More Than Just Contrarians:
Insider Trading in Glamour and Value Firms

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Abstract

This study examines the patterns of, and long-run returns to, directors' (insiders') trades along the Value/Glamour continuum in all stocks listed on the main London Stock Exchange from 1986-2003, and analyzes what these directors' trades add to a "naïve" value-glamour strategy. We consider alternative definitions of "value" in defining trades and in the construction of our benchmark portfolios so that directors' trades are evaluated net of any value-glamour effect, variously defined. We find that directors consistently trade in a contrarian fashion, buying more "value" stocks and selling more "glamour" stocks, with purchases following price falls and sales following price rises. Directors' "buy" signals in "value" stocks generate significant positive abnormal returns while the "sell" signals in "glamour" stocks generate smaller and generally insignificant negative returns. In contrast to the results from US studies, we find that the positive abnormal returns in "value" stocks persist for up to two-years after the initial directors' trading signal. Abnormal returns are particularly concentrated in smaller value stocks, and are robust to alternative definitions of "value".

Keywords: Insider trading, value, glamour

JEL classification: G14

I Introduction

It is well-known that value stocks have higher returns than glamour stocks in the US (Lakonishok, Shleifer and Vishny, 1994) and internationally (Fama and French, 1998). In addition there is evidence that corporate insiders can trade profitably on their private information (Ravina and Sapienza, 2010; Friederich et al. 2001; Gregory, Matatko and Tonks, 1997). This paper investigates the interaction of the value-growth anomaly with the returns to insider trading, to see whether corporate insiders recognise the publicly available value-glamour return differences as mis-pricings and trade on them. In particular, we assess whether corporate insiders' private information is able to generate additional abnormal profits over and above trading on value-glamour mis-valuations. Lakonishok and Lee (2001) and Jenter (2005) have examined this question for the US stock market but produce conflicting results as to whether any abnormal returns remain to insider trading, once an allowance is made for the size and value premia. Our study provides additional out-of-sample evidence for a different stock market, and in doing so provides confirmation that the value-growth anomaly is based on mis-pricing rather than value stocks being riskier investments.

Our results can be summarised as follows. First, we find evidence in the pattern of UK directors' trades that is consistent with a contrarian view of the mis-valuation of value and glamour stocks: directors of value firms tend to buy into their own company stock, and directors of glamour stocks are net sellers. Second, UK corporate insiders generate abnormal returns over and above a simple contrarian strategy of buying value stocks and selling glamour stocks. Third, we show that these returns appear to be concentrated in small value stocks in particular. Fourth we show that our results are robust to alternative measures of value-glamour stocks. These results are difficult to reconcile with a view that such stocks are fundamentally riskier, unless one accepts that directors in such companies have particularly risk-seeking utility functions.

We go considerably further than the extant US studies in investigating whether directors trade in a contrarian fashion, by considering alternative definitions of "value". We assess the returns to directors' trading relative to cash-to-price (CF/P), earnings-to-price (E/P) and dividend-to-price (D/P), in addition to the book-to-market (B/M) measure of value employed

in the earlier papers[1]. These definitions CF/P, E/P and D/P have all been suggested as alternatives to B/M for identifying value stocks. Dissanaike and Lim (2010) show that cash flow measures generate stronger risk-adjusted returns than either book value or earnings based measures, an effect that persists for two years post portfolio formation. We specifically consider the D/P ratio as companies with high dividend yields have been shown to outperform companies with low dividend yields[2], and this is a classification of "value" that has not be considered by any US study. It may be the case that sectional sorts on dividend yields could give rise to quite different classifications to those obtained using CF/P and E/P ratios, as dividends cannot take on a negative value although yields can be zero. Both Lakonishok and Lee (2001) and Jenter (2005) form portfolios based on cumulated past trades over a number of months and compute only the buy-and-hold returns. Ravina and Sapienza (2010) also utilize a buy and hold abnormal return metric, but relative only to market returns. We improve on the measurement of long-run returns by computing a range of long-run return metrics including both buy-and-hold returns, and calendar time returns in a monthly event study framework where the event month is the month of the announcement of the trade. [3]

In the next section we review the literature on the value premium and its relationship with studies of insider trading, allowing us to develop our hypotheses. In Section III we explain our methodology to examine the interaction of directors trading with contrarian investment strategies, and Section IV describes the data set on UK corporate insider trades in all stocks listed on the main London Stock Exchange over the period 1986-2003. We present the results in Section V, and Section VI provides our conclusions.

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[1] Lakonishok and Lee (2001) use only the B/M ratio while Jenter (2005) uses CF/P and E/P in analysing patterns of trading but only the B/M in analysing the long-run returns.

[2] Levis (1989), Morgan and Thomas, (1998) and Dimson et al. (2003) show that for the UK there is a strong correlation between D/P and the average monthly return. For the US similar results are obtained by Dreman (1998) and Arnott (2003).

[3] Due to space considerations we mainly report calendar time returns. However, when we use the B/M ratio to define "value", we additionally report BHARs for comparison with Lakonishok and Lee (2001) and Jenter (2005).

II Literature Review and Development of Hypotheses

Contrarian investment strategies

Contrarian investment strategies, buying (selling) stocks with low (high) prices relative to fundamentals, as an investment strategy has existed for the past 70 years, but confirmation of its existence was in large part due to the work of Fama and French (1992 and 1995) and Lakonishok et al. (1994).[4] While some authors (Kothari et al., 1995; Black, 1993 and MacKinlay, 1995) have argued that these observed premiums are artefacts of the methodology adopted, due to survivorship bias, beta mis-measurement and data snooping, the wealth of international evidence discounts this argument.[5] However the interpretation of the value premium is contentious, and there are two commonly accepted, but conflicting, explanations. One is a rational risk-pricing explanation (Fama and French, 1998), suggesting that because value stocks are fundamentally riskier than glamour stocks (Zhang, 2005), they therefore deliver greater returns as compensation for bearing that risk. The second explanation is based on the irrational behavioural of investors (Lakonishok et al., 1994). The central idea behind this school of thought is that investors systematically overestimate the potential of growth firms to produce superior returns and these systematic errors are responsible for the superior performance of value stocks. Dissanaike and Lim (2010) investigate the performance of a range of portfolio formation devices, ranging from simple sorts on book value, cash flow and earnings measures, to more complex models employing variants of the Ohlson (1995) model and a residual income model (RIM) over the formation period 1987 to 2001. Whilst a version of the Ohlson model and the RIM are the two best

[4] Investment strategies which involve buying (selling) value (glamour) stocks with low (high) prices relative to fundamental measures of value like book value, earnings, cash flow, dividends or sales can be traced back to Graham and Dodd (1934). These papers elaborated on the ideas and evidence uncovered by Stattman (1980) and Rosenberg et al.(1985) on the relation between cross section of returns and the B/M, and by Basu (1983) on the importance of the E/P in explaining returns.

[5] Fama and French (1998) show that the value premium is a truly international phenomenon. The "value" effect has been observed in Japan (Chan et al. 1991), in European countries (Capaul et al., 1993; Brouwer et al., 1997; Forner and Marhuenda, 2003; Antoniou, Galariotis, and Spyrou, 2005), and in the UK (Levis and Liodakis, 2001; Gregory et al., 2001**;**, Dimson et al., 2003; Dissanaike and Lim, 2010).

performing models, portfolio sorts on cash flow measures are not far behind. As the authors conclude (p. 251) "Our most intriguing finding is that simple cash flow multiples appear to have almost as much power in predicting future contrarian profits as the more sophisticated alternatives".

Trading by Corporate Insiders

Although early work on corporate insider transactions by Jaffe (1974), Finnerty (1976) and Seyhun (1986) identified a stock price reaction to these trades, more recently Lakonishok and Lee (2001) find little evidence of any announcement effect of insider trading. Pettit and Venkatesh (1995) suggest that corporate insiders' desire to disguise any informed trading means that it is more likely that they will trade on the basis of information that is only revealed in the long-run.[6] Lakonishok and Lee (2001) find some evidence of long-run abnormal returns after conditioning on size and book-to-market characteristics of the firms. But Jenter (2005) concludes that long-run excess returns, after controlling for size and book-to-market effects, are indistinguishable from zero. These somewhat mixed findings on the stock market response to corporate insider transactions in the US are in contrast to the UK and other countries where studies have shown there are significant short-run and long-run abnormal returns to directors' trading (Gregory et al., 1997; Friederich et al, 2001; Bris, 2005; Fidrmuc et al., 2006; Betzer and Theissen, 2009). Fidrmuc et al. (2006) explain the greater short-run informativeness of UK directors' trades in terms of the regulatory differences between the two markets, because prior to 2002 the required disclosure of insider trades to the market was faster in the UK. Brochet (2010) confirms this conjecture that the disclosure regime does have an impact on short-run stock returns. He finds that after the more

[6] Throughout this paper we use the term directors to refer to both executive and non-executive board members. Trades by corporate insiders in the US and UK are legal provided they are not trading on "material, non-public information" (Securities and Exchange Act, 1934) or "price-sensitive information" (UK Criminal Justice Act 1993).

timely disclosure of US insider trades under SOX 2002, abnormal returns and trading around filings of insider stock purchases were significantly greater after SOX than before.[7]

Interaction of insider trading and contrarian strategies

If glamour firms either underperform and/or value firms outperform in the long-run, then we might expect corporate insiders to trade to take advantage of any perceived mis-valuation. However, buying value stocks and selling glamour stocks would be a simple contrarian strategy which one might expect to see taking place in the absence of any information from insider trades. Whether such strategies generate genuine abnormal returns, net of any risk effects, remains controversial in the absence of a wholly convincing asset pricing model. We attempt to provide insights into this controversy by examining the abnormal returns over and above those that might accrue to a simple value-glamour contrarian strategy.

There are good reasons to believe that managers may engage in such contrarian strategies. There is evidence from the corporate finance literature on the relationship between market mis-valuations and corporate events like IPOs, mergers, SEOs and share repurchases with managers adopting strategies to take advantage of these mis-valuations[8]. If these events are motivated at least in part by their beliefs on the market's valuation or mis-valuation then it is entirely plausible that they will trade strategically when trading on their own accounts in their companies' stocks[9]. So an analysis of insider trading patterns across value and glamour firms provides interesting *prima facie* evidence on whether or not "value" firms are so priced because they are simply riskier, in which case we would not expect to see directors trading any differently between value and glamour categories, or whether such pricing (at least in the

[7] The Sarbanes-Oxley Act 2002 (SOX) changed US insider trading reporting requirements, to a faster reporting regime, but the results in Lakonishok and Lee (2001) and Jenter, (2005) relate to the pre-SOX trade disclosure environment.

[8] Ritter (1991), Loughran and Ritter (1995) for SEOs, Ikenberry et al. (1995b) for share repurchases. Dong et al. (2006), Shleifer and Vishny (2003), Ang and Cheng (2006), for mergers. Lowry (2003), Schultz (2003), Gregory, Guermat and Al Shawawreh (2010) for IPOs.

[9] For example, Jenter (2005) specifically analyses the connection between insider trading, scaled price ratios and secondary equity issues.

case of the sub-group of firms in which insiders trade) looks like mis-valuation. Of course, the basic assumption underlying this is that directors who buy in "value" stocks are unlikely to want to load up more on risk than those who buy in other stocks.

There is evidence from US studies that insiders indeed trade in a contrarian fashion. Rozeff and Zaman (1998), Lakonishok and Lee (2001) and Jenter (2005) all find that corporate insiders tend to be net purchasers of value stocks. Jenter (2005) documents that managers in low B/M, E/P and CF/P ratios sell off shares "more frequently and aggressively" than managers in firms with high values for these ratios, and concludes that the risk compensation argument is not consistent with his evidence, since it is unlikely that company executives as sophisticated contrarian investors would be loading up on a risk factor.

Lakonishok and Lee (2001) also analyse the relationship between long-run returns and firm characteristics by calculating the abnormal returns conditioned on size and B/M and find some evidence of long-run abnormal returns in terms of the spread between buys and sells at the 12-month horizon, but this spread is reduced at longer horizons, and when size and book-to-market benchmarks are included. They note that the (p.103) "biggest spread in returns for small, low B/M stocks. In this segment, which is composed of small growth stocks, insiders tend to sell. However when they buy, the abnormal returns are substantial, 7.2%. Insiders seem to know when to buy." Lakonishok and Lee (2001 p.109) also conclude that it is unlikely that a risk pricing explanation is correct. They note that "it is hard to imagine that companies with extensive insider purchases are substantially riskier in the first year following the trading than they are in the second year".

Jenter (2005) also considers the long-run returns to corporate insider trades but finds that although corporate insiders in the US do act as contrarians, and are more likely to buy value stocks and sell glamour stocks, there are no excess returns to these strategies when appropriate size and value benchmarks are included. He concludes that his results are consistent with Lakonishok and Lee (2001) that in the US there are no abnormal returns to corporate insider trading. However, Lakonishok and Lee have a somewhat different interpretation of their results, claiming that firms with intensive insider buying activity

outperform companies with extensive sale activity, although they acknowledge that development of a profitable trading strategy is "not straightforward" given that the differences in returns are concentrated in smaller stocks. Most recently, Ravina and Sapienza (2010) analyze a sample of US insiders' trades over the period 1986-2003 and, in addition to confirming that insiders act as contrarians, find that overall insiders earn a market adjusted return of 12.1% over 180 days following their purchases, with independent directors (or non-executive directors in UK terms) earning 2.12% less over the same period.

We argue that a conventional "event study" approach is likely to be the most informative approach in a UK context, and indeed would be more informative for US trades post Sarbanes-Oxley. The dispersion of financial year-end dates is more diverse in the UK than the US[10], and given that the presence of proscribed trading periods could result in the clustering of trades, we concentrate on the calculation of calendar time abnormal returns in our study.

From the discussion above, we formulate the following hypotheses:

H1. Corporate insiders buy more shares in value firms than in glamour firms, and sell more shares in glamour firms than value firms, irrespective of the valuation ratio used to classify the firm into value and glamour categories.

H2. If corporate insiders utilise more than a naïve contrarian strategy, then insider buy trades should generate higher positive long-run returns than their value-controlled benchmarks and their sell trades should generate more negative long-run returns than their value-controlled benchmarks.

The premise in our tests is that company directors, with their in-depth knowledge of corporate affairs, can form a better assessment of the true long-run value of their firm than

[10] For example, Agarwal and Taffler (2008) note that 22% of UK firms have March year-ends, with only 37% having December year-ends.

the market. If so, they should trade in the opposite direction to any perceived market mis-valuations in general, and any mis-valuations along the value/glamour continuum in particular, so generating abnormal returns from their trades if and when such mis-valuations are eventually corrected. However, if corporate insiders are simply following a naïve contrarian strategy then we would not expect them to outperform on a risk or style adjusted basis.

III Methodology

Creating the value-glamour groups and the corresponding benchmark portfolios.

To analyze the patterns of insider trading and the long-run returns we group our sample firms into glamour and value groups based on alternative definitions of "value". In the case of the B/M ratio we do this in two ways. First, we form 5 groups sorted *solely* on value namely: Q_{1G}; Q_2; Q_3; Q_4; and Q_{5V}. Q_{1G} is the group of extreme glamour firms and Q_{5V} is the group of extreme value firms. Second, we form 6 groups based on *both* size and B/M ratio. However, for our analysis of this second sort, we drop the two middle groups and concentrate on the four remaining ones, namely a small-glamour group (Q_{SG}), a small-value group (Q_{SV}), large-glamour group (Q_{LG}), and a large-value group (Q_{LV}). This method grouping by size and the valuation ratio allows us to examine how the patterns of trading and returns vary between glamour and value groups for groups of small and large size firms. For CF/P, E/P and D/P we perform our analysis using the second method where we consider both size and the valuation ratio when forming the groups. Specifically, the groups are formed by allocating our sample to control (benchmark) portfolios each year based only on the valuation ratio (for B/M only) or both size and valuation ratio (for all the value/glamour benchmarks).

The benchmark portfolios are formed in the January of each year. In constructing these portfolios we only use constituents of the FTSE All Share index. Following Dimson et al. (2003), we do not consider Fledgling stocks, AIM stocks and other unlisted securities. Following the usual convention (Michou et al., 2007), the B/M ratio is calculated using book values from a financial year-end at least 6 months prior to the portfolio formation date, and form portfolios as at January 1st each year. Thereafter, we follow the methodology in

Gregory et al. (2001) for the construction of the size and B/M benchmark portfolios. Each year, we first sort the firms on the market capitalization in January. As a proxy for the NYSE breakpoints used in the US Fama-French factors, we then use 50th percentile of the market capitalization of the largest 350[11] firms to separate the firms into small and large firms. After grouping companies into small and large companies we independently sort the firms on the basis of the B/M ratio and use the 30th and 70th percentile values of the value ratio of the largest 350 companies to form three value groups. The 6 size and B/M groups are then formed by the intersection of these two independent sorts[12].

Finally, the benchmark portfolios based on earnings-price (E/P), cash flow to price (CF/P) and dividend yield (DY) are formed by using independent sorts on size and the valuation ratio using exactly the same construction described above for the size and B/M portfolios.

Analysing patterns of insiders' trading

To analyse the patterns of trading by insiders we compute 6 measures of insider trades on a monthly basis. These are: 1) net purchase ratio *(npr)*; 2) net number ratio *(nnr)*; 3) net value ratio *(nvr)*; 4) frequency of net trades (*freqnet*); 5) net number of shares traded (*nonet*); and 6) net value of the shares traded (*valnet*). The *npr* is calculated as (Number of Purchase Transactions – Number of Sale Transactions)/(Number of Purchase Transactions + Number of Sale Transactions), and *nnr* and *nvr* are calculated similarly, but using number of shares traded and the value of shares traded per month. We then analyse how these measures change as we move from glamour to value groups. If insiders do trade in a contrarian fashion we would expect these measures to be smaller for glamour firms than for value firms.

Measuring long-run returns

[11] The logic of the largest 350 is to mimic the structure of the FTSE 350 index, which many larger UK fund managers view as the limit of the tradable universe in the UK. Because the index only commenced in 1992, the largest 350 firms is employed as a proxy for that index back to 1986.

[12] For the construction of the 5 groups based on the B/M ratio we simply sort by the B/M ratio, then form quintiles of the B/M and finally allocate the sample firms to the appropriate quintile each year.

Since our portfolio returns are measured in terms of long-run returns, the metrics we use to calculate abnormal returns to directors' trades should be robust to the problems of estimation and inference of long-run returns. We follow the recommendation in Lyon et al. (1999) and use both event-time and calendar-time methods. For event time methods we define the month of announcement of the trade as the event month, and compute buy-and-hold returns (BHARs) over the following 6, 12, 18 and 24 months. In drawing inference from the BHARs we use the skewness adjusted bootstrapped *t-test* (Lyon et al., 1999). However, given recent evidence on the difficulties posed in making statistical inferences based upon BHARs (Mitchell and Stafford, 2000; Ang and Zhang, 2004), we place most emphasis on the calendar time abnormal returns (CTARs). For the calendar time returns, Ang and Zhang (2004) show that the Fama-French three factor model is well-specified and has reasonable power to detect abnormal returns at shorter horizons. Importantly, they show that inferences drawn using the weighted least squares (WLS) approach demonstrate superior performance to a simple OLS approach. They also show that the four-factor Carhart model performs considerably less well in their simulations. Accordingly, we follow the advice in Ang and Zhang (2004) and employ a FF-CTAR[13] methodology with inferences drawn using WLS.

Measuring long-run returns using GLS Calendar time method using Control portfolios

While the abnormal returns computed using the FF-CTAR model discussed above are those that would be observed net of any *simple* value-glamour effects, these returns are capable of two interpretations. If the Fama-French model adequately describes the cross-section of expected stock returns, then the significant abnormal returns shown above are net of any risk effects. Alternatively, if we observe mis-pricing, then the abnormal returns observed are those over and above an investment style predicated on size and book-to-market. Where we use alternative definitions of value, a more appropriate method would be to incorporate the

[13] The Fama-French factors we use are from the factor source book from Gregory, Harris and Michou (2001) and updated in Gregory and Michou (2007).

benchmark portfolio (based on the particular definition chosen) returns within the calendar time method.

To this end, we run calendar time regressions using the model employed in Gregory et al (2010), controlling for possible heteroscedasticity and allowing for some variation between the characteristics of the benchmark portfolio and the characteristics of the event firm portfolio. This approach regresses the relevant directors' trading portfolio on a size and value control portfolio that is *directly* matched to the value characteristic being investigated. If the benchmark perfectly matches the risk characteristics of the directors' trading portfolio, then ß should be unity. The innovation in their paper is to allow for heteroscedasticity in the CTARs by using a GLS approach. Assuming an equally weighted portfolio, a τ-month holding period portfolio return is obtained as

$$R_{\tau,t} = \frac{1}{n_{\tau,t}} \sum_{i=1}^{n_{\tau,t}} R_{it}^{(\tau)}$$

Where $n_{\tau,t}$ is the number of firms in the portfolio and $R_{it}^{(\tau)}$ is the return of a firm i that experienced an event within the last τ months. The assumption is that the variance of this calendar time portfolio can be approximated by some function of $\hat{\delta}_0 + \hat{\delta}_1 n_t$. To ensure that the variance is positive we assume $\hat{Var}_t(u_t) = \exp(\hat{\delta}_0 + \hat{\delta}_1 n_t)$. The model is then operationalized by taking the unrestricted residuals $\hat{u}_t$ from

$$R_{\tau,t} = \alpha + \beta\, R_{bt} + u_t$$

By estimating the regression

$$\log(\hat{u}_t^2) = \delta_0 + \delta_1 \log(n_t) + error_t$$

$\hat{Var}(u_t) = \exp(\hat{\delta}_0 + \hat{\delta}_1 \log(n_t))$ is estimated. Gregory et al (2010) shows that this GLS formulation offers a better fit in terms of adjusted *R*-squared statistics than the alternative White (1980) heteroscedasticity-corrected standard errors. We find a similar result here, with

results being marginally stronger from the GLS method, although inferences from the White (1980) approach are qualitatively identical, except where noted.

IV Data

We examine directors' trading in all UK public limited companies undertaken in the period 1986-2003 listed on the main London Stock Exchange, with returns being accumulated for 24 months post-trade and for up to 6 months pre-trade. We only consider open market purchases and sales of common stock by directors. We eliminate trivial trades by removing trades where the absolute value of the net shares traded per month is less than £20,000[14]. We exclude investment in AIM stocks and other unlisted securities from the analysis. We also do not consider directors' trades in investment trusts, property firms, insurance companies and banks, which is consistent with Gregory et al. (2001) and Dimson et al. (2003). The directors' trading data which includes the trades of both executive and non-executive directors, is from Hemmington Scott Directors' Trading Database for periods post-1995, but before that are from Directus Ltd and hand-collected data as explained in Gregory et al. (1997). Accounting data is from Hemmington Scott, supplemented with data from Datastream. All stock return data and market capitalisation data is from the London Business School Share Price Database (LSPD). We use the LSPD number, together with the Stock Exchange Daily Official List SEDOL numbers for identifying companies when merging the data across these different sources, and cross check all merged data to ensure consistency in the calculation of the relevant variables. The returns are all adjusted for dividends and capital structure changes.

One unique feature of this data set is that it includes firms that have become void during the period 1985-2006, thereby eliminating any survivorship bias. Nagel (2001) notes that it is important to mitigate survivorship bias by including void companies because portfolios

[14] There are several methods adopted to eliminate trivial trades; these include: number of shares traded (Lakonishok and Lee 2001); the value of shares traded; value of shares traded as a percentage of market capitalization (Fidrmuc et al. 2006). Fidrmuc et al. (2006) uses a cut-off of net trade value > 0.1% of market capitalization to identify large trades. However, the Fidmuc et al. (2006) method has a serious problem of biasing the sample towards smaller companies by eliminating many larger companies.

constructed on the basis of accounting data with inherent ex post selection bias do not represent trading strategies that are replicable *ex ante*. We source the FTSE All Share index returns and Treasury Bill return data from the LSPD.

There are a total of 89,774 open market individual trades (63,690 purchases and 26,084 sales) by company directors in their company stock across all UK publically listed companies (excluding AIM companies and accounting for missing market capitalisations) over the period 1986-2003. According to the disclosure rules of the London Stock Exchange, these trades are disclosed to the market within 5 days of the trade. We record each director's trade, and at the end of every calendar month we aggregate these individual trades by value across directors in the same firm to obtain either a net buy or a net sell monthly trading signal for each firm. Applying the various filters and cut-offs explained previously, results in 16,848 monthly directors' trading signals (defined as monthly net purchases or sales) over the whole sample period, with 54% of those being directors' buy signals and 46% being directors' sell signals, in terms of the number of transactions.

V Results

Value-glamour groups based solely on B/M

We initially investigate trading patterns and returns by simply classifying firms on the basis of B/M quintiles. Table 1 shows the means and medians of the various insider trading measures by these B/M quintiles. We can see that there is a clear pattern in the value of the net trades as we move from glamour (Q_{1G}) to value (Q_{5V}) groups, with negative net trades (sales) in the glamour portfolio, and positive net trades (purchases) in the value group. This is due to both an increase in the value of buys and a decrease in the value of sells as we move from the glamour to value groups. For example, directors' in the extreme glamour group are net sellers with a mean net value of shares traded (*valnet*) of £533,000, while they are net buyers in the extreme value group with mean *valnet* of £53,910. All other measures of directors' trading such as the net purchase ratio (*npr*), net number ratio (*nnr*) and net value ratio (*nvr*) exhibit this same pattern, and is consistent with the hypothesis that directors take a contrarian view on the value of their own firms. What is particularly striking is that

whichever measure of trading activity we employ, net directors' purchases increase monotonically as we move through the glamour to value continuum.

We now move on to the analysis of the long-run returns for the simple quintile grouping. In general, the six months pre-event returns (not reported in the tables) are negative, implying that directors buy after a fall in prices. The post trade returns from the FF-CTARs are then shown in Table 2. Our quintiles are numbered from Q_1 (glamour) to Q_5 (value). Strikingly, we see that for all horizons, abnormal returns are earned in the two "value" portfolios following directors' purchases. Returns are not significantly different from zero following purchases in the "glamour" portfolios, nor are they in the (unreported) middle quintile portfolio. These return patterns carry through to 24 months after the purchase signal, although the highest annual percentage rates (APRs) are after 6 months, where the annualised return on the Q_{5V} portfolio is 13.22% and that on the Q_4 portfolio is 11.48%. These APRs progressively tail off to 9.51% and 11.88% respectively after 12 months, and 7.31% and 10.03% respectively after 24 months. Nonetheless, these APRs imply significant abnormal returns continue to be earned up to two years after the date of the directors' trading signal itself. On the "sell" side, abnormal returns are small and insignificant in all cases.

So far, our results are consistent with those from other studies, in that in general positive returns accrue to directors' trades in the longer run, and that the directors' purchasing and selling patterns seem to be contrarian in nature. Directors in glamour stocks are more likely to be sellers, and those in value stocks to be buyers, with net trades showing a clear pattern of contrarian trading. We now extend our analysis to firms partitioned on the basis of *both* size and book-to-market ratios.

Value-glamour groups based on Size and B/M

Table 3 reports the directors' trade statistics for the different size and value-glamour portfolios. We see that value of the net trades increase as we move from the glamour to value categories and the other measures of insider trading also illustrate the contrarian nature of directors' trades. As one moves from the small-glamour to the small-value portfolios, we see that the median value of the net value of shares traded indicates that insiders go from being

net sellers (£34,000) to being net buyers (£23,500). We see a similar pattern for the groups of large companies. Based on the median *valnet* insiders go from being net sellers (£12,200) in large-glamour firms to net buyers (£19,500) in large-value firms. The *nnr*, *npr* and *nvr* measures present a similar picture in both size categories.

Again, the crucial question is whether this apparently contrarian trading behaviour is borne out by the future returns to these trades. Table 4 shows the BHARs to buy trades based on value weighted returns of the size and B/M benchmark portfolios. We emphasise that by construction, these event time portfolios have been cleaned of any simple "value-glamour" effects, and so these returns can be viewed as net of any style or risk effects. Directors generally buy after negative abnormal returns (the one exception being small-value stocks, where pre-purchase abnormal returns are not significant), and these negative abnormal returns are followed by significant reversals in the post-trade period. They sell after significant increases in abnormal returns, although the reversal effect here only occurs in the case of large-value stocks. In every case, on the purchase portfolio their trades generate significant positive abnormal returns in excess of any pure "value-glamour" effect. However, the buy and hold abnormal returns for buy trades show a big differential between the abnormal returns generated by value and glamour firms within both the small and large categories. On a value weighted basis we find that directors' buy trades generate abnormal returns of 12.65% and 20.01% for small-glamour and small-value firms after 24 months, compared to 3.74% and 6.29% for large-glamour and large-value firms. With respect to the sell trades in large-value firms we observe that the BHAR is -8.47% after 24 months, and a significant -4.06% for the (0, +18) month holding period. It is also worthwhile noting that for Q_{LV} the proportion of positive return events go from 54.3% to 39.4% as we go from the (-6,0) to the (0,24) window.

However, the calendar time portfolio regressions reported in Table 5 show that only buy trades in small-value and large-value firms generate consistently significant positive abnormal returns. The abnormal returns observed in the glamour firms when using the event time approaches seem to disappear entirely in calendar time. The abnormal returns are roughly twice as large in the case of small-value stocks compared to large-value stocks, and

again the annualised returns are strongest over the 6 month window, where small-value stock trades earn 13.62% compared to large-value stock trades of 6.04%. After 24 months these annualised rates fall away to 9.51% and 4.91% respectively. The calendar time returns confirm that directors' sales as a whole generate returns that are simply insignificant, and are consistent with findings elsewhere, suggesting that directors tend to sell for liquidity and portfolio re-balancing reasons.

The difference in returns using the event time and calendar time approaches has implications for pseudo market timing. Chan et al. (2007, p.2675) note that to the extent that any post announcement abnormal returns are observed, the critical distinguishing inference of pseudo market timing is that one continues to observe abnormal performance in event time but not under calendar-time. Our results with regard to value stocks are supportive of the notion that directors seem to have genuine (as opposed to pseudo) market timing ability. This is consistent with the evidence on UK IPOs reported in Gregory et al (2010).[15]

In summary, we see that when the B/M ratio is used as an indicator of value, on a size adjusted basis, value firms in which directors buy consistently outperform their benchmark firms. When we employ the Fama-French model as the benchmark, thereby controlling for a particular form of book to market and size, we find that the result holds only for buy trades in small-value and large-value companies. This suggests that insiders in such firms use more than a naïve contrarian strategy at least with respect to their buy trades.

Value-glamour groups based on alternative definitions of value

In this section we consider earnings yield (E/P), cash flow yield (CF/P), and dividend yield (D/P), in addition to B/M, as alternative definitions of value. One might argue that these variables, along with B/M, are all highly correlated with one another, and produce a similar

[15] Chan et al. (2007 p. 2685) notes that the difference in the intercepts between WLS and OLS regressions provides an estimate of the explanatory power of pseudo market timing. Given this, we also run OLS regressions, although in general we do not report these results given the Ang and Zhang (2004) analysis. The results are interesting. For example with the FF3F model we find that the difference in the intercepts is 1.87% (on an annualised basis) for 24 months post trade period. None of the sell trade abnormal returns are significant.

dispersion in average returns. However, several studies have shown that this is not always the case[16]. In the Appendix, we report the correlations between the various valuation ratios to check this. Although the correlations are significant, they clearly indicate considerable variation between value categories, hence justifying a concern with alternative specifications of value classification. It is also worth noting that the correlations are very much in line with those reported by Brouwer et al. (1997: p.1360 table 3) and Gregory et al (2001: p.1226 table A1)[17].

An interesting issue arises if we wish to evaluate the returns to directors' trades *over and above* those accruing to a simple value-glamour strategy. We could simply compute abnormal returns using the FF-CTAR approach in the previous section, and unreported results confirm that the above findings are robust to alternative definitions of value and glamour.[18] However, one problem with such FF-CTAR regressions is that they do not strictly control for our alternative definitions of value and glamour, in that abnormal returns are, by construction of the FF factors, being measured relative to a "value" benchmark derived from book to market ratios. Accordingly, when evaluating returns to alternative value-glamour definitions we prefer to employ benchmarks based on size and the value definition of interest. Having constructed the appropriate benchmark portfolios, we then run the GLS regressions described above. To provide a full comparison, we start with the application of this analysis to our book to market definition of value-glamour. These figures are reported in Table 6. It is clear that switching from FF regressions to GLS regressions based on characteristic-matched portfolios changes inferences, and indeed this is true for all the alternative value-glamour definitions we discuss below. We emphasise that the results in Tables 5 and 6 should be read differently. If the FF model fully describes the expected cross-

[16] See for example, Gregory et al. (2001) and Dimson et al. (2003).

[17] These papers find a slightly lower correlation only between E/P and CF/P at 0.43 and 0.44 respectively. However our correlations are in line with Chan (1991) who report 0.76. Some differences are to be expected as our correlations are only for the sample of firms in which directors have traded.

[18] Full results are available from the authors on request.

section of expected returns, then the Table 5 results strictly represent the abnormal returns to a directors' trading based rule. On the other hand, Table 6 captures the returns from this trading rule that remain over and above a simple value-glamour investment style.

Turning to the results themselves, on the buy side, we see that the alphas on both small-value and small-glamour stocks are significantly positive at all horizons except 24 months in the case of the small-glamour stocks. However, the alphas for the small-value stocks are at least twice those of the small-glamour alphas as a minimum, and over three times those of small-glamour stocks at longer horizons. We also include a GLS test for differences between the value and glamour portfolio returns within each size category, reported in the final column for buy and sell trades respectively. This statistic (VG:pval) is the significance of the alpha in a similar GLS regression but on the returns to a long-short portfolio which is long in Q_{SV} and short in Q_{SG}, or which is long in Q_{LV} and short in Q_{LG}. Here we see that for every horizon from 6 to 24 months the small value "buy" portfolio significantly outperforms the small glamour "buy" portfolio. In addition, we now observe that there are no abnormal returns to directors' trading in larger firms over and above a B/M and size value-glamour strategy at any horizon. Neither are there any significant differences between large value and large glamour "buy" portfolios. On the sell side, generally no abnormal returns are observed, although paradoxically there are small positive abnormal returns to directors' sales at short horizons in small-glamour stocks.[19] However, none of the differences between value and glamour "sell" portfolios are significant for any size grouping at any time horizon.

We now consider each of the alternative valuation ratios in turn starting with the CF/P ratio. Table 7 reports trade characteristics for four size and CF/P groups. Here we see that, as we move within the small group of companies, the net purchase ratio moves from -0.10 to +0.27. Within the large group of large companies we see a similar pattern. The net purchase ratio

[19] This effect is less significant when OLS with White (1980) corrections are employed.

changes from 0.01 to 0.27. This change in ratios is particularly interesting in the light of the Dissanaike and Lim (2010) finding that CF/P provides a strong value signal. When we consider measures relating to the value of the shares traded we find that as we move from Q_{SG} to Q_{SV} the median *valnet* changes from £25,200 (net sales) to £20,800 (net purchases), while within the group of large companies the corresponding values change from £15,268 (net sales) to £20,240 (net purchases). Thus, as in the case of the B/M ratio, we observe that directors adopt a contrarian approach when trading in their own firms.

Table 8 reports the returns over and above a simple value-glamour strategy with CF/P as our value indicator. On the buy side, results are similar to those obtained using B/M. Again, substantial positive abnormal returns are observed at all horizons for small-value stocks, with the monthly alpha ranging from 0.5% at 24 months to 0.9% at 6 months. However, the abnormal return from trades in small-glamour stocks is now significant at close to the 5% level after 24 months. We see that trades in small-value stocks are always significantly greater than those in small-glamour stocks**,** although the magnitude of the difference is less than that observed when B/M is the value indicator, and the difference is only significant at the 10% level for horizons beyond 6 months. This smaller difference between value and glamour is mainly driven by a stronger abnormal return to directors' trading in small-glamour stocks. On the sell side, alphas are insignificant, with the exception of the six month positive abnormal return on small-glamour stocks,[20] and none of the differences between value and glamour "sell" portfolios is significant.

Next we consider the results based on the E/P ratio as the measure of value. Table 9 reports the characteristics for the trades partitioned on the basis of size and E/P. We find that within the group of small companies the net purchase ratio changes from 0 to 0.18 as we move from the glamour to the value groups. For the large firms this changes from 0.05 to 0.20. Again, we find that insiders are contrarian in that they buy more in value firms and sell more in glamour firms. The table shows that as we move from Q_{SG} (small-glamour) to Q_{SV} (small-

[20] Again, less significant with OLS and White (1980) corrections.

value), the value of the net shares traded changes from a median *valnet* of -£13,825 to a median *valnet* of +£18,774. For the large firms this changes from -£11,405 to +£4,000. The returns over and above a simple value-glamour strategy for the E/P signal reported in Table 10 yield very similar results to that from the CF/P strategy, except that the abnormal return in small-glamour stocks is now highly significant at the 24 month horizon. Although the directors' trading outperformance in the small-value group is always considerably larger than that found in the small-glamour group, the difference is only significant at longer horizons.

We finally move on to the results using D/P as a measure of value. Table 11 reports various directors' trade related statistics for the four groups. We see the net purchase ratio changes from -0.17 in the small glamour group to 0.32 in the small value group, and from -0.12 to 0.38 in the large glamour and value groups respectively. So again there seems to be a strong contrarian trend with respect to the number of transactions. In terms of the net value of the shares traded we observe that the median *valnet* changes from £33,126 (net sales) to £ 22,500 (net purchases) as we move from glamour to value within the small category and from £26,093 (net sales) to £24,514 (net purchases). Therefore, the pattern for D/P is similar to that which we have seen for all the other value to price ratios. The performance of directors' trades relative to a value strategy based on dividend yield is reported in Table 12. Results are most similar to those of the CF/P strategy, with 24-month returns to the small-glamour firms being of only marginal significance, whilst those for the small-value group exhibit highly significant abnormal returns. The difference between small value and small glamour "buy" portfolios is always significant, although just outside the 5% level at the 24 month horizon.

What we learn from comparing directors' trading returns to the benchmark value strategies reported above is that although the scale of the returns varies slightly, there are always substantial excess returns to be earned, over and above those obtainable from alternative value-glamour strategies, by following directors' trades in smaller value stocks. These excess returns are generally strongest at the 6 month horizon, where they vary between 100 basis points a month relative to a B/M or D/P strategy, down to 80 basis points from an EP strategy. At 24 months, these returns vary between 50 and 60 basis points per month. Abnormal returns over the benchmark also accrue to directors' trades in small-glamour

stocks, although the scale is smaller, and not always significant at the 24 month horizon. The differences in return to following a directors' trading strategy in small value stocks rather than small glamour stocks is generally significant, except in the case of the E/P strategy at short horizons. The implication of our finding that directors' trades in large-value stocks earn positive returns relative to a Fama-French benchmark, yet not relative to a specific value strategy, is that some value strategies earn abnormal returns that are not fully priced by the Fama-French model. This is entirely consistent with the results reported in Gregory et al (2003), who show that significant alphas accrue to some of the Lakonishok et al (1994) trading strategies in the UK, and more recently by Dissanaike and Lim (2010) who also show that other UK portfolio formation strategies give rise to abnormal returns that are not priced by the Fama-French model.

VI Conclusions

We find that UK directors trade as contrarians, buying in value stocks and selling in glamour stocks. We go on to show that UK directors' purchases generate long-run abnormal returns over and above a simple value-glamour trading rule. These abnormal returns increase monotonically as we move along the glamour-value continuum. These results are in stark contrast to the results for the US, where Lakonishok and Lee (2001) and Jenter (2005) find that the long-run returns to insiders' trades along the glamour-value continuum can be more-or-less explained by a three-factor model.

The particular contribution of this paper is to analyse specifically what directors' trades add to a "naïve" value-glamour strategy. We do this by looking at different definitions of "value" in defining trades, and also by controlling for different definitions of "value" in our benchmark portfolios, so that directors' trades are evaluated net of any value-glamour effect, variously defined. Having considered various ratios as candidates for defining "value" stocks, we find a consistent result from both event time and calendar time methods, that no matter how "value" is defined, directors' purchases in small-value firms generate significant abnormal returns, net of any size and value/glamour effects in the benchmarks. These

abnormal returns persist for over two-years after the initial directors' trading signal. Small-glamour firms do not show superior performance in calendar time, relative to a Fama-French benchmark, in contrast to the result obtained by Lakonishok and Lee (2001) for the US. However, consistent with that paper we show that there appear to be excess returns for this group when benchmark portfolios are formed using alternative definitions of value and glamour. Given that in all cases these returns are those in excess of the returns on a size and valuation ratio matched benchmark portfolio, these returns reflect the fact that directors indeed use more than a naïve contrarian strategy when trading in their companies' stock.

Our first set of our calendar time returns measures outperformance relative to the Fama-French factors, which explicitly assume that book-to-market and size are proxies for risk. On this basis, the abnormal returns to small-value stocks are similar and always highly significant across differing "value" categories. Six-month annual percentage rates (APRs) are highest, with an implied APR of 13.62% after 6 months, gradually tailing off to 9.51% after 24 months for the B/M definition of value. Other definitions of value exhibit similar patterns. [21] The implication is that substantial abnormal returns continue to be earned for up to two years post trade, though the rate of return declines slowly over time. On this basis, for the B/M definition of "value", we show that directors' trades in large-value stocks also generate abnormal returns over and above a simple value-glamour trading rule, and although unreported, this is also true for the CF/P definition.

Our second set of results explicitly compares returns from a directors' trading strategy to those that would result from a simple value-glamour strategy. These results are not contingent on the use of the Fama-French model. Here the consistent result across all definitions of value or glamour is that out-performance is always significant in small-value stocks. For some definitions of "value", there is also some evidence of out-performance in

[21] Not reported in this paper, but available from the authors on request.

small-glamour stocks, but the scale of this out-performance is far smaller than that found in small-value stocks. Whilst trading costs clearly vary between small and large firms, there is no reason to suppose that such costs vary between value and glamour firms within a particular size category. Our evidence for these small-value stocks backs up the Lakonishok and Lee (2001) interpretation that insiders who buy such stocks "know what they are doing".

Taken as a whole, our results confirm that directors' trading signals clearly generate significant positive abnormal returns on the "buy" side, and smaller but typically insignificant negative returns on the "sell" side. An important contribution of our paper is to provide corroborating evidence from outside the US that larger abnormal returns are concentrated in smaller value stocks in particular. The major contribution of this paper is to show that these returns remain even after controlling for varying definitions of "value" and "glamour", and that this effect is significantly greater in the case of small value stocks. This seems particularly important in the light of the recent evidence in Dissanaike and Lim (2010), which shows a substantial variation in the risk-adjusted performance of value strategies. In particular, they show that cash to price measures generate the highest return of any of the simple portfolio formation metrics they investigate. Our results confirm that directors trade as contrarians in such firms, a result that seems difficult to reconcile with such returns being a proxy for some omitted risk variable.

References

Agarwal, V. and Taffler, R., 2008. Does Financial Distress Risk Drive the Momentum Anomaly? *Financial Management* (Autumn), 461-484.

Ang, J.S. and Cheng, Y., 2006. Direct Evidence on the Market-driven Acquisition Theory. *Journal of Financial Research*, 29(2), 199-216.

Ang, J.S. and S. Zhang (2004) 'An Evaluation of Testing Procedures for Long Horizon Event Studies', *Review of Quantitative Finance and Accounting*, Vol. 23, pp 251-274.

Antoniou, A., Galariotis, E. C. and Spyrou, S. I., 2005. Contrarian Profits and the Overreaction Hypothesis: the Case of the Athens Stock Exchange. *European Financial Management*, 11: 71–98.

Arnott, R.D., Dividends and the Three Dwarfs. *Financial Analysts Journal*, 59(2), 4-6.

Basu, S., 1983. The relationship between earnings' yield, market value and return for NYSE common stocks: Further evidence. *Journal of Financial Economics*, 12(1), 129-156.

Betzer, A. and Theissen, E., 2009. Insider Trading and Corporate Governance: The Case of Germany. *European Financial Management*, 15: 402–429.

Black, F., 1993. Beta and Return. *Journal of Portfolio Management*, 20, 8-18.

Bris, A., 2005. Do Insider Trading Laws Work? *European Financial Management*, 11: 267–312.

Brochet, F., 2010. 'Information Content of Insider Trades before and after the Sarbanes-Oxley Act'*, Accounting Review*, 85(2), 419–446

Brouwer, I., Put, J.V. and Veld, C., 1997. Contrarian Investment Strategies in a European Context. *Journal of Business Finance and Accounting*, 24, 1353-1366.

Capaul C., Rowley I and Sharpe W.F., 1993. International value and growth stock returns. *Financial Analysts Journal*, 49(1), 27-36.

Carhart, M.M., 1997. On Persistence in Mutual Fund Performance. *Journal of Finance*, 52(1), 57-82.

Chan, L.K.C., Hamao, Y. and Lakonishok, J., 1991. Fundamentals and Stock Returns in Japan. *Journal of Finance*, 46(5), 1739-1764.

Chan, K., Ikenberry, D.L., and Lee, I., 2007. 'Do managers time the market? Evidence from open-market share repurchases', *Journal of Banking and Finance* 31, pp.2673-2694.

Dissanaike, G. and Lim, K.-H., 2010, The Sophisticated and the Simple: the Profitability of Contrarian Strategies. *European Financial Management*, 16: 229–255.

Dimson, E., Nagel, S. and Quigley, G., 2003. Capturing the Value Premium in the United Kingdom. *Financial Analysts Journal*, 59(6), 35–45.

Dong, M., Hirshleifer, D., Scott, R., and Teoh, S.H., 2006. Does Investor Misevaluation Drive the Takeover Market. *Journal of Finance*, 61(2), 725-762.

Dreman, D., 1998. Contrarian Investment Strategies the Next Generation, Simon and Schuster.

Fama, E.F. and French, K.R., 1992. The Cross-Section of Expected Stock Returns. *Journal of Finance*, 47(2), 427-465.

Fama, E.F. and French, K.R., 1995. Size and Book-to-Market Factors in Earnings and Returns. *Journal of Finance*, 50(1), 131-155.

Fama, E. and French, K., 1998. Value versus Growth: The International Evidence, *Journal of Finance*, 53(6), 1975-1999.

Fama, E.F., 1998. Market efficiency, long-term returns, and behavioral finance. *Journal of Financial Economics*, 49(3), 283-306.

Fidrmuc, J.P., M., Goergen, and Renneboog, L., 2006. Insider Trading, News Releases, and Ownership Concentration. *Journal of Finance*, 61(6), 2931-2973.

Finnerty, J.E., 1976. Insiders' Activity and Inside Information: A Multivariate Analysis. *The Journal of Financial and Quantitative Analysis*, 11(2), 205-215.

Forner, C. and Marhuenda, J., 2003. Contrarian and Momentum Strategies in the Spanish Stock Market. *European Financial Management*, 9: 67–88.

Friederich, S., A. Gregory, J. Matatko, and I. Tonks. 2002. Short-run returns around the trades of corporate insiders on the London Stock Exchange. *European Financial Management* **8 (**1): 7-30.

Graham, B. and Dodd, D., 1934. Securities Analysis, McGraw Hill.

Gregory, A., Harris, R.D.F. and Michou, M., 2001. An Analysis of Contrarian Investment Strategies in the UK. *Journal of Business Finance and Accounting*, 28(9&10), 1192-1228.

Gregory, A., Harris, R.D.F. and Michou, M., 2003. Contrarian Investment and Macroeconomic Risk. *Journal of Business Finance and Accounting*, 30(1-2), 213-256.

Gregory, A., Matatko, J. and Tonks, I., 1997. Detecting Information from Directors' Trades: Signal Definition and Variable Size Effects. *Journal of Business Finance and Accounting*, 24(3), 309-342.

Gregory, A., and Michou, M., 2007, 'Industry Cost of Capital: UK Evidence', Xfi -Working Paper, University of Exeter.

Gregory, A. , C.Guermat and F. Al-Shawawreh (2010) 'UK IPOs: Long Run Returns, Behavioural Timing and Pseudo Timing' *Journal of Business Finance and Accounting*, forthcoming.

Ikenberry, D., Lakonishok, J. and Vermaelen, T., 1995. Market underreaction to open market share repurchases. *Journal of Financial Economics*, 39(2-3), 181-208.

Jaffe, J.F., 1974. Special Information and Insider Trading. *The Journal of Business*, 47(3), 410-428.

Jenter, D., 2005. Market Timing and Managerial Portfolio Decisions. *Journal of Finance*, 60(4), 1903-1949.

Kothari, S.P., Shanken, J. and Sloan, R.G., 1995. Another Look at the Cross-Section of Expected Stock Returns. *Journal of Finance*, 50(1), 185-224.

Lakonishok, J., and I. Lee. 2001, Are insider trades informative? *Review of Financial Studies* 14 (1), 79-11.

Lakonishok, J., Shleifer, A. and Vishny, R.W., 1994. Contrarian Investment, Extrapolation, and Risk. *Journal of Finance*, 49(5), 1541-1578.

Levis, M., 1989, Stock Market Anomalies,-A Re-assessment Based on the UK Evidence, *Journal of Banking and Finance* 13, 675-696.

Levis, M. and Liodakis, M., 2001. Contrarian Strategies and Investor Expectations: The UK Evidence. *Financial Analysts Journal*, 57(5), 43-56.

Loughran, T. and Ritter, J.R., 1995. The New Issues Puzzle. *Journal of Finance*, 50(1), 23-51.

Lowry, M., 2003. Why does IPO volume fluctuate so much? *Journal of Financial Economics*, 67(1), 3-40.

Lyon, J.D., Barber, B.M. and Tsai, C., 1999. Improved Methods for Tests of Long-Run Abnormal Stock Returns. *Journal of Finance*, 54(1), 165-201.

MacKinlay, A.C., 1995. Event Studies in Economics and Finance. *Journal of Economic Literature*, 35(1), 13-39.

Michou, M., Mouselli, S., and Stark, A., 2007, 'Estimating the Fama and French Factors for the UK - An Empirical Review', Working paper, Manchester Business School.

Morgan, G. and Thomas, S., 1998. Taxes, dividend yields and returns in the UK equity market. *Journal of Banking and Finance*, 22(4), 405-423.

Nagel, S., Accounting Information Free of Selection Bias: A New UK Database 1953-1999(October 2001). Available at SSRN: http://ssrn.com/abstract=286272 or DOI: 10.2139/ssrn.286272

Ohlson, J. A. (1995), 'Earnings, Book Values, and Dividends in Equity Valuation'. *Contemporary Accounting Research*, Vol. 11, No. 2, pp.661-678.

Pettit, R. and P.C. Venkatesh, 1995, "Insider Trading and Long-Run Return Performance," *Financial Management* 24, 88-104.

Ravinia, E., and Sapienza, P., 2010. What Do Independent Directors Know? Evidence from Their Trading. *Review of Financial Studies*, 23(3), 962-1003.

Ritter, J.R., 1991. The Long-Run Performance of Initial Public Offerings. *Journal of Finance*, 46(1), 3-27.

Rozeff, M.S. and Zaman, M.A., 1998. Overreaction and Insider Trading: Evidence from Growth and Value Portfolios. *Journal of Finance*, 53(2), 701-716.

Rosenberg, B., Reid, K. and Lanstein, R., 1985, Persuasive evidence of market inefficiency. *Journal of Portfolio Management*, 11, 9–17.

Seyhun, H.N. (1986), "Insiders' profits, costs of trading and market efficiency", *Journal of Financial Economics*, vol. 16, 189-212..

Shleifer, A. and Vishny, R.W., 2003. Stock market driven acquisitions. *Journal of Financial Economics*, 70(3), 295-311.

Schultz, P., 2003. Pseudo Market Timing and the Long-Run Underperformance of IPOs. *Journal of Finance*, 58(2), 483-517.

Stattman, D., 1980. Book Values and Stock Returns, The Chicago MBA: A Journal of Selected Papers, Vol. 4.

White, H., 1980. A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica*, 48(4), 817-838.

Zhang, L., 2005. The Value Premium. *Journal of Finance*, 60(1), 67-103.

Glamour or Value defined by the B/M ratio

Table 1: Directors Trade related Statistics for the Directors' Trading, by B/M Quintiles.

This table reports the means and median for various directors' trading related measures for the different groups formed on the basis of the B/M ratio. Q_{1G} and Q_2 are the glamour groups, Q_4 and Q_{5V} are the value groups; *freqnet* is the net number of transactions; *nonet* is the net number of shares traded; *valnet* is the net value of the shares traded; *npr*, *nnr* and *nvr* are net purchase ratio, net number ratio, and the net value ratio. The *npr* is calculated as (no. of purchases – no. of sales)/ (no. of purchases+ no. of sales); *nnr* and *nvr* are calculated similarly, but using number of shares traded and the value of shares traded.

Group	Statistic	***freqnet*** net number of transactions	***nonet*** net number of shares traded	***valnet*** net value of the shares traded	***npr*** net purchase ratio	***nnr*** net number ratio	***nvr net value ratio***
Q_{1G}	**Mean**	0.10	-113,434.00	-533,924.00	-0.07	-0.11	-0.11
	Median	-1.00	-8,021.00	-25,000.00	-0.33	-0.99	-0.99
Q_2	**Mean**	0.47	-58,082.14	-219,969.10	0.04	-0.01	-0.01
	Median	1.00	-2,757.50	-12,727.50	0.20	-0.38	-0.40
Q_3	**Mean**	0.67	-16,584.36	-133,597.10	0.15	0.12	0.12
	Median	1.00	6,000.00	17,868.12	1.00	1.00	1.00
Q_4	**Mean**	0.91	26,857.99	7,967.48	0.28	0.25	0.25
	Median	1.00	10,528.50	20,720.78	1.00	1.00	1.00
Q_{5V}	**Mean**	1.17	72,260.99	53,909.70	0.40	0.37	0.37
	Median	1.00	20,000.00	22,805.90	1.00	1.00	1.00

Table 2: Alphas from the Fama-French Three factor Calendar Time Portfolio Regressions

This table reports the calendar-time abnormal returns (in decimals) using WLS regressions for 6 months, 12 months, 18 months and 24 months holding periods. APR is the equivalent annual percentage rate of the monthly abnormal returns. The abnormal returns are the α's from the regression, $R_{Pt} - R_{ft} = \alpha_i + \beta_i(R_{mt}-R_{ft}) + s_iSMB_t + h_iHML_t + \varepsilon_{it}$. Where *SMB* is the return to a small minus big factor mimicking portfolio, and *HML* is the return to a high B/M minus low B/M factor mimicking portfolio. Q_{1G} and Q_2 are the glamour groups, Q_4 and Q_{5V} are the value groups. The symbols *,**, and *** denote statistical significance at the 10%, 5%, and 1% and levels, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

	Buys			**Sells**		
Group	**6-Month AR**	**APR**	**WLS-t**	**6-Month AR**	**APR**	**WLS-t**
Q_{1G}	-0.11%	-1.31	-0.53	0.26%	3.17	1.33
Q_2	0.22%	2.67	1.31	0.06%	0.72	0.38
Q_4	0.91%	11.48	5.05***	0.13%	1.57	0.79
Q_{5V}	1.04%	13.22	5.28***	0.26%	3.17	1.42
Group	**12-Month AR**	**APR**	**WLS-t**	**12-Month AR**	**APR**	**WLS-t**
Q_{1G}	-0.01%	-0.12	-0.05	-0.01%	-0.12	-0.04
Q_2	0.20%	2.43	1.28	0.02%	0.24	0.12
Q_4	0.76%	9.51	4.84***	0.04%	0.48	0.29
Q_{5V}	0.94%	11.88	5.28***	0.15%	1.81	0.94
Group	**18-Month AR**	**APR**	**WLS-t**	**18-Month AR**	**APR**	**WLS-t**
Q_{1G}	-0.01%	-0.12	-0.08	-0.19%	-2.26	-1.07
Q_2	0.14%	1.69	0.95	-0.12%	-1.43	-0.94
Q_4	0.68%	8.47	4.71***	-0.05%	-0.60	-0.35
Q_{5V}	0.84%	10.56	5.00***	0.16%	1.94	1.13
Group	**24-Month AR**	**APR**	**WLS-t**	**24-Month AR**	**APR**	**WLS-t**
Q_{1G}	-0.02%	-0.24	-0.11	-0.27%	-3.19	-1.53
Q_2	0.13%	1.57	0.89	-0.08%	-0.96	-0.64
Q_4	0.59%	7.31	4.15***	-0.03%	-0.36	-0.21
Q_{5V}	0.80%	10.03	4.93***	0.13%	1.57	0.91

Table 3: Directors Trade related Statistics for the Size and B/M groups

This table reports the means and medians for various directors' trading related measures for the different groups formed on the basis of size and B/M ratios. Q_{SG} are small-glamour firms, Q_{SV} are small-value firms, Q_{LG} are large-glamour firms and Q_{LV} are large-value firms; *freqnet* is the net number of transactions; *nonet* is the net number of shares traded; *valnet* is the net value of the shares traded; *npr*, *nnr* and *nvr* are net purchase ratio, net number ratio, and the net value ratio. The *npr* is calculated as (no. of purchases – no. of sales)/ (no. of purchases+ no. of sales); *nnr* and *nvr* are calculated similarly, but using number of shares traded and the value of shares traded.

Group	**Statistic**	***freqnet*** net number of transactions	***nonet*** net number of shares traded	***valnet*** net value of the shares traded	***npr*** net purchase ratio	***nnr*** net number ratio	***nvr*** ***net value ratio***
Q_{SG}	**Mean**	-0.17	-128,955.20	-491,576.40	-0.15	-0.18	-0.19
	Median	-1.00	-15,000.00	-34,000.00	-1.00	-1.00	-1.00
Q_{SV}	**Mean**	1.07	53,210.52	-10,021.71	0.38	0.36	0.36
	Median	1.00	20,000.00	23,500.00	1.00	1.00	1.00
Q_{LG}	**Mean**	0.62	-74,307.02	-517,688.40	0.05	-0.01	-0.01
	Median	1.00	-2,000.00	-12,200.00	0.33	-0.28	-0.35
Q_{LV}	**Mean**	1.16	36,670.28	154,351.10	0.25	0.21	0.21
	Median	1.00	6,300.00	19,500.00	1.00	1.00	1.00

Table 4: Buy and Hold Abnormal Returns based on Value Weighted returns of Size and B/M matched Benchmark Portfolio

This table reports the mean buy and hold abnormal returns for directors' buy trades and sell trades, using value-weighted size and B/M matched benchmark portfolio returns for 6 months, 12 months, 18 months and 24 months holding periods; % pos show the proportion of firms with positive abnormal returns; Boot-t is the skewness adjusted t-statistics. Q_{SG} is the small-glamour group, Q_{SV} is the small-value group, Q_{LG} is the large-glamour group and Q_{LV} is the large-value group formed on the basis of their size and B/M ratios.

Group	**Buys**				**Sells**			
Q_{SG}	**Mean**	**% pos**	**Boot-t**	**p-value**	**Mean**	**% pos**	**Boot-t**	**p-value**
(-6,0)	-3.39%	41.54	-3.74	0.0040	15.87%	68.57	28.44	<.0001
(0,+6)	2.69%	51.04	2.92	0.0040	2.39%	50.17	3.60	<.0001
(0,+12)	6.96%	48.89	4.81	<.0001	3.15%	48.02	3.06	0.0020
(0,+18)	9.82%	47.78	5.01	<.0001	3.53%	44.40	2.54	0.0160
(0,+24)	12.65%	45.63	5.44	<.0001	3.66%	42.78	2.23	0.0300
Q_{SV}	**Mean**	**% pos**	**Boot-t**	**p-value**	**Mean**	**% pos**	**Boot-t**	**p-value**
(-6,0)	-0.15%	44.09	-0.25	0.7672	8.76%	60.16	13.01	<.0001
(0,+6)	7.05%	54.71	12.37	<.0001	0.62%	46.69	0.90	0.3157
(0,+12)	12.26%	54.75	14.24	<.0001	0.82%	44.92	0.76	0.4056
(0,+18)	16.50%	54.54	15.17	<.0001	1.19%	44.55	0.88	0.3337
(0,+24)	20.01%	54.92	15.30	<.0001	1.29%	42.49	0.77	0.4156
Q_{LG}	**Mean**	**% pos**	**Boot-t**	**p-value**	**Mean**	**% pos**	**Boot-t**	**p-value**
(-6,0)	-2.34%	44.25	-2.11	0.0739	11.80%	62.81	13.64	<.0001
(0,+6)	-1.10%	45.47	-1.21	0.2278	2.37%	50.98	2.71	0.0040
(0,+12)	1.12%	49.26	0.86	0.3716	2.71%	49.41	2.15	0.0340
(0,+18)	1.38%	47.50	0.87	0.3716	2.00%	50.98	1.18	0.2697
(0,+24)	3.74%	49.53	2.01	0.0480	0.99%	47.46	0.51	0.6094
Q_{LV}	**Mean**	**% pos**	**Boot-t**	**p-value**	**Mean**	**% pos**	**Boot-t**	**p-value**
(-6,0)	-4.32%	38.79	-4.24	0.0020	3.31%	54.27	3.71	<.0001
(0,+6)	1.23%	46.32	1.28	0.1758	-1.45%	45.73	-1.75	0.0959
(0,+12)	2.21%	47.14	1.67	0.0959	-1.62%	49.25	-1.38	0.1578
(0,+18)	4.56%	50.41	2.79	0.0060	-4.06%	44.22	-2.71	0.0120
(0,+24)	6.29%	48.61	3.37	<.0001	-8.47%	39.45	-4.63	0.0020

Table 5: Alphas from the Fama-French Three factor Calendar Time Portfolio Regressions for the value-glamour categories defined by B/M

This table reports the calendar-time abnormal returns (in decimals) using WLS regressions for 6 months, 12 months, 18 months and 24 months holding periods. APR is the equivalent annual percentage rate of the monthly abnormal returns. The abnormal returns are the α's from the regression, $R_{Pt} - R_{ft} = \alpha_i + \beta_i(R_{mt}-R_{ft}) + s_iSMB_t + h_iHML_t + \varepsilon_{it}$. Where *SMB* is the return to a small minus big factor mimicking portfolio, and *HML* is the return to a high B/M minus low B/M factor mimicking portfolio. Q_{SG} is the small-glamour group, Q_{SV} is the small-value group, Q_{LG} is the large-glamour group and Q_{LV} is the large-value group formed on the basis of their size and B/M ratios. The symbols *,**, and *** denote statistical significance at the 10%, 5%, and 1% and levels, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

FF3F	Buys			Sells		
FF3F	**6-Month AR**	**APR**	**Wls-t**	**6-Month AR**	**APR**	**Wls-t**
Q_{SG}	0.13%	1.57	0.53	0.20%	2.55	1.09
Q_{SV}	1.07%	13.62	6.07***	0.20%	2.43	1.18
Q_{LG}	-0.28%	-3.31	-1.32	0.20%	2.92	1.13
Q_{LV}	0.49%	6.04	2.49**	0.10%	1.69	0.76
FF3F	**12-Month AR**	**APR**	**Wls-t**	**12-Month AR**	**APR**	**Wls-t**
Q_{SG}	0.22%	2.67	0.98	0.00%	0	0.02
Q_{SV}	0.93%	11.75	5.81***	0.10%	0.84	0.48
Q_{LG}	-0.24%	-2.84	-1.28	0.00%	0.48	0.19
Q_{LV}	0.48%	5.91	2.77**	0.10%	1.45	0.75
FF3F	**18-Month AR**	**APR**	**Wls-t**	**18-Month AR**	**APR**	**Wls-t**
Q_{SG}	0.17%	2.06	0.81	-0.20%	-2.14	-1.05
Q_{SV}	0.83%	10.43	5.45***	0.10%	0.72	0.45
Q_{LG}	-0.21%	-2.49	-1.18	-0.10%	-1.31	-0.58
Q_{LV}	0.43%	5.28	2.68**	0.00%	0.36	0.22
FF3F	**24-Month AR**	**APR**	**Wls-t**	**24-Month AR**	**APR**	**Wls-t**
Q_{SG}	0.12%	1.45	0.58	-0.20%	-2.73	-1.37
Q_{SV}	0.76%	9.51	4.99***	0.10%	0.96	0.58
Q_{LG}	-0.12%	-1.43	-0.74	-0.20%	-2.37	-1.09
Q_{LV}	0.40%	4.91	2.68**	-0.10%	-1.19	-0.62

Table 6: GLS regressions of Calendar Time Returns of DT portfolio on Size and B/M Matched Control Benchmark Returns

This table reports the results of the GLS regressions of Calendar Time Returns of directors' trading portfolio on size and B/M matched control benchmark returns. The 6, 9, 12, 18 and 24m represents the holding periods. The **α** coefficient is the intercept in this regression and measures the mean monthly calendar time abnormal returns for the particular holding period; β is the coefficient on the size and B/M matched control benchmark in this regression. Q_{SG}, Q_{SV}, Q_{LG}, Q_{LV} are the small glamour, small value, large glamour and large value portfolios respectively. VG:pval reports the significance of the alpha in a similar GLS regression of a log-short portfolio which is long in the small value quintile (Q_{SV})and short in the small glamour quintile (Q_{SG}); and a long-short portfolio which is long in the large value quintile (Q_{LV}) and short in the large glamour quintile (Q_{LG}).

		Buy				Sell			
Group	**Coeff**	**6m**	**t-stat**	**Rsqrd**	**VG:pval**	**6m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	0.961	33.37	84.62%	0.006	0.953	44.25	90.95%	0.369
	α	0.004	2.29			0.003	2.51		
Q_{SV}	β	0.975	33.61	86.22%		0.900	25.48	85.63%	
	α	0.010	7.12			0.001	1.06		
Q_{LG}	β	1.037	27.92	72.24%	0.357	1.030	23.52	73.15%	0.324
	α	-0.002	-0.81			0.003	1.19		
Q_{LV}	β	0.947	16.78	70.34%		1.008	14.67	78.73%	
	α	0.001	0.51			0.000	-0.20		
Group	**Coeff**	**12m**	**t-stat**	**Rsqrd**	**VG:pval**	**12m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	0.984	38.39	87.54%	0.014	0.953	44.25	90.95%	0.152
	α	0.004	2.63			0.003	2.51		
Q_{SV}	β	0.970	39.34	89.72%		0.889	26.69	88.41%	
	α	0.008	7.38			0.001	0.57		
Q_{LG}	β	1.086	35.74	81.00%	0.406	1.036	23.52	75.25%	0.717
	α	-0.001	-0.74			0.001	0.41		
Q_{LV}	β	0.943	17.28	75.36%		1.012	17.87	81.36%	
	α	0.001	0.45			0.000	-0.10		
Group	**Coeff**	**18m**	**t-stat**	**Rsqrd**	**VG:pval**	**18m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	0.990	40.30	88.97%	0.008	0.974	56.66	93.91%	0.432
	α	0.002	1.99			0.000	-0.49		
Q_{SV}	β	0.950	41.40	90.73%		0.891	30.88	90.15%	
	α	0.007	6.72			0.001	0.61		
Q_{LG}	β	1.099	35.86	82.44%	0.196	1.063	26.58	77.08%	0.670
	α	-0.002	-1.10			-0.002	-1.10		
Q_{LV}	β	0.937	17.95	75.89%		0.943	17.31	76.27%	
	α	0.001	0.73			-0.001	-0.48		
Group	**Coeff**	**24m**	**t-stat**	**Rsqrd**	**VG:pval**	**24m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	0.989	39.22	88.96%	0.011	0.976	64.09	93.89%	0.219
	α	0.002	1.55			-0.001	-1.17		
Q_{SV}	β	0.937	41.86	90.72%		0.886	30.39	90.55%	
	α	0.006	6.15			0.001	0.59		
Q_{LG}	β	1.098	35.38	84.58%	0.396	1.090	27.60	79.62%	0.684
	α	-0.001	-0.43			-0.001	-0.48		
Q_{LV}	β	0.955	18.94	77.56%		0.959	18.28	77.92%	
	α	0.001	0.82			-0.002	-1.01		

Glamour or Value defined by CF/P ratio

Table 7: Directors Trade related Statistics for the Size and CF/P groups

This table reports the means and medians for various directors' trading related measures for the different groups formed on the basis of size and CF/P ratios. Q_{SG} are small-glamour firms, Q_{SV} are small-value firms, Q_{LG} are large-glamour firms and Q_{LV} are large-value firms; *freqnet* is the net number of transactions; *nonet* is the net number of shares traded; *valnet* is the net value of the shares traded; *npr*, *nnr* and *nvr* are net purchase ratio, net number ratio, and the net value ratio. The *npr* is calculated as (no. of purchases – no. of sales)/ (no. of purchases+ no. of sales); *nnr* and *nvr* are calculated similarly, but using number of shares traded and the value of shares traded.

Group	Statistic	***freqnet*** net number of transactions	***nonet*** net number of shares traded	***valnet*** net value of shares traded	***npr*** net purchase ratio	***nnr*** net number ratio	***nvr*** net value ratio
Q_{SG}	**Mean**	-0.06	-127,052.30	-484,508.10	-0.10	-0.14	-0.14
	Median	-1.00	-10,000.00	-25,200.00	-1.00	-1.00	-1.00
Q_{SV}	**Mean**	0.87	15,515.20	-74,591.81	0.27	0.25	0.25
	Median	1.00	15,000.00	20,800.50	1.00	1.00	1.00
Q_{LG}	**Mean**	0.60	-66,870.50	-529,953.10	0.01	-0.04	-0.05
	Median	0.00	-3,000.00	-15,268.84	0.00	-0.66	-0.67
Q_{LV}	**Mean**	1.18	-2,854.13	-20,612.60	0.27	0.22	0.22
	Median	1.00	6,000.50	20,240.50	1.00	1.00	1.00

Table 8: GLS regressions of Calendar Time Returns of DT portfolio returns on Size and CF/P Matched Control Benchmark Returns

This table reports the results of the GLS regressions of Calendar Time Returns of directors' trading portfolio on size and CF/P matched control benchmark returns. The 6, 9, 12, 18 and 24m represents the holding periods. The **α** coefficient is the intercept in this regression and measures the mean monthly calendar time abnormal returns for the particular holding period; β is the coefficient on the size and B/M matched control benchmark in this regression. Q_{SG}, Q_{SV}, Q_{LG}, Q_{LV} are the small glamour, small value, large glamour and large value portfolios respectively. VG:pval reports the significance of the alpha in a similar GLS regression of a log-short portfolio which is long in the small value quintile (Q_{SV})and short in the small glamour quintile (Q_{SG}); and a long-short portfolio which is long in the large value quintile (Q_{LV}) and short in the large glamour quintile (Q_{LG}).

				Buy				Sell	
Group	**Coeff**	**6m**	**t-stat**	**Rsqrd**	**VG:pval**	**6m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.015	41.20	88.51%	0.043	0.981	34.74	89.10%	0.304
	α	0.005	3.42			0.003	2.57		
Q_{SV}	β	0.945	37.41	86.48%		0.898	30.76	85.97%	
	α	0.009	7.01			0.001	1.10		
Q_{LG}	β	1.053	19.16	71.21%	0.554	1.135	22.93	74.78%	0.824
	α	-0.001	-0.39			0.002	0.65		
Q_{LV}	β	1.103	23.96	74.81%		1.072	25.73	77.00%	
	α	0.001	0.45			0.001	0.46		
Group	**Coeff**	**12m**	**t-stat**	**Rsqrd**	**VG:pval**	**12m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.030	46.49	90.37%	0.067	0.998	45.00	91.73%	0.809
	α	0.005	3.36			0.001	0.93		
Q_{SV}	β	0.957	42.81	90.48%		0.903	35.64	89.23%	
	α	0.008	7.26			0.001	1.26		
Q_{LG}	β	1.121	22.82	78.99%	0.607	1.117	21.40	75.54%	0.540
	α	-0.001	-0.51			-0.001	-0.53		
Q_{LV}	β	1.114	29.88	81.46%		1.070	29.78	78.00%	
	α	0.000	0.19			0.001	0.32		
Group	**Coeff**	**18m**	**t-stat**	**Rsqrd**	**VG:pval**	**18m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.006	42.96	90.36%	0.069	0.998	48.60	92.76%	0.367
	α	0.003	2.55			0.000	-0.34		
Q_{SV}	β	0.954	42.20	90.83%		0.914	38.55	90.57%	
	α	0.006	6.21			0.001	0.94		
Q_{LG}	β	1.117	21.75	79.15%	0.624	1.125	23.63	77.03%	0.496
	α	-0.001	-0.54			-0.002	-1.06		
Q_{LV}	β	1.120	29.02	81.46%		1.061	28.31	77.19%	
	α	0.000	0.13			0.000	-0.22		
Group	**Coeff**	**24m**	**t-stat**	**Rsqrd**	**VG:pval**	**24m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.006	41.81	90.95%	0.071	0.998	47.43	92.50%	0.246
	α	0.002	1.96			-0.001	-0.73		
Q_{SV}	β	0.930	43.13	91.10%		0.910	37.03	91.34%	
	α	0.005	5.34			0.001	0.92		
Q_{LG}	β	1.125	22.53	80.41%	0.549	1.163	26.95	79.74%	0.579
	α	-0.001	-0.52			-0.002	-1.23		
Q_{LV}	β	1.107	28.74	82.15%		1.070	29.72	79.58%	
	α	0.000	0.31			-0.001	-0.62		

Glamour or Value defined by E/P ratio

Table 9: Directors Trade related Statistics for the Size and E/P groups

This table reports the means and medians for various directors' trading related measures for the different groups formed on the basis of size and E/P ratios. Q_{SG} are small-glamour firms, Q_{SV} are small-value firms, Q_{LG} are large-glamour firms and Q_{LV} are large-value firms; *freqnet* is the net number of transactions; *nonet* is the net number of shares traded; *valnet* is the net value of the shares traded; *npr*, *nnr* and *nvr* are net purchase ratio, net number ratio, and the net value ratio. The *npr* is calculated as (no. of purchases – no. of sales)/ (no. of purchases+ no. of sales); *nnr* and *nvr* are calculated similarly, but using number of shares traded and the value of shares traded.

Group	Statistic	***freqnet*** net number of transactions	***nonet*** net number of shares traded	***valnet*** net value of shares traded	***npr*** net purchase ratio	***nnr*** net number ratio	***nvr*** ***net value ratio***
Q_{SG}	**Mean**	0.12	-86,526.04	-375,099.20	0.00	-0.03	-0.03
	Median	0.00	-5,000.00	-13,825.00	0.00	-0.68	-0.67
Q_{SV}	**Mean**	0.66	-15,033.32	-110,487.60	0.18	0.15	0.15
	Median	1.00	10,000.00	18,774.57	1.00	1.00	1.00
Q_{LG}	**Mean**	0.54	-53,650.26	-469,004.20	0.05	-0.01	-0.01
	Median	1.00	-1,501.50	-11,405.00	0.26	-0.35	-0.33
Q_{LV}	**Mean**	1.02	-20,909.36	-85,663.50	0.20	0.13	0.13
	Median	1.00	4,000.00	17,987.29	1.00	1.00	1.00

Table 10: GLS regressions of Calendar Time Returns of DT portfolio returns on Size and E/P Matched Control Benchmark Returns

This table reports the results of the GLS regressions of Calendar Time Returns of directors' trading portfolio on size and E/P matched control benchmark returns. The 6, 9, 12, 18 and 24m represents the holding periods. The α coefficient is the intercept in this regression and measures the mean monthly calendar time abnormal returns for the particular holding period; β is the coefficient on the size and B/M matched control benchmark in this regression. Q_{SG}, Q_{SV}, Q_{LG}, Q_{LV} are the small glamour, small value, large glamour and large value portfolios respectively. VG:pval reports the significance of the alpha in a similar GLS regression of a log-short portfolio which is long in the small value quintile (Q_{SV})and short in the small glamour quintile (Q_{SG}); and a long-short portfolio which is long in the large value quintile (Q_{LV}) and short in the large glamour quintile (Q_{LG}).

				Buy				Sell	
Group	**Coeff**	**6m**	**t-stat**	**Rsqrd**	**VG:pval**	**6m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.025	39.15	85.87%		1.011	40.19	88.00%	
	α	0.005	3.10			0.003	2.08		0.674
Q_{SV}	β	0.969	42.95	90.39%	0.178	0.889	32.91	85.40%	
	α	0.008	6.97			0.002	1.63		
Q_{LG}	β	0.970	17.98	66.03%		1.106	20.54	72.83%	
	α	-0.001	-0.44			0.004	1.33		0.716
Q_{LV}	β	1.080	28.42	74.84%	0.672	0.994	23.52	77.63%	
	α	0.000	0.13			0.002	1.37		
Grou	**Coeff**	**12m**	**t-stat**	**Rsqrd**	**VG:pval**	**12m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.024	51.47	89.92%		1.028	45.48	89.49%	
	α	0.005	3.79			0.001	1.13		0.984
Q_{SV}	β	0.978	47.95	91.76%	0.112	0.900	37.46	89.27%	
	α	0.007	7.62			0.001	1.29		
Q_{LG}	β	1.042	21.60	74.30%		1.072	20.79	73.64%	
	α	-0.001	-0.35			0.001	0.31		0.774
Q_{LV}	β	1.090	32.63	81.57%	0.930	1.026	29.45	82.01%	
	α	-0.001	-0.31			0.002	1.06		
Group	**Coeff**	**18m**	**t-stat**	**Rsqrd**	**VG:pval**	**18m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.013	51.28	90.94%		1.018	45.38	90.98%	
	α	0.004	3.00			0.000	0.11		0.501
Q_{SV}	β	0.966	47.79	91.52%	0.053	0.871	20.50	66.78%	
	α	0.007	6.74			0.003	1.35		
Q_{LG}	β	1.073	21.78	76.70%		1.096	22.38	74.69%	
	α	-0.001	-0.50			-0.001	-0.30		0.719
Q_{LV}	β	1.102	32.40	82.54%	0.536	1.044	31.19	81.49%	
	α	0.001	0.37			0.000	0.19		
Group	**Coeff**	**24m**	**t-stat**	**Rsqrd**	**VG:pval**	**24m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.001	46.65	90.56%		1.010	40.85	91.20%	
	α	0.003	2.82			0.000	-0.15		0.967
Q_{SV}	β	0.959	46.70	91.56%	0.041	0.916	42.50	92.07%	
	α	0.006	5.83			0.001	1.32		
Q_{LG}	β	1.103	25.18	79.15%		1.148	23.82	77.46%	
	α	0.000	-0.18			-0.001	-0.49		0.734
Q_{LV}	β	1.101	35.18	83.53%	0.524	1.051	30.37	82.14%	
	α	0.001	0.35			0.000	-0.31		

Glamour or Value defined by D/P ratio

Table 11: Directors Trade related Statistics for the Size and D/P groups

This table reports the means and medians for various directors' trading related measures for the different groups formed on the basis of size and D/P ratios. Q_{SG} are small-glamour firms, Q_{SV} are small-value firms, Q_{LG} are large-glamour firms and Q_{LV} are large-value firms; *freqnet* is the net number of transactions; *nonet* is the net number of shares traded; *valnet* is the net value of the shares traded; *npr*, *nnr* and *nvr* are net purchase ratio, net number ratio, and the net value ratio. The *npr* is calculated as (no. of purchases – no. of sales)/ (no. of purchases+ no. of sales); *nnr* and *nvr* are calculated similarly, but using number of shares traded and the value of shares traded.

Group	**Statistic**	***freqnet*** net number of transactions	***nonet*** net number of shares traded	***valnet*** net value of shares traded	***npr*** net purchase ratio	***nnr*** net number ratio	***nvr*** ***net value ratio***
Q_{SG}	**Mean**	-0.18	-136,643.80	-507,240.30	-0.17	-0.20	-0.20
	Median	-1.00	-11,144.50	-33,126.46	-1.00	-1.00	-1.00
Q_{SV}	**Mean**	1.04	19,561.84	-42,369.85	0.32	0.31	0.30
	Median	1.00	16,554.00	22,500.00	1.00	1.00	1.00
Q_{LG}	**Mean**	0.07	-92,897.33	-617,816.30	-0.12	-0.17	-0.17
	Median	-1.00	-6,602.00	-26,093.92	-0.50	-1.00	-1.00
Q_{LV}	**Mean**	1.53	33,965.18	132,937.40	0.38	0.34	0.34
	Median	1.00	9,251.00	24,518.75	1.00	1.00	1.00

Table 12: GLS regressions of Calendar Time Returns of DT portfolio returns on Size and D/P Matched Control Benchmark Returns

This table reports the results of the GLS regressions of Calendar Time Returns of directors' trading portfolio on size and D/P matched control benchmark returns. The 6, 9, 12, 18 and 24m represents the holding periods. The **α** coefficient is the intercept in this regression and measures the mean monthly calendar time abnormal returns for the particular holding period; β is the coefficient on the size and B/M matched control benchmark in this regression. Q_{SG}, Q_{SV}, Q_{LG}, Q_{LV} are the small glamour, small value, large glamour and large value portfolios respectively. VG:pval reports the significance of the alpha in a similar GLS regression of a log-short portfolio which is long in the small value quintile (Q_{SV})and short in the small glamour quintile (Q_{SG}); and a long-short portfolio which is long in the large value quintile (Q_{LV}) and short in the large glamour quintile (Q_{LG}).

		Buy				Sell			
Group	**Coeff**	**6m**	**t-stat**	**Rsqrd**	**VG:pval**	**6m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	0.982	33.34	82.31%	·	0.952	37.19	89.86%	0.120
	α	0.004	2.17		0.007	0.003	2.44		
Q_{SV}	β	0.965	36.79	87.72%		0.912	34.53	85.20%	
	α	0.010	8.09			0.000	0.03		
Q_{LG}	β	0.948	22.28	74.34%	0.910	0.945	18.45	71.37%	·
	α	-0.001	-0.50			0.004	1.67		0.168
Q_{LV}	β	1.125	23.00	73.13%		1.011	22.07	75.59%	
	α	-0.001	-0.33			0.000	-0.14		
Group	**Coeff**	**12m**	**t-stat**	**Rsqrd**	**VG:pval**	**12m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.033	39.62	88.30%	0.023	0.967	41.64	91.42%	·
	α	0.004	2.88			0.002	1.91		0.211
Q_{SV}	β	0.962	44.72	91.55%		0.906	40.45	88.53%	
	α	0.008	8.37			0.000	0.07		
Q_{LG}	β	0.991	22.41	78.85%	0.731.	0.972	19.90	74.63%	0.450
	α	0.000	-0.18			0.002	0.78		
Q_{LV}	β	1.110	26.78	79.32%		1.021	23.52	77.86%	
	α	-0.001	-0.72			0.000	-0.24		
Group	**Coeff**	**18m**	**t-stat**	**Rsqrd**	**VG:pval**	**18m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.021	38.80	88.95%	0.042.	0.966	46.60	92.29%	0.721
	α	0.003	2.21			0.001	0.96		
Q_{SV}	β	0.957	50.18	92.56%		0.919	43.89	90.16%	
	α	0.006	6.90			0.000	0.44		
Q_{LG}	β	1.024	23.21	77.49%	0.569	1.018	23.87	78.16%	0.857
	α	0.000	-0.02			0.000	0.04		
Q_{LV}	β	1.080	22.75	80.18%		1.010	25.14	80.23%	
	α	-0.002	-0.82			0.000	-0.24		
Group	**Coeff**	**24m**	**t-stat**	**Rsqrd**	**VG:pval**	**24m**	**t-stat**	**Rsqrd**	**VG:pval**
Q_{SG}	β	1.019	38.92	88.70%	0.053	0.972	50.75	92.60%	0.900
	α	0.002	1.69			0.001	0.79		
Q_{SV}	β	0.945	51.66	92.89%		0.915	40.39	90.59%	
	α	0.005	5.90			0.001	0.96		
Q_{LG}	β	1.048	24.69	78.11%	0.881	1.046	27.02	80.58%	0.882
	α	0.000	-0.03			0.000	-0.26		
Q_{LV}	β	1.097	28.85	82.72%		1.015	26.24	82.21%	
	α	0.000	-0.26			-0.001	-0.55		

Appendix

Correlations between the Mcap, B/M, CF/P, D/P and E/P

This table reports the correlation coefficients between the Mcap, B/M, CF/P, D/P and E/P. These correlations are the averages of the yearly correlations over the eighteen years from 1986-2003. Mcap is the Market Capitalisation, B/M is the Book to Market ratio, CF/P is the Cash Flow to Price ratio, D/P is the Dividend to Price ratio and E/P is the Earnings to Price ratio.

Variables	Mcap	B/M	CF/P	D/P	E/P
Mcap	1.00	.	.	.	.
B/M	-0.07	1.00	.	.	.
CF/P	0.00	0.33	1.00	.	.
D/P	0.02	0.43	0.42	1.00	.
E/P	0.02	0.23	0.68	0.31	1.00