-0.006	(0.97)	-0.092	(0.85)
Jun-10	-0.004	(0.71)	0.608	(0.00)	-0.052	(0.01)	0.427	(0.04)	-0.189	(0.34)	-0.091	(0.58)	-0.050	(0.67)
Jul-10	-0.005	(0.73)	0.109	(0.52)	-0.211	(0.21)	0.160	(0.34)	0.004	(0.98)	0.019	(0.91)	-0.101	(0.88)
Aug-10	-0.003	(0.85)	-0.090	(0.61)	-0.205	(0.23)	0.161	(0.34)	0.002	(0.99)	0.042	(0.80)	-0.103	(0.89)
Sep-10	-0.004	(0.69)	0.453	(0.01)	-0.434	(0.03)	0.274	(0.17)	-0.116	(0.55)	0.049	(0.78)	-0.094	(0.86)
Oct-10	-0.004	(0.72)	0.260	(0.13)	-0.301	(0.10)	0.131	(0.49)	-0.068	(0.71)	0.009	(0.96)	-0.106	(0.90)
Nov-10	-0.009	(0.63)	-0.302	(0.09)	-0.276	(0.12)	-0.041	(0.83)	-0.056	(0.76)	-0.003	(0.99)	-0.121	(0.94)
Dec-10	-0.007	(0.61)	0.071	(0.68)	-0.186	(0.29)	0.050	(0.77)	-0.044	(0.80)	0.007	(0.97)	-0.137	(0.98)

A.9 REGRESSION ESTIMATES FOR INDIVIDUAL STOCKS (JAN 2003 - DEC 2005)

Table 65: Regression estimates for Standard Bank Group Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-03	-0.036	(0.25)	-0.721	(0.00)	-0.547	(0.01)	-0.591	(0.00)	-0.458	(0.02)	-0.245	(0.14)	0.022	(0.36)
Feb-03	-0.036	(0.21)	-0.662	(0.00)	-0.483	(0.01)	-0.555	(0.00)	-0.408	(0.03)	-0.215	(0.18)	-0.024	(0.55)
Mar-03	-0.007	(0.37)	0.617	(0.00)	-0.454	(0.02)	0.015	(0.94)	-0.117	(0.53)	0.158	(0.33)	0.022	(0.35)
Apr-03	-0.009	(0.43)	0.102	(0.55)	-0.044	(0.80)	-0.271	(0.10)	-0.121	(0.48)	0.102	(0.54)	-0.032	(0.58)
May-03	-0.005	(0.50)	0.660	(0.00)	-0.581	(0.01)	0.178	(0.41)	-0.239	(0.22)	0.181	(0.27)	0.037	(0.30)
Jun-03	-0.006	(0.42)	0.374	(0.02)	-0.033	(0.06)	-0.183	(0.31)	-0.037	(0.83)	0.056	(0.72)	0.052	(0.26)
Jul-03	-0.015	(0.36)	-0.433	(0.01)	-0.232	(0.15)	-0.430	(0.01)	-0.244	(0.14)	-0.026	(0.87)	0.056	(0.25)
Aug-03	-0.016	(0.29)	-0.372	(0.04)	-0.146	(0.40)	-0.384	(0.02)	-0.204	(0.24)	-0.009	(0.96)	0.016	(0.28)
Sep-03	-0.014	(0.35)	-0.317	(0.06)	-0.240	(0.16)	-0.505	(0.00)	-0.220	(0.16)	-0.089	(0.56)	0.122	(0.11)
Oct-03	-0.010	(0.32)	0.041	(0.81)	-0.161	(0.31)	-0.434	(0.01)	-0.045	(0.78)	-0.037	(0.81)	0.095	(0.15)
Nov-03	-0.015	(0.28)	-0.311	(0.08)	-0.224	(0.21)	-0.503	(0.00)	-0.196	(0.26)	-0.050	(0.76)	0.092	(0.16)
Dec-03	-0.014	(0.28)	-0.187	(0.29)	-0.172	(0.33)	-0.509	(0.00)	-0.106	(0.55)	-0.037	(0.82)	0.113	(0.12)
Jan-04	-0.024	(0.21)	-0.414	(0.02)	-0.331	(0.07)	-0.628	(0.00)	-0.241	(0.20)	-0.144	(0.38)	0.140	(0.08)
Feb-04	-0.022	(0.27)	-0.397	(0.02)	-0.370	(0.04)	-0.620	(0.00)	-0.212	(0.25)	-0.232	(0.16)	0.182	(0.04)
Mar-04	-0.013	(0.19)	0.164	(0.33)	-0.157	(0.35)	-0.464	(0.00)	0.119	(0.49)	-0.131	(0.44)	0.146	(0.07)
Apr-04	-0.025	(0.18)	-0.311	(0.07)	-0.259	(0.15)	-0.552	(0.00)	-0.101	(0.56)	-0.162	(0.33)	0.140	(0.08)
May-04	-0.010	(0.24)	0.376	(0.03)	-0.170	(0.35)	-0.454	(0.01)	0.228	(0.19)	-0.151	(0.37)	0.138	(0.08)
Jun-04	-0.014	(0.24)	-0.045	(0.79)	-0.070	(0.68)	-0.456	(0.00)	0.012	(0.94)	-0.887	(0.59)	0.091	(0.16)
Jul-04	-0.024	(0.25)	-0.438	(0.01)	-0.297	(0.10)	-0.547	(0.00)	-0.214	(0.22)	-0.219	(0.18)	0.109	(0.13)
Aug-04	-0.023	(0.24)	-0.395	(0.02)	-0.255	(0.16)	-0.529	(0.00)	-0.203	(0.24)	-0.205	(0.21)	0.096	(0.15)
Sep-04	-0.005	(0.34)	0.908	(0.00)	-0.755	(0.00)	0.235	(0.37)	-0.216	(0.33)	0.147	(0.36)	0.117	(0.11)
Oct-04	-0.032	(0.15)	-0.410	(0.03)	-0.286	(0.13)	-0.524	(0.00)	-0.247	(0.18)	-0.257	(0.14)	0.068	(0.21)
Nov-04	-0.031	(0.16)	-0.406	(0.02)	-0.264	(0.15)	-0.519	(0.00)	-0.263	(0.15)	-0.271	(0.12)	0.079	(0.19)
Dec-04	-0.044	(0.19)	-0.530	(0.00)	-0.266	(0.12)	-0.516	(0.01)	-0.343	(0.08)	-0.318	(0.07)	0.080	(0.18)
Jan-05	-0.051	(0.18)	-0.529	(0.00)	-0.319	(0.09)	-0.501	(0.01)	-0.345	(0.07)	-0.339	(0.06)	0.069	(0.21)
Feb-05	-0.047	(0.26)	-0.558	(0.00)	-0.384	(0.04)	-0.543	(0.00)	-0.402	(0.03)	-0.355	(0.04)	0.098	(0.15)
Mar-05	-0.016	(0.12)	0.306	(0.07)	0.032	(0.85)	-0.336	(0.05)	0.058	(0.75)	0.034	(0.85)	-0.009	(0.48)
Apr-05	-0.016	(0.13)	0.285	(0.11)	0.044	(0.80)	-0.341	(0.05)	0.038	(0.83)	0.031	(0.86)	-0.004	(0.46)
May-05	-0.041	(0.14)	-0.427	(0.01)	-0.280	(0.11)	-0.401	(0.02)	-0.302	(0.09)	-0.277	(0.10)	0.043	(0.28)
Jun-05	-0.032	(0.37)	-0.455	(0.01)	-0.345	(0.04)	-0.414	(0.01)	-0.365	(0.03)	-0.311	(0.05)	0.093	(0.16)
Jul-05	-0.026	(0.02)	0.236	(0.13)	-0.098	(0.53)	-0.270	(0.07)	-0.126	(0.41)	-0.045	(0.75)	0.091	(0.16)
Aug-05	-0.056	(0.02)	-0.386	(0.02)	-0.239	(0.12)	-0.427	(0.01)	-0.372	(0.02)	-0.305	(0.04)	0.176	(0.05)
Sep-05	-0.010	(0.16)	0.885	(0.00)	-0.545	(0.02)	0.142	(0.52)	-0.261	(0.18)	0.236	(0.12)	0.150	(0.07)
Oct-05	-0.053	(0.06)	-0.480	(0.00)	-0.296	(0.06)	-0.335	(0.02)	-0.509	(0.00)	-0.289	(0.04)	0.191	(0.04)
Nov-05	-0.011	(0.08)	0.858	(0.00)	-0.455	(0.02)	0.246	(0.23)	-0.485	(0.01)	0.358	(0.01)	0.259	(0.01)
Dec-05	-0.011	(0.07)	0.825	(0.00)	-0.431	(0.03)	0.248	(0.22)	-0.487	(0.01)	0.339	(0.02)	0.232	(0.02)

Table 66: Regression estimates for Afgri Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-03	-0.016	(0.15)	0.337	(0.05)	-0.376	(0.03)	0.061	(0.74)	-0.246	(0.15)	-0.218	(0.15)	0.105	(0.13)
Feb-03	-0.015	(0.12)	0.442	(0.01)	-0.493	(0.01)	0.186	(0.33)	-0.364	(0.04)	-0.039	(0.81)	0.074	(0.20)
Mar-03	-0.021	(0.29)	-0.269	(0.11)	-0.256	(0.11)	0.123	(0.45)	0.287	(0.08)	-0.268	(0.10)	0.031	(0.32)
Apr-03	-0.016	(0.46)	-0.102	(0.55)	-0.158	(0.34)	-0.083	(0.61)	-0.259	(0.11)	-0.239	(0.15)	-0.027	(0.56)
May-03	-0.011	(0.54)	-0.090	(0.59)	0.131	(0.42)	-0.059	(0.73)	-0.257	(0.12)	-0.227	(0.17)	-0.038	(0.61)
Jun-03	-0.016	(0.34)	-0.046	(0.79)	-0.151	(0.37)	-0.125	(0.46)	-0.320	(0.06)	-0.221	(0.20)	-0.003	(0.45)
Jul-03	-0.006	(0.67)	0.068	(0.70)	-0.153	(0.39)	-0.085	(0.64)	-0.203	(0.25)	-0.088	(0.64)	-0.082	(0.81)
Aug-03	-0.009	(0.56)	0.006	(0.97)	-0.109	(0.53)	-0.111	(0.54)	-0.232	(0.20)	-0.145	(0.42)	-0.055	(0.69)
Sep-03	-0.009	(0.53)	0.046	(0.79)	-0.162	(0.35)	-0.077	(0.66)	-0.246	(0.18)	-0.183	(0.32)	-0.045	(0.64)
Oct-03	-0.010	(0.49)	0.071	(0.68)	-0.143	(0.40)	-0.100	(0.57)	-0.208	(0.23)	-0.191	(0.31)	-0.057	(0.70)
Nov-03	-0.008	(0.51)	0.274	(0.12)	-0.227	(0.20)	-0.012	(0.95)	-0.256	(0.15)	-0.113	(0.52)	-0.052	(0.67)
Dec-03	-0.008	(0.57)	0.014	(0.94)	-0.115	(0.49)	-0.090	(0.59)	-0.256	(0.13)	-0.177	(0.31)	-0.049	(0.66)
Jan-04	-0.011	(0.47)	0.002	(0.99)	-0.097	(0.56)	-0.089	(0.60)	-0.234	(0.17)	-0.149	(0.33)	-0.070	(0.76)
Feb-04	-0.009	(0.50)	0.150	(0.38)	-0.149	(0.38)	-0.065	(0.70)	-0.224	(0.19)	-0.120	(0.48)	-0.066	(0.74)
Mar-04	-0.012	(0.44)	0.065	(0.71)	-0.105	(0.54)	-0.096	(0.57)	-0.217	(0.20)	-0.129	(0.46)	-0.077	(0.79)
Apr-04	-0.013	(0.41)	0.000	(1.00)	-0.085	(0.61)	-0.103	(0.54)	-0.224	(0.19)	-0.135	(0.44)	-0.082	(0.81)
May-04	-0.008	(0.50)	0.368	(0.04)	-0.261	(0.15)	-0.013	(0.95)	-0.217	(0.22)	-0.076	(0.66)	-0.056	(0.69)
Jun-04	-0.006	(0.60)	0.251	(0.15)	-0.187	(0.28)	-0.066	(0.70)	-0.223	(0.20)	-0.094	(0.58)	-0.048	(0.66)
Jul-04	-0.006	(0.64)	0.127	(0.46)	-0.144	(0.39)	-0.095	(0.57)	-0.229	(0.18)	-0.129	(0.45)	-0.047	(0.65)
Aug-04	-0.007	(0.62)	0.039	(0.82)	-0.123	(0.46)	-0.115	(0.49)	-0.225	(0.18)	-0.138	(0.41)	-0.051	(0.67)
Sep-04	-0.009	(0.27)	0.601	(0.00)	-0.522	(0.00)	0.304	(0.09)	-0.325	(0.05)	0.027	(0.85)	0.220	(0.02)
Oct-04	-0.018	(0.22)	-0.260	(0.05)	-0.081	(0.54)	-0.059	(0.65)	-0.148	(0.26)	-0.122	(0.35)	-0.060	(0.71)
Nov-04	-0.014	(0.23)	0.035	(0.83)	-0.039	(0.77)	-0.044	(0.73)	-0.142	(0.27)	-0.122	(0.35)	-0.097	(0.87)
Dec-04	-0.013	(0.16)	0.379	(0.03)	-0.238	(0.15)	-0.020	(0.88)	-0.146	(0.28)	-0.088	(0.49)	-0.069	(0.75)
Jan-05	-0.020	(0.17)	-0.143	(0.40)	-0.042	(0.80)	-0.153	(0.36)	-0.171	(0.19)	-0.129	(0.31)	-0.080	(0.80)
Feb-05	-0.007	(0.50)	0.307	(0.10)	-0.150	(0.42)	-0.157	(0.40)	-0.027	(0.88)	-0.057	(0.68)	-0.093	(0.85)
Mar-05	-0.001	(0.97)	-0.350	(0.05)	-0.091	(0.65)	-0.224	(0.28)	-0.165	(0.42)	0.045	(0.81)	-0.086	(0.82)
Apr-05	-0.003	(0.90)	-0.236	(0.17)	0.005	(0.98)	-0.214	(0.27)	-0.130	(0.51)	0.098	(0.59)	0.063	(0.73)
May-05	0.001	(0.93)	0.021	(0.90)	0.082	(0.62)	-0.204	(0.23)	-0.091	(0.62)	-0.071	(0.70)	-0.077	(0.79)
Jun-05	0.000	(0.99)	-0.105	(0.54)	0.079	(0.64)	-0.268	(0.11)	-0.203	(0.25)	0.070	(0.70)	-0.024	(0.54)
Jul-05	0.002	(0.93)	-0.250	(0.15)	0.018	(0.92)	-0.273	(0.12)	-0.217	(0.22)	0.090	(0.60)	-0.023	(0.54)
Aug-05	-0.006	(0.80)	-0.285	(0.10)	0.039	(0.82)	-0.245	(0.15)	-0.257	(0.15)	0.118	(0.49)	0.016	(0.38)
Sep-05	0.001	(0.93)	0.700	(0.00)	-0.268	(0.18)	-0.138	(0.49)	-0.015	(0.94)	-0.055	(0.74)	0.049	(0.27)
Oct-05	0.001	(0.95)	-0.169	(0.30)	0.155	(0.33)	-0.229	(0.14)	-0.260	(0.10)	0.092	(0.58)	0.033	(0.32)
Nov-05	0.001	(0.97)	-0.297	(0.09)	0.097	(0.55)	-0.216	(0.18)	-0.282	0.00	0.091	(0.57)	0.040	(0.29)
Dec-05	-0.001	(0.94)	-0.168	(0.32)	0.232	(0.17)	-0.207	(0.19)	-0.319	(0.05)	0.128	(0.42)	0.075	(0.20)

Table 67: Regression estimates for Iliad Africa Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-03	-0.050	(0.21)	-0.622	(0.00)	-0.255	(0.20)	0.125	(0.54)	0.041	(0.84)	0.105	(0.56)	-0.033	(0.59)
Feb-03	-0.067	(0.57)	-0.933	(0.00)	-0.762	(0.00)	-0.384	(0.13)	-0.298	(0.18)	0.015	(0.92)	0.111	(0.12)
Mar-03	-0.054	(0.13)	-0.467	(0.00)	-0.282	(0.10)	0.077	(0.65)	0.006	(0.97)	0.253	(0.08)	0.059	(0.24)
Apr-03	-0.047	(0.19)	-0.427	(0.01)	-0.274	(0.11)	0.095	(0.58)	-0.003	(0.99)	0.261	(0.08)	0.040	(0.29)
May-03	-0.054	(0.20)	-0.495	(0.01)	-0.404	(0.04)	0.029	(0.87)	-0.031	(0.86)	0.238	(0.11)	0.037	(0.30)
Jun-03	-0.054	(0.19)	-0.469	(0.01)	-0.388	(0.04)	0.066	(0.74)	-0.022	(0.90)	0.239	(0.11)	0.021	(0.36)
Jul-03	-0.063	(0.15)	-0.497	(0.01)	-0.429	(0.03)	0.030	(0.88)	-0.076	(0.69)	0.241	(0.11)	0.032	(0.32)
Aug-03	-0.061	(0.15)	-0.476	(0.01)	-0.406	(0.03)	0.043	(0.83)	-0.083	(0.66)	0.261	(0.12)	0.020	(0.37)
Sep-03	-0.067	(0.13)	-0.462	(0.01)	-0.387	(0.05)	0.067	(0.74)	-0.088	(0.64)	0.231	(0.18)	0.004	(0.42)
Oct-03	-0.079	(0.09)	-0.490	(0.01)	-0.445	(0.02)	0.032	(0.87)	-0.131	(0.48)	0.221	(0.19)	0.041	(0.29)
Nov-03	-0.071	(0.12)	-0.447	(0.01)	-0.409	(0.03)	0.083	(0.68)	-0.113	(0.54)	0.258	(0.13)	0.052	(0.26)
Dec-03	-0.078	(0.14)	-0.514	(0.00)	-0.464	(0.02)	0.034	(0.87)	-0.121	(0.52)	0.240	(0.15)	0.064	(0.22)
Jan-04	-0.048	(0.05)	0.028	(0.86)	-0.122	(0.44)	0.197	(0.21)	-0.157	(0.32)	0.201	(0.22)	-0.038	(0.61)
Feb-04	-0.068	(0.04)	-0.296	(0.08)	-0.223	(0.18)	0.143	(0.39)	-0.112	(0.50)	0.190	(0.25)	-0.028	(0.56)
Mar-04	-0.072	(0.05)	-0.333	(0.06)	-0.273	(0.13)	0.120	(0.48)	-0.115	(0.49)	0.199	(0.23)	-0.019	(0.53)
Apr-04	-0.087	(0.02)	-0.379	(0.03)	-0.353	(0.05)	0.044	(0.81)	-0.116	(0.48)	0.224	(0.16)	0.001	(0.44)
May-04	-0.128	(0.01)	-0.614	(0.00)	-0.556	(0.00)	-0.132	(0.51)	-0.215	(0.25)	0.199	(0.21)	0.070	(0.21)
Jun-04	-0.091	(0.08)	-0.525	(0.00)	-0.480	(0.02)	-0.030	(0.88)	-0.100	(0.59)	0.303	(0.08)	0.086	(0.17)
Jul-04	-0.108	(0.04)	-0.528	(0.00)	-0.513	(0.01)	-0.061	(0.77)	-0.130	(0.49)	0.263	(0.11)	0.065	(0.22)
Aug-04	-0.113	(0.04)	-0.543	(0.00)	-0.530	(0.01)	-0.082	(0.69)	-0.136	(0.48)	0.260	(0.12)	0.054	(0.25)
Sep-04	-0.098	(0.07)	-0.548	(0.00)	-0.507	(0.01)	-0.096	(0.64)	-0.097	(0.60)	0.287	(0.08)	0.096	(0.15)
Oct-04	-0.100	(0.05)	-0.511	(0.00)	-0.467	(0.02)	-0.065	(0.75)	-0.093	(0.61)	0.269	(0.10)	0.015	(0.39)
Nov-04	-0.104	(0.05)	-0.503	(0.01)	-0.468	(0.02)	-0.054	(0.79)	-0.063	(0.74)	0.276	(0.10)	0.000	(0.44)
Dec-04	-0.107	(0.04)	0.479	(0.01)	-0.466	(0.02)	-0.007	(0.97)	-0.054	(0.77)	0.256	(0.11)	0.018	(0.37)
Jan-05	-0.115	(0.03)	-0.519	(0.00)	-0.049	(0.01)	-0.036	(0.86)	-0.045	(0.81)	0.258	(0.11)	0.022	(0.36)
Feb-05	-0.105	(0.05)	-0.512	(0.00)	-0.456	(0.02)	-0.027	(0.89)	-0.020	(0.91)	0.232	(0.15)	0.023	(0.35)
Mar-05	-0.121	(0.03)	-0.457	(0.01)	-0.459	(0.02)	-0.099	(0.62)	-0.105	(0.56)	0.121	(0.44)	0.003	(0.43)
Apr-05	-0.082	(0.07)	-0.231	(0.18)	-0.364	(0.04)	0.008	(0.96)	-0.061	(0.72)	0.118	(0.44)	-0.040	(0.62)
May-05	-0.080	(0.07)	-0.210	(0.23)	-0.367	(0.04)	0.024	(0.89)	-0.059	(0.73)	0.120	(0.43)	-0.039	(0.61)
Jun-05	-0.080	(0.11)	-0.314	(0.07)	-0.485	(0.01)	0.044	(0.82)	-0.090	(0.60)	0.152	(0.31)	0.010	(0.40)
Jul-05	-0.042	(0.02)	0.678	(0.00)	-0.597	(0.00)	0.484	(0.02)	-0.309	(0.08)	0.007	(0.96)	0.048	(0.27)
Aug-05	-0.071	(0.02)	-0.035	(0.83)	-0.284	(0.08)	0.158	(0.34)	-0.036	(0.82)	-0.029	(0.85)	-0.015	(0.50)
Sep-05	-0.047	(0.02)	0.384	(0.03)	-0.306	(0.08)	0.269	(0.13)	-0.112	(0.51)	-0.100	(0.53)	-0.011	(0.49)
Oct-05	-0.045	(0.03)	0.421	(0.02)	-0.349	(0.06)	0.294	(0.10)	-0.125	(0.48)	-0.081	(0.61)	-0.003	(0.45)
Nov-05	-0.068	(0.13)	-0.266	(0.13)	-0.412	(0.03)	0.151	(0.45)	-0.002	(0.99)	0.080	(0.62)	0.012	(0.39)
Dec-05	-0.049	(0.02)	0.432	(0.01)	-0.332	(0.07)	0.319	(0.08)	-0.221	(0.22)	-0.084	(0.60)	0.022	(0.36)

Table 68: Regression estimates for Drdgold Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-03	-0.050	(0.47)	-0.369	(0.03)	-0.348	(0.05)	-0.114	(0.54)	0.150	(0.41)	-0.109	(0.54)	-0.003	(0.45)
Feb-03	-0.018	(0.54)	0.264	(0.12)	-0.137	(0.40)	0.107	(0.52)	0.221	(0.20)	-0.150	(0.38)	-0.040	(0.62)
Mar-03	-0.022	(0.61)	-0.099	(0.56)	-0.115	(0.49)	0.050	(0.76)	0.282	(0.08)	-0.115	(0.50)	-0.003	(0.46)
Apr-03	-0.008	(0.84)	0.066	(0.71)	-0.077	(0.65)	0.057	(0.74)	0.287	(0.09)	-0.063	(0.71)	-0.021	(0.53)
May-03	0.007	(0.96)	-0.538	(0.00)	-0.544	(0.01)	-0.378	(0.09)	0.011	(0.96)	-0.148	(0.38)	0.028	(0.34)
Jun-03	-0.009	(0.77)	0.320	(0.40)	-0.150	(0.40)	0.071	(0.69)	0.297	(0.11)	-0.116	(0.52)	-0.010	(0.49)
Jul-03	-0.014	(0.74)	0.003	(0.99)	-0.103	(0.53)	0.020	(0.91)	0.336	(0.05)	-0.034	(0.85)	-0.005	(0.45)
Aug-03	-0.013	(0.74)	0.002	(0.99)	-0.094	(0.56)	0.006	(0.95)	0.332	(0.05)	-0.055	(0.76)	0.003	(0.43)
Sep-03	-0.019	(0.59)	0.113	(0.51)	-0.106	(0.51)	0.018	(0.91)	0.328	(0.05)	-0.099	(0.57)	0.010	(0.40)
Oct-03	-0.020	(0.58)	0.087	(0.61)	-0.105	(0.52)	0.013	(0.94)	0.325	(0.05)	-0.091	(0.60)	0.009	(0.40)
Nov-03	-0.021	(0.57)	0.062	(0.72)	-0.114	(0.49)	0.013	(0.94)	0.321	(0.05)	-0.093	(0.58)	0.009	(0.41)
Dec-03	-0.021	(0.58)	0.056	(0.75)	-0.118	(0.47)	0.009	(0.96)	0.323	(0.05)	-0.092	(0.59)	0.012	(0.39)
Jan-04	-0.032	(0.50)	-0.094	(0.59)	-0.168	(0.31)	-0.024	(0.89)	0.302	(0.07)	-0.060	(0.73)	0.012	(0.39)
Feb-04	-0.026	(0.55)	-0.030	(0.86)	-0.151	(0.36)	0.000	(1.00)	0.321	(0.06)	-0.056	(0.74)	0.026	(0.34)
Mar-04	-0.019	(0.58)	0.177	(0.31)	-0.147	(0.38)	0.043	(0.79)	0.324	(0.06)	-0.115	(0.51)	0.023	(0.35)
Apr-04	-0.022	(0.44)	0.366	(0.04)	-0.187	(0.29)	0.076	(0.67)	0.298	(0.10)	-0.159	(0.35)	0.020	(0.37)
May-04	-0.047	(0.50)	-0.351	(0.04)	-0.330	(0.06)	-0.125	(0.49)	0.183	(0.39)	-0.027	(0.87)	0.042	(0.29)
Jun-04	-0.019	(0.59)	0.156	(0.36)	-0.114	(0.46)	0.071	(0.65)	0.263	(0.10)	-0.086	(0.60)	0.023	(0.43)
Jul-04	-0.014	(0.68)	0.185	(0.29)	-0.096	(0.56)	0.067	(0.67)	0.283	(0.08)	-0.109	(0.51)	0.101	(0.40)
Aug-04	-0.007	(0.86)	-0.030	(0.86)	-0.191	(0.23)	0.133	(0.41)	0.294	(0.06)	-0.014	(0.93)	0.074	(0.20)
Sep-04	0.003	(0.93)	0.172	(0.34)	-0.128	(0.44)	0.174	(0.30)	0.302	(0.07)	-0.078	(0.63)	0.068	(0.21)
Oct-04	-0.004	(0.92)	0.057	(0.74)	-0.114	(0.51)	0.129	(0.44)	0.329	(0.06)	-0.080	(0.64)	0.050	(0.26)
Nov-04	0.000	(1.00)	0.039	(0.82)	-0.088	(0.60)	0.105	(0.54)	0.345	(0.04)	-0.098	(0.58)	0.048	(0.27)
Dec-04	0.027	(0.86)	0.612	(0.00)	-0.638	(0.00)	-0.383	(0.08)	-0.021	(0.92)	-0.118	(0.49)	0.120	(0.11)
Jan-05	0.007	(0.95)	-0.505	(0.01)	-0.513	(0.01)	-0.269	(0.20)	0.075	(0.69)	-0.057	(0.74)	0.092	(0.16)
Feb-05	0.008	(0.65)	0.942	(0.00)	-0.707	(0.00)	0.641	(0.01)	-0.182	(0.39)	0.070	(0.66)	0.153	(0.07)
Mar-05	0.017	(0.52)	0.290	(0.09)	0.005	(0.98)	0.147	(0.36)	0.283	(0.08)	-0.099	(0.54)	0.067	(0.24)
Apr-05	0.015	(0.62)	0.105	(0.55)	0.027	(0.87)	0.133	(0.42)	0.293	(0.07)	-0.071	(0.67)	0.025	(0.35)
May-05	0.020	(0.49)	0.168	(0.34)	0.031	(0.86)	0.123	(0.47)	0.319	(0.07)	-0.076	(0.65)	0.037	(0.30)
Jun-05	0.016	(0.58)	0.121	(0.51)	0.109	(0.55)	-0.074	(0.68)	0.320	(0.09)	-0.071	(0.70)	-0.044	(0.64)
Jul-05	0.023	(0.43)	0.084	(0.63)	0.140	(0.44)	-0.103	(0.57)	0.337	(0.08)	-0.063	(0.74)	-0.030	(0.57)
Aug-05	0.028	(0.07)	0.715	(0.00)	-0.643	(0.00)	0.446	(0.04)	-0.077	(0.71)	-0.009	(0.95)	0.092	(0.16)
Sep-05	0.041	(0.09)	0.061	(0.72)	-0.065	(0.66)	-0.060	(0.69)	0.311	(0.06)	-0.154	(0.34)	0.007	(0.41)
Oct-05	0.043	(0.11)	-0.009	(0.96)	-0.076	(0.64)	-0.114	(0.45)	0.358	(0.02)	-0.173	(0.28)	0.060	(0.23)
Nov-05	0.074	(0.11)	-0.489	(0.01)	-0.270	(0.13)	-0.254	(0.13)	0.235	(0.13)	-0.016	(0.75)	0.091	(0.16)
Dec-05	0.009	(0.61)	0.744	(0.00)	-0.674	(0.00)	0.566	(0.01)	-0.058	(0.78)	0.078	(0.59)	0.195	(0.03)

Table 69: Regression estimates for Cashbuild Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-03	-0.015	(0.33)	0.882	(0.00)	-0.314	(0.10)	0.482	(0.01)	-0.683	(0.00)	0.249	(0.13)	0.211	(0.03)
Feb-03	-0.048	(0.37)	-0.333	(0.04)	0.157	(0.34)	0.310	(0.05)	-0.186	(0.25)	-0.353	(0.03)	0.216	(0.02)
Mar-03	-0.064	(0.35)	-0.396	(0.02)	0.060	(0.73)	0.260	(0.13)	-0.183	(0.29)	-0.376	(0.02)	0.215	(0.02)
Apr-03	-0.071	(0.28)	-0.379	(0.02)	0.020	(0.91)	0.286	(0.09)	-0.142	(0.39)	-0.352	(0.03)	0.204	(0.03)
May-03	-0.056	(0.33)	-0.303	(0.07)	0.038	(0.82)	0.315	(0.06)	-0.143	(0.40)	-0.346	(0.03)	0.192	(0.04)
Jun-03	-0.048	(0.38)	-0.262	(0.11)	0.083	(0.62)	0.312	(0.05)	-0.147	(0.39)	-0.346	(0.03)	0.174	(0.05)
Jul-03	-0.092	(0.28)	-0.441	(0.01)	-0.103	(0.57)	0.146	(0.41)	-0.118	(0.51)	-0.350	(0.04)	0.147	(0.07)
Aug-03	-0.076	(0.32)	-0.375	(0.02)	-0.057	(0.74)	0.191	(0.27)	-0.089	(0.61)	-0.350	(0.03)	0.152	(0.07)
Sep-03	-0.048	(0.41)	-0.289	(0.09)	0.002	(0.99)	0.258	(0.12)	-0.043	(0.80)	-0.277	(0.10)	0.108	(0.13)
Oct-03	-0.045	(0.51)	-0.345	(0.05)	-0.085	(0.64)	0.194	(0.26)	-0.071	(0.69)	-0.273	(0.11)	0.094	(0.15)
Nov-03	-0.037	(0.32)	-0.029	(0.87)	0.097	(0.57)	0.352	(0.04)	-0.067	(0.69)	-0.236	(0.17)	0.061	(0.23)
Dec-03	-0.037	(0.30)	0.008	(0.96)	0.107	(0.53)	0.357	(0.04)	-0.063	(0.72)	-0.235	(0.17)	0.053	(0.26)
Jan-04	-0.023	(0.20)	0.835	(0.10)	-0.481	(0.02)	0.625	(0.00)	-0.565	(0.01)	0.216	(0.21)	0.065	(0.22)
Feb-04	-0.027	(0.08)	0.894	(0.00)	-0.676	(0.00)	0.701	(0.00)	-0.595	(0.00)	0.252	(0.10)	0.167	(0.05)
Mar-04	-0.045	(0.01)	0.595	(0.00)	-0.456	(0.00)	0.467	(0.01)	-0.361	(0.04)	0.112	(0.42)	0.054	(0.25)
Apr-04	-0.055	(0.00)	0.509	(0.00)	-0.475	(0.01)	0.456	(0.01)	-0.363	(0.04)	0.114	(0.40)	-0.005	(0.46)
May-04	-0.074	(0.00)	0.432	(0.01)	-0.587	(0.00)	0.411	(0.01)	-0.364	(0.03)	0.103	(0.41)	0.080	(0.18)
Jun-04	-0.145	(0.00)	-0.457	(0.01)	-0.305	(0.07)	-0.044	(0.77)	-0.016	(0.90)	-0.185	(0.15)	0.060	(0.23)
Jul-04	-0.310	(0.00)	-1.087	(0.00)	-1.030	0.00	-0.682	(0.00)	-0.370	(0.01)	-0.210	(0.06)	0.308	(0.00)
Aug-04	-0.265	(0.00)	-0.989	(0.00)	-0.884	0.00	-0.527	(0.03)	-0.266	(0.13)	-0.154	(0.23)	0.141	(0.08)
Sep-04	-0.055	(0.09)	-0.071	(0.67)	-0.102	(0.50)	0.192	(0.20)	0.097	(0.51)	0.042	(0.77)	-0.028	(0.56)
Oct-04	-0.079	(0.06)	-0.375	(0.04)	-0.143	(0.43)	0.148	(0.38)	0.137	(0.29)	0.028	(0.85)	-0.029	(0.57)
Nov-04	-0.038	(0.10)	0.409	(0.02)	-0.374	(0.02)	0.342	(0.04)	-0.135	(0.38)	0.161	(0.21)	-0.056	(0.69)
Dec-04	-0.041	(0.07)	0.471	(0.01)	-0.463	(0.02)	0.421	(0.02)	-0.211	(0.19)	0.147	(0.32)	-0.054	(0.69)
Jan-05	-0.043	(0.05)	0.398	(0.02)	-0.435	(0.02)	0.330	(0.08)	-0.084	(0.63)	0.077	(0.62)	0.010	(0.40)
Feb-05	-0.091	(0.03)	-0.440	(0.01)	-0.266	(0.14)	-0.034	(0.85)	0.104	(0.56)	0.082	(0.61)	-0.051	(0.67)
Mar-05	-0.079	(0.05)	-0.336	(0.06)	-0.190	(0.29)	-0.025	(0.89)	0.087	(0.63)	0.070	(0.68)	-0.100	(0.88)
Apr-05	-0.079	(0.04)	-0.243	(0.16)	-0.221	(0.22)	-0.031	(0.86)	0.031	(0.86)	-0.028	(0.87)	-0.105	(0.90)
May-05	-0.051	(0.06)	0.237	(0.17)	-0.285	(0.10)	0.101	(0.57)	0.009	(0.96)	-0.002	(0.99)	-0.094	(0.86)
Jun-05	-0.078	(0.03)	-0.213	(0.22)	-0.200	(0.26)	-0.040	(0.82)	0.048	(0.79)	-0.023	(0.89)	-0.107	(0.90)
Jul-05	-0.078	(0.02)	-0.225	(0.20)	-0.204	(0.25)	-0.042	(0.81)	0.051	(0.77)	-0.023	(0.89)	-0.105	(0.90)
Aug-05	-0.048	(0.03)	0.423	(0.02)	-0.456	(0.02)	0.241	(0.23)	-0.076	(0.68)	0.045	(0.79)	-0.078	(0.79)
Sep-05	-0.046	(0.03)	0.452	(0.01)	-0.519	(0.01)	0.296	(0.15)	-0.152	(0.43)	0.132	(0.44)	-0.070	(0.76)
Oct-05	-0.102	(0.01)	-0.387	(0.03)	-0.274	(0.14)	-0.108	(0.56)	0.013	(0.94)	-0.016	(0.93)	-0.081	(0.80)
Nov-05	-0.094	(0.02)	-0.036	(0.05)	-0.233	(0.21)	-0.096	(0.61)	0.029	(0.87)	-0.010	(0.95)	-0.093	(0.85)
Dec-05	-0.162	(0.01)	-0.726	(0.00)	-0.611	(0.01)	-0.371	(0.11)	-0.173	(0.42)	-0.089	(61.00)	-0.085	(0.82)

Table 70: Regression estimates for MTN Group Limited

	α_0		α_1		α_2		α_3		α_4		α_5		R-bar	F-stat
Jan-03	-0.004	(0.86)	0.494	(0.01)	-0.127	(0.52)	0.012	(0.95)	0.123	(0.54)	-0.062	(0.74)	-0.058	(0.70)
Feb-03	-0.001	(0.98)	0.217	(0.22)	-0.061	(0.73)	0.007	(0.97)	0.142	(0.45)	-0.023	(0.90)	-0.074	(0.77)
Mar-03	-0.004	(0.86)	0.491	(0.01)	-0.160	(0.41)	0.078	(0.70)	0.103	(0.61)	-0.060	(0.75)	-0.080	(0.80)
Apr-03	0.004	(0.83)	0.867	(0.00)	-0.540	(0.02)	0.360	(0.14)	-0.175	(0.46)	0.067	(0.70)	-0.013	(0.50)
May-03	0.004	(0.79)	0.879	(0.00)	-0.560	(0.01)	0.385	(0.10)	-0.203	(0.36)	0.076	(0.66)	-0.006	(0.47)
Jun-03	0.008	(0.57)	0.821	(0.00)	-0.561	(0.01)	0.449	(0.05)	-0.261	(0.21)	0.090	(0.56)	0.010	(0.40)
Jul-03	0.012	(0.38)	0.643	(0.00)	-0.494	(0.02)	0.383	(0.06)	-0.158	(0.41)	0.026	(0.86)	-0.052	(0.67)
Aug-03	0.014	(0.34)	0.563	(0.00)	-0.492	(0.01)	0.290	(0.16)	-0.080	(0.68)	0.009	(0.95)	-0.079	(0.80)
Sep-03	0.023	(0.26)	0.033	(0.84)	-0.226	(0.17)	-0.006	(0.97)	0.034	(0.82)	0.002	(0.99)	-0.108	(0.91)
Oct-03	0.020	(0.39)	-0.022	(0.90)	-0.182	(0.27)	0.005	(0.98)	0.040	(0.79)	-0.011	(0.94)	-0.129	(0.96)
Nov-03	0.019	(0.43)	-0.044	(0.80)	-0.205	(0.25)	0.009	(0.96)	0.026	(0.88)	-0.023	(0.88)	-0.125	(0.95)
Dec-03	0.002	(0.89)	0.557	(0.00)	-0.427	(0.04)	0.295	(0.17)	-0.012	(0.95)	0.069	(0.69)	-0.011	(0.92)
Jan-04	0.000	(1.00)	0.331	(0.06)	-0.224	(0.23)	0.148	(0.44)	0.109	(0.56)	0.074	(0.67)	-0.109	(0.91)
Feb-04	-0.004	(0.77)	0.631	(0.00)	-0.496	(0.02)	0.401	(0.07)	-0.065	(0.75)	0.172	(0.35)	-0.092	(0.85)
Mar-04	-0.005	(0.75)	0.620	(0.00)	-0.486	(0.02)	0.386	(0.07)	-0.055	(0.79)	0.165	(0.36)	-0.089	(0.84)
Apr-04	-0.004	(0.81)	0.573	(0.00)	-0.440	(0.03)	0.333	(0.11)	-0.033	(0.87)	0.143	(0.43)	-0.097	(0.87)
May-04	-0.008	(0.50)	0.766	(0.00)	-0.713	(0.00)	0.587	(0.01)	-0.254	(0.21)	0.251	(0.13)	0.015	(0.38)
Jun-04	-0.007	(0.92)	-0.602	(0.00)	-0.577	(0.00)	-0.352	(0.08)	-0.150	(0.42)	-0.062	(0.69)	0.005	(0.42)
Jul-04	-0.004	(0.84)	0.120	(0.46)	-0.109	(0.47)	0.090	(0.56)	0.127	(0.40)	0.086	(0.58)	-0.089	(0.84)
Aug-04	-0.004	(0.77)	0.692	0.00	-0.449	(0.02)	0.258	(0.16)	-0.016	(0.93)	0.074	(0.62)	-0.053	(0.68)
Sep-04	-0.004	(0.77)	0.445	(0.01)	-0.181	(0.33)	0.073	(0.67)	0.075	(0.64)	0.043	(0.78)	-0.101	(0.88)
Oct-04	-0.020	(0.73)	-0.551	(0.00)	-0.396	(0.04)	-0.195	(0.33)	-0.183	(0.32)	0.020	(0.89)	-0.094	(0.85)
Nov-04	-0.007	(0.73)	0.029	(0.86)	-0.024	(0.88)	0.073	(0.66)	-0.031	(0.85)	0.166	(0.29)	-0.116	(0.93)
Dec-04	-0.008	(0.56)	0.612	(0.00)	-0.310	(0.11)	0.161	(0.41)	-0.112	(0.55)	0.205	(0.21)	-0.083	(0.81)
Jan-05	-0.014	(0.24)	0.648	(0.00)	-0.334	(0.09)	0.243	(0.22)	-0.283	(0.14)	0.254	(0.11)	0.002	(0.43)
Feb-05	-0.031	(0.19)	-0.114	(0.46)	0.003	(0.99)	0.116	(0.46)	-0.180	(0.25)	0.055	(0.72)	-0.088	(0.83)
Mar-05	-0.024	(0.24)	0.060	(0.73)	0.028	(0.73)	0.114	(0.46)	-0.199	(0.21)	0.107	(0.47)	-0.083	(0.81)
Apr-05	-0.054	(0.18)	-0.389	(0.02)	-0.294	(0.09)	-0.017	(0.92)	-0.200	(0.22)	0.029	(0.85)	-0.041	(0.62)
May-05	-0.019	(0.30)	0.246	(0.15)	-0.075	(0.65)	0.156	(0.35)	-0.215	(0.17)	0.170	(0.28)	-0.053	(0.98)
Jun-05	-0.016	(0.21)	0.749	(0.00)	-0.442	(0.05)	0.356	(0.06)	-0.385	(0.04)	0.202	(0.17)	-0.008	(0.48)
Jul-05	-0.031	(0.16)	0.061	(0.71)	-0.001	(1.00)	0.084	(0.60)	-0.167	(0.29)	-0.010	(0.95)	-0.089	(0.83)
Aug-05	-0.027	(0.18)	0.130	(0.45)	-0.001	(1.00)	0.090	(0.57)	-0.171	(0.28)	0.001	(0.99)	-0.086	(0.83)
Sep-05	-0.035	(0.13)	0.016	(0.92)	-0.054	(0.75)	0.104	(0.51)	-0.150	(0.34)	-0.035	(0.83)	-0.082	(0.81)
Oct-05	-0.033	(0.18)	-0.016	(0.93)	-0.061	(0.72)	0.123	(0.47)	-0.154	(0.33)	-0.034	(0.83)	-0.083	(0.81)
Nov-05	-0.032	(0.09)	0.224	(0.20)	-0.074	(0.67)	0.130	(0.45)	-0.232	(0.19)	0.021	(0.90)	-0.074	(0.77)
Dec-05	-0.029	(0.12)	-0.254	(0.16)	-0.071	(0.69)	0.118	(0.51)	-0.216	(0.23)	0.012	(0.95)	-0.096	(0.86)

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