A Non-Random Walk down Canary Wharf

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Abstract

In this paper I perform a panel data analysis to evaluate whether financial technical indicators are able to predict stock market returns. By using a panel of 40 stocks taken from the Financial Times Stock Exchange (FTSE) observed in 2004, I test the ability of 75 amongst the most famous technical indicators used by traders to predict next-day returns. Surprisingly, results are robust in demonstrating that many of these are good predictors, supporting the validity of the technical analysis.

"A blindfolded monkey throwing darts at a newspaper's financial pages could select a portfolio that would do just as well as one carefully selected by the experts." (Prof. Burton G. Malkiel, "A Random Walk Down Wall Street")

1 Introduction

Is it possible for stock market returns to be predictable to same extend under the efficiency of financial markets hypothesis? This question has always been one of the biggest brainteaser in the literature of financial markets. If we had asked this question before the 80s we would have hardly encountered any academician who would have answered "yes". Before that time, almost the entire academic community believed in the Random Walk hypothesis, which states that stock market prices evolve according to a random walk and thus the prices of the stock market cannot be predicted. This idea, studied mostly in natural and physical sciences, found its first applications in the economic theory thanks to contributions by Samuelson (1965) who maintained that in an informationally efficient market (Fama, 1970) there is not any possibility to foresee market prices. Nevertheless, the belief on the existence of a strong relation between the Random Walk Hypothesis and the Efficiency Market Hypothesis was weakened by some authors (LeRoy 1973, Lucas 1978) who demonstrated that the Random Walk Hypothesis is nether a necessary nor a sufficient condition for rationally determined security prices. In the 1973, Burton Malkiel's famous book *A Random Walk down Wall Street* popularised the Random Walk idea and suggested

that investors would be far better off buying and holding an index fund than attempting to buy and sell individual securities or actively managed mutual funds. Therefore, no hope is left to market analysts who spend their days in search of a golden technical indicator or parameters taken from the fundamental analysis which are able to predict market's trends. Even though the author based his theory more on his feeling and experience than on mathematical proofs, the fame of the book is still notorious at present time. The book itself contains also a fierce critique to the technical and fundamental analyses, two disciplines which aims to find tools and indicators to predict market returns, the former by using charts and technical indicators (i.e. Relative Strength Index, Moving Averages) and the latter by using indicators derived by the balance-sheet (i.e. Price/Earnings ratios, ROI, ROC). Technical analysis, which is often seen by detractors more as a witchcraft than a true science, has always existed since financial markets were born and today there are many books teaching how to detect a market trend (Pring, 2003, Murphy,1999). For many years this collection of rules has seemed to loosing their validity against the more scientifically demonstrated Random Walk Theory, but from the 80s pioneering works by Lo and MacKinley (1988) started to demonstrate, from a scientifically point of view, that markets returns can be predicted to a certain degree and that the Random Walk Hypothesis can be rejected for recent US equity returns.

This paper shows how the Random Walk Hypothesis is not applicable to British equity markets contest. To demonstrate this I perform a panel data analysis of 75 indicators amongst the most famous used by technical analysts around the world for 40 companies listed in the FTSE. I use different econometrical techniques applied to panel data such as one-way and two-way clustered robust standard errors, fixed effects, GLS random effects, Newey-White standard errors and bootstrap robust standard errors and I show that many indicators are strongly significant in predicting next-day market returns.

Researches aiming to assess the predictability of stock market returns by using technical analysis have been already made in the literature[1]. Taylor and Allen (1992) reported the results of a questionnaire survey among chief foreign exchange dealers and discovered that at least 90 per cent of respondents place some weight on non-fundamental analysis when forming views at one or more time horizons, while a very high proportion of chief dealers view technical and fundamental analysis as complementary forms of analysis. Brock et al. (1992) tested two simple trading rules (Moving Average and trading range break) for the Dow Jones and discovered that returns obtained with these strategies were not compatible with the Random Walk Hypothesis. Osler (2002) demonstrated that "support" and "resistant" points are able to predict intraday trend interruptions in Intraday Exchange Rates. To the best of my knowledge this is the first attempt in the literature to systematically quantify the impact of financial market indicators on market returns.

With respect to the previous literature, my paper introduces at least three

[1] For example Daniel and Titman (2006) found that the book-to-market ratio forecasts returns because it is a good proxy for the intangible return and that a composite equity issuance measure, which is related to intangible returns, independently forecasts returns.

important novelties. First, the analysis uses a wide variety of indicators, some of them (e.g. Cole's Rally Day or Q-stick) never used before in an empirical paper. Second, regressions were performed under different hypothesis about standard errors, which are particularly tailored to capture idiosyncratic time and firm components. Last, it is the first time the an analysis on the validity of technical indicators was performed for the FTSE, one of the leading stock market indexes in the world.

2 The Random Walk Hypothesis (RWS)

In a nutshell the random walk hypothesis affirms that stock market prices evolve according to a random pattern. As a consequence stock market returns cannot be predicted. If we define the market return of asset i at time t as $r_{it} = \frac{p_t - p_{t-1}}{p_t}$,

where p_{it} is the closing price at time t, a sequence of random returns is a random walk (with drift) if

$$r_{it} = \delta_i + \varepsilon_{it} \qquad \varepsilon_{it} \sim iid(0, \sigma_\varepsilon) \tag{1}$$

That is, true returns at time $t+1$ vary around the expected returns at time t

$$E_t\left(r_{it+1}\right) = E_t\left(\delta_i\right) + E_t\left(\varepsilon_{it}\right) = \delta_i \tag{2}$$

Furthermore, let us define Ω_t as the information set at time t, which encompasses all the market information about opening prices p^o, closing prices p^c, high prices p^h, low prices p^l and volume v

$$\Omega_t = \left\{p_t^c, p_{t-1}^c, ...; p_t^o, p_{t-1}^o, ...; p_t^h, p_{t-1}^h, ...; p_t^l, p_{t-1}^l, ...; v_t, v_{t-1}, ...; \right\}$$

so that we can rewrite 2 as follows

$$E_t\left(r_{it+1}|\Omega_t\right) = E_t\left(r_{it+1}\right) \tag{3}$$

3 The Technical Analysis of Financial Markets

The technical analysis of financial markets is a technique which aims to identify price patterns and trends in financial markets in order to forecast future directions of security prices (Murphy (1999), Pring (2002))[2]. Technical analysts believe that market returns are predictable through the analysis of past data,

[2] The technical analysis is sometimes opposed to the foundamental analysis, another approach which aims to make financial forecasts by studying firms' financial statements, business health, management and competitors.

primarily price and volume. Moving from the Dow Theory[3] (Rhea,1932), the technical approach is based on three main premises

1. market action discounts everything;
2. prices move in trends and
3. history repeats itself.

Technicians believe that forecasting market prices is possible as long as price actions reflect shifts in demand and supply of market operators. The goal of charting price actions is to detect trends as soon as they appear, for the purpose of trading in the direction the trend is following. Technical analysis employs several trading rules and tools which can be divided in two types: **charts** and **indicators**. The most famous charts are the *barcharts*, the *Japanese candlesticks* and the *point and figure charts*. By analysing these figures it is possible to detect price patterns, usually divided in reversal and continuation patterns[4]. Otherwise, technical indicators should provide a more quantitative measure of trends. Usually they are categorised in *moving averages*, *momentum indicators* (i.e. *Relative Strength Index*), *volume indicators* (i.e. *Demand Index*) and *breadht indicators* (i.e. *advance/decline line*). From a strategical point of view, technical analysts believe that it is possible to beat the market if one is able to "read" indicators and figures, whilst supporters of the RWH maintain that the best strategy is simply the "buy and hold" one.

4 Empirical Evidence

4.1 Database

The panel includes 75 technical indicators calculated for 40 companies listed on the FTSE 100 in 2003 (see list in Appendix 1). Indicators were calculated by using AnalyzerXL^{TM} software, which exploit data from Yahoo.com remote database.

4.2 Econometric Technique

4.2.1 One-way and Two-way Error Component Models

The basic model I want to analyse is the following:

[3] The theory, based on some articles which Charles H. Dow wrote on the *Wall Street Journal* between 1900 and 1902, assumes that the majority of stocks follow an underlying market trend. To measure this trend, Dow built two indicators: the *Industrial Average* and the *Rail Average*, which later was renamed as *Transportation Average*

[4] The most recognised reversal patterns are: *head and shoulders, double tops and bottoms, broadening formations, spike tops and bottoms and rounding patterns.* Instead, the continuation patterns variety encompasses *triangles*, *flags*, *pennants*, *wedges* and *rectangles.*

$$r_{it+1} = \delta + \beta \boldsymbol{F}_g(\Omega_{it}) + \varepsilon_{it+1} \qquad i = 1, ..., N, t = 1, ...T \tag{4}$$

The object of the analysis is verifying whether the null hypothesis $H_0 : \beta = 0$ holds. If it does, then the contribution provided by the g-th indicator, based on the information set at time t is nil; otherwise, it gives a contribute to predict the next day return.

It is well known (Baltagi, 2008) that panel data applications may use different specifications for the disturbances. Most of them utilize a *one-way* error component model, with $\varepsilon_{it+1} = \gamma_i + \eta_{it+1}$, where γ_i is an unobservable firm specific effect[5] and η_{it+1} is the remainder disturbance. Then, 4 may be re-written in the following fashion:

$$r_{it+1} = \delta + \beta \boldsymbol{F}_g(\Omega_{it}) + \gamma_i + \eta_{it+1} \qquad \eta_{it+1} \sim IID(0, \sigma_\eta) \tag{5}$$

$\boldsymbol{F}_g(\Omega_{it})$ is assumed to be independent of ε_{it+1} for all i, t and g. Instead of an unobservable firm specific effect, a one-way error component model may contain an unobservable time specific effect, γ_t:

$$r_{it+1} = \delta + \beta \boldsymbol{F}_g(\Omega_{it}) + \gamma_t + \eta_{it+1} \qquad \eta_{it+1} \sim IID(0, \sigma_\eta) \tag{6}$$

Of course, we may want to consider the presence of both specific factors in the model (Hussain, 1969 and Nerlove, 1971). In this case we are referring to the *two-way* error component model:

$$r_{it+1} = \delta + \beta \boldsymbol{F}_g(\Omega_{it}) + \gamma_t + \gamma_i + \eta_{it+1} \qquad \eta_{it+1} \sim IID(0, \sigma_\eta) \tag{7}$$

The choice of the model is fundamental to obtain unbiased and consistent estimates. As demonstrated by Baltagi when the true model is fixed effects as in 5 or 6, OLS on 4 leads to biased and inconsistent estimates of regression parameters, because OLS does not take account of firm (time) dummies when they are actually relevant. The same consideration holds when the true model is 7: in this case both 5 and 6 (and, of course, 4) are biased and inconsistent because they ignore the presence of one of the two fixed effects. The presence of significant idiosyncratic effects can be seen *per se* as a violation of the Random Walk Hypothesis, because it recognises that unobserved characteristics of firms across time influence stock prices.

4.2.2 Fixed and Random Effects

Idiosyncratic effects may be fixed parameters or drown randomly from a large population. In the first case we have a **fixed effects model**, while in the second

[5] Examples of unobserved firm effects are the quality of management, firm's reputation and the strenght of the brend, while unobserved time effects could be rapresented by global economic trend or market sentiments.

a **random effects model**, under the assumption that $\gamma_i \sim IID(0, \sigma_\gamma)$ *or* $\gamma_t \sim IID(0, \sigma_\gamma)$, in the one-way case, and $\gamma_i \sim IID(0, \sigma_\gamma)$ *and* $\gamma_t \sim IID(0, \sigma_\gamma)$ in the two-way case. In the presence of fixed parameters we perform ordinary least squares (OLS) to obtain the Least Square Dummy Variable Estimator (LSDV), which is BLUE as long as $\eta_{it+1} \sim IID(0, \sigma_\eta I_{NT})$[6]. To obtain the OLS estimator we average over time

$$\overline{r}_{i.} = \delta + \beta \overline{F_g}(\Omega_{i.}) + \gamma_i + \overline{\eta}_{i.} \tag{8}$$

where $\overline{r}_{i.} = \sum_{t=2}^{T+1} \frac{r_{it}}{T}$, $\overline{F_g}(\Omega_{i.}) = \sum_{t=1}^{T} \frac{F_g(\Omega_{i.})}{T}$ and $\overline{\eta}_{i.} = \sum_{t=2}^{T+1} \frac{\eta_{i.}}{T}$.Subtracting 7 from 8 we obtain:

$$r_{it+1} - \overline{r}_{i.} = \beta \left(F_g(\Omega_{it}) - \overline{F_g}(\Omega_{i.}) \right) + \left(\eta_{it+1} - \overline{\eta}_{i.} \right) \tag{9}$$

and finally the set of estimators:

$$\begin{cases} \widehat{\beta}_{FE1} = \frac{\sum_i \sum_t \left(F_g(\Omega_{it}) - \overline{F_g}(\Omega_{i.}) \right)(r_{it+1} - \overline{r}_{i.})}{\sum_i \sum_t \left(F_g(\Omega_{it}) - \overline{F_g}(\Omega_{i.}) \right)\left(F_g(\Omega_{it}) - \overline{F_g}(\Omega_{i.}) \right)'} \\ \widehat{\delta} = \overline{r}_{..} - \widehat{\beta}_{FE1} \overline{F_g}(\Omega_{..}) \\ \widehat{\gamma_i} = \overline{r}_{i.} - \widehat{\delta} - \widehat{\beta}_{FE1} \overline{F_g}(\Omega_{..}) \end{cases}$$

The same result holds when we average over individuals. In a two-way error component regression model the OLS estimator is obtained by sweeping time and individual effects. The transformed model 9 becomes

$$\begin{aligned} &(r_{it+1} - \overline{r}_{i.} - \overline{r}_{.t} - \overline{r}_{..}) = \\ &\beta \left(F_g(\Omega_{it}) - \overline{F_g}(\Omega_{i.}) - \overline{F_g}(\Omega_{.t}) - \overline{F_g}(\Omega_{..}) \right) + \left(\eta_{it+1} - \overline{\eta}_{i.} - \overline{\eta}_{.t} - \overline{\eta}_{..} \right) \end{aligned} \tag{10}$$

and the new set of estimators is:

$$\begin{cases} \widehat{\beta}_{FE2} = \frac{\sum_i \sum_t \left(F_g(\Omega_{it}) - \overline{F_g}(\Omega_{i.}) - \overline{F_g}(\Omega_{.t}) - \overline{F_g}(\Omega_{..}) \right)(r_{it+1} - \overline{r}_{i.} - \overline{r}_{.t} - \overline{r}_{..})}{\sum_i \sum_t \left(F_g(\Omega_{it}) - \overline{F_g}(\Omega_{i.}) - \overline{F_g}(\Omega_{.t}) - \overline{F_g}(\Omega_{..}) \right)\left(F_g(\Omega_{it}) - \overline{F_g}(\Omega_{i.}) - \overline{F_g}(\Omega_{.t}) - \overline{F_g}(\Omega_{..}) \right)'} \\ \widehat{\delta} = \overline{r}_{..} - \widehat{\beta}_{FE2} \overline{F_g}(\Omega_{..}) \\ \widehat{\gamma_i} = (\overline{r}_{i.} - \overline{r}_{..}) - \widehat{\beta}_{FE2} \left(\overline{F_g}(\Omega_{i.}) - \overline{F_g}(\Omega_{..}) \right) \\ \widehat{\gamma_t} = (\overline{r}_{.t} - \overline{r}_{..}) - \widehat{\beta}_{FE2} \left(\overline{F_g}(\Omega_{.t}) - \overline{F_g}(\Omega_{..}) \right) \end{cases}$$

Under the random effects model OLS estimators are no longer efficient and are replaced by feasible generalised least squares (FGLS) estimates, with LSDV residuals (Amemiya, 1971). It can be demonstrated (*see* Baltagi, 2008) that the GLS estimator for fixed effects may be written as a matrix weighted average of within and between estimators

[6] It can be demonstrated that, if fixed effects are components of the model, OLS in 4 is biased and inconstistent (Baltagi, 2008).

$$\widehat{\beta}_{RE1} = W_1 \widehat{\beta}_{within} + (1 - W_1)\, \widehat{\beta}_{between}$$

where W_1 is a weighting matrix. For the two-way model the fixed effects estimator is a matrix weighted average of within, between individuals and between time-periods estimators

$$\widehat{\beta}_{RE2} = W_1 \widehat{\beta}_{within} + W_2 \widehat{\beta}_{bi} + (1 - W_1 - W_2)\, \widehat{\beta}_{bt}$$

Choosing between fixed and random effects is not easy. A test proposed by Hausman (1978) suggests to compare $\widehat{\beta}_{RE1}$ with $\widehat{\beta}_{within}$ because both of them are consistent under $H_0 : E(\varepsilon_{it+1}|F(\Omega_{it})) = 0$ but diverge in probability limits when the null hypothesis does not hold. The Hausman test statistic is given by:

$$h = \left(\widehat{\beta}_{RE1} - \widehat{\beta}_{within}\right)' \left[var\left(\widehat{\beta}_{RE1} - \widehat{\beta}_{within}\right)\right]^{-1} \left(\widehat{\beta}_{RE1} - \widehat{\beta}_{within}\right) \sim \chi^2_K \tag{11}$$

The Hausman's test for the two-way model is more difficult to derive since, as demonstrated by Kang (1985), because of the presence of two between estimators the one-way Hausman test cannot be generalised. Therefore, Kang suggested to use five testable hypothesis:

1. γ_i is fixed and test $E\left(\gamma_t|F(\Omega_{it})\right) = 0$ under $\widehat{\beta}_{within} - \widehat{\beta}_{bt}$.
2. γ_i is random and test $E\left(\gamma_t|F(\Omega_{it})\right) = 0$ under $\widehat{\beta}_{bt} - \widehat{\beta}_{RE2}$.
3. γ_t is fixed and test $E\left(\gamma_i|F(\Omega_{it})\right) = 0$ under $\widehat{\beta}_{within} - \widehat{\beta}_{bi}$.
4. γ_t is random and test $E\left(\gamma_i|F(\Omega_{it})\right) = 0$ under $\widehat{\beta}_{bi} - \widehat{\beta}_{RE2}$.
5. both γ_i and γ_t are fixed compared to both γ_i and γ_t are random such that $E\left(\gamma_i|F(\Omega_{it})\right) = E\left(\gamma_t|F(\Omega_{it})\right) = 0$ under $\widehat{\beta}_{RE2} - \widehat{\beta}_{within}$.

4.2.3 Robust and Clustered Robust Standard Errors

Things become more complicated when the model assumes that the disturbances are heteroskedastic and auto-correlated. In this case we are facing another case where OLS standard errors may be biased and inefficient, unless they are adjusted for possible dependence. More precisely, there could be two types of dependences; in fact, the residuals may be either correlated across time for a given firm or the daily residuals may be correlated across firms. Furthermore, we may also want to consider the existence of these two forms of dependency together. In the model I assume that both γ and η are independent of each other and that disturbances are correlated across observations of the same firm, but are independent across firms

$$corr\left(\varepsilon_{it},\varepsilon_{js}\right)=\begin{cases} 1 & for \quad i=j \quad and\ t=s \\ \rho_{\varepsilon}=\frac{\sigma_{\gamma}^{2}}{\sigma_{\varepsilon}^{2}} & for \quad i=j \quad and\ t\neq s \\ 0 & \forall \quad i\neq j \end{cases} \tag{12}$$

The same result holds assuming that the panel data structure contains only time effects.

When we allow for the presence of correlation between firms over time we follow Petersen (2006) who assumes the presence of temporary firm effects, where the dependence between residuals may decay as the time between them increases:

$$\eta_{it}=\begin{cases} \varsigma_{it} & if \quad t=1 \\ \varkappa\eta_{it-1}+\sqrt{1-\varkappa^{2}}\varsigma_{it} & if \quad t>1 \end{cases} \tag{13}$$

where $\varkappa$ is the first-order autocorrelation between η_{it} and η_{it-1}. The correlation of lag length k is:

$$\begin{aligned} Corr\left(\varepsilon_{it},\varepsilon_{it-k}\right) &= \frac{Cov\left(\gamma_{i}+\eta_{it},\gamma_{i}+\eta_{it-k}\right)}{\sqrt{Var\left(\gamma_{i}+\eta_{it}\right)Var\left(\gamma_{i}+\eta_{it-k}\right)}} \\ &= \rho_{\varepsilon}+\left(1-\rho_{\varepsilon}\right)\varkappa^{k} \end{aligned} \tag{14}$$

In the presence of heteroskedasticity in panel data the heteroskedasticity-robust (HR) covariance matrix estimator

$$\widehat{\Psi}=\frac{1}{nT-n-k}\sum_{i}\sum_{t}\widetilde{F\left(\Omega_{it}\right)}\widetilde{F\left(\Omega_{it}\right)}'\widetilde{\varepsilon}_{it+1}^{2} \tag{15}$$

$\left(\widetilde{F\left(\Omega_{it}\right)}=F\left(\Omega_{it}\right)-T^{-1}\sum_{s}F\left(\Omega_{is}\right)\widetilde{\varepsilon_{it+1}}=\varepsilon_{it+1}-T^{-1}\sum_{s}\varepsilon_{it+1}\right)$ is consistent in cross-section regression (White, 1980) but inconsistent with fixed T, as demonstrated by Stock and Watson (2006) who suggested the following bias-adjusted cluster estimator

$$\widehat{\widehat{\Psi}}=\left(\frac{T-1}{T-2}\right)\left(\widehat{\Psi}-A\right) \tag{16}$$

with $T>2$, where $A:=\frac{1}{(T-1)n}\sum_{i}\left(\frac{1}{T}\sum_{t}\widetilde{F\left(\Omega_{it}\right)}\widetilde{F\left(\Omega_{it}\right)}'\right)\frac{1}{T-1}\sum_{s}\widetilde{\varepsilon_{is+1}}$ measures the bias' magnitude. The correlation among disturbances is corrected by clustered standard errors, obtained by squaring the sum of $F\left(\Omega_{it}\right)\varepsilon_{it+1}$

$$S^{2}\left(\beta\right)=\frac{N(NT-1)\sum_{i}\left(\sum_{t}F\left(\Omega_{it}\right)\varepsilon_{it+1}\right)^{2}}{\left(NT-k\right)\left(N-1\right)\left(\sum_{i}\sum_{t}F\left(\Omega_{it}\right)\varepsilon_{it+1}\right)^{2}}$$

To address these biases researchers have used different approaches (Petersen, 2006): fixed effects or within estimators, OLS with adjusted standard errors for correlation within a cluster, Newey-West procedure (Newey and West, 1987) modified for panel data, clustered standard errors (Arellano, 1987)[7].

4.3 Results

[TABLES 1-7 ABOUT HERE]

Tables 1-6 show results of regressions. The first thing to notice is the high statistical significance of indicators. With **Rogers standard errors** we have 30 indicators statistically significant at 99% of the confidence interval, 11 at 95% and 5 at the 90%; only 29 indicators are not significant over this last threshold. Surprisingly enough we find the Bollinger%, the Chaikin Money Flows and the OBV oscillator indicators among the non-significant indicators. The surprise come from the fact that these indicators are among the most used indicators in technical analysis[8] and hardly analysts would say a linkage between these indicators and returns does not exist.

Once we move to consider the **two-way clustered robust standard errors** approach 27 indicators are statistically significant at 99% of the confidence interval, 6 at 95% and 6 at the 90%. On the whole, the total number of significant indicators is lower then the previous case, suggesting that probably the one-way approach underestimates the true standard errors. The number of statistical significant indicators raises again when we consider the **Newey - White** approach where 29 indicators are statistically significant at 99% of the confidence interval, 2 at 95% and 5 at the 90%. As for the panel data approaches we notice a sound increase in the number of significant indicators: well 48 indicators are significant at 99% of the confidence interval for **Fixed Effects** (31 for **Random Effects**), 1 at 95% (10 for Random Effects) and 2 at the 90% both for the Fixed and Random Effects. Columns 6 and 7 of table 4 report the results of the F-test, which tests the joint significance of firm effects, i.e. $H_0 : \gamma_1 = ... = \gamma_{N-1} = 0$. Since the null hypothesis is rejected only in 22 cases, for all the others the state dummies cannot be considered jointly significant. This means that the OLS estimates which omit these state dummies do not suffer from an omission variables problem and coefficients are still unbiased and consistent. The absence of fixed effects can be read as a proof which goes against the fundamental analysis which affirms that idiosyncratic features of a firm drive market returns. Not surprisingly this happens because returns are observed on a daily base. The higher the frequency with whom data are observed, the lower the impact of firms' structure (i.e. size, management,...) on returns.

[7] Instead, as demonstrated by Stock and Watson (2006), the conventional heteroskedasticity-robust variance matrix estimator for cross-section regression applied to the fixed effects estimator for panel data with serially uncorrelated errors is inconsistent if the number of time periods is fixed.

[8] For example, Bollinger bands are considered as one of the most effective indicators. They consist of a middle band being an N-period simple moving average, an upper band at K times an N-period standard deviation above the middle band, a lower band at K times an N-period standard deviation below the middle band aim to provide a relative definition of high and low

The sign of coefficients is another interesting result to analyse. Table 7 shows the number of positive and negative beta coefficients amongst the statistically significant indicators for every approach I used. The number of positive beta coefficients is consistently higher than the number of negative betas, suggesting the existence of an asymmetry in the ability by technical indicators of capturing the upside and downside trends. As a consequence, it seems that predictions should be more easily carried out when financial markets are experiencing "good news" rather than "bad news". As for the magnitude of the coefficient, results are not comparable amongst indicators, since each of them measures either different size (price, volume) or the same size but using different measurement scales. Therefore, we cannot say which indicators is more able to predict great changes in stock returns.

Finally, table 6 shows results of **bootstrap standard errors**. Bootstrap estimations were obtained by resampling observations (with replacement) from the data fifty times and using the variability in the slope coefficients as an estimate of their standard deviations. Since observations between firms could be correlated and then bootstrap standard errors are biased, I used the cluster option which draws clusters with replacement oppose observations with replacement.

5 Summary Conclusions

In this paper I performed a panel data analysis in order to demonstrate the validity of the technical analysis. By exploiting different hypothesis on the shape of the standard errors I run several regressions which clearly show the ability of some technical indicator in predicting the next day's market returns. I demonstrated that this result is robust across approaches and gives a clear view on the relation between indicators and returns as for the magnitude and the sign. Of course this work wishes to be only the beginning of a new strend of research, which aims to demonstrate from a scientific point of view the validity of the technical analysis. This method, in my opinion, has wrongly been considered by disciples of the random walk hypothesis as a mere hand-crafted approach to finance. It would be interesting to extend the analysis to a broader time interval and to other indexes. I wish this could be done in future investigations.

6 List of Companies

1. BP PLC
2. HSBC Holdings PLC
3. Vodafone Group PLC
4. Royal Dutch Shell PLC
5. Rio Tinto PLC

6. GlaxoSmithKline
7. Anglo American PLC
8. BG Group PLC
9. BHP Billiton PLC
10. Royal Bank of Scotland Group PLC
11. AstraZeneca PLC
12. Xstrata PLC
13. Tesco PLC
14. British American Tobacco PLC
15. Diageo PLC
16. Standard Chartered PLC
17. Barclays PLC
18. Imperial Tobacco Group PLC
19. Unilever PLC
20. Lloyds TSB Group PLC
21. BAE Systems PLC
22. BT Group PLC
23. HBOS PLC
24. Aviva PLC
25. Prudential PLC
26. SABMiller PLC
27. British Energy Group PLC
28. WM Morrison Supermarkets PLC
29. Compass Group PLC
30. International Power PLC
31. Reed Elsevier PLC
32. British Sky Broadcasting Group PLC
33. Legal & General Group PLC

34. United Utilities PLC
35. WPP Group PLC
36. J Sainsbury PLC
37. Marks & Spencer Group PLC
38. Pearson PLC
39. Lonmin Plc
40. Old Mutual PLC

7 List of Financial Technical Indicators

1. Acceleration
2. Acc/Dis
3. Advance Decline Line
4. Aroon Oscillator
5. Aroon Up
6. Avg.Chg.
7. Average Negative Change
8. Average Positive Change
9. Average True Range
10. Bollinger Band Down
11. Bollinger Band %
12. Bollinger Band Up
13. Bollinger Band Width
14. Breadth Advance/Decline
15. Chaikin A/D Osc.
16. Chaikin Money Flow
17. Chaikin Volatility
18. CMO
19. Cole's Rally Day

20. Cole's Reaction Day
21. Cutler's Relative Strenght Index
22. DEMA26
23. DEMA26 - MACD
24. DPO
25. DX
26. Ease Of Movement
27. Envelope
28. Exponential Moving Average
29. Exponential Moving Average Difference
30. Fosback's Unchanged Issues
31. Historical Volatility Indicator
32. Hughes Breadth Index
33. Lagged Exponential Moving Avgerage
34. Lagged Exponential Moving Avgerage Difference
35. Lagged Line Weighted Moving Avgerage
36. Lagged Line Weighted Moving Avgerage Difference
37. Lagged Moving Avgerage
38. Lagged Moving Average Difference
39. Lagged Value
40. Line Weighted Moving Averge
41. Line Weighted Moving Average Difference
42. MACD
43. McClellan Oscillator
44. McClellan Summ. Index
45. Momentum
46. Morris Daily Pressure
47. Morris Intraday Accumulator

48. Negative Changes Count
49. Negative Changes Sum
50. Nicoski Index
51. On Balance Volume - Raw
52. On Balance Volume Midpoint
53. On Balance Volume Oscillator
54. On Balance Volume with Average Volume
55. On Balance Volume
56. Positive and Negative Changes Counts Difference
57. PAIN
58. Price Volume Rank
59. Price Volume Trend
60. Qstick
61. TEMA26 - MACD
62. Tomas Demark -max
63. Tomas Demark -min
64. Up Volatility - Down Volatility
65. Up/Down Volume
66. Velocity
67. Volatility
68. Volume % +/- Average
69. Volume and Price Accumulator
70. Volume Line Variation
71. Volume Oscillator Points
72. Volume Rating
73. Volume Reversal Alerts
74. Volume Weighted RSI - MFI
75. Williams %R
76. Wilder Relative Strenght Index

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	Coef.	Std.	t	P>t	[95% Conf.	Interval]
const	0.0005297	0.0001756	3.02	0.004***	0.0001746	0.0008849
Acceleration	1.075346	0.7918289	1.36	0.182	-0.5262787	2.676971
const	0.0004904	0.0001854	2.64	0.012**	0.0001154	0.0008655
Acc/Dis	2.83E-09	1.10E-08	0.26	0.799	-1.95E-08	2.51E-08
const	0.0002923	0.0001113	2.63	0.012**	0.0000671	0.0005174
Advance Decline Line	0.0003203	0.0000133	24.11	0***	0.0002935	0.0003472
const	0.000529	0.0001777	2.98	0.005***	0.0001695	0.0008884
Aroon Osc.	0.0000347	3.54E-06	9.82	0***	0.0000276	0.0000419
const	-0.0039998	0.0002698	-14.82	0***	-0.0045456	-0.003454
Aroon Up	0.0000893	6.69E-06	13.35	0***	0.0000758	0.0001028
const	0.0005507	0.0001867	2.95	0.005***	0.0001731	0.0009283
Avg.Chg.	3.58585	0.1975353	18.15	0***	3.186297	3.985403
const	0.0018695	0.0011802	1.58	0.121	-0.0005176	0.0042566
Avg.Neg.Chg.	0.0813393	0.0825059	0.99	0.33	-0.0855446	0.2482232
const	-0.0009225	0.0009958	-0.93	0.36	-0.0029367	0.0010917
Avg.Pos.Chg.	0.0951017	0.0674295	1.41	0.166	-0.0412874	0.2314907
const	-0.0010654	0.0010887	-0.98	0.334	-0.0032675	0.0011366
Average True Range	0.1006575	0.0709636	1.42	0.164	-0.04288	0.244195
const	0.0006324	0.0002075	3.05	0.004***	0.0002127	0.0010521
Bollinger Band Down	-7.00E-12	3.36E-12	-2.08	0.044**	-1.38E-11	-2.02E-13
const	0.0009915	0.0007235	1.37	0.178	-0.0004718	0.0024549
Bollinger Band %	0.0178414	0.0359242	0.5	0.622	-0.0548222	0.090505
const	-0.0252247	0.0017551	-14.37	0***	-0.0287747	-0.0216747
Bollinger Band Up	0.0005149	0.0000378	13.63	0***	0.0004385	0.0005913
const	-0.0014273	0.0008194	-1.74	0.089*	-0.0030846	0.0002301
Bollinger Band Width	0.0755761	0.0328472	2.3	0.027**	0.0091364	0.1420158
const	0.0005498	0.0001829	3.01	0.005***	0.0001798	0.0009198
Breadth Adv./Decl.	1.35E-10	4.51E-10	0.3	0.767	-7.77E-10	1.05E-09
const	0.3804438	0.0615228	6.18	0***	0.2560023	0.5048853
Chaikin A/D Osc.	-0.7602834	0.1231657	-6.17	0***	-1.00941	-0.5111573
const	0.0005844	0.0001781	3.28	0.002***	0.0002241	0.0009446
Chaikin Money Flow	-5.48E-07	3.02E-06	-0.18	0.857	-6.65E-06	5.55E-06

const	0.0024243	0.0007251	3.34	0.002***	0.0009576	0.003891
Chaikin Volatility	-0.0020208	0.0009095	-2.22	0.032**	-0.0038605	-0.0001811
const	0.0005599	0.0001903	2.94	0.005***	0.000175	0.0009448
CMO	-2.59E-09	2.62E-11	-98.94	0***	-2.64E-09	-2.54E-09
const	0.0002214	0.0001233	1.8	0.08*	-0.0000279	0.0004707
Cole's Rally Day	0.0008224	0.0003284	2.5	0.017**	0.0001581	0.0014867
const	0.0034528	0.0004083	8.46	0***	0.002627	0.0042786
Cole's Reaction Day	-0.0126768	0.0011769	-10.77	0***	-0.0150574	-0.0102963
const	-0.0037664	0.0002664	-14.14	0***	-0.0043053	-0.0032276
Cutler's RSI	0.0176938	0.0015466	11.44	0***	0.0145656	0.020822
const	-0.0585672	0.011054	-5.3	0***	-0.080926	-0.0362084
DEMA26	0.0011874	0.0002131	5.57	0***	0.0007564	0.0016183
const	0.0004354	0.0001726	2.52	0.016**	0.0000862	0.0007846
DEMA26 - MACD	0.1852596	0.1158241	1.6	0.118	-0.0490167	0.4195359
const	0.0006072	0.0001956	3.1	0.004***	0.0002116	0.0010029
DPO	0.1570658	0.1066806	1.47	0.149	-0.0587161	0.3728477
const	0.0005547	0.0001804	3.08	0.004***	0.0001898	0.0009197
DX	0.9767822	0.007687	127.07	0***	0.9612339	0.9923306
const	dropped					
Ease Of Movement						
const	0.000564	0.0001842	3.06	0.004**	0.0001914	0.0009366
Envelope	9.58E-23	1.48E-23	6.46	0***	6.58E-23	1.26E-22
const	0.000536	0.0001776	3.02	0.004***	0.0001767	0.0008953
Exp.Mov.Avg.	0.0101905	0.0055255	1.84	0.073*	-0.0009859	0.021367
const	0.0001446	0.0001228	1.18	0.246	-0.0001038	0.000393
Exp.Mov.Avg.Diff.	0.622501	0.2943407	2.11	0.041**	0.0271407	1.217861
const	0.0006166	0.0002085	2.96	0.005***	0.0001949	0.0010383
Fosback's Unchanged Issues	0.8349874	0.5596752	1.49	0.144	-0.2970626	1.967037
const	0.003101	0.0004636	6.69	0***	0.0021633	0.0040387
Historical Volatility Indicator	-0.0026477	0.0004049	-6.54	0***	-0.0034668	-0.0018286
const	0.0006125	0.0002383	2.57	0.014**	0.0001305	0.0010945
Hughes Breadth Idx.	-1.101912	0.0531366	-20.74	0***	-1.209391	-0.9944327
const	dropped					
Lag.Exp.Mov.Avg.						
const	0.0005485	0.0001807	3.04	0.004***	0.0001831	0.0009139

Lag.Exp.Mov.Avg.Diff.	-0.0005553	0.0001552	-3.58	0.001***	-0.0008692	-0.0002413
const	0.0006084	0.0002386	2.55	0.015**	0.0001257	0.0010911
Lag.Line Weighted Mov.Avg.	-1.104059	0.0530986	-20.79	0***	-1.211461	-0.996657
const	0.0005478	0.0001804	3.04	0.004***	0.0001829	0.0009127
Lag.Line Weighted Mov.Avg.Diff.	-0.0002192	0.0001233	-1.78	0.083*	-0.0004686	0.0000301
const	0.0005427	0.0001755	3.09	0.004***	0.0001878	0.0008977
Lag.Mov.Avg.	-1.194365	0.0446103	-26.77	0***	-1.284598	-1.104132
const	0.0005482	0.0001806	3.04	0.004***	0.000183	0.0009135
Lag.Mov.Avg.Diff.	-0.0004274	0.000141	-3.03	0.004***	-0.0007125	-0.0001423
const	0.0005881	0.0001852	3.18	0.003***	0.0002135	0.0009627
Lag.Value	-1.097134	0.0559717	-19.6	0***	-1.210347	-0.9839202
const	0.0005475	0.0001799	3.04	0.004***	0.0001835	0.0009115
Line Weighted Mov.Avg.	-0.0001012	0.0000987	-1.03	0.311	-0.0003008	0.0000984
const	-0.0000458	0.0001052	-0.44	0.665	-0.0002586	0.000167
Line Weighted Mov.Avg.Diff.	1.354227	0.1152879	11.75	0***	1.121036	1.587419
const	0.0005293	0.0001592	3.32	0.002***	0.0002072	0.0008514
MACD	6.285568	1.157156	5.43	0***	3.944999	8.626138
const	0.0006453	0.000223	2.89	0.006***	0.0001942	0.0010964
McClellan Osc.	0.2267848	0.1248909	1.82	0.077*	-0.025831	0.4794006
const	0.0006316	0.0002247	2.81	0.008***	0.0001771	0.0010862
McClellan Summ. Idx.	0.2084971	0.0935682	2.23	0.032**	0.0192376	0.3977567
const	0.0005669	0.0001876	3.02	0.004***	0.0001873	0.0009464
Momentum	-0.0002534	0.0002527	-1	0.322	-0.0007645	0.0002577
const	0.0005583	0.0001821	3.07	0.004***	0.0001899	0.0009267
Morris Daily Pressure	1.44E-06	1.59E-06	0.9	0.372	-1.78E-06	4.66E-06
const	0.0040727	0.0013494	3.02	0.004***	0.0013433	0.0068021
Morris Intraday Accumulator	-0.0073053	0.0030713	-2.38	0.022**	-0.0135176	-0.001093
const	0.000546	0.0002562	2.13	0.039**	0.0000277	0.0010643
Neg.Chgs.Count	-7.89E+18	7.77E+16	-0.01	0.992	-1.58E+01	1.56E+15
const	0.0171207	0.0013058	13.11	0***	0.0144794	0.019762
Neg.Chgs.Sum	-0.003785	0.0003111	-12.17	0***	-0.0044142	-0.0031557
const	0.0036242	0.0012341	2.94	0.006***	0.0011279	0.0061205
Nicoski Idx.	0.0446892	0.0219797	2.03	0.049**	0.0002311	0.0891474
const	0.2481347	0.0266083	9.33	0***	0.1943145	0.301955
OBV - Raw	-0.2502639	0.0269283	-9.29	0***	-0.3047316	-0.1957962

const	0.0001727	0.0001413	1.22	0.229	-0.0001132	0.0004585
OBV Midpoint	1.33E-06	5.67E-07	2.35	0.024**	1.84E-07	2.48E-06
const	0.0004522	0.000182	2.48	0.017**	0.0000841	0.0008203
OBV Oscillator	8.78E-09	2.22E-08	0.39	0.695	-3.62E-08	5.38E-08
const	0.0002292	0.0002329	0.98	0.331	-0.000242	0.0007004
OBV with Average Volume	-0.0001289	0.0000158	-8.16	0***	-0.0001609	-0.000097
const	0.0005602	0.000184	3.04	0.004***	0.0001879	0.0009325
OBV	-0.0516661	0.0184048	-2.81	0.008***	-0.0888933	-0.0144389
const	0.0001727	0.0001413	1.22	0.229	-0.0001132	0.0004585
Pos.&Neg.Chgs.Counts Diff.	1.33E-06	5.67E-07	2.35	0.024**	1.84E-07	2.48E-06
const	0.0003503	0.0001939	1.81	0.079*	-0.0000419	0.0007426
PAIN	0.0021278	0.0001376	15.46	0***	0.0018495	0.0024061
const	0.0006747	0.0002426	2.78	0.008***	0.0001841	0.0011653
Price Volume Rank	2.08E-11	1.60E-11	1.3	0.201	-1.15E-11	5.31E-11
const	dropped					
Price Vol.Trend						
const	0.0000716	0.0003369	0.21	0.833	-0.00061	0.0007531
Qstick	-2.29E-08	2.20E-08	-1.04	0.305	-6.73E-08	2.16E-08
const	0.0009281	0.0003593	2.58	0.014**	0.0002013	0.0016548
TEMA26 - MACD	5.87E-07	3.35E-07	1.75	0.088*	-9.12E-08	1.26E-06
const	0.0005564	0.0001934	2.88	0.006***	0.0001653	0.0009475
Tomas Demark -max	0.1993881	0.1354189	1.47	0.149	-0.0745226	0.4732987
const	0.0008832	0.0003601	2.45	0.019**	0.0001548	0.0016116
Tomas Demark -min	-1.03E+06	6.65E+07	-1.54	0.131	-2.37E+06	3.19E+07
const	0.0006836	0.0001895	3.61	0.001***	0.0003004	0.0010669
Up Volatility - Down Volatility	-1.11E+11	6.33E+12	-1.76	0.087*	-2.39E+11	1.68E+12
const	0.0006363	0.0002054	3.1	0.004***	0.0002207	0.0010518
Up/Down Volume	7.30E-12	3.32E-12	2.2	0.034**	5.86E-13	1.40E-11
const	-0.0101132	0.0011969	-8.45	0***	-0.0125342	-0.0076922
Velocity	0.0102894	0.0012099	8.5	0***	0.0078421	0.0127368
const	0.0006234	0.0001772	3.52	0.001***	0.000265	0.0009818
Volatility	4.200094	0.2588185	16.23	0***	3.676584	4.723604
const	-0.0001251	0.0004036	-0.31	0.758	-0.0009414	0.0006913
Volume % +/- Average	-5.92E+06	4.41E+06	-1.34	0.187	-0.0000149	3.01E+06

const	dropped					
Volume & Price Accumulator						
const	0.0004173	0.0001874	2.23	0.032**	0.0000382	0.0007964
Volume Line Variation	-6.04E-09	1.23E-08	-0.49	0.626	-3.09E-08	1.88E-08
const	dropped					
Vol.Osc. Points						
const	0.0004138	0.0001843	2.25	0.03**	0.0000411	0.0007866
Volume Rating	6.65E-06	0.0000138	0.48	0.634	-0.0000214	0.0000346
const	dropped					
Volume Reversal Alerts						
const	0.0005444	0.00018	3.03	0.004***	0.0001804	0.0009085
Volume Weighted RSI - MFI	9.46E-08	6.81E-09	13.89	0***	8.08E-08	1.08E-07
const	-0.0000338	0.0001601	-0.21	0.834	-0.0003576	0.00029
Williams %R	-0.0000198	3.00E-06	-6.57	0***	-0.0000258	-0.0000137
const	-0.1837637	0.0158907	-11.56	0***	-0.2159058	-0.1516217
Wilder RSI	0.0036869	0.000321	11.49	0***	0.0030376	0.0043361

Table 1. OLS Regressions with Clustered (Rogers) Standard Errors – One dimension
This table reports White Standard Errors which are robust to within cluster correlation. The database was clustered by firm. (***) significant at the 99% C.I.; (**) significant at the 95% C. I.; (*) significant at the 90% C.I.

	Coef.	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
const	0.0005297	0.0004252	1.25	0.213	-0.0003037	0.0013631
Acceleration	1.075346	0.79529	1.35	0.176	-0.4835735	2.634266
const	0.0004904	0.0004403	1.11	0.265	-0.0003727	0.0013535
Acc/Dis	2.83E-09	1.26E-08	0.22	0.822	-2.18E-08	2.75E-08
const	0.0002923	0.0004139	0.71	0.48	-0.000519	0.0011036
Advance Decline Line	0.0003203	0.0000258	12.41	0***	0.0002697	0.0003709
const	0.000529	0.0004315	1.23	0.22	-0.0003168	0.0013748
Aroon Osc.	0.0000347	6.56E-06	5.29	0***	0.0000219	0.0000476
const	-0.0039998	0.0004749	-8.42	0***	-0.0049308	-0.0030689
Aroon Up	0.0000893	9.21E-06	9.69	0***	0.0000712	0.0001074
const	0.0005507	0.0003863	1.43	0.154	-0.0002065	0.001308
Avg.Chg.	3.58585	0.1903448	18.84	0***	3.212738	3.958962

const	0.0018695	0.0012246	1.53	0.127	-0.000531	0.00427
Avg.Neg.Chg.	0.0813393	0.0831953	0.98	0.328	-0.0817393	0.2444179
const	-0.0009225	0.0010533	-0.88	0.381	-0.0029872	0.0011422
Avg.Pos.Chg.	0.0951017	0.0674215	1.41	0.158	-0.0370573	0.2272606
const	-0.0010654	0.0011393	-0.94	0.35	-0.0032988	0.0011679
Average True Range	0.1006575	0.070953	1.42	0.156	-0.038424	0.2397389
const	0.0006324	0.0004344	1.46	0.145	-0.0002191	0.0014839
Bollinger Band Down	-7.00E+12	3.82E+13	-18.33	0***	-7.75E+12	-6.25E+12
const	0.0009915	0.0008093	1.23	0.221	-0.0005949	0.002578
Bollinger Band %	0.0178414	0.0363793	0.49	0.624	-0.0534689	0.0891517
const	-0.0252247	0.0017953	-14.05	0***	-0.0287438	-0.0217056
Bollinger Band Up	0.0005149	0.0000383	13.45	0***	0.0004399	0.0005899
const	-0.0014273	0.0008984	-1.59	0.112	-0.0031884	0.0003338
Bollinger Band Width	0.0755761	0.0331313	2.28	0.023	0.0106325	0.1405197
const	0.0005498	0.0004334	1.27	0.205	-0.0002997	0.0013994
Breadth Adv./Decl.	1.35E-10	4.63E-10	0.29	0.772	-7.73E-10	1.04E-09
const	0.3804438	0.056566	6.73	0***	0.2695637	0.4913239
Chaikin A/D Osc.	-0.7602834	0.1131588	-6.72	0***	-0.9820962	-0.5384706
const	0.0005844	0.0004268	1.37	0.171	-0.0002522	0.0014209
Chaikin Money Flow	-5.48E+07	3.64E+06	-0.15	0.88	-7.69E+06	6.60E+06
const	0.0024243	0.0012565	1.93	0.054*	-0.0000386	0.0048873
Chaikin Volatility	-0.0020208	0.0014643	-1.38	0.168	-0.0048911	0.0008495
const	0.0005599	0.0004347	1.29	0.198	-0.0002921	0.0014119
CMO	-2.59E+09	9.42E+11	-27.51	0***	-2.78E+09	-2.41E+09
const	0.0002214	0.0003207	0.69	0.49	-0.0004071	0.00085
Cole's Rally Day	0.0008224	0.0003286	2.5	0.012**	0.0001782	0.0014666
const	0.0034528	0.0005728	6.03	0***	0.0023299	0.0045757
Cole's Reaction Day	-0.0126768	0.0012299	-10.31	0***	-0.0150876	-0.010266
const	-0.0037664	0.000471	-8	0***	-0.0046897	-0.0028431
Cutler's RSI	0.0176938	0.0016008	11.05	0***	0.0145559	0.0208317
const	-0.0585672	0.0111503	-5.25	0***	-0.0804239	-0.0367106
DEMA26	0.0011874	0.0002149	5.52	0***	0.000766	0.0016087
const	0.0004354	0.0004237	1.03	0.304	-0.0003951	0.0012659
DEMA26 - MACD	0.1852596	0.1162421	1.59	0.111	-0.0425972	0.4131163
const	0.0006072	0.0004323	1.4	0.16	-0.0002401	0.0014546

DPO	0.1570658	0.1069325	1.47	0.142	-0.0525423	0.3666739
const	0.0005547	0.0001915	2.9	0.004***	0.0001794	0.0009301
DX	0.9767822	0.0077773	125.59	0***	0.9615372	0.9920272
const	dropped					
Ease Of Movement						
const	dropped					
Envelope						
const	0.000536	0.0004317	1.24	0.214	-0.0003102	0.0013822
Exp.Mov.Avg.	0.0101905	0.0056281	1.81	0.07*	-0.0008416	0.0212227
const	0.0001446	0.0003874	0.37	0.709	-0.0006148	0.000904
Exp.Mov.Avg.Diff.	0.622501	0.2955005	2.11	0.035**	0.0432639	1.201738
const	0.0006166	0.0004417	1.4	0.163	-0.0002492	0.0014824
Fosback's Unchanged Issues	0.8349874	0.5600322	1.49	0.136	-0.2627824	1.932757
const	0.003101	0.0018482	1.68	0.093*	-0.0005219	0.006724
Historical Volatility Indicator	-0.0026477	0.0018781	-1.41	0.159	-0.0063292	0.0010337
const	0.0006125	0.0003504	1.75	0.08*	-0.0000743	0.0012992
Hughes Breadth Idx.	-1.101912	0.055211	-19.96	0***	-1.210136	-0.9936875
const	dropped					
Lag.Exp.Mov.Avg.						
const	0.0005485	0.0004309	1.27	0.203	-0.0002961	0.0013931
Lag.Exp.Mov.Avg.Diff.	-0.0005553	0.0003174	-1.75	0.08*	-0.0011773	0.0000668
const	0.0006084	0.0003504	1.74	0.083*	-0.0000784	0.0012952
Lag.Line Weighted Mov.Avg.	-1.104059	0.0552311	-19.99	0***	-1.212323	-0.9957957
const	0.0005478	0.0004306	1.27	0.203	-0.0002964	0.0013919
Lag.Line Weighted Mov.Avg.Diff.	-0.0002192	0.0002198	-1	0.319	-0.0006501	0.0002117
const	0.0005427	0.0003543	1.53	0.126	-0.0001517	0.0012371
Lag.Mov.Avg.	-1.194365	0.0474918	-25.15	0***	-1.287458	-1.101272
const	0.0005482	0.0004307	1.27	0.203	-0.0002961	0.0013926
Lag.Mov.Avg.Diff.	-0.0004274	0.0002386	-1.79	0.073*	-0.000895	0.0000403
const	0.0005881	0.0003969	1.48	0.138	-0.0001899	0.0013662
Lag.Value	-1.097134	0.0524855	-20.9	0***	-1.200015	-0.9942521
const	0.0005475	0.0004303	1.27	0.203	-0.000296	0.0013911
Line Weighted Mov.Avg.	-0.0001012	0.0001515	-0.67	0.504	-0.0003982	0.0001958
const	-0.0000458	0.0003598	-0.13	0.899	-0.0007512	0.0006595
Line Weighted Mov.Avg.Diff.	1.354227	0.1169517	11.58	0***	1.12498	1.583475

const	0.0005293	0.0004218	1.25	0.21	-0.0002975	0.0013561
MACD	6.285568	1.141944	5.5	0***	4.047141	8.523996
const	0.0006453	0.0004487	1.44	0.15	-0.0002342	0.0015248
McClellan Osc.	0.2267848	0.1248056	1.82	0.069*	-0.017858	0.4714276
const	0.0006316	0.0004498	1.4	0.16	-0.0002501	0.0015134
McClellan Summ. Idx.	0.2084971	0.0933249	2.23	0.025**	0.0255626	0.3914317
const	0.0005669	0.0004426	1.28	0.2	-0.0003008	0.0014345
Momentum	-0.0002534	0.0002548	-0.99	0.32	-0.0007527	0.000246
const	0.0005583	0.0004315	1.29	0.196	-0.0002875	0.001404
Morris Daily Pressure	1.44E-06	1.62E-06	0.89	0.375	-1.74E-06	4.62E-06
const	0.0040727	0.0023286	1.75	0.08*	-0.0004919	0.0086373
Morris Intraday Accumulator	-0.0073053	0.0051468	-1.42	0.156	-0.0173941	0.0027835
const	0.000546	0.0004577	1.19	0.233	-0.0003512	0.0014432
Neg.Chgs.Count	-7.89E-18	1.00E+15	-0.01	0.994	-1.97E+15	1.96E+15
const	0.0171207	0.0014573	11.75	0***	0.0142641	0.0199773
Neg.Chgs.Sum	-0.003785	0.0003409	-11.1	0***	-0.0044532	-0.0031168
const	0.0036242	0.0012835	2.82	0.005***	0.0011083	0.0061401
Nicoski Idx.	0.0446892	0.0221531	2.02	0.044**	0.0012649	0.0881135
const	0.2481347	0.0256319	9.68	0***	0.1978913	0.2983782
OBV - Raw	-0.2502639	0.0259468	-9.65	0***	-0.3011246	-0.1994033
const	0.0001727	0.0004259	0.41	0.685	-0.0006621	0.0010074
OBV Midpoint	1.33E-06	5.38E-07	2.48	0.013**	2.77E-07	2.38E-06
const	0.0004522	0.0004383	1.03	0.302	-0.0004068	0.0013113
OBV Oscillator	8.78E-09	2.49E-08	0.35	0.725	-4.01E-08	5.76E-08
const	0.0002292	0.0004192	0.55	0.585	-0.0005925	0.0010509
OBV with Average Volume	-0.0001289	0.000016	-8.04	0***	-0.0001604	-0.0000975
const	dropped					
OBV						
const	0.0001727	0.0004259	0.41	0.685	-0.0006621	0.0010074
Pos.&Neg.Chgs.Counts Diff.	1.33E-06	5.38E-07	2.48	0.013**	2.77E-07	2.38E-06
const	0.0003503	0.0004034	0.87	0.385	-0.0004404	0.0011411
PAIN	0.0021278	0.000154	13.81	0***	0.0018259	0.0024297
const	0.0006747	0.0004516	1.49	0.135	-0.0002105	0.0015599
Price Volume Rank	2.08E-11	1.55E-11	1.34	0.179	-9.55E-12	5.11E-11

const	dropped					
Price Vol.Trend						
const	0.0000716	0.0005299	0.14	0.893	-0.0009672	0.0011103
Qstick	-2.29E+08	2.25E+08	-1.02	0.309	-6.69E+08	2.12E+08
const	0.0009281	0.0005326	1.74	0.081*	-0.000116	0.0019722
TEMA26 - MACD	5.87E-07	3.24E-07	1.81	0.07*	-4.81E-08	1.22E-06
const	0.0005564	0.0004266	1.3	0.192	-0.0002799	0.0013927
Tomas Demark -max	0.1993881	0.1357753	1.47	0.142	-0.0667575	0.4655336
const	0.0008832	0.0005329	1.66	0.097*	-0.0001613	0.0019277
Tomas Demark -min	-1.03E-06	6.41E-07	-1.6	0.11	-2.28E-06	2.31E-07
const	0.0006836	0.0004078	1.68	0.094*	-0.0001158	0.001483
Up Volatility - Down Volatility	-1.11E-11	5.74E-12	-1.94	0.053*	-2.24E-11	1.25E-13
const	0.0006363	0.0004328	1.47	0.142	-0.0002121	0.0014846
Up/Down Volume	7.30E-12	3.01E-13	24.22	0***	6.71E-12	7.89E-12
const	-0.0101132	0.0013648	-7.41	0***	-0.0127885	-0.0074379
Velocity	0.0102894	0.0013157	7.82	0***	0.0077104	0.0128685
const	0.0006234	0.0003919	1.59	0.112	-0.0001447	0.0013916
Volatility	4.200094	0.2587253	16.23	0***	3.692943	4.707245
const	-0.0001251	0.0005953	-0.21	0.834	-0.0012919	0.0010418
Volume % +/- Average	-5.92E-06	4.51E-06	-1.31	0.19	-0.0000148	2.93E-06
const	dropped					
Volume & Price Accumulator						
const	0.0004173	0.0004411	0.95	0.344	-0.0004473	0.001282
Volume Line Variation	-6.04E-09	1.34E-08	-0.45	0.652	-3.23E-08	2.02E-08
const	dropped					
Vol.Osc. Points						
const	0.0004138	0.0004525	0.91	0.36	-0.0004732	0.0013008
Volume Rating	6.65E-06	0.0000146	0.45	0.65	-0.000022	0.0000353
const	dropped					
Volume Reversal Alerts						
const	0.0005444	0.0004302	1.27	0.206	-0.0002987	0.0013876
Volume Weighted RSI - MFI	9.46E-08	8.67E-09	10.92	0***	7.76E-08	1.12E-07
const	-0.0000338	0.0005037	-0.07	0.946	-0.0010211	0.0009535
Williams %R	-0.0000198	8.58E-06	-2.3	0.021**	-0.0000366	-2.94E-06
const	-0.1837637	0.0159928	-11.49	0***	-0.2151126	-0.1524149

Wilder RSI	0.0036869	0.000323	11.42	0***	0.0030538	0.00432

Table 2. OLS regressions with Clustered Standard Errors – Two dimensions
The database was clustered by firm and day. This procedure allows for correlations among different firms in the same day and different days in the same firms. (***) significant at the 99% C.I.; (**) significant at the 95% C. I.; (*) significant at the 90% C.I.

	Coef.	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
const	0.0005297	0.0001574	3.37	0.001***	0.0002213	0.0008382
Acceleration	1.075346	1.036948	1.04	0.3	-0.9572682	3.107961
const	0.0004904	0.0002413	2.03	0.042**	0.0000175	0.0009633
Acc/Dis	2.83E-09	1.17E-08	0.24	0.81	-2.02E-08	2.58E-08
const	0.0002923	0.0001431	2.04	0.041**	0.0000118	0.0005728
Advance Decline Line	0.0003203	0.0001733	1.85	0.065*	-0.0000193	0.0006599
const	0.000529	0.0001572	3.37	0.001***	0.0002209	0.0008371
Aroon Osc.	0.0000347	4.35E-06	7.99	0***	0.0000262	0.0000432
const	-0.0039998	0.000299	-13.38	0***	-0.004586	-0.0034137
Aroon Up	0.0000893	6.60E-06	13.53	0***	0.0000764	0.0001022
const	0.0005507	0.0001405	3.92	0***	0.0002752	0.0008262
Avg.Chg.	3.58585	0.7100806	5.05	0***	2.193957	4.977743
const	0.0018695	0.0010115	1.85	0.065*	-0.0001133	0.0038523
Avg.Neg.Chg.	0.0813393	0.0655701	1.24	0.215	-0.0471905	0.2098691
const	-0.0009225	0.0010307	-0.9	0.371	-0.0029429	0.0010979
Avg.Pos.Chg.	0.0951017	0.0710304	1.34	0.181	-0.0441315	0.2343349
const	-0.0010654	0.0011503	-0.93	0.354	-0.0033203	0.0011894
Average True Range	0.1006575	0.0760336	1.32	0.186	-0.0483829	0.2496978
const	0.0006324	0.0001793	3.53	0***	0.000281	0.0009838
Bollinger Band Down	-7.00E-12	6.24E-12	-1.12	0.262	-1.92E-11	5.23E-12
const	0.0009915	0.0009136	1.09	0.278	-0.0007992	0.0027823
Bollinger Band %	0.0178414	0.0402708	0.44	0.658	-0.061097	0.0967799
const	-0.0252247	0.000801	-31.49	0***	-0.0267947	-0.0236547
Bollinger Band Up	0.0005149	0.0000163	31.62	0***	0.000483	0.0005468
const	-0.0014273	0.0011331	-1.26	0.208	-0.0036484	0.0007938
Bollinger Band Width	0.0755761	0.0463325	1.63	0.103	-0.0152445	0.1663967
const	0.0005498	0.00016	3.44	0.001***	0.0002361	0.0008635
Breadth Adv./Decl.	1.35E-10	4.88E-10	0.28	0.783	-8.21E-10	1.09E-09

const	0.3804438	0.2026753	1.88	0.061*	-0.0168384	0.777726
Chaikin A/D Osc.	-0.7602834	0.405482	-1.88	0.061*	-1.555105	0.0345385
const	0.0005844	0.0002195	2.66	0.008***	0.0001541	0.0010146
Chaikin Money Flow	-5.48E-07	3.32E-06	-0.17	0.869	-7.06E-06	5.97E-06
const	0.0024243	0.0006442	3.76	0***	0.0011616	0.003687
Chaikin Volatility	-0.0020208	0.0006933	-2.91	0.004***	-0.0033798	-0.0006618
const	0.0005599	0.0001593	3.51	0***	0.0002476	0.0008722
CMO	-2.59E-09	3.91E-10	-6.63	0***	-3.36E-09	-1.83E-09
const	0.0002214	0.0001614	1.37	0.17	-0.0000949	0.0005378
Cole's Rally Day	0.0008224	0.0001935	4.25	0***	0.0004431	0.0012018
const	0.0034528	0.0002256	15.3	0***	0.0030105	0.0038951
Cole's Reaction Day	-0.0126768	0.0004849	-26.14	0***	-0.0136273	-0.011726
const	-0.0037664	0.0001822	-20.67	0***	-0.0041235	-0.0034093
Cutler's RSI	0.0176938	0.0006502	27.21	0***	0.0164192	0.0189684
const	-0.0585672	0.0072135	-8.12	0***	-0.0727071	-0.0444274
DEMA26	0.0011874	0.0001428	8.32	0***	0.0009075	0.0014672
const	0.0004354	0.0001451	3	0.003***	0.000151	0.0007197
DEMA26 - MACD	0.1852596	0.1391249	1.33	0.183	-0.0874517	0.4579709
const	0.0006072	0.0001596	3.8	0***	0.0002943	0.0009201
DPO	0.1570658	0.1216483	1.29	0.197	-0.0813879	0.3955196
const	0.0005547	0.0001046	5.3	0***	0.0003497	0.0007598
DX	0.9767822	0.0075116	130.04	0***	0.9620581	0.9915063
const	dropped					
Ease Of Movement						
const	0.000564	0.0001608	3.51	0***	0.0002488	0.0008792
Envelope	9.58E-23	6.39E-23	1.5	0.134	-2.94E-23	2.21E-22
const	0.000536	0.0001586	3.38	0.001***	0.0002251	0.0008468
Exp.Mov.Avg.	0.0101905	0.0085013	1.2	0.231	-0.0064736	0.0268546
const	0.0001446	0.0001718	0.84	0.4	-0.0001922	0.0004813
Exp.Mov.Avg.Diff.	0.622501	0.360919	1.72	0.085*	-0.0849689	1.329971
const	0.0006166	0.0001644	3.75	0***	0.0002944	0.0009388
Fosback's Unchanged Issues	0.8349874	0.7356803	1.13	0.256	-0.6070862	2.277061
const	0.003101	0.0006821	4.55	0***	0.0017641	0.004438
Historical Volatility Indicator	-0.0026477	0.00071	-3.73	0***	-0.0040395	-0.001256
const	0.0006125	0.000146	4.2	0***	0.0003263	0.0008986

Hughes Breadth Idx.	-1.101912	0.0829633	-13.28	0***	-1.264535	-0.9392877
const	dropped					
Lag.Exp.Mov.Avg.						
const	0.0005485	0.0001593	3.44	0.001***	0.0002362	0.0008607
Lag.Exp.Mov.Avg.Diff.	-0.0005553	0.0005182	-1.07	0.284	-0.001571	0.0004605
const	0.0006084	0.0001457	4.18	0***	0.0003228	0.000894
Lag.Line Weighted Mov.Avg.	-1.104059	0.0825917	-13.37	0***	-1.265955	-0.9421637
const	0.0005478	0.0001592	3.44	0.001***	0.0002357	0.0008599
Lag.Line Weighted Mov.Avg.Diff.	-0.0002192	0.0002855	-0.77	0.443	-0.0007789	0.0003405
const	0.0005427	0.0001427	3.8	0***	0.0002629	0.0008225
Lag.Mov.Avg.	-1.194365	0.0676325	-17.66	0***	-1.326937	-1.061792
const	0.0005482	0.0001593	3.44	0.001***	0.000236	0.0008605
Lag.Mov.Avg.Diff.	-0.0004274	0.0004302	-0.99	0.32	-0.0012706	0.0004158
const	0.0005881	0.0001408	4.18	0***	0.0003121	0.0008641
Lag.Value	-1.097134	0.1035082	-10.6	0***	-1.300029	-0.8942378
const	0.0005475	0.0001591	3.44	0.001***	0.0002356	0.0008595
Line Weighted Mov.Avg.	-0.0001012	0.0001546	-0.65	0.513	-0.0004042	0.0002018
const	-0.0000458	0.0001197	-0.38	0.702	-0.0002804	0.0001887
Line Weighted Mov.Avg.Diff.	1.354227	0.1460478	9.27	0***	1.067946	1.640509
const	0.0005293	0.0001495	3.54	0***	0.0002362	0.0008224
MACD	6.285568	1.668806	3.77	0***	3.014392	9.556745
const	0.0006453	0.0001657	3.9	0***	0.0003206	0.0009701
McClellan Osc.	0.2267848	0.1506378	1.51	0.132	-0.0684939	0.5220635
const	0.0006316	0.0001654	3.82	0***	0.0003075	0.0009558
McClellan Summ. Idx.	0.2084971	0.1224516	1.7	0.089*	-0.0315313	0.4485255
const	0.0005669	0.0001628	3.48	0***	0.0002478	0.0008859
Momentum	-0.0002534	0.0002992	-0.85	0.397	-0.0008398	0.0003331
const	0.0005583	0.0001597	3.5	0***	0.0002453	0.0008713
Morris Daily Pressure	1.44E-06	1.59E-06	0.9	0.367	-1.69E-06	4.57E-06
const	0.0040727	0.0012653	3.22	0.001***	0.0015924	0.006553
Morris Intraday Accumulator	-0.0073053	0.0026503	-2.76	0.006***	-0.0125004	-0.0021101
const	0.000546	0.0002242	2.44	0.015**	0.0001065	0.0009856
Neg.Chgs.Count	-7.89E-18	8.89E-16	-0.01	0.993	-1.75E-15	1.73E-15
const	0.0171207	0.0011366	15.06	0***	0.0148927	0.0193487
Neg.Chgs.Sum	-0.003785	0.000257	-14.73	0***	-0.0042887	-0.0032813

const	0.0036242	0.0010404	3.48	0***	0.0015848	0.0056636
Nicoski Idx.	0.0446892	0.0162428	2.75	0.006***	0.0128503	0.0765282
const	0.2481347	0.1173771	2.11	0.035**	0.0180532	0.4782163
OBV - Raw	-0.2502639	0.1185767	-2.11	0.035**	-0.4826968	-0.017831
const	0.0001727	0.0001539	1.12	0.262	-0.000129	0.0004743
OBV Midpoint	1.33E-06	3.91E-07	3.41	0.001***	5.65E-07	2.10E-06
const	0.0004522	0.0002407	1.88	0.06*	-0.0000196	0.000924
OBV Oscillator	8.78E-09	2.25E-08	0.39	0.697	-3.54E-08	5.30E-08
const	0.0002292	0.00019	1.21	0.228	-0.0001432	0.0006017
OBV with Average Volume	-0.0001289	8.95E-06	-14.41	0***	-0.0001465	-0.000111
const	0.0005602	0.0001627	3.44	0.001***	0.0002413	0.0008791
OBV	-0.0516661	0.0537901	-0.96	0.337	-0.157105	0.0537728
const	0.0001727	0.0001539	1.12	0.262	-0.000129	0.0004743
Pos.&Neg.Chgs.Counts Diff.	1.33E-06	3.91E-07	3.41	0.001***	5.65E-07	2.10E-06
const	0.0003503	0.0001801	1.95	0.052*	-2.71E-06	0.0007034
PAIN	0.0021278	0.000115	18.51	0***	0.0019025	0.0023531
const	0.0006747	0.00018	3.75	0***	0.0003219	0.0010275
Price Volume Rank	2.08E-11	1.03E-11	2.02	0.044**	5.70E-13	4.10E-11
const	dropped					
Price Vol.Trend						
const	0.0000716	0.0002957	0.24	0.809	-0.0005081	0.0006512
Qstick	-2.29E-08	1.66E-08	-1.38	0.167	-5.53E-08	9.60E-09
const	0.0009281	0.0003031	3.06	0.002***	0.0003339	0.0015223
TEMA26 - MACD	5.87E-07	3.09E-07	1.9	0.058*	-2.00E-08	1.19E-06
const	0.0005564	0.000168	3.31	0.001***	0.0002271	0.0008858
Tomas Demark -max	0.1993881	0.1477694	1.35	0.177	-0.0902682	0.4890443
const	0.0008832	0.0003019	2.93	0.003***	0.0002914	0.0014751
Tomas Demark -min	-1.03E-06	6.10E-07	-1.68	0.093*	-2.22E-06	1.70E-07
const	0.0006836	0.0001798	3.8	0***	0.0003312	0.0010361
Up Volatility - Down Volatility	-1.11E-11	1.05E-11	-1.06	0.287	-3.16E-11	9.38E-12
const	0.0006363	0.000177	3.59	0***	0.0002892	0.0009833
Up/Down Volume	7.30E-12	6.22E-12	1.17	0.241	-4.90E-12	1.95E-11
const	-0.0101132	0.0011506	-8.79	0***	-0.0123686	-0.0078578
Velocity	0.0102894	0.0011194	9.19	0***	0.0080952	0.0124836

const	0.0006234	0.0001421	4.39	0***	0.0003449	0.0009019
Volatility	4.200094	0.8565341	4.9	0***	2.521124	5.879064
const	-0.0001251	0.0004087	-0.31	0.76	-0.0009261	0.000676
Volume % +/- Average	-5.92E-06	4.50E-06	-1.32	0.188	-0.0000147	2.89E-06
const	dropped					
Volume & Price Accumulator						
const	0.0004173	0.0002415	1.73	0.084	-0.0000562	0.0008908
Volume Line Variation	-6.04E-09	1.17E-08	-0.52	0.606	-2.90E-08	1.70E-08
const	dropped					
Vol.Osc. Points						
const	0.0004138	0.0002258	1.83	0.067*	-0.0000287	0.0008564
Volume Rating	6.65E-06	0.0000119	0.56	0.577	-0.0000167	0.00003
const	dropped					
Volume Reversal Alerts						
const	0.0005444	0.0001593	3.42	0.001***	0.0002321	0.0008568
Volume Weighted RSI - MFI	9.46E-08	1.32E-07	0.72	0.474	-1.64E-07	3.53E-07
const	-0.0000338	0.0002039	-0.17	0.868	-0.0004336	0.000366
Williams %R	-0.0000198	3.47E-06	-5.7	0***	-0.0000265	-1.30E-05
const	-0.1837637	0.0096075	-19.13	0***	-0.2025963	-0.1649312
Wilder RSI	0.0036869	0.0001926	19.14	0***	0.0033093	0.0040645

Table 3. Panel regressions with Newey -West standard errors

This table reports White Standard Errors which are robust to within cluster correlation. This specification allows for observations on the same firm in different days to be correlated (e.g. a firm effect). (***) significant at the 99% C.I.; (**) significant at the 95% C. I.; (*) significant at the 90% C.I.

	Coef.	**Std. Err.**	**t**	**P>t**	**F(39, 10439)**	**Prob > F**	**[95% Conf.**	**Interval]**
const	0.0005302	0.0001768	3	0.003***	0.88	0.6769	0.0001835	0.0008768
Acceleration	1.049086	0.1005281	10.44	0***			0.8520321	1.246141
const	0.0011067	0.002092	0.53	0.597	1.03	0.4262	-0.0029941	0.0052074
Acc/Dis	-2.78E-08	1.04E-07	-0.27	0.788			-2.31E-07	1.75E-07
const	-0.0117335	0.0011848	-9.9	0***	3.07	0.0000***	-0.0140561	-0.009411
Advance Decline Line	0.0154251	0.0014715	10.48	0***			0.0125406	0.0183096
const	0.000529	0.0001771	2.99	0.003***	1.02	0.4401	0.0001819	0.0008761
Aroon Osc.	0.0000347	3.86E-06	8.99	0***			0.0000271	0.0000422
const	-0.0039482	0.0003397	-11.62	0***	0.86	0.7136	-0.0046141	-0.0032822

Aroon Up	0.0000883	5.71E-06	15.46	0***			0.0000771	0.0000995
const	0.0005507	0.0001501	3.67	0***	1.55	0.0162**	0.0002564	0.000845
Avg.Chg.	3.588937	0.055449	64.72	0***			3.480247	3.697628
const	0.0027656	0.0002939	9.41	0***	2.30	0.0000***	0.0021895	0.0033417
Avg.Neg.Chg.	0.136462	0.0144341	9.45	0***			0.1081684	0.1647556
const	-0.0009377	0.0002585	-3.63	0***	0.65	0.9551	-0.0014443	-0.000431
Avg.Pos.Chg.	0.0960813	0.0121748	7.89	0***			0.0722164	0.1199463
const	-0.0009911	0.0002635	-3.76	0***	0.56	0.9886	-0.0015077	-0.0004746
Average True Range	0.0960195	0.0121724	7.89	0***			0.0721592	0.1198797
const	0.0010663	0.0004719	2.26	0.024**	1.04	0.3960	0.0001412	0.0019913
Bollinger Band Down	-4.27E-11	3.60E-11	-1.19	0.235			-1.13E-10	2.78E-11
const	0.0014732	0.0002706	5.44	0***	1.41	0.0478	0.0009427	0.0020036
Bollinger Band %	0.037186	0.0082017	4.53	0***			0.0211092	0.0532629
const	-0.0252389	0.0002808	-89.89	0***	2.67	0.0000***	-0.0257893	-0.0246885
Bollinger Band Up	0.0005152	5.01E-06	102.73	0***			0.0005053	0.000525
const	-0.0014369	0.0002711	-5.3	0***	0.44	0.9990	-0.0019683	-0.0009055
Bollinger Band Width	0.0759431	0.0078605	9.66	0***			0.060535	0.0913511
const	0.0005499	0.0001786	3.08	0.002***	1.21	0.1698	0.0001998	0.0009
Breadth Adv./Decl.	1.05E-10	1.50E-09	0.07	0.944			-2.84E-09	3.05E-09
const	0.448329	0.0569744	7.87	0***	0.44	0.9991	0.3366483	0.5600096
Chaikin A/D Osc.	-0.8961414	0.1140217	-7.86	0***			-1.119646	-0.672637
const	0.0000742	0.0008031	0.09	0.926	1.03	0.4127	-0.0015	0.0016484
Chaikin Money Flow	7.00E-06	1.16E-05	0.6	0.546			-1.57E-05	2.97E-05
const	0.0010147	0.0009322	1.09	0.276	0.91	0.6311	-0.0008126	0.0028419
Chaikin Volatility	-0.0005032	0.0009851	-0.51	0.61			-0.0024342	0.0014279
const	0.0005642	0.0001777	3.17	0.002***	1.17	0.2200	0.0002159	0.0009125
CMO	-3.47E-09	9.67E-10	-3.59	0***			-5.37E-09	-1.58E-09
const	0.0002085	0.0001605	1.3	0.194	1.79	0.0017	-0.0001062	0.0005232
Cole's Rally Day	0.000855	0.0000175	48.8	0***			0.0008207	0.0008894
const	0.0034418	0.0001937	17.77	0***	0.84	0.7514	0.003062	0.0038215
Cole's Reaction Day	-0.0126286	0.0004052	-31.17	0***			-0.0134229	-0.0118344
const	-0.0037681	0.0001858	-20.28	0***	1.11	0.2948	-0.0041322	-0.003404
Cutler's RSI	0.0177007	0.0003767	46.99	0***			0.0169624	0.0184391
const	-0.0635131	0.0011046	-57.5	0***	10.08	0.0000***	-0.0656783	-0.0613479
DEMA26	0.0012867	0.000022	58.57	0***			0.0012436	0.0013298

const	0.0004395	0.0001761	2.5	0.013**	0.47	0.9981	0.0000943	0.0007847
DEMA26 - MACD	0.1784429	0.0122267	14.59	0***			0.1544763	0.2024095
const	0.0006122	0.0001761	3.48	0.001***	1.71	0.0038***	0.000267	0.0009573
DPO	0.1700292	0.0118663	14.33	0***			0.146769	0.1932894
const	0.0005547	0.0000424	13.08	0***	18.09	0.0000***	0.0004716	0.0006379
DX	0.9768417	0.0023491	415.83	0***			0.972237	0.9814464
const	dropped							
Ease Of Movement								
const	0.0005643	0.0001797	3.14	0.002***	1.19	0.1960	0.0002121	0.0009165
Envelope	9.78E-23	1.38E-22	0.71	0.479			-1.73E-22	3.68E-22
const	0.00055	0.0001786	3.08	0.002***	1.09	0.3283	0.0002	0.0009
Exp.Mov.Avg.	-0.0005504	0.006709	-0.08	0.935			-0.0137014	0.0126005
const	0.0001353	0.0001695	0.8	0.425	0.39	0.9998	-0.0001968	0.0004675
Exp.Mov.Avg.Diff.	0.6367942	0.0191327	33.28	0***			0.5992904	0.674298
const	0.0006257	0.0001763	3.55	0***	1.89	0.0007	0.0002801	0.0009713
Fosback's Unchanged Issues	0.9443709	0.070436	13.41	0***			0.8063029	1.082439
const	0.0023944	0.0009578	2.5	0.012**	0.93	0.5954	0.0005169	0.0042719
Historical Volatility Indicator	-0.0019151	0.0009758	-1.96	0.05*			-0.0038279	-2.32E-06
const	0.0006127	0.0001226	5	0***	3.84	0.0000***	0.0003724	0.000853
Hughes Breadth Idx.	-1.105753	0.0103053	-107.3	0***			-1.125953	-1.085552
const	dropped							
Lag.Exp.Mov.Avg.								
const	0.0005525	0.0001778	3.11	0.002***	1.05	0.3845	0.000204	0.0009011
Lag.Exp.Mov.Avg.Diff.	-0.0024269	0.0023492	-1.03	0.302			-0.0070318	0.0021779
const	0.0006086	0.0001221	4.99	0***	3.88	0.0000***	0.0003693	0.0008479
Lag.Line Weighted Mov.Avg.	-1.10789	0.0102436	-108.15	0***			-1.127969	-1.08781
const	0.0005498	0.0001778	3.09	0.002***	1.04	0.4077	0.0002013	0.0008983
Lag.Line Weighted Mov.Avg.Diff.	-0.0011633	0.0016754	-0.69	0.487			-0.0044474	0.0021208
const	0.0005427	0.0001421	3.82	0***	1.53	0.0189**	0.0002642	0.0008213
Lag.Mov.Avg.	-1.194296	0.0155587	-76.76	0***			-1.224794	-1.163798
const	0.0005507	0.0001778	3.1	0.002***	1.04	0.3992	0.0002022	0.0008992
Lag.Mov.Avg.Diff.	-0.0015354	0.0018111	-0.85	0.397			-0.0050855	0.0020146
const	0.0005882	0.0001599	3.68	0***	1.32	0.0865*	0.0002746	0.0009017
Lag.Value	-1.097923	0.0221669	-49.53	0***			-1.141374	-1.054472

const	0.0005483	0.0001778	3.08	0.002***	1.03	0.4196	0.0001999	0.0008968
Line Weighted Mov.Avg.	-0.0004635	0.0010385	-0.45	0.655			-0.0024992	0.0015722
const	-0.0000512	0.0001576	-0.32	0.745	0.23	1.0000	-0.0003601	0.0002577
Line Weighted Mov.Avg.Diff.	1.366477	0.0253419	53.92	0***			1.316802	1.416152
const	0.0005294	0.0001673	3.17	0.002***	0.90	0.6554	0.0002015	0.0008572
MACD	6.266369	0.170486	36.76	0***			5.932184	6.600554
const	0.0006813	0.0001768	3.85	0***	2.51	0.0000***	0.0003347	0.001028
McClellan Osc.	0.3100965	0.0254316	12.19	0***			0.2602456	0.3599473
const	0.000679	0.0001774	3.83	0***	2.36	0.0000***	0.0003313	0.0010266
McClellan Summ. Idx.	0.3254393	0.0322151	10.1	0***			0.2622917	0.388587
const	0.0007654	0.0001938	3.95	0***	1.23	0.1576	0.0003855	0.0011453
Momentum	-0.0028254	0.0010026	-2.82	0.005***			-0.0047906	-0.0008601
const	0.0005581	0.0001776	3.14	0.002***	1.01	0.4525	0.0002099	0.0009063
Morris Daily Pressure	1.41E-06	3.76E-07	3.75	0***			6.75E-07	2.15E-06
const	0.0009645	0.0019641	0.49	0.623	0.93	0.5922	-0.0028855	0.0048145
Morris Intraday Accumulator	-0.0008645	0.0040533	-0.21	0.831			-0.0088097	0.0070807
const	0.0043975	0.0032889	1.34	0.181	1.06	0.3694	-0.0020495	0.0108444
Neg.Chgs.Count	2.41E-14	2.06E-14	1.17	0.241			-1.62E-14	6.44E-14
const	0.01732	0.0007922	21.86	0***	0.64	0.9617	0.0157671	0.0188729
Neg.Chgs.Sum	-0.0038305	0.0001765	-21.7	0***			-0.0041765	-0.0034845
const	0.0048541	0.0002853	17.01	0***	4.50	0.0000***	0.0042948	0.0054133
Nicoski Idx.	0.0625522	0.0032759	19.09	0***			0.0561309	0.0689736
const	0.2933602	0.0477573	6.14	0***	0.41	0.9996	0.1997468	0.3869737
OBV - Raw	-0.2959783	0.0482732	-6.13	0***			-0.3906031	-0.2013535
const	-0.003527	0.0004849	-7.27	0***	2.81	0.0000***	-0.0044775	-0.0025764
OBV Midpoint	1.45E-05	1.60E-06	9.02	0***			1.13E-05	1.76E-05
const	0.0010268	0.0020876	0.49	0.623	1.02	0.4297	-0.0030652	0.0051189
OBV Oscillator	-4.43E-08	1.92E-07	-0.23	0.818			-4.21E-07	3.32E-07
const	0.0001994	0.0001727	1.15	0.248	2.28	0.0000***	-0.0001391	0.000538
OBV with Average Volume	-0.000141	5.40E-06	-26.11	0***			-0.0001516	-0.0001304
const	dropped							
OBV								
const	-0.003527	0.0004849	-7.27	0***	2.81	0.0000***	-0.0044775	-0.0025764
Pos.&Neg.Chgs.Counts Diff.	1.45E-05	1.60E-06	9.02	0***			1.13E-05	1.76E-05
const	0.0003452	0.0001734	1.99	0.047**	1.30	0.1028	5.20E-06	0.0006851

PAIN	0.0021839	0.0000929	23.52	0***			0.0020019	0.002366
const	0.0008484	0.0002443	3.47	0.001***	1.06	0.3765	0.0003695	0.0013272
Price Volume Rank	4.91E-11	2.74E-11	1.8	0.073*			-4.49E-12	1.03E-10
const	dropped							
Price Vol.Trend								
const	0.0014284	0.0020815	0.69	0.493	0.96	0.5325	-0.0026518	0.0055086
Qstick	4.23E-08	9.97E-08	0.42	0.671			-1.53E-07	2.38E-07
const	-0.0077251	0.0018883	-4.09	0***	1.44	0.0370**	-0.0114265	-0.0040238
TEMA26 - MACD	-1.27E-05	2.90E-06	-4.4	0***			-1.84E-05	-7.07E-06
const	0.0005565	0.0001747	3.18	0.001***	1.29	0.1071	0.000214	0.0008991
Tomas Demark -max	0.2020962	0.010634	19	0***			0.1812516	0.2229408
const	-0.0110036	0.0018631	-5.91	0***	1.96	0.0003***	-0.0146557	-0.0073515
Tomas Demark -min	3.53E-05	5.67E-06	6.23	0***			2.42E-05	4.64E-05
const	0.0008799	0.0002443	3.6	0***	1.07	0.3594	0.000401	0.0013587
Up Volatility - Down Volatility	-2.71E-11	1.37E-11	-1.98	0.047**			-5.40E-11	-3.30E-13
const	0.0010581	0.000437	2.42	0.015**	1.05	0.3895	0.0002015	0.0019146
Up/Down Volume	4.19E-11	3.27E-11	1.28	0.201			-2.23E-11	1.06E-10
const	-0.0120042	0.001114	-10.78	0***	1.42	0.0424**	-0.0141878	-0.0098205
Velocity	0.0121146	0.0010616	11.41	0***			0.0100336	0.0141955
const	0.0006234	0.0001511	4.12	0***	1.35	0.0692*	0.0003272	0.0009197
Volatility	4.200594	0.0664279	63.24	0***			4.070382	4.330805
const	-0.0001252	0.0001792	-0.7	0.485	0.96	0.5439	-0.0004764	0.0002261
Volume % +/- Average	-5.92E-06	3.12E-07	-19	0***			-6.54E-06	-5.31E-06
const	dropped							
Volume & Price Accumulator								
const	0.0007406	0.0021108	0.35	0.726	1.02	0.4353	-0.0033971	0.0048782
Volume Line Variation	8.99E-09	9.78E-08	0.09	0.927			-1.83E-07	2.01E-07
const	dropped							
Vol.Osc. Points								
const	0.0029633	0.0008992	3.3	0.001***		0.1711	0.0012006	0.004726
Volume Rating	-1.20E-04	0.0000439	-2.74	0.006***	1.21		-0.0002063	-0.0000343
const	dropped							
Volume Reversal Alerts								
const	0.0005444	0.0001778	3.06	0.002***	1.02	0.4277	0.0001959	0.000893
Volume Weighted RSI - MFI	9.49E-08	1.71E-07	0.55	0.579			-2.41E-07	4.31E-07

const	-2.73E-08	0.0002114	0	1	0.95	0.5591	-0.0004144	0.0004144
Williams %R	-0.0000186	3.90E-06	-4.77	0***			-0.0000262	-1.10E-05
const	-0.1841985	0.0013978	-131.78	0***	4.46	0.0000***	-0.1869385	-0.1814585
Wilder RSI	0.0036956	0.0000279	132.57	0***			0.0036409	0.0037502

Table 4. Panel regressions with Fixed Effects

This table reports fixed effects estimation corrected by robust standard errors. (***) significant at the 99% C.I.; (**) significant at the 95% C. I.; (*) significant at the 90% C.I.

	Coef.	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
const	0.0005297	0.0001756	3.02	0.003***	0.0001856	0.0008739
Acceleration	1.075346	0.7918289	1.36	0.174	-0.4766097	2.627302
const	0.0004911	0.0001852	2.65	0.008***	0.0001281	0.0008541
Acc/Dis	2.79E-09	1.11E-08	0.25	0.801	-1.89E-08	2.45E-08
const	0.0002923	0.0001113	2.63	0.009***	0.0000741	0.0005104
Advance Decline Line	0.0003203	0.0000133	24.11	0***	0.0002943	0.0003464
const	0.000529	0.0001777	2.98	0.003***	0.0001807	0.0008773
Aroon Osc.	0.0000347	3.54E-06	9.81	0***	0.0000278	0.0000416
const	-0.0039998	0.0002698	-14.82	0***	-0.0045287	-0.003471
Aroon Up	0.0000893	6.69E-06	13.35	0***	0.0000762	0.0001024
const	0.0005507	0.0001867	2.95	0.003***	0.0001848	0.0009166
Avg.Chg.	3.586836	0.1973922	18.17	0***	3.199954	3.973717
const	0.0018695	0.0011802	1.58	0.113	-0.0004436	0.0041826
Avg.Neg.Chg.	0.0813393	0.0825059	0.99	0.324	-0.0803693	0.2430479
const	-0.0009225	0.0009958	-0.93	0.354	-0.0028743	0.0010292
Avg.Pos.Chg.	0.0951017	0.0674295	1.41	0.158	-0.0370578	0.2272611
const	-0.0010654	0.0010887	-0.98	0.328	-0.0031992	0.0010683
Average True Range	0.1006575	0.0709636	1.42	0.156	-0.0384287	0.2397436
const	0.0006335	0.000207	3.06	0.002***	0.0002278	0.0010392
Bollinger Band Down	-7.09E-12	3.36E-12	-2.11	0.035**	-1.37E-11	-4.94E-13
const	0.0009915	0.0007235	1.37	0.171	-0.0004265	0.0024095
Bollinger Band %	0.0178414	0.0359242	0.5	0.619	-0.0525688	0.0882516
const	-0.0252103	0.0017411	-14.48	0***	-0.0286228	-0.0217979
Bollinger Band Up	0.0005151	3.79E-05	13.59	0***	0.0004408	0.0005893
const	-0.0014273	0.0008194	-1.74	0.082*	-0.0030332	0.0001787
Bollinger Band Width	0.0755761	0.0328472	2.3	0.021**	0.0111968	0.1399554
const	0.0005595	0.0001906	2.94	0.003***	0.000186	0.000933

Breadth Adv./Decl.	1.25E-10	4.56E-10	0.27	0.784	-7.68E-10	1.02E-09
const	0.3804438	0.0615228	6.18	0***	0.2598614	0.5010262
Chaikin A/D Osc.	-0.7602834	0.1231657	-6.17	0***	-1.001684	-0.5188831
const	0.0005811	0.0001758	3.3	0.001***	0.0002365	0.0009258
Chaikin Money Flow	-5.01E-07	3.07E-06	-0.16	0.871	-6.53E-06	5.52E-06
const	0.0024243	0.0007251	3.34	0.001***	0.0010031	0.0038456
Chaikin Volatility	-0.0020208	0.0009095	-2.22	0.026**	-0.0038034	-0.0002381
const	0.0005599	0.0001903	2.94	0.003***	0.000187	0.0009328
CMO	-2.59E-09	2.62E-11	-98.94	0***	-2.64E-09	-2.54E-09
const	0.0002214	0.0001233	1.8	0.072*	-0.0000202	0.000463
Cole's Rally Day	0.0008224	0.0003284	2.5	0.012**	0.0001787	0.0014661
const	0.0034528	0.0004083	8.46	0***	0.0026526	0.004253
Cole's Reaction Day	-0.0126768	0.0011769	-10.77	0***	-0.0149836	-0.0103701
const	-0.0037666	0.0002664	-14.14	0***	-0.0042887	-0.0032445
Cutler's RSI	0.0176946	0.0015464	11.44	0***	0.0146637	0.0207255
const	-0.0585672	0.011054	-5.3	0***	-0.0802327	-0.0369018
DEMA26	0.0011874	0.0002131	5.57	0***	0.0007698	0.001605
const	0.0004354	0.0001726	2.52	0.012**	0.000097	0.0007738
DEMA26 - MACD	0.1852596	0.1158241	1.6	0.11	-0.0417514	0.4122706
const	0.0006072	0.0001956	3.1	0.002***	0.0002239	0.0009906
DPO	0.1570658	0.1066806	1.47	0.141	-0.0520243	0.366156
const	0.0005547	0.0001804	3.08	0.002***	0.0002012	0.0009083
DX	0.9768385	0.0076521	127.66	0***	0.9618406	0.9918364
const	droopped					
Ease Of Movement						
const	0.000572	0.0001901	3.01	0.003***	0.0001995	0.0009445
Envelope	9.66E-23	1.33E-23	7.25	0***	7.05E-23	1.23E-22
const	0.000536	0.0001776	3.02	0.003***	0.0001879	0.0008841
Exp.Mov.Avg.	0.0101905	0.0055255	1.84	0.065*	-0.0006393	0.0210204
const	0.0001446	0.0001228	1.18	0.239	-0.0000961	0.0003853
Exp.Mov.Avg.Diff.	0.622501	0.2943407	2.11	0.034**	0.0456038	1.199398
const	0.0006166	0.0002085	2.96	0.003***	0.000208	0.0010252
Fosback's Unchanged Issues	0.8349874	0.5596752	1.49	0.136	-0.2619559	1.931931
const	0.003101	0.0004636	6.69	0***	0.0021924	0.0040097
Historical Volatility Indicator	-0.0026477	0.0004049	-6.54	0***	-0.0034414	-1.85E-03
const	0.0006125	0.0002383	2.57	0.01***	0.0001454	0.0010795
Hughes Breadth Idx.	-1.101912	0.0531366	-20.74	0***	-1.206057	-0.9977658

const	dropped					
Lag.Exp.Mov.Avg.						
const	0.0005485	0.0001807	3.04	0.002***	0.0001944	0.0009026
Lag.Exp.Mov.Avg.Diff.	-0.0005553	0.0001552	-3.58	0***	-0.0008595	-0.000251
const	0.0006084	0.0002386	2.55	0.011**	0.0001407	0.0010761
Lag.Line Weighted Mov.Avg.	-1.104059	0.0530986	-20.79	0***	-1.208131	-0.9999877
const	0.0005478	0.0001804	3.04	0.002***	0.0001942	0.0009013
Lag.Line Weighted Mov.Avg.Diff.	-0.0002192	0.0001233	-1.78	0.075*	-0.0004608	0.0000224
const	0.0005427	0.0001755	3.09	0.002***	0.0001988	0.0008867
Lag.Mov.Avg.	-1.19434	0.0445169	-26.83	0***	-1.281591	-1.107088
const	0.0005482	0.0001806	3.04	0.002***	0.0001943	0.0009021
Lag.Mov.Avg.Diff.	-0.0004274	0.000141	-3.03	0.002***	-0.0007037	-0.0001511
const	0.0005881	0.0001852	3.18	0.001***	0.0002251	0.0009511
Lag.Value	-1.097313	0.0559212	-19.62	0***	-1.206917	-0.9877097
const	0.0005475	0.0001799	3.04	0.002***	0.0001948	0.0009002
Line Weighted Mov.Avg.	-0.0001012	0.0000987	-1.03	0.305	-0.0002946	0.0000922
const	-0.0000458	0.0001052	-0.44	0.663	-0.000252	0.0001604
Line Weighted Mov.Avg.Diff.	1.354227	0.1152879	11.75	0***	1.128267	1.580187
const	0.0005293	0.0001592	3.32	0.001***	0.0002172	0.0008414
MACD	6.285568	1.157156	5.43	0***	4.017584	8.553553
const	0.0006453	0.000223	2.89	0.004***	0.0002082	0.0010824
McClellan Osc.	0.2267848	0.1248909	1.82	0.069*	-0.017997	0.4715666
const	0.0006316	0.0002247	2.81	0.005***	0.0001912	0.0010721
McClellan Summ. Idx.	0.2084971	0.0935682	2.23	0.026**	0.0251068	0.3918875
const	0.0005669	0.0001876	3.02	0.003***	0.0001991	0.0009346
Momentum	-0.0002534	0.0002527	-1	0.316	-0.0007486	0.0002419
const	0.0005583	0.0001821	3.07	0.002***	0.0002013	0.0009152
Morris Daily Pressure	1.44E-06	1.59E-06	0.9	0.366	-1.68E-06	4.56E-06
const	0.0040727	0.0013494	3.02	0.003***	0.0014279	0.0067175
Morris Intraday Accumulator	-0.0073053	0.0030713	-2.38	0.017**	-0.0133249	-0.0012856
const	0.0005468	0.000256	2.14	0.033**	0.000045	0.0010486
Neg.Chgs.Count	-3.07E-18	7.76E-16	0	0.997	-1.52E-15	1.52E-15
const	0.0171207	0.0013058	13.11	0***	0.0145613	0.0196801
Neg.Chgs.Sum	-0.003785	0.0003111	-12.17	0***	-0.0043947	-0.0031753
const	0.0036242	0.0012341	2.94	0.003***	0.0012054	0.006043
Nicoski Idx.	0.0446892	0.0219797	2.03	0.042**	0.0016098	0.0877686

const	0.2481347	0.0266083	9.33	0***	0.1959835	0.300286
OBV - Raw	-0.2502639	0.0269283	-9.29	0***	-0.3030425	-0.1974854
const	0.0001701	0.0001417	1.2	0.23	-0.0001075	0.0004478
OBV Midpoint	1.34E-06	5.69E-07	2.36	0.018**	2.25E-07	2.45E-06
const	0.0004528	0.0001821	2.49	0.013**	0.0000959	0.0008098
OBV Oscillator	8.72E-09	2.23E-08	0.39	0.696	-3.51E-08	5.25E-08
const	0.0002276	0.0002339	0.97	0.33	-0.0002307	0.000686
OBV with Average Volume	-0.0001296	1.58E-05	-8.22	0***	-0.0001605	-0.0000987
const	0.0005602	0.000184	3.04	0.002***	0.0001995	0.0009209
OBV	-0.0516661	0.0184048	-2.81	0.005***	-0.0877388	-0.0155933
const	0.0001701	0.0001417	1.2	0.23	-0.0001075	0.0004478
Pos.&Neg.Chgs.Counts Diff.	1.34E-06	5.69E-07	2.36	0.018**	2.25E-07	2.45E-06
const	0.0003501	0.000194	1.8	0.071*	-3.02E-05	0.0007303
PAIN	0.002131	0.0001375	15.5	0***	0.0018614	0.0024005
const	0.0006768	0.0002434	2.78	0.005***	0.0001999	0.0011538
Price Volume Rank	2.11E-11	1.63E-11	1.3	0.194	-1.07E-11	5.30E-11
const	dropped					
Price Vol.Trend						
const	0.0000716	0.0003369	0.21	0.832	-0.0005888	0.000732
Qstick	-2.29E-08	2.20E-08	-1.04	0.298	-6.59E-08	2.02E-08
const	0.0009281	0.0003593	2.58	0.01***	0.0002239	0.0016323
TEMA26 - MACD	5.87E-07	3.35E-07	1.75	0.08*	-7.02E-08	1.24E-06
const	0.0005564	0.0001934	2.88	0.004***	0.0001775	0.0009354
Tomas Demark -max	0.1993881	0.1354189	1.47	0.141	-0.0660282	0.4648043
const	0.0008832	0.0003601	2.45	0.014**	0.0001774	0.001589
Tomas Demark -min	-1.03E-06	6.65E-07	-1.54	0.123	-2.33E-06	2.77E-07
const	0.0006861	0.0001888	3.63	0***	0.0003161	0.0010561
Up Volatility - Down Volatility	-1.13E-11	6.49E-12	-1.75	0.081*	-2.40E-11	1.39E-12
const	0.0006375	0.0002048	3.11	0.002***	0.000236	0.001039
Up/Down Volume	7.40E-12	3.33E-12	2.22	0.026**	8.79E-13	1.39E-11
const	-0.0101708	0.0011995	-8.48	0***	-0.0125219	-0.0078197
Velocity	0.0103451	0.0012128	8.53	0***	0.007968	0.0127221
const	0.0006234	0.0001772	3.52	0***	0.0002762	0.0009707
Volatility	4.200234	0.2587435	16.23	0***	3.693106	4.707362
const	-0.0001196	0.0004052	-0.3	0.768	-0.0009137	0.0006746
Volume % +/- Average	-5.92E-06	4.42E-06	-1.34	0.18	-1.46E-05	2.73E-06
const	dropped					

Volume & Price Accumulator						
const	0.0004176	0.0001878	2.22	0.026**	0.0000495	0.0007858
Volume Line Variation	-6.03E-09	1.24E-08	-0.49	0.626	-3.03E-08	1.82E-08
const	dropped					
Vol.Osc. Points						
const	0.0004138	0.0001843	2.25	0.025**	0.0000526	0.000775
Volume Rating	6.65E-06	0.0000138	0.48	0.631	-0.0000205	0.0000338
const	dropped					
Volume Reversal Alerts						
const	0.0005444	0.00018	3.03	0.002***	0.0001917	0.0008972
Volume Weighted RSI - MFI	9.46E-08	6.81E-09	13.9	0***	8.13E-08	1.08E-07
const	-3.38E-05	0.0001601	-0.21	0.833	-0.0003476	0.00028
Williams %R	-0.0000198	3.00E-06	-6.57	0***	-0.0000256	-1.39E-05
const	-0.1839481	0.016014	-11.49	0***	-0.215335	-0.1525611
Wilder RSI	0.0036906	0.0003235	11.41	0***	0.0030566	0.0043246

Table 5. Panel regressions with Generalised Least Squares

This table reports random effects estimations which use a GLS approach. If residuals are correlated within firms, not only are OLS standard errors biased but the slope coefficients are not efficient. (***) significant at the 99% C.I.; (**) significant at the 95% C. I.; (*) significant at the 90% C.I.

	Reps	**Observed**	**Bias**	**Std. Err.**	**[95% Conf.**	**Interval]**
const	50	0.0005297	-0.0000148	0.0001645	0.0001992	0.0008603
Acceleration	50	1.075346	6.222945	7.929789	-14.86016	17.01085
const	50	0.0004904	-0.0000184	0.0001682	0.0001525	0.0008283
Acc/Dis	50	4.90E-04	-1.84E-05	1.68E-04	1.53E-04	8.28E-04
const	50	0.0002923	-2.68E-06	0.0001148	0.0000615	0.000523
Advance Decline Line	50	0.0003203	3.39E-06	0.0000738	0.0001721	0.0004686
const	50	0.0002923	-2.68E-06	0.0001148	0.0000615	0.000523
Aroon Osc.	50	3.20E-04	3.39E-06	0.0000738	0.0001721	0.0004686
const	50	0.000529	-0.0000812	0.0001676	0.0001922	0.0008658
Aroon Up	50	3.47E-05	5.71E-08	3.60E-06	0.0000275	0.0000419
const	50	-0.0039998	0.0000176	0.0002426	-0.0044873	-0.0035123
Avg.Chg.	50	0.0000893	-8.21E-07	5.80E-06	0.0000776	0.0001009
const	50	0.0005507	-1.21E-06	0.0001608	0.0002276	0.0008738
Avg.Neg.Chg.	50	3.58585	-0.0376349	0.2257888	3.13211	4.03959
const	50	0.0018695	0.0003383	0.0011911	-0.0005242	0.0042632
Avg.Pos.Chg.	50	0.0813393	0.0255526	0.0845121	-0.0884942	0.2511728

const	50	-0.0009225	0.0002469	0.0010304	-0.0029932	0.0011482
Average True Range	50	0.0951017	-0.0189344	0.0676075	-0.0407607	0.2309641
const	50	-0.0010654	0.0003286	0.0011351	-0.0033466	0.0012157
Bollinger Band Down	50	1.01E-01	-0.0243747	0.0745082	-4.91E-02	2.50E-01
const	50	0.0006324	-0.0000121	0.0002211	0.0001881	0.0010768
Bollinger Band %	50	-7.00E-12	-2.31E-12	1.35E-11	-3.42E-11	2.02E-11
const	50	0.0009915	0.0003645	0.000991	-0.001	0.002983
Bollinger Band Up	50	1.78E-02	0.0173906	0.0468607	-0.0763287	0.1120115
const	50	-0.0252247	-0.0001581	0.0016021	-0.0284442	-0.0220052
Bollinger Band Width	50	0.0005149	3.25E-06	0.0000347	0.0004452	0.0005845
const	50	-0.0014273	-0.0000142	0.0008383	-0.0031119	0.0002573
Breadth Adv./Decl.	50	7.56E-02	-0.0000658	0.0345894	6.07E-03	1.45E-01
const	50	0.0005498	0.0000497	0.0001912	0.0001655	0.0009341
Chaikin A/D Osc.	50	1.35E-10	-2.41E-10	1.75E-09	-3.38E-09	3.65E-09
const	50	0.3804438	-0.0603768	0.1511844	0.0766274	0.6842602
Chaikin Money Flow	50	-7.60E-01	0.1207862	0.3025126	-1.37E+00	-1.52E-01
const	50	0.0005844	0.0000448	0.0001904	0.0002018	0.0009669
Chaikin Volatility	50	-5.48E-07	-8.35E-07	3.33E-06	-7.25E-06	6.15E-06
const	50	0.0024243	0.0003149	0.0009941	0.0004267	0.004422
CMO	50	-2.02E-03	-0.0003021	0.0012078	-4.45E-03	4.06E-04
const	50	0.0005599	0.0000146	0.0001601	0.0002382	0.0008816
Cole's Rally Day	50	-2.59E-09	-3.81E-06	5.91E-06	-0.0000119	0.0000119
const	50	0.0002214	0.0000985	0.0001461	-0.0000721	0.000515
Cole's Reaction Day	50	0.0008224	0.0002086	0.0003627	0.0000935	0.0015513
const	50	0.0034528	-0.000055	0.00032	0.0028098	0.0040958
Cutler's RSI	50	-0.0126768	0.0001208	0.0009059	-0.0144974	-0.0108563
const	50	-0.0037664	-0.0000451	0.0002812	-0.0043315	-0.0032013
DEMA26	50	0.0176938	0.0002356	0.0016216	0.0144351	0.0209525
const	50	-0.0585672	-0.0013029	0.0095658	-0.0777904	-0.0393441
DEMA26 - MACD	50	0.0011874	0.0000255	0.0001849	0.0008157	0.001559
const	50	0.0004354	-0.0000885	0.0002691	-0.0001053	0.0009761
DPO	50	0.1852596	0.4021375	0.6397073	-1.10028	1.470799
const	50	0.0006072	-6.72E-06	0.0001571	0.0002915	0.000923
DX	50	0.1570658	0.8582256	1.32234	-2.500276	2.814408
const	50	0.0005547	0.0000191	0.0001772	0.0001986	0.0009109
Ease Of Movement	50	0.9767822	-0.0022212	0.0082487	0.9602058	0.9933586
const	dropped					

Envelope						
const	50	0.000564	0.0000549	0.0002167	0.0001285	0.0009994
Exp.Mov.Avg.	50	9.58E-23	1.11E-21	4.23E-21	-8.41E-21	8.60E-21
const	50	0.000536	5.53E-06	0.000221	0.0000918	0.0009802
Exp.Mov.Avg.Diff.	50	0.0101905	0.2832047	0.4125311	-0.8188218	0.8392028
const	50	0.0001446	-0.0000399	0.0001499	-0.0001567	0.0004458
Fosback's Unchanged Issues	50	0.6225011	0.3619737	0.5560339	-0.4948909	1.739893
const	50	0.0006166	9.92E-06	0.0002078	0.0001991	0.0010342
Historical Volatility Indicator	50	0.8349874	5.989328	8.024602	-15.29105	1.70E+01
const	50	0.003101	-0.0000557	0.000412	0.0022732	0.0039289
Hughes Breadth Idx.	50	-0.0026477	0.0000483	0.0004102	-0.0034721	-0.0018234
const	50	0.0006125	-0.000024	0.0002513	0.0001076	0.0011174
Lag.Exp.Mov.Avg.	50	-1.101912	0.003145	0.0476061	-1.19758	-1.006244
const	dropped					
Lag.Exp.Mov.Avg.Diff.						
const	50	0.0005485	3.78E-06	0.0001515	0.000244	0.0008529
Lag.Line Weighted Mov.Avg.	50	-0.0005553	-0.0044838	0.0145347	-0.0297638	0.0286533
const	50	0.0006084	-1.16E-06	0.0002306	0.0001451	0.0010717
Lag.Line Weighted Mov.Avg.Diff.	50	-1.104059	-0.0062043	0.0589173	-1.222458	-0.9856605
const	50	0.0005478	0.0000446	0.0001915	0.0001629	0.0009327
Lag.Mov.Avg.	50	-0.0002192	0.0012275	0.0077771	-0.0158479	0.0154095
const	50	0.0005427	-1.89E-06	0.0001809	0.0001792	0.0009063
Lag.Mov.Avg.Diff.	50	-1.194365	0.0068338	0.0469854	-1.288785	-1.099944
const	50	0.0005482	0.0000152	0.0002117	0.0001228	0.0009737
Lag.Value	50	-0.0004274	-0.0029449	0.0095462	-0.0196111	0.0187564
const	50	0.0005881	0.0000339	0.0001925	0.0002012	0.0009751
Line Weighted Mov.Avg.	50	-1.097134	0.0061232	0.0575034	-1.212691	-0.9815763
const	50	0.0005475	-0.000014	0.0001892	0.0001673	0.0009278
Line Weighted Mov.Avg.Diff.	50	-0.0001012	-0.0038112	0.00636	-0.0128821	0.0126797
const	50	-0.0000458	3.13E-06	0.0001077	-0.0002623	0.0001706
MACD	50	1.354227	0.0011915	0.1301859	1.092609	1.615846
const	50	0.0005293	0.0000199	0.0001878	0.0001518	0.0009068
McClellan Osc.	50	6.285569	-0.0215231	1.502776	3.265628	9.305509
const	50	0.0006453	-0.0000161	0.0002234	0.0001964	0.0010943
McClellan Summ. Idx.	50	0.2267848	1.783087	2.619717	-5.037733	5.491302
const	50	0.0006316	-0.0000141	0.0002165	0.0001966	0.0010667
Momentum	50	0.2084971	2.260737	3.348907	-6.521383	6.938377

const	50	0.0005669	-1.16E-06	0.0002202	0.0001243	0.0010094
Morris Daily Pressure	50	-2.53E-04	0.0000681	0.0007251	-1.71E-03	1.20E-03
const	50	0.0005583	0.0000211	0.0001687	0.0002192	0.0008973
Morris Intraday Accumulator	50	1.44E-06	4.27E-07	1.37E-06	-1.31E-06	4.19E-06
const	50	0.0040727	0.0011224	0.001769	0.0005177	0.0076277
Neg.Chgs.Count	50	-7.31E-03	-0.0023285	0.0039011	-1.51E-02	5.34E-04
const	50	0.000546	0.0000265	0.0002568	0.00003	0.0010621
Neg.Chgs.Sum	50	-7.89E-18	5.73E-17	8.04E-16	-1.62E-15	1.61E-15
const	50	0.0171207	0.0001339	0.0012523	0.014604	0.0196374
Nicoski Idx.	50	-0.003785	-0.000019	0.0002932	-0.0043741	-0.0031958
const	50	0.0036242	0.000547	0.0016947	0.0002185	0.0070299
OBV - Raw	50	0.0446892	0.0087176	0.0290491	-0.0136871	0.1030655
const	50	0.2481347	-0.0457544	0.1025861	0.0419802	0.4542893
OBV Midpoint	50	-2.50E-01	0.0461904	0.1036237	-4.59E-01	-4.20E-02
const	50	0.0001727	-0.0000244	0.0001636	-0.000156	0.0005014
OBV Oscillator	50	1.33E-06	2.26E-07	7.75E-07	-2.28E-07	2.89E-06
const	50	0.0004522	-0.0000198	0.0002064	0.0000375	0.000867
OBV with Average Volume	50	8.78E-09	6.96E-10	2.38E-08	-3.91E-08	5.66E-08
const	50	0.0002292	0.0000816	0.0001802	-0.000133	0.0005914
OBV	50	-0.0001289	-4.54E-06	0.000016	-0.0001611	-0.0000967
const	50	0.0005602	0.000019	0.0001807	0.0001971	0.0009233
Pos.&Neg.Chgs.Counts Diff.	50	-5.17E-02	0.0179247	0.030212	-1.12E-01	9.05E-03
const	50	0.0001727	-0.0000363	0.00014	-1.09E-04	0.0004539
PAIN	50	1.33E-06	4.44E-08	6.19E-07	8.69E-08	2.57E-06
const	50	0.0003503	-0.0000288	0.0001624	0.0000239	0.0006768
Price Volume Rank	50	2.13E-03	-0.0000196	0.0001297	1.87E-03	2.39E-03
const	50	0.0006747	0.0000678	0.0003253	0.000021	0.0013284
Price Vol.Trend	50	2.08E-11	1.88E-11	5.20E-11	-8.37E-11	1.25E-10
const	dropped					
Qstick						
const	50	0.0000716	-6.68E-06	0.0002978	-0.000527	0.0006701
TEMA26 - MACD	50	-2.29E-08	-5.85E-10	2.04E-08	-6.38E-08	1.81E-08
const	50	0.0009281	-7.84E-06	0.0003913	0.0001417	0.0017145
Tomas Demark -max	50	5.87E-07	-6.83E-08	3.97E-07	-2.12E-07	1.39E-06
const	50	0.0005564	9.14E-06	0.0002283	0.0000977	0.0010151
Tomas Demark -min	50	1.99E-01	0.4668553	0.934314	-1.68E+00	2.08E+00

const	50	0.0008832	0.0000159	0.0003936	0.0000923	0.0016741
Up Volatility - Down Volatility	50	-1.03E-06	-1.37E-09	8.28E-07	-2.69E-06	6.38E-07
const	50	0.0006836	0.0000416	0.0002194	0.0002428	0.0011245
Up/Down Volume	50	-1.11E-11	-7.62E-12	2.09E-11	-5.30E-11	3.08E-11
const	50	0.0006363	0.0000619	0.000264	0.0001058	0.0011667
Velocity	50	7.30E-12	2.86E-12	1.01E-11	-1.30E-11	2.76E-11
const	50	-0.0101132	0.0000342	0.0011605	-0.0124453	-0.0077811
Volatility	50	0.0102894	-0.0000797	0.0012024	0.0078731	0.0127057
const	50	0.0006234	-0.0000228	0.0001667	0.0002884	0.0009585
Volume % +/- Average	50	4.20E+00	-0.1035708	0.3874796	3.42E+00	4.98E+00
const	50	-0.0001251	-1.87E-06	0.0003823	-0.0008934	0.0006433
Volume & Price Accumulator	50	-5.92E-06	3.14E-07	3.82E-06	-0.0000136	1.76E-06
const	dropped					
Volume Line Variation						
const	50	0.0004173	0.0000383	0.0002124	-9.57E-06	0.0008442
Vol.Osc. Points	50	-6.04E-09	2.09E-09	1.40E-08	-3.42E-08	2.21E-08
const	dropped					
Volume Rating						
const	50	0.0004138	0.0000715	0.0001731	0.0000659	0.0007617
Volume Reversal Alerts	50	6.65E-06	-4.95E-06	0.0000133	-0.00002	0.0000333
const	50	0.0005444	0.000779	0.0013302	-0.0021286	0.0032175
Volume Weighted RSI - MFI	50	9.46E-08	-0.00002	0.0000328	-6.58E-05	6.59E-05
const	50	-0.0000338	0.0000342	0.000145	-0.0003252	0.0002576
Williams %R	50	-1.98E-05	-1.46E-07	2.47E-06	-0.0000247	-1.48E-05
const	50	-0.1837637	-0.0003781	0.013874	-0.2116446	-0.1558829
Wilder RSI	50	0.0036869	6.93E-06	0.0002806	0.0031231	0.0042507

Table 6. Bootstrapped Standard Errors
This table reports estimates obtained by bootstrapping fifty times and use the variability in the slope coefficients as an estimate of their standard deviations. Since observations between firms could be correlated and then bootstrapped standard errors are biased, I used the cluster option which draws clusters with replacement oppose observations with replacement.

	One-way	Two-way	NW	FE	GLS RE
# significant indicators	46	39	36	51	43
> 0	28	27	23	35	27
< 0	18	12	13	16	16

Table 7: signs of coefficients