BLOCKHOLDER INTERVENTION VERSUS THREAT OF EXIT[*]

David R. Gallagher[† a,b,c]

Peter A. Gardner[‡ a,d]

Peter L. Swan[§ a]

Current Draft: December 10, 2008

[a] Australian School of Business, The University of New South Wales, Sydney NSW 2052, AUSTRALIA
[b] McCombs School of Business, The University of Texas at Austin, Austin, TX 78705 USA
[c] Capital Markets CRC Limited, Sydney NSW 2000 AUSTRALIA
[d] Plato Investment Management, Sydney, NSW 2000, AUSTRALIA

ABSTRACT

The role of blockholders on the register constitutes a significant puzzle. Concentrated blockholders could intervene (i.e., exercise "voice") so as to improve firm governance mechanisms. Alternatively, in theory at least, the presence of many blockholders could effectively discipline management if blockholders adopt the "Wall Street walk" (Edmans and Manso (2008)). Utilizing unique daily blockholder trading data, we obtain a number of significant results: (*i*) a sizeable portion of blockholder trading takes the form of "stock churning"; (*ii*) churning is profitable and, moreover, (*iii*) profitability diminishes in the number of blockholders—blockholders are thus informed and in receipt of a common signal; (*iv*) pricing efficiency is increasing in the number of blockholders trading simultaneously; (*v*) both the number of blockholders trading simultaneously and magnitude of the swings in these churning trades significantly improve long-term firm performance; (*vi*) when stock-overweight and concentrated blockholders do not churn there is no long-term effect; and (*vii*) blockholders seem to recognize the benefits of managerial discipline since stockholdings increase with churning activity. Thus we find that the "threat of exit" speaks more authoritatively than "voice".

JEL Classification: D82, G14, G23, G32
Keywords: Exit, Voting with your feet, Wall Street walk, Churning, Governance.

[*]Research funding from the Australian Research Council (DP0346064) is gratefully acknowledged. The authors also thank Alex Edmans, David Feldman, Jarrad Harford, Ernst Maug, Jianfeng Shen, Geoff Warren and seminar participants from The University of Western Australia, The University of Queensland, The University of Adelaide, the Reserve Bank of Australia, and the Australasian Finance and Banking Conference for helpful comments and suggestions on an earlier version of the paper.
[†] E-mail: david.gallagher@mccombs.utexas.edu
[‡] Corresponding Author. E-mail: peter.gardner@plato.com.au
[§] E-mail: peter.swan@unsw.edu.au

It is well known that concentrated blockholders may compete with each other to either extract private benefits of control (e.g., Zweibel (1995), Barclay and Holderness (1989), and Laeven and Levine (2007)), or to improve corporate governance (e.g., Shleifer and Vishny (1986), Admati, Pfleiderer and Zechner (1994), Maug (1998), Kahn and Winton (1998), and Mello and Repullo (2004)). Of critical importance is that both forms of competition require direct intervention in one form or another in an effort to change the way the firm operates. In this paper we analyze a new and alternative form of competition based on the extraction of trading profits from a common signal of managerial performance. In our framework, direct intervention need never occur.

In the literature cited above, blockholders gain by exercising control. Hence, the fewer blockholders there are to share this rent-extraction, or alternatively, performance-enhancement gain from control, the better is the outcome for the controller. There is, therefore, a severe free-rider problem that is best overcome by a single blockholder gaining domination by eliminating its rivals. We can best think of this blockholder monitoring firm management by exercising blockholder "voice" (Hirshman (1970)), or via "lobbying", "influence", and other forms of direct intervention. By contrast, in our approach it is not necessary for blockholders to intervene in this way. In our framework, blockholders simply set out to maximize short-term trading profits with no desire to monitor or intervene, but the result is quite remarkable: more disciplined firm management, giving rise to long-term firm outperformance and significantly better blockholder performance.

We believe our paper to be the first to demonstrate the importance of this alternative form of competition alluded to above, in which the winner best interprets "managerial voice" to gain trading profits. In other words, successful "managerial voice" is based on understanding the consequences of managerial actions, observed as closely as possible at first hand. Multiple blockholders, perhaps in receipt of managerial briefings, compete to be the first to make profitable trading decisions. These signal-extraction activities can be thought of as a form of legal insider trading, but at one step removed. Furthermore, we show for our sample at least, that this form of competition for "managerial voice" creates long-term shareholder wealth. In contrast to "managerial voice", traditional "blockholder voice" is directed at the "ear" of the manager. When this competition for managerial voice is absent with conditions that appear ideal for blockholder voice, we find to the contrary that there is no impact on shareholder wealth.

In contrast to conventional theory, in which it is advantageous to eliminate rivals so as to more effectively exercise voice, Edmans and Manso (2008) (hereafter, EM) hypothesize that blockholders both receive and trade on a common signal of superior information, such as the performance (or lack thereof) of the manager, and by doing so earn positive returns. The greater the number of informed blockholders, the more intensively they collectively trade so as to exploit the common informational signal. If the signal is good (bad), indicating the future price will increase (decline), it is in both the individual and collective interests of all blockholders receiving the signal to buy (sell). Buying (selling) brings forward the inevitable price increase (decline) and hence rewards (punishes) the manager who either owns stock in the enterprise or has an incentive scheme in place. This "threat of exit", otherwise known as the "taking the Wall Street walk", the "Wall Street rule", or "voting with your feet", credibly rewards (penalizes) the stock-incentivized manager, who *ex ante* has greater incentive to provide effort by means of costly hidden actions.[1] By contrast, with the single activist blockholder that does not have a great deal of incentive to trade, the more informed blockholders there are that reward (penalize) the well- (poorly-) performing manager, the greater will be future firm performance. Thus, a larger number of informed blockholders may enhance rather than detract from future firm performance.

While the EM model postulates that multi-blockholders trade on the basis of information, Dow and Gorton (1997) explain apparently excessive trading by blockholders (institutional investors) subject to delegated portfolio management, in terms of clients unable to distinguish between managers "simply doing nothing" and "actively doing nothing" by trading to excess, e.g., by "churning". We believe our paper is the first to adjudicate between EM's informational hypothesis on the one hand, and the client-exploitation hypothesis on the other. In particular, we demonstrate that investment managers that appear to be actively doing nothing are trading on a common signal of information that is of considerable benefit to clients. This finding is of considerable importance as it is far from obvious *a priori* that investment managers intensively engaged in short-term churning are in fact trading on information. The alternative is that they could be actively doing nothing, or otherwise be subject to overconfidence or similar behavioral biases in ways which are harmful to clients.

Since the EM model nests traditional blockholder (institutional) intervention and an informational trading equilibrium with multiple blockholders in a Cournot oligopoly, we propose and test a number of new but simple hypotheses to distinguish between the nested theories. Some of these tests leverage off seminal microstructure hypotheses. Why then do we believe that we are the first to be able to provide such tests? The difficulty in carrying out

[1] Lowenstein (1988) refers to the universality of the Wall Street rule.

these tests arises because they require identification of the number of blockholders trading simultaneously. We are able to overcome this problem because of the unique nature of our data. It contains the daily trades of a representative group of investment fund managers (constituting multi-blockholders) replete with investor identities, such that we know the number of blockholders trading in each stock on every day. Moreover, our dataset has an added advantage in that it contains detailed information on the actual costs incurred for each daily trade for most of these blockholders.

First, if we take the view that it is blockholder trading, rather than the exercise of blockholder voice, which is of importance, we must define what is meant by blockholder trading that threatens exit. Otherwise, our approach can have little empirical relevance. We define such activity as "churning" trades that involve short-term sequences such as "buy-sell-buy" or "sell-buy-sell". Our first hypothesis (*H1*) is that this apparently quite irrational and costly churning activity forms a very significant proportion of all investment manager trades. Far from blockholdings being predominantly stable, as is required for the exercise of the blockholder voice proposition, short-term churning is a major activity and forms a very significant portion of overall stock turnover. We indeed confirm this hypothesis (i.e., do not reject it).

Second, for the trading view to be substantive, blockholders must be in receipt of valuable information. Thus churning activity must be profitable for blockholders to undertake, even after accounting for trading costs and self-selection biases. Hence our second hypothesis (*H2*), which we also confirm, asserts that churning trades are profitable.

An additional requirement from the perspective of substantive trading is that all blockholders must receive a valuable common signal. The value of this common signal, as with the tendency for any underpriced resource to be over-exploited, must be less valuable to each individual blockholder, the greater the number of blockholders trading simultaneously based on the same information. Hence our third hypothesis (*H3*) which asserts that blockholder trading profitability is declining monotonically in the number of blockholders trading simultaneously, e.g., as might be predicted by a microstructure model of blockholder trading in Cournot equilibrium. Once again, this hypothesis is supported.

While it is true that these findings provide, we believe, the first explicit tests of the Kyle (1989), Holden and Subrahmanyam (1992) and Foster and Viswananathan (1993) microstructure models, its importance in terms of disciplining management far transcends this. This is because new information based on the common signal is more rapidly incorporated into the stock price when there are more blockholders trading simultaneously. Therefore, management is more quickly and effectively disciplined via the threat of exit.

We propose a convergence between microstructure and corporate governance that is new to the literature; so as to reveal important common empirical regularities between blockholder behavior and market quality. Hence our fourth hypothesis (*H4*) is that pricing efficiency as captured by, for example, lower bid-ask spreads, should be increasing in the number of blockholders trading simultaneously. This decline in trading costs improves the sensitivity of the manager's incentive contract to the stock price, boosting managerial performance. To the best of our knowledge, this trading cost hypothesis also provides a new empirical test of the Kyle (1989), Holden and Subrahmanyam (1992) and Foster and Viswananathan (1993) microstructure models utilizing actual data on the number of blockholders trading simultaneously. Once again, our hypothesis is supported.

Now that these critical foundations have been laid, we come next to the most crucial test of the trading hypothesis. Namely, the more blockholders there are churning simultaneously (*H5A*), and the larger the magnitude of the swings in these churning trades from peak to trough through the churning sequence (*H5B*), the greater should be the firm's subsequent outperformance. Management is better disciplined when the overall trade aggressiveness, i.e., the collective threat of exit by all blockholders trading simultaneously, is greater. Therefore, future performance is enhanced. Once again, our findings support these twin hypotheses (*H5 A&B*).

Next, we return to the traditional concentrated blockholder who exercises voice by either extracting rents (e.g., from minorities) or, for example, utilizes proxy votes to improve corporate governance and thus performance. If voice is effective in the form of rent extraction by blockholders, then the firm's stock price should fall in line with subsequent performance deterioration. If voice is effective in terms of improving governance, for example, then subsequent firm performance should be higher, the fewer are the number of multi-blockholders trading simultaneously as concentration ameliorates the free-rider problem. We have already seen with respect to hypothesis five (*H5*) that this is unlikely to be the case. Hence our sixth hypothesis (*H6*) asserts that if conditions are ideal for exercising blockholder voice, with blockholders overweight the stock coupled with a maximum of two blockholders and the complete absence of churning trades, then under these circumstances there will be no long-term out- or under-performance. This hypothesis is supported as we find there is no significant impact.

Even with significant statistical support for these six hypotheses, confidence in our findings is enhanced by additional confirmatory evidence: by testing to see if blockholders act as if they understand that the short-term trading profits earned from churning enables these profits to be multiplied many times over by price appreciation of existing stock holdings. These additional profits are generated by the long-term out-performance stemming from managerial discipline. Hence our seventh (and final) hypothesis (*H7*) is that existing blockholder stockholdings are increasing in the degree of churning activity so as to reap these much higher long-term profits. In support of this hypothesis, we find that blockholders are more likely to be overweight (relative to index weight) in a stock if the blockholder is also an intensive churner in that stock.

Our study is organized as follows. The next section provides a review of the literature, and this is followed by a brief exposition of the key features of the EM model that forms the basis of our testable hypotheses. Section 3 exposits our methodology based on churning trades, which we represent as trade package sequences executed within a three-month period. Section 4 provides a description of the data and institutional arrangements impacting on the investment management process for our sample of blockholders. Section 5 presents the empirical results, and the final section concludes and makes suggestions for future research.

1. Literature Review

Additional to the theoretical literature on exercising voice cited above, Burkart, Gromb and Panunzi (1997), Bolton and von Thadden (1998), and Faure-Grimaud and Gromb (1997) examine the limits to control of a single blockholder due to other concerns such as liquidity and the free float. In Winton (1993), intervention is most effective with a single blockholder due to the free-riding problem. Bennedsen and Wolfenzon (2000) examine efficiency reasons for coalitions of blockholders. Maury and Pajuste (2005) and Gomes and Novaes (2006) also examine optimal blockholder composition but not from the perspective of exit.

The literature on the effectiveness of the exercise of intervention (voice) due to activism or control is mixed. McConnell and Servaes (1990) find some evidence of an impact of institutional ownership on Tobin's *q* in conjunction with insider ownership. Gillan, Kensinger and Martin (2000), Clifford (2008), Chen, Harford and Li (2007) and Del Guercio, Seery and Woidtke (2008) all find some beneficial impacts of shareholder activism. Becht, Franks, Mayer and Rossi (2008) indicate successful intervention by an activist fund. In the same vein, Hartzell and Starks (2003) and Almazan, Hartzell and Starks (2005) find a negative impact on the level of CEO compensation. Smith and Swan (2008a) provide evidence which challenges these findings on CEO compensation. Similarly, Davis and Kim (2007) find for their sample of mutual funds that institutional investors always vote for higher managerial pay in support of management. Karpoff, Malatesta and Walkling (1996), Wahal (1996), Del Guercio and Hawkins (1999), and Gillan and Starks (2000) do not find much evidence of longer-term improvement from blockholder activism.

A difficulty that is commonly neglected by advocates of the efficacy of intervention and voice is that most large firms do not appear to have just one or two major blockholders. Such a structure is required to minimize free-riding. Accordingly, it is implied by the voice hypothesis. In fact, most such firms have a larger number of smaller blockholders (see, e.g., Barca and Becht (2001), Faccio and Lang (2002), Maury and Pajuste (2005), Laeven and Levine (2007), Holderness (2008), and Gregoric, Alekandra, Masten and Zajc (2008)).

The theoretical origins of the threat of exit as a disciplinary device lie in the link between stock prices and managerial effort as modeled by Holmstrom and Tirole (1993) in their seminal work. More recently, Calcagno and Heider (2007**)** extend the Holmstrom and Tirole model by positing whether more noise trading, in and of itself, improves managerial contracting. Neither contribution considers exit. Noe (2002) provides the first model to propose that multi-blockholders might be beneficial to institutional monitoring and hence firm performance. The information structure in Noe (2002) differs from EM and the present paper. The knowledge of each blockholder is confined to whether that blockholder is monitoring or not. Hence, there is no informational signal common to all blockholders, and consequently no link between price informativeness and managerial effort. Also, there is an additional implication of the informational structure in Noe’s (2002) model, namely that trading profitability should be independent of the number of blockholders trading simultaneously.

Admati and Pfleiderer (2008) and Edmans (2008) have each recently provided models of blockholder exit. Where they differ from EM and the present paper is in only considering the one blockholder. The model provided by EM, in particular, explains why institutional trading volume is high as multiple informed traders in receipt of a common signal will trade excessively from the perspective of an individual blockholder.

When there are multiple blockholders, all receiving essentially similar private information, as in Kyle (1989) and Holden and Subrahmanyam (1992), competition between them quickly impounds new information into prices. Since multiple blockholders cannot coordinate this trading behavior to maximize overall profit, they encourage "excessive" trading relative to the traditional informational monopoly blockholder case from the private perspective of the individual blockholder. Consistent with these models, Brennan, Jegadeesh and Swaminathan (1993) find that the prices of stocks with more analyst-followers adjust more rapidly to new information. Using the number of analyst-followers as a proxy for the number of informed traders, Brennan and Subrahmanyam (1995) find an association between more analyst-followers and market depth in the form of the Kyle Lambda. However, apart from these indirect tests, to the best of our knowledge, there are no studies utilizing actual data on the number of informed blockholders, prior to our present paper, providing rigorous tests of these seminal microstructure models.

We now turn to empirical tests of models of exit. Wermers (2000) provides a comprehensive long-term analysis of mutual fund performance, showing that high turnover funds on average out-perform the Vanguard Index 500 fund on a net of transaction costs basis. Garvey and Swan (2002) provide the first empirical tests of the Holmstrom and Tirole (1993) model to show that boards tend to delegate pay to the market by the use of incentives when the stock price is informative due to blockholder trading. Parrino, Sias and Starks (2003) show that some larger institutional investors are more likely to exit a poorly performing stock prior to a forced CEO departure. However, unlike the present paper, they do not consider multiple blockholders, the role of exit in improving many aspects of market microstructure including price informativeness, nor the systematic way in which firm performance improves following institutional exit or churning. Faure-Grimaud and Gromb (2004) show that higher stock liquidity causes the sensitivity of the firm manager's stake to become greater. This in turn improves incentives. Maury and Pajuste (2005) find that a more equal distribution of blockholders raises firm value. Agarwal (2007) finds evidence that it is institutional investors that gives rise to stock liquidity rather than any attraction that liquid stocks may have for such investors. Rubin (2007) finds that institutional ownership (i.e., multi-blockholders) is associated with stock liquidity, and institutional concentration with adverse selection and illiquidity. These results are supportive of our hypothesis three (*H3*) on the impact of multi-blockholder trading. Smith and Swan (2008b) find that the smaller holdings of active traders – hence relatively short-term blockholders for whom the threat of exit is highest (not long-term owners) – are associated with an increase in the CEO's incentives. These findings suggest a significant extension of the EM model, as EM simply take managerial shareholdings as given and thus independent of the threat of exit. Boehmer and Kelley (2008) show that stocks with greater institutional ownership are more efficient, in that prices more closely follow a random walk, but they do not show how this arises from having more multi-blockholders sharing the same informative signal. Yan and Zhang (2008) find that that short-term trading by institutions forecasts future returns. These results are supportive of our finding that short-term trading by multiple blockholders drives both institutional performance and future returns.

As already indicated, the theoretical literature also recognizes the possibility of rent extraction. Thus, not all actions by blockholders need be beneficial to shareholders. According to Burkart, Gromb and Panunzi (1997), such actions could represent a threat of expropriation that reduces managerial initiative. Zwiebel (1995) builds on the literature related to the private benefits of control. While noting that most firms have multiple blockholders, he shows that there could be controlling coalitions formed to extract these benefits.

2. The Edmans and Manso (2008) Model

The model is solved recursively. In the second (*trading*) period, after the manager and blockholders have made their effort choices in the first (*action*) period, nature determines a value v for the firm's equity from a normally distributed value $\tilde{v}$ with mean $\mu \equiv \phi_a \log a + \phi_b \log \sum_i b_i$ and variance σ_η^2. The mean μ depends on private actions taken by the firm manager ($\phi_a \log a$, *i.e.*, costly effort, log *a*, scaled by productivity, ϕ_a), and public actions taken by the *N* symmetric multi-blockholders ($\phi_b \log \sum_i b_i$, *i.e.*, blockholder *i*'s costly effort in the form of intervention or voice, log b_i, scaled by blockholder productivity, ϕ_b) in the first (*action*) period. Blockholders, observing the drawing *v*, uniquely obtain the true value of the asset and thus receive an informational advantage increasing in the variance, σ_η^2. The market-clearing price, $p(\tilde{y})$, is set by the competitive market maker who observes only the mean and distribution of the informational signal and the total order flow, $\tilde{y} = \sum_i \tilde{x}_i + \tilde{\varepsilon}$, made up of the informed trader demands and normally distributed noise trades $\tilde{\varepsilon}$ with mean zero and variance, σ_ε^2.

Market orders by the *i*th blockholder, $x_i(\tilde{v})$ (i.e., "churning" trades in our empirical tests), are given by:

$$x_i(\tilde{v}) = \frac{1}{\sqrt{N}}\frac{\sigma_\varepsilon}{\sigma_\eta}(\tilde{v}-\mu)\forall i, \quad (1)$$

and prices by:

$$p(\tilde{y}) = \mu + \lambda\tilde{y}, \quad (2)$$

where Kyle's (1989) Lambda, which is a measure of market impact costs and therefore (inverse) measure of market efficiency, is given by:

$$\lambda \equiv \frac{\sqrt{N}}{N+1}\frac{\sigma_\eta}{\sigma_\varepsilon}. \quad (3)$$

It represents the sensitivity of price to market order flow $\tilde{y}$, is increasing in the informative advantage (standard deviation) of the informative signal and is diminishing in the standard deviation of noise trader activity and the number of blockholders, N (*hypothesis four* (*H4*)). The individual blockholder's trade aggressiveness, $\frac{1}{\sqrt{N}}\frac{\sigma_\varepsilon}{\sigma_\eta}$, is increasing in the volatility of noise trader activity but diminishing in the informational advantage and number of blockholders. Nonetheless, the collective trade aggressiveness, Nx_i, representing the entire order-flow, is increasing in the number of blockholders at the rate of $\sqrt{N}$. This finding is crucial for the overall impact of blockholder trading on managerial incentives.

The expected trading profit for the *i*th blockholder, $\pi_i(N) = E\left[(\tilde{v}-\mu-\lambda\tilde{y})x_i \middle| \tilde{v}=v\right]\forall i$, is maximized with the optimal (signed) trading volume (order-flow) representing the number of churning trades:

$$x_i(v) = \frac{1}{(N+1)\lambda}(v-\mu) = \frac{1}{\sqrt{N}}\frac{\sigma_\varepsilon}{\sigma_\eta}(v-\mu). \quad (4)$$

Substituting this expression into expected profitability, $\pi_i(N)$, yields:

$$\begin{aligned}\pi_i(N) &= E\left\{\left[\tilde{v}-\mu-\lambda(N+1)x_i\right]x_i + \lambda x_i^2\right\} \\ &= E\left(\lambda x_i^2\right) = \frac{1}{\sqrt{N}}\frac{1}{N+1}\frac{\sigma_\varepsilon}{\sigma_\eta}E(\tilde{v}-\mu)^2 \\ &= \frac{1}{\sqrt{N}}\frac{1}{N+1}\sigma_\eta\sigma_\varepsilon > 0.\end{aligned} \quad (5)$$

Hence expected informed blockholder trading profit is profitable as both the elasticities, σ_η and σ_ε, are positive (*hypothesis two* (*H2*)), increasing in the informational advantage of the common signal as to firm value, σ_η^2, and the volatility of noise trader order flow, σ_ε, and diminishing in the number of informed blockholders, *N*, (*hypothesis three* (*H3*)).

In the initial (*action*) period, EM shows that the firm manager effort *a* is given by:

$$a = \phi_a \alpha \left(\frac{N}{N+1} \right), \tag{6}$$

and blockholder effort directed at intervention and "voice":

$$b_i = \phi_b \beta \left(\frac{1}{N} \right)^2, \tag{7}$$

where α and β, respectively, are the relative shareholdings of the equity incentivized manager and *i*th blockholder. Hence, managerial effort (i.e., firm performance) is increasing in the number of blockholders as more collective and aggressive blockholder trading activity improves incentives (*hypothesis five* (*H5*)). The model also demonstrates that blockholder intervention (i.e., voice) effort is diminishing in the number of blockholders due to free-riding on individual blockholder effort by the remaining multiple-blockholders. Proofs are given in EM. Therefore, if blockholder productivity in terms of the effectiveness of direct intervention or voice is high relative to manager productivity, $\phi_b > \phi_a$, then future performance should be reducing in the number of blockholders trading simultaneously and vice-versa, $\phi_a > \phi_b$ (*hypothesis six* (*H6*)).

In summary, we have established a number of new hypotheses, which we believe to be important, that originate with EM. These include the need for churning trades to be profitable in the presence of a common signal (*H2*), and that the profitability of churning is diminishing in the number of blockholders when in receipt of a common signal (*H3*). Moreover, pricing efficiency is increasing in the number of blockholders (*H4*), and future long-term firm performance is increasing in the number of blockholders trading simultaneously (*H5*). Finally, we postulate that managerial productivity is high relative to the productivity of direct intervention by blockholders, and hence the threat of exit is more effective than voice (*H6*).

3. "Churning Trades" Methodology

In the present study we seek to identify blockholders who aim to achieve trading profits rather than the extraction of the private benefits of control or direct intervention to impose better governance. To do this we focus on what appear to be the least explicable (at least up until now) short-term trading sequences made by institutional investors that take the form of "churning" trades.[2] Thus, ironically, we look for investor-client and firm shareholder benefits from what appears, superficially, to be an unlikely quarter, according to the Dow and Gordon (1997) critique of investment mangers. These trades consist of a "buy" package followed by a "sell" package and then a "buy" package ("BSB" sequence), or a "sell" followed by a "buy" and then another "sell" ("SBS" sequence) in a particular stock. We define a trade package sequence following Chan and Lakonishok (1995), which captures all trades over multiple days in the same direction for each stock, and not more than five working days apart from one another. The trade package would also be closed off if there is a reversal trade in the same stock, which would then be defined as the first trade in the next trade package. Our methodology requires that these trade sequences be completed within a three-month period of the first trade in the first trade package so as to only capture short-term trading activity.

Why single out only churning sequences as opposed to simple "buys", "sells", "buys" followed by a "sell", "sell" followed by a "buy", and so on? Our justification is as follows: a "buy" in isolation may indicate good news and thus subsequent outperformance over the long-term but involves no "threat of exit". Similarly, a "sell" in isolation may indicate bad news even in the long-term and thus confound any long-term outperformance due to "threat of exit". Moreover, a "buy" followed by a "sell" sequence may indicate bad news, and *vice versa*, good news, without necessarily providing an unambiguous "threat of exit". By contrast, the churning trade sequences, in our opinion, best captures the EM notion of a threat of exit. This is because a temporary fall in holdings on the second trade in the sequence, such as the sequence "BSB", without necessarily there being any net change in position or net change in prospects (e.g., optimism to pessimism as with a "buy" to "sell" sequence, or *vice-versa*).

Only our churning trades are relatively "neutral" with respect to net holdings, which change little and thus can encapsulate the threat of exit story while also being inconsistent with a simple "optimism" or "pessimism" informational story. The "SBS" sequence ends with a sell trade package. Hence, very short-term performance should be negative, making it

---

[2] We deliberately use the word "churning" because of the pejorative use of the term by critics of active managers, not because we believe that short-term trading is necessarily damaging to investors when there is delegated management.

harder for the firm to achieve outperformance over twelve months and to satisfy hypothesis five (*H5*). Therefore, the inclusion of the "SBS" sequence in our methodology increases the likelihood of hypothesis rejection. Moreover, the lower are stock holdings at the trough relative to the peak in either of the two sequences (i.e., the greater the swing), the greater presumably is the threat, thus providing an additional related test (*H5 B).*

As already indicated, the inclusion of the (temporary) holdings reduction in the "BSB" and temporary recovery in the "SBS" sequences is important for the robustness of our methodology. Institutional investors are more likely to trade stock in which they hold a position, perhaps for familiarity or informational reasons. Accordingly, it might not be surprising to see subsequent outperformance over the next twelve months if the investment has been undertaken for purely informational reasons. But churning sequences all involve selling down the stock, typically by a sizeable amount. This behavior is not consistent with a simple informational story based on good news, i.e., simply new information, being responsible for subsequent higher performance.

In order to test our proposition that churning trade sequences better reflect the threat of exit, we examine two additional subsidiary hypotheses relating to the main hypothesis five (*H5 A*): (*H5 S1): that the short-term trade sequence – "buy followed by a 'sell"* and *(H5 S2): a "sell" followed by a "buy" – each result in significant subsequent outperformance, but considerably less than with a churning sequence*. Both subsidiary hypotheses are empirically supported.

4. Data and Institutional Arrangements

As noted above, in order to provide formal empirical tests of the nested EM hypotheses, together with the first tests of the associated Kyle (1985,1989) and Holden and Subrahmanyam (1992) models, requires identification of the number of agents trading, inclusive of very detailed short-term trading data, replete with blockholder identities and detailed transactions cost. The *Portfolio Analytics Database* contains confidential information pertaining to the daily trades and portfolio holdings of Australian investment managers in the domestic equities asset class. The investment managers were each requested to provide information for their two largest institutional pooled Australian equity funds.

The institutional funds data was individually collected from the portfolio managers with the support of Mercer Investment Consulting and contains historical information from 2nd January 1994 to 30th June 2002. Our sample of actively managed institutional Australian equity funds employed in this study comprises 38 funds from 30 unique active institutions. All Australian equity funds in this database are benchmarked to either the S&P/ASX200 or S&P/ASX300 indices.[3] This database provides a sample that is representative of the Australian investment management industry, and includes data from six of the largest ten fund managers, six from the next ten, four from those managers ranked 21-30 and 14 managers from outside the largest 30 (by funds under management as at 31 December 2001). The sample also includes six boutique firms, which manage less than $A100 million each.

Strictly speaking, our dataset constitutes around 10 percent of funds under management in the asset class as reported by the fund performance monitoring firm ASSIRT (now owned by S&P). However, if the data that fund managers provide is representative of their entire Australian operations, as the fund managers' claim, then the effective coverage is over 50 percent as 12 of the top 20 fund managers provide us with data.

The *Portfolio Analytics Database* includes historical month-end portfolio holdings and daily trading data for Australian equity managers. The data fields requested from the fund managers for their daily trading activities includes the date of execution, ASX stock code and name, quantity traded, daily weighted average price of the trade, the explicit transaction costs (brokerage) incurred and even the identity of the broker. We received a complete data dump of all trades and holdings for that period (including equities, convertibles, options and futures etc.). The ASX Stock Exchange Automated Trading System (SEATS) data of stocks traded and access to the ASPECT database for the calculation of book-to-market ratios and dividend franking information for each stock was provided by SIRCA Limited.[4]

5. Empirical Results

A. Significance of Stock Trading and Short-Term Churning Trades

In this section we determine the nature and significance of equity stock trading by our sample of blockholders (investment funds) and the significance of short-term churning within

[3] The S&P/ASX 200 (300) Index represents a market capitalization weighted return of the largest 200 (300) Australian stocks. The performance and market capitalization of both indexes are highly similar, given that the additional 100 securities in the S&P/ASX 300 contribute only a very small fractional increase in market coverage over the S&P/ASX 200.

[4] Securities Industry Research Centre of the Asia-Pacific.

this overall pattern of trading. We employ the methodology of Wermers (2000) who decomposes equity mutual fund returns into the transaction costs incurred and net returns after transaction costs.[5] We calculate overall turnover as the average of buys and sells, during a certain period.[6] Transactions costs are calculated using explicit brokerage costs provided by managers. However, given that four of our sample of blockholders (investment managers) did not provide the brokerage costs for their trades, we modeled brokerage costs using the data we did have, thereby estimating the brokerage for the missing values. Missing values comprise less than 8.6 percent of our trades by value (21.5 percent by number). Thus, using the betas from these regressions, we can estimate the brokerage costs for the remaining managers.[7] We subtract the total transaction costs from a manager's gross return to obtain their net return. Excess returns are the calculated returns over the S&P/ASX 300.

Our descriptive statistics on overall turnover and transaction costs for the entire sample of multi-blockholders (investment funds) are shown in Table I. The average annual turnover rate is 76 percent with the more active blockholders incurring significantly higher transactions costs than the less active. Investors do not appear to be penalized for this activity as there is no statistically significant net return penalty. This lack of net return penalty suggests that blockholders do not trade to simply keep up appearances, "actively doing nothing", or because of behavioral biases which might favor "excessive" trading. In fact, an overarching aim of this paper is to provide a satisfactory rationale for otherwise puzzling trading and churning activity.

(INSERT TABLE I ABOUT HERE)

Table II provides descriptive statistics of overall blockholder trades and churning trades split into both "all buys" and "all sells" on the one hand and churns commencing with a "buy" (i.e., "BSB") and churns commencing with a "sell" (i.e., "SBS") that are completed within a three month horizon. All daily trades are split up into packages representing the underlying orders following the rules laid down by Chan and Lakonishok (1995). These churning trades make up 33.5 (38.9) percent of blockholder trades (trade volume), although 65.8 percent of these trades occur in the largest stocks, compared with 52.6 percent of all

[5] A further breakdown of our sample into Wermers (2000)-style characteristics is available from the authors on request but for space reasons has not been included here.

[6] When we calculate turnover as the minimum of buys and sells, we achieve similar results.

[7] The transaction cost regression equation is set out in Appendix B, Table BI.

trades.[8] This establishes our first hypothesis *(H1): that short-term churning trades make up a significant portion of the overall trading volume*. Moreover, trading volume is itself quite significant. When we analyze the number of days over which these trades are completed, we find similar percentages comparing churning trades with all blockholder trades. When we analyze all manager trades, we find packages make up on average 85 percent of the average daily trading volume, indicating that active blockholders split up the majority of their trades over multiple days so as to more effectively disguise information revealed via trading.

(INSERT TABLE II ABOUT HERE)

B. Profitability of Churning Trades and Self-Selection Bias

The EM "threat of exit" model requires blockholders to observe a common signal of managerial effort and to trade profitably based on this signal. Hence, our second hypothesis, *H2: both "BSB" and "SBS" churning trades completed within three months are directly profitable to blockholders, even after taking account of transaction costs and any self-selection bias due to focusing on only a sub-sample of trades, namely churns.*

We now investigate to determine whether the churning trade sequences identified in Table II meet the EM criteria. In Table III, we measure the excess return around fund manager trades that fit the criteria, such that three successive trade packages (defined according to a Chan and Lakonishok (1995) approach) would be a purchase (sale), sale (purchase) and purchase (sale).[9] These successive three trades must be completed within three months (or the period shown on the left of the table). For example, a trading sequence whereby a manager purchases, then sells, then sells again (after a break of more than five days, so that the trades are not packaged together), before lastly purchasing would not be included, as it does not fit our criteria for our churning sequence indicating a credible threat of exit. This particular trading sequence would be classified as a purchase followed by a sale and then a sale followed by a purchase. We find that, indeed, such sequences do improve future performance but to nothing like the extent of our churning sequences (see Section 5(E) below).

[8] Table AI in Appendix A provides a breakdown of both buy and sell trades and churns by the number of blockholders trading simultaneously.

[9] Chan and Lakonishok (1995) use a five-day gap definition of a package, implying a new package begins if there is a five-day gap between manager trades (in the same direction), or if the manager executes a trade in the opposite direction.

(INSERT TABLE III ABOUT HERE)

In addition to the reasons outlined in Section 3 above, which focus on "churning" trade sequences, we wish to include only those trades completed from a short-term perspective. This requirement implies, on the one hand, that fund managers are not building up a significant long-term position that could be either strategic or indicate prior knowledge of long-term performance, and on the other, that they are not actually exiting the stock. If managers were to complete multiple purchases (sales) in a row (over a period of more than five days, as trades in the same direction), this suggests they are not engaging in short-term trading so as to threaten exit, but are rather building up (eliminating) a larger strategic position. In Section 5(E) below, we compare the outperformance arising from trading sequences other than churning trades with the long-term performance of churning trades. We show a significantly better performance from churning trades.

We calculate the return using the actual volume-weighted-average-price (VWAP) that the manager obtains for their trades and we subtract (add) the explicit transactions costs from post-purchase (post-sale) excess return.[10] All returns are calculated as excess returns relative to the S&P/ASX 300, although using actual returns yields similar results.

In Panel A of Table III, we find that fund managers profit from all trades in the "BSB" churning sequence and similarly for the "SBS" sequence in Panel B, which confirms the second hypothesis. We also observe that in total the net excess return to five days after the second purchase is 1.69 percent (0.82 – (-0.59) + 0.28). In Panel B, fund managers profit after the initial sale and the reversing purchase, but not after the subsequent sale. The total net excess return to sales in Panel B is 0.71 percent (- (-0.58) + 0.55 – (0.42)). When these short-term trading sequences are partitioned by the number of days in which they take place, we find that trades which are reversed over intervals of less than five days (a short window indeed) are not profitable. However, trades taking place over a longer window appear to be profitable.

For periods ranging through to five days, and to three months, we not only evaluate the profitability of all the trades that are reversed but we also evaluate all the trades that are not reversed within every three-month horizon. By these means we are able to identify any self-selection bias engendered by focusing solely on trades that are reversed. The profitability

[10] Where available, we used the explicit brokerage cost provided by the manager. If it was not provided, we used the cost as predicted by our regression equation included in Appendix B, Table B1.

of all trades that are not reversed is evaluated by marking-to-market at the end of the three-month period. Similarly, the profitability of non-reversed sale decisions can be assessed by treating as a notional profit the difference between the initial sale price and the repurchase price after the lapse of three months, if this is even lower. If it is higher, then a notional loss can be attributed to the initial sale. If the fund manager has no abnormal trading ability, then the "excess" profit from the self-selected churning sequences will either be offset, or more than offset, by losses from the non-reversed marked-to-market trades at the end of the three month period.

If the fund manager possesses trading ability in terms of the initial purchase or sale decision, yet possesses no additional skills in terms of sequences of churning trades, then there will be no difference in profitability between the churned and non-churned (i.e., non-reversed) trades. Finally, if the fund manager's actions indicate access to valuable information about future firm performance that displays sequences of both good and bad news, then the profitability of the churned trades will be higher than the profitability of the non-churned trades.

In Table IV, we aggregate all buys (sells) that have not been reversed, labeled Buy Only (Sell Only), trades that have been reversed only once, labeled Buy-Sell Only (Sell-Buy Only) and churning trades, labeled Buy-Sell-Buy (Sell-Buy-Sell). We find for both buys and sells that churning trades are more profitable that those trades that managers do not reverse, as well as those trades mangers reverse only once, suggesting managers do indeed have sufficient access to information to profit from churning trades as the EM model requires evidence of informed trading. Hence, we conclude that the profitability of our churning trade sequences is not due to "self-selection" of these sequences when we consider all other possible short-term trading strategies over a three-month window, further supporting our second hypothesis.

(INSERT TABLE IV ABOUT HERE)

Figure 1 displays the average excess return around all churning trades made over an interval of less than three months, displaying that over short-term intervals managers appear to be able to on average buy when the stock price is low and sell when it is high, just as if they were able to observe a (common) signal of managerial effort.

(INSERT FIGURE 1 ABOUT HERE)

These churning trades are unevenly distributed across fund managers, with four funds executing 70 percent of churning trades (by the number of trades). In unreported results, we complete tests using the trades of these four managers, and also using the trades of the remaining sample, finding the difference between these two partitions is minimal. There is no consistent fund manager style or size. There is also no identifiable difference in the performance of these funds. However, due to the increase in volume of these managers, while these trades comprise only 1.4 percent of the average manager's excess performance over the S&P/ASX300 return (that is, only a very small 1.4 percent of the 2.25 percent out-performance of our sample), they comprise 2.6 percent of the excess performance of those four funds. Note that the subsequent outperformance of the churned stocks is not included in the computation of churning profitability. While churning trades account for 38.9 percent of overall manager trading volume (as measured by the dollar value), they account for a more significant 63.4 percent for our four largest churners.

These findings are surprising as they show that fund managers engage in a substantial quantity of short-term portfolio turnover, which accounts for only a small (yet significant) portion of their overall excess performance. Since we subsequently show (Section 5(F) below) that these funds are more likely to have substantial long-term positions the more they churn, and churning results in subsequent stock out-performance (Section 5(E) below), the true profitability of churning is understated here by a very significant amount. Thus, we confirm that these short-term trades do not detract value, but rather are as a result of superior information on the part of blockholder investors, in support of our hypothesis two (*H2*).

C. Impact of the Number of Multi-Blockholders on Trading Profitability

A crucial requirement of the EM framework, inclusive of multi-blockholder trading which compels managerial effort, is the receipt by symmetric blockholders of a common informational signal. This leads to our third hypothesis, *H3: trading profits of multi-blockholders should decline with increased numbers of actively trading blockholders trading simultaneously, as set out in equation* (5) *above.* Moreover, as far as we are aware, this hypothesis represents the first formal empirical testing of the major predictions of the Kyle (1989) and Holden and Subrahmanyam (1992) models using actual trading data. Schnitzlein (2002) uses experimental evidence to show that informed insider trading conforms to the theoretical model when the number of informed insiders is known, but agents in a laboratory fail to behave according to the model when the number of insiders is unknown to participants prior to trade.

In Table V we compute the profitability of two different styles of churning trades according to the number of blockholders simultaneously trading each month. Panel A represents the sequence, buy to sell to buy (i.e., “BSB”), and Panel B, sell to buy to sell (i.e., “SBS”). Column 2 calculates the actual profitability of these churning trades according to whether there is just one blockholder trading in a given month, two blockholders, and so on. In column 3, equation (5) above is used to compute the expected profit according to the number of blockholder participants trading simultaneously in the Kyle symmetric Cournot equilibrium. For two trading participants, equation (5) is set to be precisely true in both panels. Hence the calibrated impact of the informational advantage and noise trader volatility product $\sigma_\eta \sigma_\varepsilon$ is specified at 7.9552 in Panel A and 7.0359 in Panel B. These relative magnitudes are to be expected given that the trade sequences in Panel A are more profitable than in Panel B.

(INSERT TABLE V ABOUT HERE)

It can be observed from column 3 of Table V, and Figure 2, that the EM formula predicts the sequence of trading profits for three to five blockholder participants for each type of churning trade sequence, given that the model is calibrated to predict perfectly for two blockholder participants. These findings support out third hypothesis. For example, in the “BSB” sequence in Panel A with three blockholders trading the predicted profit is \$1.15 on a \$100 investment and actual profit, \$1.56, is higher and for four blockholders trading, predicted \$0.80 and actual, \$0.73, all with respect to \$100 investment. With sequence “SBS” in Panel B and three blockholders trading the predicted profit is \$1.02 and actual, \$1.27, and with four blockholders trading the predicted is \$0.70 and actual \$0.92 with respect to a \$100 investment. However, the predicted profitability is too high relative to the actual profitability with only a single blockholder participant. Hence actual and predicted values differ significantly. Most likely, this is because the single active blockholder is unaware *ex-ante* of the absence of competition prior to trading.

(INSERT FIGURE 2 ABOUT HERE)

Table V also shows the short-and longer-run profitability of the two types of trade sequence. For example the sequence “BSB” in Panel A does not out-perform over the next 250 trading days with one blockholder trading but considerably out-performs with two blockholders trading. Similarly, with just one blockholder trading in the “SBS” sequence, the long-term performance is very significantly negative but positive for two blockholders trading.

In Table VI we test hypothesis three (*H3*) utilizing regression analysis, rather than simply recording profitability as a function of the number of participating multi-blockholders as in Table V. After controlling for a variety of factors including stock size, book to market, and momentum, we find that blockholder trading profitability is diminishing in the number of blockholders trading simultaneously in the stock, as shown in equation (5) above. This is a key feature of the Cournot equilibrium, with multi-blockholders receiving similar or identical signals of future profitability, and possibly relying on access to firm managers for such information. Moreover, our findings confirm the intuition underlying the model that more competition results in "excessive" trading from the (short-term) perspective of individual fund managers and their investors. If fund managers could successfully collude, in order to act as a cartel and thereby maximize the value of exclusive information, overall trading volume would be lower and the collective short-term trading profits higher, but it is probable that long-term performance would be worse as less aggressive trading reduces the pressure on management.

(INSERT TABLE VI ABOUT HERE)

D. Effect of the Number of Blockholders on the Bid-Ask Spread

The Kyle (1989) model, together with Holden and Subramayan (1992), predict that market depth should be greater and thus bid-ask spreads lower, as the number of informed blockholders trading simultaneously increases, as given by equation (3) above. This then constitutes our fourth hypothesis, *H4: the more informed multi-blockholders actively trading in a stock simultaneously, the lower should be the bid-ask spread.* This is because "excessive" trading more rapidly purges away asymmetric information common to blockholders, the greater is the number of informed traders participating. It is important to understand that each blockholder trades optimally, given the number of fellow competing blockholders. For a larger number of participants, *N*, the smaller is the Kyle Lambda, and hence the more closely is the share price $p(\tilde{y})$ tied to both blockholder intervention, b_i, and managerial effort, *a*, via equation (2) above. Moreover, according to equations (6) and (7), the greater will be managerial effort, *a*, and the lower direct blockholder intervention, b_i.

We calculate the relative time-weighted bid-ask spread for the *i*th stock and *t*th period using the following formula:[11]

$$\text{Spread}_{i,t} = \frac{\sum_{j=1}^{n} (\text{Ask}_{i,j} - \text{Bid}_{i,j}) \times \text{Time}_{i,j}}{\sum_{j=1}^{n} \frac{(\text{Ask}_{i,j} + \text{Bid}_{i,j})}{2} \times \text{Time}_{i,j}}. \tag{8}$$

In Table VII we investigate the impact of multiple blockholders churning the same stocks on the bid-ask spread utilizing the formula given in equation (8). The presence of informed insiders, in the form of blockholders, are normally taken to indicate reduced liquidity and depth, due to the higher risk of the market maker meeting an informed trader (see Heflin and Shaw (2000) for evidence). But the absence of daily blockholder trading data prior to our study means that very little is known empirically about the impact of the number of simultaneous informed traders on bid-ask spreads. Table VII shows that both bid-ask spreads and excess spreads are significantly lower in stocks with more active blockholder trading. For example, with a single blockholder trading, the relative time-weighted bid-ask spread before each churning trade package sequence is 0.654 percent, falling rapidly to only 0.174 percent prior to five or more blockholders trading simultaneously. Hence, spreads are initially lower in stocks in which it is likely that more multi-blockholders are trading. A churning trading sequence by a single blockholder raises the already high initial spread slightly. With two traders, who now have an incentive to be more aggressive collectively, the spread is reduced. The percentage reduction is 1.82 for two traders, 1.30 for three traders, 1.87 for four traders, and 2.77 for five or more traders.[12]

The Kyle Lambda formula, equation (3) above, is used to compute the expected spread reduction as the number of simultaneous traders increases from one to two, two to three, and so on. The results show that while the signs are all correct, the actual magnitudes of the spread reductions are less than predicted by the formula. This contrasts with the actual and predicted trading profit estimates provided in Table V that are generally more accurate for two or more blockholders trading simultaneously.

(INSERT TABLE VII ABOUT HERE)

---

[11] The relative time-weighted spread was calculated using intraday SEATS data provided by SIRCA.

[12] Note that Levy and Swan (2008) show using calibrations that even quite small trading cost differences can impact returns.

E. Impact of Churning on Subsequent Firm Performance

In this section, we implement our major test of either high blockholder intervention (voice) productivity relative to managerial productivity, i.e., $\phi_b > \phi_a$, or *vice versa*, $\phi_a > \phi_b$, with managerial effort productivity boosted by blockholder churning activity. Assuming for the purpose of hypothesis formulation that the beneficial influence of multi-blockholder trading on firm performance dominates the adverse impact of multi-blockholders on direct blockholder intervention, then we arrive at the first component of our fifth (and main) hypothesis, which states (*H5A): long-term firm performance following churning trade sequences will be increasing in the number of blockholders trading simultaneously*.

Hence, we aim to determine whether these informed short-term trades are the means by which blockholders discipline firm managers with an implicit threat of selling down their stake, thereby improving subsequent firm performance. These short-term reversal trades indicate whether blockholders have threatened to sell-down their stake. The degree to which a fund manager sells down their stake in this trading sequence also provides an indication of the degree of the threat. The second component of our fifth hypothesis is, therefore, (*H5B): subsequent firm performance is increasing in the degree of threat, as measured by this proportionate sell-down during the churning trade sequence.* Hence, we calculate and include in our regressions a variable measuring the proportionate deviation of holdings from peak to trough.

In order to confirm the unique nature of our churning sequence in threatening management, we also create two dummies of alternative short-term trades, that is, where a blockholder buys (sells) and then sells (buys) within the next three months, without buying (selling) again. If our churning sequences are unique, we expect these dummies to be less significant than our churning dummy.

The sixth hypothesis we test involves the performance of stocks with only one or two blockholders that are significantly overweight the stock who do not engage in churning activity in the prior quarter. This is the most likely instance in which blockholders may be executing 'voice' significantly immune to "free-rider" problems but not threatening exit through their actions. (*H6): contrary to the outperformance following churning trades, when conditions are ideal in supporting "voice", there will be no out- (nor under-) performance in* *the following twelve months.* This hypothesis is also consistent with a significant portion of the literature on shareholder activism surveyed in Section 1 above.

In order to test the effect of these actions on firm management, we regress subsequent firm performance over the next twelve months against these short-term trading variables, as well as various control variables.[13] The control variables we use in this regression is the size quintile, book-to-market quintile, and six-month momentum quintile, which have all been shown to be priced risk factors (as in Daniel, Grinblatt, Titman, and Wermers (1997)). The final control variable we use is the change in fund manager weight. We do this in order to isolate the influence of short-term trading behavior on firm performance.

Our results in Table VIII indicate that future firm performance over the subsequent twelve months is both positive and statistically significantly related to whether blockholders engage in short-term churning trading (at the one percent level). Columns 1 and 4 indicate an economically significant excess return of approximately 4.5 percent due to the completion of a short-term churning sequence in the previous month. This supports the first component of our hypothesis five (*H5A*). Similarly, the larger the threat of exit, in the form of a higher percentage deviation of stock holding from the highest to lowest, raises performance at the rate of 3.25 percent (column 2). Since the mean deviation in stock holding across the two types of churning trades is 51 percent, the outperformance due to the magnitude of the threat is 1.66 percent. This finding supports the second component of hypothesis five (*H5B*).

Moreover, the larger is the number of simultaneous short-term multi-blockholders, the higher is the subsequent level of out-performance (Column 3) at the rate of 0.83 percent per blockholder trading, after controlling for the magnitude. Since the average number of blockholders trading simultaneously is 2.9, the outperformance from pure numbers is 2.4 percent. Alternative short-term trades, whether buy-sell or sell-buy, are positively related to subsequent firm performance, but to a lesser degree than churning trades (see column 5). This supports our two subsidiary hypotheses, (*H5 S1)* and (*H5 S2)*, and indicates that these trade sequences are a less successful in terms of threatening management. Lastly, we show in regressions (6) and (7) that, when there are two or fewer blockholders that are overweight in the stock and who do not engage in churning behavior, there is no significant impact on firm performance. This absence of free-riding incentives represents the most likely situation where

[13] Descriptive statistics of our sample showing the activity of multiple blockholders trading when broken down by the number of blockholders are presented in Table A1 in the Appendix.

concentrated blockholders are engaging in "blockholder voice". These results support hypothesis six (*H6*).

(INSERT TABLE VIII ABOUT HERE)

Our findings on subsequent outperformance of churned trades also provide insights as to the relative performance contribution to total return. Over our entire sample, direct churning trade profitability explains only about three basis points of overall outperformance and subsequent performance over the next year, 38 basis points. Hence the quotient of long- to short-term outperformance is approximately 12.67 times. The overall churning-related outperformance of 41 basis points represents 18 percent of overall outperformance for our sample. While these figures are overall, for funds more specialized with respect to churning, the one-year outperformance is much higher, peaking at 1.7 percent. For such funds the indirect benefits of churning contribute to a sizeable portion of the overall outperformance.

As additional confirmation, in Table IX, stocks with short-term trading patterns are matched against stocks with no (i.e., zero) short-term trading. The former experience a 3.1 percent higher return significant at the one percent level. Hence, we can conclude that the blockholder threat of selling down is effective in delivering higher future firm performance (presumably through greater managerial effort in response to information being more fully reflected in stock price).

(INSERT TABLE IX ABOUT HERE)

F. Are Blockholders Overweight Stocks They Churn?

The EM threat of exit hypothesis maintains that fund managers will churn stocks, not just because it is profitable to do so, but also because subsequent long-term outperformance will enhance returns on stocks for which blockholders have a strong incentive to be overweight. Hence our seventh hypothesis, (*H7): we should expect to see higher relative long-term stock holdings, the greater the churning activity in that stock.* This is after controlling for a variety of fund manager and stock characteristics and provided that firm manager effort productivity is high relative to blockholder intervention effort productivity.

For each three-month period and stock, we create a churning dummy, equal to one if the manager engaged in churning (when a manager has a trading sequence (*i*) "buy", "sell", "buy" or (*ii*) "sell", "buy", "sell") both during that quarter and in that stock, otherwise zero. For each manager, our sample only includes those stocks in which a manager has traded more than twice (over the life of our sample), as it is unrealistic to expect a manager to churn a stock they have never held. We regress this dummy variable using logit and Tobit regressions against stock and manager characteristics calculated over both the past period as well as the current period. We do this in order to determine whether, for example, fund manager churning is influenced by past volatility in the stock, or because of current volatility. The stock characteristics include size, book-to-market ratio, prior three month (3mth) stock momentum, prior 3mth stock volatility, prior 3mth turnover, prior 3mth spread, all measured as ranks between zero and one, hence the smallest (largest) stock receives a value of zero (one) for each quarter. We also include prior 3mth S&P/ASX 300 Index return and volatility. Manager characteristics include the logarithm of fund size (log(fund size)), style (dummy variables for growth, value and style neutral managers), prior 6mth performance, prior 6mth stock turnover and the manager relative weight (difference between manager weight and S&P/ASX 300 Index weight) in the stock.

In Table X, we find a strong association between churning a particular stock and being overweight in that same stock with a high relative weight, which provides strong support for our seventh hypothesis (*H7*). While this finding is consistent with the threat of exit hypothesis, the reverse causality argument is that fund managers are more likely to be overweight in stocks that they view favorably (given that their investment strategy is to beat the market portfolio)[14]. Moreover, they choose to trade stocks that they know something about. However, this reverse causality story does not explain why fund managers take (on average) substantially smaller positions during the churning sequence if they are simply optimistic about the stock.

(INSERT TABLE X ABOUT HERE)

We also find that churning is positively related to stock size and stock turnover, and negatively related to the bid-ask spread. This suggests that this short-term churning is much more likely in highly liquid stocks with low transactions costs (and in stocks which account for larger weights in the benchmark index). This is not surprising, as round-trip transactions costs would be prohibitively expensive in small stocks and, therefore, tend to erode any profit margin. This is also consistent with a trading-related intervention story such as Maug (1998), who shows that increased liquidity is useful for institutional monitoring as it enables fund managers to more easily recover their intervention costs through informed trading activity. Fund manager churning is also positively related to past three month stock volatility, and

[14] This association has been noted by Brands, Brown and Gallagher (2005).

negatively related to book-to-market ratio, momentum, current stock volatility, prior index return and volatility. Large fund managers, with high turnover and poor prior performance, are more likely to execute these trades. We also find that style-neutral managers are more likely to execute churning trades. We also use Tobit regressions to regress the number of times managers churn within a quarter (rather than just a dummy variable) in column (3) of Table X, and the average performance of those churning trades in column (4). From these regressions we identify that value managers tend to profit the most as a result of these strategies, but our results are generally consistent with our logit analysis.

6. Conclusions and Suggestions for Future Research

An important aim of this study has been to show that high levels of short-term trading activity, inclusive of purely "churning" trades by multi-blockholders, are not evidence of "actively doing nothing" that places a cost burden on the fund manager's clients. Rather, it is fundamental to value-enhancing pressure placed on firm management. This results in longer-term outperformance for both institutional investors and shareholders of the firm in question. Moreover, we have shown that a better understanding of trading motives provided by the seminal theories of market microstructure have a crucial role to play in increasing our understanding of the role of multi-blockholders and institutional investment managers generally.

We have shown that short-term reversal (i.e., churning) trades are not random in nature, but are consistent with the use of private information common to all blockholders. This explains why trading profits fall with increases in the number of trading blockholders, as predicted by Edmans and Manso (2008) and as we have shown. Access by blockholders to a common performance signal, which gives rise to a new form of competition based on signal-extraction and trading, dubbed "managerial voice", is most likely due to contact between blockholders and management. Access to managerial briefings on firm prospects is facilitated by the penalties that blockholders can impose on management via the threat of exit.

Fund managers in our sample are far more likely to be overweight a stock, the more they engage in short-term "churning" trades that threaten exit. Moreover, stock price sensitivity, which ties managerial effort more closely to stock price, increases in the number of multi-blockholders trading simultaneously. Such aggressive trading activity impounds information about the actions of the firm's management into the stock price more rapidly.

Since stock prices more closely reflect fundamental value, the firm manager has greater incentive to exert costly effort to improve fundamental value.

We find that if there exists only a small number of blockholders who are overweight the stock but are not threatening exit, there is no change in firm performance. These stated conditions ensure that there are negligible "free-rider" issues that might otherwise hamper such blockholder intervention as activists. Hence, we find no support for the "blockholder voice" hypothesis predicated on concentrated blockholder intervention.

Many extensions to our study are possible. These are likely to integrate market microstructure with agency theory, corporate governance, funds management, and even behavioral finance. A natural extension to our study would be to analyze how different degrees of opacity or transparency in trading mechanisms impact on the nature of trading activity motivated by information. For example, in some stock markets, proxies for the identities of traders in the form of broker identities are revealed, while not in others. Moreover, a number of Exchanges such as Euronext, Tokyo, Australia (ASX), South Korea, and the NASDAQ-OMX group have changed from one system to another, opening up the possibility of examining the impact of these "natural experiments" on "blockholder voice", "managerial voice", churning activity, fund trading behavior, and long-term firm performance.

REFERENCES

Admati, Anat, and Paul Pfleiderer, 2008, The "Wall Street Walk" and Shareholder Activism: Exit as a Form of Voice, *Review of Financial Studies*. Forthcoming.

Admati, Anat, Paul Pfleiderer, and Josef Zechner, 1994, Large Shareholder Activism, Risk Sharing, and Financial Market Equilibrium, *Journal of Political Economy* 102, 1097-1130.

Agarwal, Prasun, 2007, Institutional Ownership and Stock Liquidity, Working Paper, Cornell University.

Almazan, Andres, Jay C. Hartzell, Laura T. Starks, 2005, Active Institutional Shareholders and Costs of Monitoring: Evidence from Executive Compensation, *Financial Management* Winter, 5-34.

Barca, Fabrizio and Marco Becht, 2001. *The Control of Corporate Europe*. (Oxford University Press, Oxford).

Becht, Marc, Julian Franks, Colin Mayer, and Stefano Rossi, 2008, Returns to Shareholder Activism: Evidence from a Clinical Study of the Hermes UK Focus Fund, *Review of Financial Studies*. Forthcoming.

Bennedsen, Morten and Daniel Wolfenzon, 2000, The balance of power in closely held corporations, *Journal of Financial Economics* 58, 113-139.

Bolton, Patrick and Ernst-Ludwig von Thadden, 1998, Blocks, Liquidity, and Corporate Control, *Journal of Finance* 53, 1-25.

Boehmer, Ekkehart and Eric Kelley, 2008, Institutional Investors and the Informational Efficiency of Prices, *Review of Financial Studies*. Forthcoming,

Brands, Simone, Stephen J. Brown and David R. Gallagher, 2005, Portfolio Concentration and Investment Manager Performance, *International Review of Finance* 5, 149-174.

Brennan, Michael J., Narasimhan Jegadeesh and Bhaskaran Swaminathan, 1993, Investment Analysis and the Adjustment of Stock Prices to Common Information, *Review of Financial Studies* 6, 799-824.

Brennan, Michael J. and Avanidhar Subrahmanyam, 1995, Investment analysis and price formation in securities markets, *Journal of Financial Economics* 38, 361-381.

Burkart, Mike, Denis Gromb and Fausto Panunzi, 1997. Large Shareholders, Monitoring, and the Value of the Firm, *Quarterly Journal of Economics* 112, 693-728.

Calcagno, Riccardo and Florian Heider, 2007, Market Based CEO Pay and Stock Price Informativeness, Working Paper, Vrije University, Amsterdam.

Chan, L.K.C. and J. Lakonishok, 1995, The Behavior of Stock Prices Around Institutional Trades, *Journal of Finance* 50, 1147-1174.

Chen, Xia., Jarrad Harford and Kai Li , 2007, Monitoring: Which Institutions Matter? *Journal of Financial Economics* 86, 279-305.

Clifford, C. P., 2008, Value creation or destruction?: Hedge funds as shareholder activists, *Journal of Corporate Finance* 14, 323-336.

Daniel, Kent, Mark Grinblatt, Sheridan Titman and Russ Wermers, 1997, Measuring Mutual Fund Performance with Characteristic-based Benchmarks, *Journal of Finance* 52, 1035-1058.

Davis, Gerald F. and E. Han Kim, 2007, Business ties and proxy voting by mutual funds, *Journal of Financial Economics* 85, 552-570.

Del Guercio, Diane and Jenifer Hawkins, 1999, The motivation and impact of pension fund activism. *Journal of Financial Economics* 52, 293–340.

Del Guercio, Diane, Laura Seery and Tracie Woidtke, 2008, Do boards pay attention when institutional investor activists "just vote no", *Journal of Financial Economics*, Forthcoming.

Dow, James and Gary Gorton, 1997, Noise Trading, Delegated Portfolio Management, and Economic Welfare, *Journal of Political Economy* 105, 1024-1050.

Edmans, Alex, 2008, Blockholder Trading, Market Efficiency, and Managerial Myopia. *Journal of Finance*. Forthcoming.

Edmans, Alex and Gustavo Manso, 2008, Governance Through Exit and Voice: A Theory of Multiple Blockholders, Working Paper, Wharton School, University of Pennsylvania.

Faccio, Mara and Larry Lang, 2002, The ultimate ownership of Western European Corporations, *Journal of Financial Economics* 65, 365-395.

Faure-Grimaud, Antoine and Denis Gromb, 2004, Public Trading and Private Incentives, *Review of Financial Studies* 17, 985-1014.

Foster, F. Douglas and S. Viswanathan, 1993, The Effect of Public Information and Competition on Trading Volume and Price Volatility, *Review of Financial Studies* 6, 23-56.

Garvey, Gerald T. and Peter L. Swan, 2002, What can Market-Microstructure Contribute to Explain Executive Incentive Pay? Liquidity and the use of Stock-Based Compensation, Working Paper, University of New South Wales.

Gillan, Stuart. L., John W. Kensinger and John D. Martin, 2000, Value creation and corporate diversification: the case of Sears, Roebuck & Co, *Journal of Financial Economics* 53, 103-137.

Gillan, Stuart L., Laura T. Starks, 2000, Corporate Governance Proposals and Shareholder Activism: The Role of Institutional Investors. *Journal of Financial Economics* 57, 275-305.

Gomes, Armando and Walter Novacs, 2006, Sharing of Control versus Monitoring as Corporate Governance Mechanisms, Working Paper. Washington University in St. Lousis.

Gregoric, Aleksandra., Arjana B. Masten and Katerina Zajc, 2008, Exploring Barriers to Coase: Blockholder Identity and Path-Dependency as Determinants of Ownership Dynamics in the Post-Privatization Period, Working Paper. Copenhagen Business School.

Hartzell, Jay and Laura T. Starks, 2003, Institutional Investors and Executive Compensation, *Journal of Finance* 58, 2351-2374.

Heflin, F., and K.W. Shaw, 2000, Blockholder Ownership and Market Liquidity, *Journal of Financial and Quantitative Analysis* 35 (4), 621-633.

Hirshman, Albert, 1970. *Exit, Voice and Loyalty* (Harvard University Press, Cambridge, Mass.)

Holderness, Clifford G., 2008, The Myth of Diffuse Ownership in the United States, *Review of Financial Studies*. Forthcoming.

Holmstrom, Bengt and Jean Tirole, 1993, Market Liquidity and Performance Monitoring, *Journal of Political Economy* 101, 678-709.

Holden, Craig W. and Avanidhar Subrahmanyam, 1992, Long-Lived Private Information and Imperfect Competition, *Journal of Finance* 47, 247-270.

Kahn, Charles and Andrew Winton, 1998, Ownership Structure, Speculation, and Shareholder Intervention, *Journal of Finance* 53, 99-129.

Karpoff, Jonathan, Paul. A. Malatesta, , and Ralf A. Walkling, 1996, Corporate governance and shareholder initiatives: Empirical Evidence, *Journal of Financial Economics* 42, 365-395.

Kyle, Albert S., 1985, Continuous Auctions and Insider Trading, *Econometrica* 53, 1315-1336.

Kyle, Albert S., 1989, Informed Speculation with Imperfect Competition, *Review of Economic Studies* 56 (3), 317-355.

Laeven, Luc and Ross Levine, 2007, Complex Ownership Structures and Corporate Valuations, *Review of Financial Studies* 21, 579-604.

Levy, Andre and Peter L. Swan, 2008, The Liquidity Component of the Equity Premium, Working Paper, University of New South Wales.

Lowenstein, Louis, 1988. *What's Wrong with Wall Street?* (Addison-Wesley, Reading, MA).

Maug, Ernst, 1998, Large Shareholders as Monitors: Is there a Tradeoff between Liquidity and Control?, *Journal of Finance* 53, 65-98.

Maury, Benjamin and Anete Pajuste, 2005, Multiple large shareholders and firm value, *Journal of Banking and Finance* 29, 1813-1834.

McConnell, John and Henri. Servaes, 1990, Additional Evidence on Equity Ownership and Corporate Value, *Journal of Financial Economics* 27,

Mello, Antonio and Rafael Repullo, 2004, Shareholder Activism is Non-Monotonic in Market Liquidity, *Finance Research Letters* 1, 2-10.

Noe, Tom, 2002, Investor Activism and Financial Market Structure, *Review of Financial Studies* 15, 289-318.

Parrino, Robert., Richard W. Sias and Laura T. Starks, 2003, Voting with their feet: institutional ownership changes around forced CEO turnover, *Journal of Financial Economics* 68, 3-46.

Rubin, Amir, 2007, Ownership Level, Ownership Concentration and Liquidity, *Journal of Financial Markets* 10, 219-248.

Schnitzlein, Charles R., 2002, Price Formation and Market Quality When the Number and Presence of Insiders Is Unknown, *Review of Financial Studies* 15, 1077-1109.

Shleifer, Andrei and Robert Vishny, 1986, Large Shareholders and Corporate Control, *Journal of Political Economy* 98, 461-488.

Smith, Gavin and Peter L. Swan, 2008a, To Good to be True: Do Concentrated Institutional Investors Really Reduce Executive Compensation whilst Raising Incentives, Working Paper, University of New South Wales.

Smith, Gavin and Peter L. Swan, 2008b. Will the real monitor please stand up? Institutional investors and CEO compensation, Working Paper. University of New South Wales.

Wahal, S., 1996, Pension fund activism and firm performance, *Journal of Financial and Quantitative Analysis* 31, 1–23.

Wermers, Russ, 2000, Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transaction Costs and Expenses, *Journal of Finance* 55, 1655-1695.

Winton, Andrew, 1993. Limitation of Liability and the Ownership Structure of the Firm, *Journal of Finance* 48, 487-512.

Yan, Xuemin and Zhe Zhang, 2008, Institutional Investors and Equity Returns: Are Short-term Institutions Better Informed? *Review of Financial Studies*. Forthcoming.

Zwiebel, Jeffrey, 1995, Block Investments and Partial benefits of Corporate Control, *Review of Economic Studies* 62, 161-185.

Table I: Descriptive Statistics of Blockholder Sample Showing the Turnover-Sorted Blockholder Return Decomposition

This table provides a decomposition of Australian blockholder (investment fund) returns, contained in the Portfolio Analytics Database. At the end of each semi-annual period from June-1999 to June 2002, we rank all funds in the database by their prior six month portfolio turnover level (the ranking period). Then we compute average statistics for each quartile (according to their prior portfolio turnover) over the following six months. The statistics calculated are calculated using monthly manager positions: turnover, gross return, gross excess return (over the S&P/ASX 300 Index Return), transactions costs, net return (net of transaction costs) and net excess return (over the S&P/ASX 300 Index Return). These statistics are annualized and calculated over all semi-annual periods.

Fractile	Avg No.	Turnover (%/year)	Gross Return (%/year)	Gross Excess Return (%/year)	Transactions Costs (%/year)	Net Return (%/year)	Net Excess Return (%/year)
Top 25%	6.6	114.6	9.49	3.07	0.80	8.13	1.71
2nd 25%	5.9	77.8	10.33	3.92	0.54	9.23	2.82
3rd 25%	6.3	62.2	9.93	3.40	0.46	8.91	2.38
Bottom 25%	5.6	44.3	9.83	3.27	0.41	8.86	2.30
Top-Bottom 25%	6.1	70.3***	-0.34	-0.20	0.39***	-0.73	-0.59
All Bholders (Funds)	6.1	76.1	9.88	3.40	0.56	8.76	2.28

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Table II: Descriptive Statistics of Blockholder Trades

This table measures the percentage of our blockholder buy, sell churning buy and churning sell trades (trade volume figures are in parentheses), split by stock size quintile and the number of package days over which our trade is split. Churning trades can be defined as the following trade sequences, purchase, sale, purchase and sale, purchase, sale, completed over a period of less than 3 months. Packages are defined following Chan and Lakonishok (1995), who use a five-day gap definition of a package, implying that a new package begins when there is a five-day gap between manager trades (in the same direction), or when the manager executes a trade in the opposite direction. Principal refers to the total traded value. The sample comprises all trades of 30 active Australian blockholders (investment managers) during the period January 2, 1994 to December 31, 2001.

		1 Day	2-3 Days	4-6 Days	7-10 Days	11+ Days
Panel A: All Buys (41,781 Packages, $46.1 Billion Principal)						
All Buys		61.9 (25.3)	13.5 (14.4)	13.2 (18.0)	6.0 (14.6)	5.4 (27.8)
1 (small)	7.0% of packages, 1.9% of principal	69.1 (43.9)	10.7 (12.8)	10.7 (14.9)	5.1 (11.7)	4.4 (16.8)
2	5.5% of packages, 2.0% of principal	65.9 (37.9)	12.5 (15.6)	11.4 (12.7)	4.8 (14.1)	5.4 (19.6)
3	12.5% of packages, 9.1% of principal	61.5 (26.4)	13.7 (12.2)	12.9 (17.1)	6.2 (13.0)	5.7 (31.3)
4	21.9% of packages, 17.3% of principal	60.5 (24.5)	13.9 (13.8)	13.8 (19.4)	6.1 (16.2)	5.7 (26.1)
5 (large)	53.1% of packages, 69.7% of principal	61.0 (24.4)	13.7 (14.8)	13.6 (17.9)	6.2 (14.5)	5.5 (28.4)
Panel B: All Sells (32,609 Packages, $35.4 Billion Principal)						
All Sells		61.9 (27.7)	15.2 (16.5)	12.3 (18.6)	5.9 (14.6)	4.7 (22.6)
1 (small)	7.7% of packages, 2.1% of principal	66.5 (44.1)	12.2 (12.5)	11.4 (14.7)	5.4 (12.7)	4.5 (16.0)
2	5.6% of packages, 2.0% of principal	62.5 (31.0)	14.7 (13.4)	11.9 (20.0)	6.2 (13.5)	4.7 (22.1)
3	12.1% of packages, 8.2% of principal	59.5 (32.9)	15.4 (14.0)	13.5 (20.2)	6.3 (12.9)	5.3 (20.0)
4	22.5% of packages, 18.3% of principal	59.4 (23.0)	15.5 (16.6)	12.3 (18.3)	7.1 (16.5)	5.7 (25.6)
5 (large)	52.1% of packages, 69.4% of principal	62.2 (27.5)	15.6 (17.0)	12.4 (18.6)	5.5 (14.5)	4.3 (22.4)
Panel C: Churning Buys (12,698 Packages, $16.8 Billion Principal)						
All Buys		58.9 (19.3)	13.7 (14.4)	14.8 (17.7)	6.2 (14.5)	6.4 (34.1)
1 (small)	3.0% of packages, 0.6% of principal	71.1 (36.7)	9.0 (10.1)	12.4 (16.6)	4.7 (27.0)	2.8 (9.6)
2	2.9% of packages, 0.8% of principal	71.4 (42.0)	9.0 (19.1)	10.2 (11.7)	5.2 (9.5)	4.2 (17.7)
3	9.3% of packages, 8.4% of principal	57.9 (16.9)	15.3 (12.1)	14.0 (16.4)	6.3 (11.9)	6.5 (42.7)
4	19.0% of packages, 13.6% of principal	58.4 (19.8)	13.3 (14.1)	14.6 (17.9)	6.7 (17.2)	7.0 (31.0)
5 (large)	65.8% of packages, 76.6% of principal	58.0 (19.1)	14.0 (14.7)	15.2 (17.8)	6.2 (14.2)	6.6 (34.2)
Panel D: Churning Sells (12,240 Packages, $14.9 Billion Principal)						
All Sells		61.2 (23.7)	15.9 (16.2)	12.6 (20.2)	5.9 (16.6)	4.4 (23.3)
1 (small)	3.0% of packages, 0.7% of principal	67.8 (56.3)	13.7 (9.2)	10.3 (7.5)	5.9 (14.4)	2.3 (12.6)
2	3.0% of packages, 0.9% of principal	64.4 (28.0)	13.1 (12.8)	9.6 (12.3)	8.0 (18.1)	4.9 (28.8)
3	9.1% of packages, 5.9% of principal	63.8 (28.9)	13.6 (13.3)	12.5 (20.9)	6.2 (14.2)	3.9 (22.7)
4	19.1% of packages, 13.8% of principal	59.7 (21.0)	15.8 (16.3)	12.6 (18.6)	7.2 (20.6)	4.7 (23.5)
5 (large)	65.9% of packages, 78.7% of principal	60.8 (23.4)	16.5 (16.5)	12.8 (20.6)	5.5 (16.1)	4.4 (23.4)

Table III: Performance of Churning Trades Using Manager Trade Prices After Transaction Costs Over Short- and Long-Term Horizons

This table measures excess stock return (over the S&P/ASX 300) around the following trade sequences, purchase, sale, purchase and sale, purchase, sale. These trade sequences occur over the interval in the left column. The return is calculated using the manager's actual average trade package price. Transactions costs are modeled using description in text, and are subtracted from returns after purchases, but added to returns following sales. All figures not in parentheses are in percentages.

Panel A: Buy to Sell to Buy Churning Trade

	Number Trades	Past 5days	After Buy, Before Sell	After Sell, Before Buy	Next 5days	Next 10days	Next 90days	Next 250days
<=5WorkingDays	552	0.07	-0.08	0.12	0.40	0.22	0.17	1.56
(T-statistic)		*(0.31)*	*(0.55)*	*(0.70)*	*(1.23)*	*(0.57)*	*(0.22)*	*(1.26)*
6-10 WorkingDays	1,290	0.40***	0.26**	-0.31***	0.03	0.02	1.12**	1.51*
(T-statistic)		*(3.04)*	*(1.97)*	*(2.64)*	*(0.13)*	*(0.08)*	*(2.12)*	*(1.95)*
11-21 Working Days	2,326	0.95***	0.68***	-0.62***	0.36**	0.33*	0.04	0.42
(T-statistic)		*(9.94)*	*(5.10)*	*(5.18)*	*(2.36)*	*(1.91)*	*(0.11)*	*(0.71)*
1-2mths	1,936	1.28***	1.54***	-0.83***	0.32**	0.43**	0.38	0.55
(T-statistic)		*(12.03)*	*(8.16)*	*(5.52)*	*(2.08)*	*(2.40)*	*(0.95)*	*(0.83)*
2-3mths	856	1.11***	1.04***	-0.86**	0.24	0.09	0.17	-0.50
(T-statistic)		*(6.14)*	*(2.64)*	*(2.18)*	*(0.98)*	*(0.30)*	*(0.24)*	*(0.46)*
All trades <3mths	6,960	0.89***	0.82***	-0.59***	0.28***	0.26**	0.36	0.63*
(T-statistic)		*(15.47)*	*(9.27)*	*(7.40)*	*(3.19)*	*(2.57)*	*(1.62)*	*(1.81)*

Panel B: Sell to Buy to Sell Churning Trade

	Number Trades	Past 5days	After Sell, Before Buy	After Buy, Before Sell	Next 5days	Next 10days	Next 90days	Next 250days
<=5WorkingDays	501	-0.40	-0.16	0.38	0.32	0.26	1.14	1.72
(T-statistic)		*(1.53)*	*(0.91)*	*(1.64)*	*(0.89)*	*(0.65)*	*(1.26)*	*(1.28)*
6-10 WorkingDays	1,399	-0.29**	-0.30***	0.41***	0.48***	0.49**	0.03	-0.80
(T-statistic)		*(2.42)*	*(2.91)*	*(3.53)*	*(2.70)*	*(2.35)*	*(0.06)*	*(1.04)*
11-21 Working Days	2,125	-0.54***	-0.40***	0.44***	0.35**	0.45**	0.89**	1.88***
(T-statistic)		*(5.64)*	*(3.36)*	*(3.60)*	*(2.38)*	*(2.55)*	*(2.16)*	*(2.89)*
1-2mths	1,586	-0.52***	-0.99***	0.58***	0.45**	0.42**	-0.27	-0.13
(T-statistic)		*(4.18)*	*(4.62)*	*(2.84)*	*(2.34)*	*(1.96)*	*(0.60)*	*(0.18)*
2-3mths	735	-0.77***	-1.10**	1.16***	0.47	0.22	-0.03	-0.26
(T-statistic)		*(4.82)*	*(2.53)*	*(3.02)*	*(1.51)*	*(0.51)*	*(0.04)*	*(0.23)*
All trades <3mths	6,346	-0.50***	-0.58***	0.55***	0.42***	0.41***	0.32	0.52
(T-statistic)		*(8.51)*	*(6.61)*	*(6.46)*	*(4.60)*	*(3.75)*	*(1.35)*	*(1.42)*

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Table IV: Aggregate Profitability of a Variety of Multi-Blockholder Trade Sequences

This table measures the return of sequences of trades over a three-month window. Buy (Sell) only refers to trades that are not reversed within the three month window. Buy-Sell (Sell-Buy) only refers to trades that are reversed once only during the three month window. Buy-Sell-Buy (Sell-Buy-Sell) refers to trades that are reversed and then re-purchased (re-sold) within the three month window. The excess return is calculated as the difference between the stock return and the S&P/ASX300 Index Return. All figures not in parentheses are in percentages.

	Return	Excess Return	Excess Return (Aft. Trans. Costs)
Profitability of Trade Sequences			
Buy-Sell-Buy	2.72	1.80	0.90
(T-statistic)	*(19.27)*	*(13.83)*	*(6.93)*
Buy-Sell Only	0.37	0.49	-0.11
(T-statistic)	*(1.49)*	*(2.03)*	*(-0.44)*
Buy Only	0.86	-0.25	-0.55
(T-statistic)	*(9.85)*	*(-3.06)*	*(-6.66)*
Sell-Buy-Sell	1.04	1.39	0.49
(T-statistic)	*(6.75)*	*(9.72)*	*(3.44)*
Sell-Buy Only	0.59	0.67	0.07
(T-statistic)	*(3.21)*	*(3.93)*	*(0.41)*
Sell Only	-0.20	1.06	0.76
(T-statistic)	*(-2.04)*	*(10.96)*	*(7.87)*

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Table V: Impact of Multiple Blockholders Churning the Same Stock on Actual and Predicted Trade Profitability and in the Longer Term

This table measures excess stock return (over the S&P/ASX 300) around the following trade sequences, purchase, sale, purchase and sale, purchase, sale and occur over less than three months. The number of blockholders that complete their trade sequence in the same month is in the left column. The return is calculated using day-end prices. Transactions costs are modeled using description in text, and are subtracted from returns after purchases, but added to returns following sales. The actual profitability column measures the profitability during the trading sequence and is expressed as a percentage of the value of the trades. The predicted profit column is based on the EM formula given as equation (3) in the text. The constant term in the formula is based on two managers trading for each of the two sequences and equals 7.9552 for BSB and 7.0359 for SBS sequence. All figures not in parentheses are in percentages.

Panel A: Buy to Sell to Buy Churning Trade

	Number Trades	Actual Profitability	Predicted Profitability	Past 5days	After Buy, Before Sell	After Sell, Before Buy	Next 5days	Next 10days	Next 90days	Next 250days
1 Blockholder Trading	2,074	1.64	3.98	0.89	0.81	-0.83	0.11	-0.02	-0.56	-0.39
(T-statistic)		*(4.94)*		*(7.51)*	*(4.69)*	*(-5.20)*	*(0.68)*	*(-0.10)*	*(-1.17)*	*(-0.54)*
2 Blockholders Trading	1,600	1.88	1.88	1.02	1.16	-0.72	0.63	0.48	1.09	3.08
(T-statistic)		*(5.55)*		*(8.96)*	*(6.43)*	*(-4.54)*	*(5.07)*	*(3.12)*	*(2.66)*	*(4.53)*
3 Blockholders Trading	981	1.56	1.15	1.10	1.02	-0.54	0.30	0.41	1.12	0.89
(T-statistic)		*(3.70)*		*(7.84)*	*(4.47)*	*(-2.79)*	*(1.45)*	*(1.73)*	*(2.23)*	*(1.13)*
4 Blockholders Trading	756	0.73	0.80	0.83	0.52	-0.21	0.38	0.70	1.17	-0.43
(T-statistic)		*(1.54)*		*(5.26)*	*(1.99)*	*(-0.98)*	*(1.63)*	*(2.67)*	*(2.26)*	*(-0.52)*
5+ Blockholders Trading	1,549	0.82	0.59	0.68	0.52	-0.30	-0.08	-0.03	-0.20	-0.16
(T-statistic)		*(2.44)*		*(6.08)*	*(2.83)*	*(-1.97)*	*(-0.50)*	*(-0.16)*	*(-0.60)*	*(-0.29)*

Panel B: Sell to Buy to Sell Churning Trade

	Number Trades	Actual Profitability	Predicted Profitability	Past 5days	After Sell, Before Buy	After Buy, Before Sell	Next 5days	Next 10days	Next 90days	Next 250days
1 Blockholder Trading	1,895	1.26	3.52	-0.59	-0.92	0.34	-0.09	-0.22	-1.27	-2.34
(T-statistic)		*(3.53)*		*(-4.98)*	*(-4.97)*	*(1.97)*	*(-0.49)*	*(-0.93)*	*(-2.43)*	*(-2.94)*
2 Blockholders Trading	1,469	1.66	1.66	-0.56	-0.80	0.86	-0.28	-0.15	-0.15	1.74
(T-statistic)		*(4.89)*		*(-4.90)*	*(-4.68)*	*(5.11)*	*(-2.23)*	*(-0.93)*	*(-0.36)*	*(2.53)*
3 Blockholders Trading	902	1.27	1.02	-0.55	-0.44	0.83	0.39	0.39	1.15	1.50
(T-statistic)		*(2.96)*		*(-3.87)*	*(-2.08)*	*(3.82)*	*(1.87)*	*(1.63)*	*(2.23)*	*(1.86)*
4 Blockholders Trading	733	0.92	0.70	-0.33	-0.14	0.79	0.80	1.08	2.25	1.25
(T-statistic)		*(1.86)*		*(-2.10)*	*(-0.56)*	*(3.11)*	*(3.53)*	*(4.11)*	*(4.40)*	*(1.49)*
5+ Blockholders Trading	1,347	0.44	0.52	-0.36	-0.25	0.19	0.37	0.17	0.09	0.82
(T-statistic)		*(1.14)*		*(-2.93)*	*(-1.31)*	*(0.98)*	*(2.27)*	*(0.89)*	*(0.25)*	*(1.42)*

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Table VI: Impact of Multiple Blockholders Churning the Same Stock on Short-Term Trade Profitability Utilizing Regression Analysis

In this table, we regress the package profitability against a number of variables. The churning trades must have the following trade sequences, purchase, sale, purchase and sale, purchase, sale. Profitability is calculated as the excess return (over the S&P/ASX 300 Index) earned after the first trade minus the excess return earned after the second trade plus the return earned in the five days following the third trade. The independent variables include a variable (Number of Blockholder Trading in the Same Month), equal to the number of different blockholder trading sequences completed over the previous month, and a variable equal to the maximum percentage deviation in stock holdings (from peak to trough). Control variables include size, book-to-market and momentum quintiles, a dummy equal to 1 if the churning sequence was Buy-Sell-Buy (rather than Sell-Buy-Sell) as well as the average change in manager weight over the previous month.

	(1)	(2)	(3)
Constant	0.0240***	0.0267***	0.0263***
(t-statistic)	*(4.12)*	*(4.42)*	*(4.52)*
Size Quintile	-0.0011	-0.0013	-0.0009
(t-statistic)	*(-0.95)*	*(-1.19)*	*(-0.80)*
Book-to-Market Quintile	0.0001	0.0003	0.0001
(t-statistic)	*(0.08)*	*(0.42)*	*(0.15)*
6m Momentum Quintile	-0.0009	-0.0010	-0.0011*
(t-statistic)	*(-1.46)*	*(-1.48)*	*(-1.77)*
Net Blockholder Change in Position			0.0208***
(t-statistic)			*(5.70)*
Number of Blockholders Trading in Same Month	-0.0021***	-0.0023***	-0.0021***
(t-statistic)	*(-4.41)*	*(-4.66)*	*(-4.53)*
Buy-Sell-Buy Dummy	0.0065***	0.0065***	0.0018
(t-statistic)	*(3.34)*	*(3.34)*	*(0.83)*
Holdings Percentage Deviation		*-0.0055**	
(t-statistic)		*(-1.68)*	
Observations	13,046	13,046	13,046
R-squared	0.29%	0.32%	0.54%

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Table VII: Impact of the Number of Blockholders Trading Simultaneously on the Relative Time-Weighted Spread and Comparison with the Predicted Reduction

This table measures the change in relative time-weighted spread before and after our short-term churning trades. The churning trades must have the following trade sequences, purchase, sale, purchase and sale, purchase, sale. The number of blockholders that complete their trade sequence in the same month is in the left column. All figures not in parentheses are in percentages. The Kyle Lambda formula, equation (3) in the text, is used to compute the expected spread reduction in percentage terms which is then contrasted with the actual spread reduction as a percent for each increase in blockholder numbers.

		Spread	Excess Spread	Predicted Reduction (%)	Actual Reduction (%)
1 Blockholder Trading	Spread Before	0.654	-2.714		
	Spread After	0.654	-2.734		
	Difference (basis points)	0.010	-1.960*	NA	-0.020
	(T-statistic)	*(0.01)*	*(1.83)*		
2 Blockholders Trading	Spread Before	0.358	-3.099		
	Spread After	0.351	-3.111		
	Difference (basis points)	-0.653***	-1.184**	5.720	1.820
	(T-statistic)	*(6.16)*	*(2.01)*		
3 Blockholders Trading	Spread Before	0.266	-3.189		
	Spread After	0.263	-3.254		
	Difference (basis points)	-0.347***	-6.500***	8.140	1.300
	(T-statistic)	*(4.32)*	*(8.85)*		
4 Blockholders Trading	Spread Before	0.213	-3.367		
	Spread After	0.210	-3.385		
	Difference (basis points)	-0.399***	-1.846**	7.620	1.870
	(T-statistic)	*(5.81)*	*(2.02)*		
5+ Blockholders Trading	Spread Before	0.174	-3.538		
	Spread After	0.169	-3.533		
	Difference (basis points)	-0.480***	0.500	6.830	2.770
	(T-statistic)	*(6.99)*	*(0.55)*		

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Table VIII: Impact of Short-Term Trading on Subsequent Firm Performance

In this table, we regress the 12mth Excess Stock Return (over the S&P/ASX 300 Index) against a number of variables. The independent variables include a dummy variable, equal to 1 when a manager has completed a short-term trading sequence over the previous month (ST Trading Dummy), a variable equal to the number of different managers trading sequences completed over the previous month (ST Trading Number), and a variable equal to the maximum percentage deviation in stock holdings (from peak to trough). Control variables include size, book-to-market and momentum quintiles, as well as the average change in manager weight over the previous month.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	-0.0283***	-0.0300***	-0.0295***	-0.0282***	-0.0282***	-0.0276***	-0.0290***
	(3.55)	*(3.75)*	*(3.75)*	*(3.53)*	*(3.53)*	*(3.42)*	*(3.54)*
Size Quintile	-0.0044***	-0.0016	-0.0025*	-0.0042***	-0.0053***	-0.0043***	-0.0042***
	(3.11)	*(1.19)*	*(1.81)*	*(3.01)*	*(3.64)*	*(3.06)*	*(3.02)*
Book-to-Market Quintile	-0.0033**	-0.0038***	-0.0035**	-0.0033**	-0.0032**	-0.0034**	-0.0033**
	(2.41)	*(2.80)*	*(2.31)*	*(2.39)*	*(2.36)*	*(2.45)*	*(2.42)*
6m Momentum Quintile	0.0128***	0.0128***	0.0128***	0.0128***	0.0128***	0.0128***	0.0128***
	(9.80)	*(9.79)*	*(9.84)*	*(9.77)*	*(9.78)*	*(9.76)*	*(9.78)*
Net Blockholder Change in Position	-0.0003	0.0117	0.0044	-0.0182	-0.0023	-0.0003	-0.0003
	(0.02)	*(0.84)*	*(0.84)*	*(1.22)*	*(0.17)*	*(0.02)*	*(0.02)*
Churning Trade Dummy	0.0441***				0.0250***	0.0439***	0.0442***
	(7.60)				*(2.72)*	*(7.56)*	*(7.60)*
Buy-Sell ST Trading Dummy					0.0132**		
					(2.08)		
Sell-Buy ST Trading Dummy					0.0122		
					(1.55)		
Buy-Sell-Buy Dummy				0.0421***			
				(4.98)			
Sell-Buy-Sell Dummy				0.0147*			
				(1.90)			
Number of Blockholders Churning			0.0083***				
			(4.17)				
Holdings Percentage Deviation		0.0325***	0.0162*				
		(3.56)	*(1.89)*				
Single O'weight Mgr W'out Churning						-0.0029	
						(0.57)	
<=Two O'weight Mgrs W'out Churning							0.0017
							(0.41)
Observations	20,945	20,945	20,945	20,945	20,945	20,945	20,945
R-squared Adj.	0.82%	0.82%	0.64%	0.82%	0.85%	0.82%	0.82%

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Table IX: Impact of Short-term Trading on Subsequent Firm Performance Based on Matched Firms

In this table, we present the equally-weighted average excess return (over the S&P/ASX 300 Index) over the specified period for stocks where managers have engaged in short-term trading over the prior month. We match these stocks against stocks in the same size, book-to-market and momentum quintiles. The period of this analysis is from Jan-1994 to Jun-2002. All figures not in parentheses are percentages.

	Short-term Trading in Prior Month	No Short-term Trading	Difference
1mth Excess Return	0.28*	-0.15	0.43*
(t-statistic)	(1.68)	(0.86)	(1.78)
3mths Excess Return	0.69**	-0.45	1.14***
(t-statistic)	(2.46)	(1.62)	(2.88)
6mths Excess Return	1.40***	-1.01**	2.41***
(t-statistic)	(3.34)	(2.56)	(4.18)
12mths Excess Return	1.58***	-1.55***	3.13***
(t-statistic)	(2.87)	(2.75)	(3.97)

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Table X: Characteristics of Churning Trades and Relation to Blockholder Relative Weight

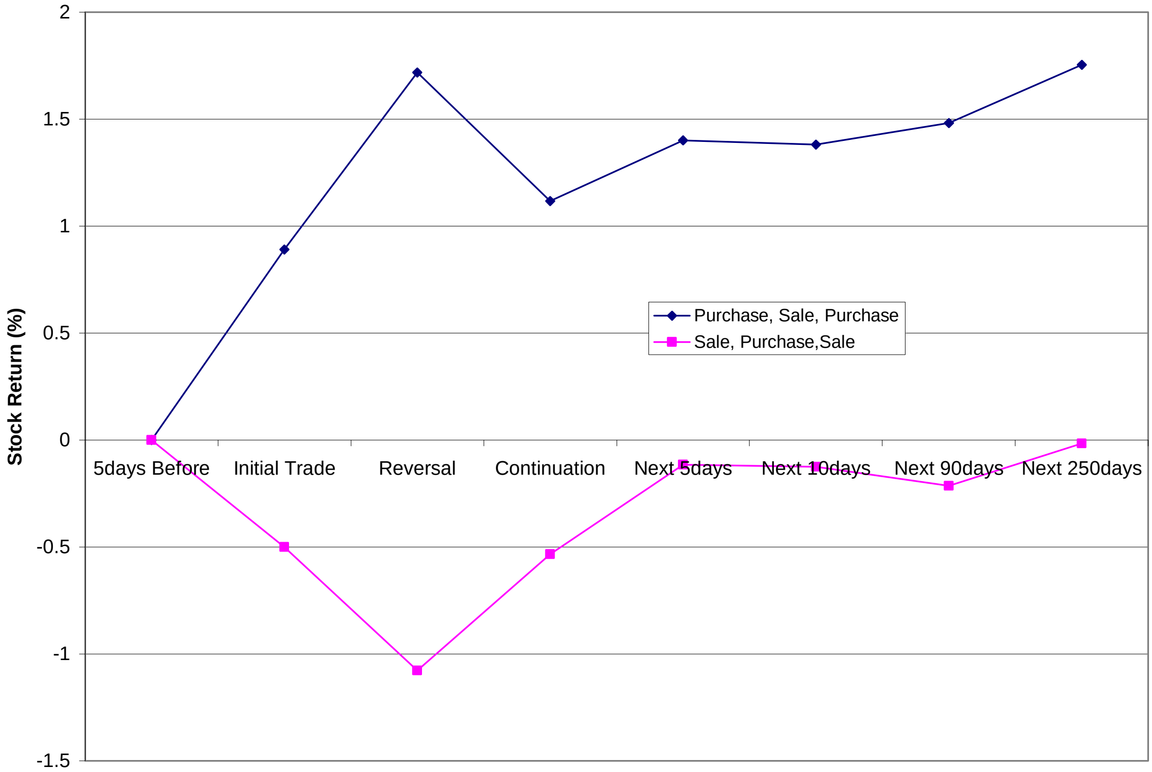
In this table we use regression methodology (listed in the column heading) for the dependent variable (listed in the column headings) regressed against a number of independent variables (listed in the row headings). Regression methodology includes logit and probit for our churning dummy (equal to one in the quarters in which our manager completes the sequence (i) buy, sell, buy or (ii) sell, buy, sell) and Tobit for our churning number (the number of times a manager churns within the quarter) and churning performance (the average performance of the churning sequence). Independent variables include stock size, book-to-market ratio, prior 3 month stock return and volatility, prior 3 month relative bid-ask spread and stock turnover. These variables are all calculated as rank variables between zero and one. We also calculate prior 3 month index return and volatility. Lastly, we include manager variables, such as relative weight in a stock (manager weight minus S&P/ASX 300 Index weight), log(manager size), prior 6mth manager performance and portfolio turnover, and dummy variables equal to one if our manager has a growth or value style. In the first five columns we use past data in order to calculate the independent variables, whereas in the last two columns we use present data, that is calculated during the period with which we measure our dependent variable (churning dummy).

Dependent Variable	Churning Dummy	Churning Dummy	Churning Number	Churning Performance	Churning Dummy	Churning Dummy	Churning Dummy
Regression Methodology	Logit	Probit	Tobit	Tobit	Probit	Logit	Logit
Period Calculation of Independent Variables	Previous	Previous	Previous	Previous	Previous	Current	Current
Constant	-8.98***	-3.72***	-18.56***	-1.16***	-13.22***	-11.32***	-16.29***
(T-statistic)	*(37.40)*	*(43.72)*	*(27.57)*	*(16.16)*	*(43.75)*	*(34.24)*	*(41.56)*
Stock Size	2.54***	0.73***	3.62***	0.18***	8.88***	4.44***	12.80***
(T-statistic)	*(11.07)*	*(8.76)*	*(5.69)*	*(2.59)*	*(32.65)*	*(13.44)*	*(35.06)*
Book-to-Mkt Ratio	-0.48***	-0.28***	-1.50***	-0.05***	-0.52***	-0.50***	-0.37***
(T-statistic)	*(7.38)*	*(8.80)*	*(9.11)*	*(3.45)*	*(8.06)*	*(7.64)*	*(5.55)*
3mth Stock Return	0.01	0.00	0.04	0.00	-0.06	-0.17***	-0.19***
(T-statistic)	*(0.24)*	*(0.13)*	*(0.31)*	*(0.28)*	*(1.13)*	*(3.23)*	*(3.51)*
3mth Stock Volatility	0.04	-0.01	0.08	0.04	2.28***	0.71***	-12.75***
(T-statistic)	*(0.28)*	*(0.12)*	*(0.18)*	*(1.04)*	*(14.77)*	*(3.86)*	*(8.65)*
3mth Index Return	-0.86***	-0.56***	-3.27***	-0.14**	-0.96***	-0.11	-0.17
(T-statistic)	*(2.92)*	*(3.77)*	*(4.37)*	*(2.27)*	*(3.32)*	*(0.39)*	*(0.59)*
3mth Index Volatility	-16.76**	-17.12***	-96.92***	4.95**	-20.27***	0.30	14.90*
(T-statistic)	*(2.29)*	*(4.72)*	*(4.26)*	*(2.18)*	*(2.76)*	*(0.04)*	*(1.92)*
3mth Relative Bid-ask Spread	-0.54***	-0.26***	-1.28***	-0.06***		-0.51***	
(T-statistic)	*(34.70)*	*(37.96)*	*(22.33)*	*(10.96)*		*(30.02)*	
Stock Turnover					0.26***		0.15***
(T-statistic)					*(16.14)*		*(9.87)*
Blockholder Relative Weight	31.37***	17.53***	80.58***	4.27***	33.54***	31.07***	33.82***
(T-statistic)	*(30.05)*	*(30.66)*	*(24.83)*	*(14.31)*	*(31.30)*	*(30.08)*	*(31.75)*
Manager Size	0.09***	0.03***	0.16***	0.01***	0.08***	0.10***	0.08***
(T-statistic)	*(14.88)*	*(13.50)*	*(11.81)*	*(6.43)*	*(13.46)*	*(14.81)*	*(12.36)*
Growth Blockholder Dummy	-0.04	0.02	0.47***	0.01	-0.05	0.01	0.02
(T-statistic)	*(0.73)*	*(0.93)*	*(3.54)*	*(1.23)*	*(1.04)*	*(0.27)*	*(0.45)*
Value Blockholder Dummy	0.03	0.02	0.27**	0.03***	-0.01	0.09*	0.09*
(T-statistic)	*(0.61)*	*(0.65)*	*(1.96)*	*(2.91)*	*(0.28)*	*(1.70)*	*(1.81)*
Style Neutral Blockhodler Dummy	0.16***	0.07***	0.53***	0.02	0.15***	0.18***	0.16***
(T-statistic)	*(2.82)*	*(2.58)*	*(3.54)*	*(1.14)*	*(2.66)*	*(3.20)*	*(2.89)*
Prior 6mth Blockholder Performance	-0.80**	-0.34*	-2.33***	-0.08	-0.64*	-0.22	0.07
(T-statistic)	*(2.30)*	*(1.82)*	*(2.62)*	*(1.19)*	*(1.85)*	*(0.66)*	*(0.19)*
Prior 6mth Portfolio Turnover	1.98***	1.03***	5.14***	0.26***	1.86***	2.00***	1.76***
(T-statistic)	*(24.63)*	*(24.20)*	*(23.32)*	*(13.94)*	*(23.21)*	*(25.61)*	*(22.24)*
N	8,283,100	8,283,100	8,283,100	8,283,100	8,283,100	8,383,500	8,383,500
R-squared (%)	8.73	8.51	99.83	99.73	7.35	9.15	7.79

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.

Figure 1

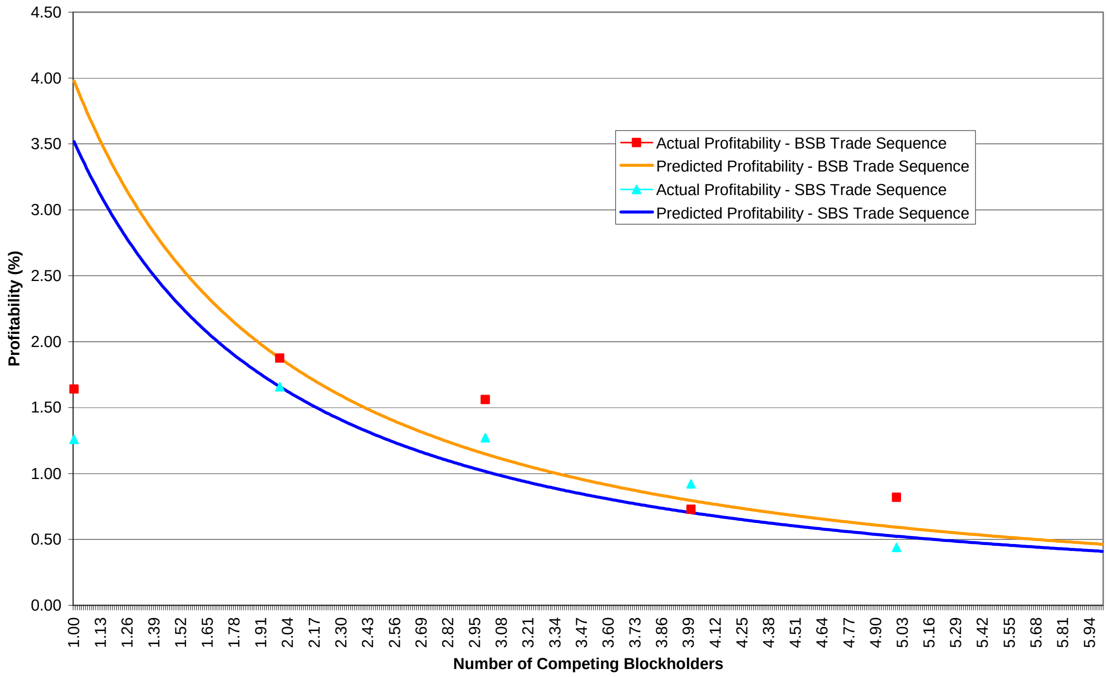
Excess Return (after transactions costs) Around Churning Trades



This figure displays stock excess performance (over the S&P/ASX 300 Index Return) around the following trade sequences, (1) purchase, sale, purchase and (2) sale, purchase, sale. These trade sequences occur over less than three months. We used the volume-weighted-average-price as reported by the blockholder. Transactions costs are subtracted from (added to) the excess return after purchases (sales).

Figure 2

Actual vs Expected Profitability of Churning Sequences



This figure displays the profitability of two different styles of churning trades according to the number of blockholders simultaneously trading each month. Profitability is calculated as the stock excess performance (over the S&P/ASX 300 Index Return) around the following trade sequences, (1) buy, sell, buy (BSB) and (2) sell, buy, sell (SBS). These trade sequences occur over less than three months. We used the volume-weighted-average-price as reported by the blockholder. Transactions costs are subtracted from (added to) the excess return after purchases (sales). The actual profitability appears as the dots on the chart, which can be compared with the appropriate predicted profitability line. The predicted profitability is the expected profit according to the number of blockholder participants trading simultaneously in the Kyle symmetric Cournot equilibrium. It appears as the continuous lines in the Figure.

Appendix A

Table AI: Descriptive Statistics of Blockholder Trades including the Number of Churning Blockholders

This table measures presents a number of descriptive statistics concerning our manager buy and sell trades, as described in the panel titles. Average daily volume and volatiliy is calculated over the past three months. Packages are defined following Chan and Lakonishok (1995), who use a five-day gap definition of a package, implying that a new package begins when there is a five-day gap between manager trades (in the same direction), or when the manager executes a trade in the opposite direction. The sample comprises all trades of 30 active Australian investment managers during the period January 2, 1994 to December 31, 2001.

	All	Number of Blockholders churning the same stock					All	Number of Blockholders churning the same stock				
	Buys	1	2	3	4	5	Sells	1	2	3	4	5
Panel A: Shares Traded (Thousands)												
Mean	168	170	179	155	159	165	161	161	160	162	189	145
Median	21	19	22	19	23	25	25	21	24	26	27	28
StDev	551	626	569	592	424	439	537	694	417	478	603	372
25%	4	3	4	4	4	5	5	3	4	5	4	6
75%	106	98	109	91	102	121	117	105	114	117	120	124
99%	2,263	2,554	2,681	2,073	2,088	2,000	1,982	1,977	1,989	2,402	2,327	1,651
Panel B: Dollar Value of Package (Thousand $)												
Mean	1,099	639	930	1,027	1,296	1,858	1,052	635	871	1,157	1,259	1,446
Median	162	84	160	176	250	308	192	99	172	220	229	363
StDev	3,157	1,965	2,526	2,829	3,251	4,731	2,709	2,229	1,959	3,032	2,999	3,106
25%	32	16	32	41	41	71	38	17	36	55	44	75
75%	754	391	671	735	1,035	1,574	835	437	722	834	1,054	1,324
99%	15,251	9,117	12,050	13,808	14,394	25,439	12,843	7,948	9,054	14,294	14,146	15,054
Panel C: Package Size Relative to Normal Trading Volume												
Mean	0.90	1.00	1.00	0.71	0.80	0.82	0.90	0.97	1.02	0.91	0.91	0.72
Median	0.12	0.12	0.15	0.11	0.11	0.11	0.14	0.13	0.16	0.14	0.13	0.14
StDev	2.23	2.44	2.40	1.78	2.06	2.07	2.15	2.36	2.34	2.22	2.18	1.66
25%	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.03
75%	0.62	0.66	0.71	0.51	0.56	0.60	0.65	0.68	0.74	0.63	0.67	0.59
99%	12.10	13.15	13.05	9.91	10.70	10.91	11.77	13.29	12.64	12.35	11.55	8.70
Panel D: Package Size Relative to 95th Percentile of Trading Volume												
Mean	0.40	0.40	0.44	0.34	0.38	0.40	0.40	0.39	0.45	0.42	0.42	0.35
Median	0.06	0.05	0.07	0.05	0.05	0.06	0.07	0.05	0.07	0.07	0.07	0.07
StDev	1.00	1.01	1.09	0.84	0.95	1.01	0.96	0.96	1.06	1.04	1.00	0.81
25%	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
75%	0.29	0.27	0.32	0.25	0.28	0.31	0.30	0.29	0.34	0.30	0.33	0.29
99%	5.42	5.22	5.78	4.49	5.32	5.64	4.99	5.07	5.39	5.64	5.43	3.89
Panel E: Average Daily Volatility (%)												
Mean	4.9	3.7	4.4	5.0	6.0	6.6	4.8	3.7	4.4	4.7	5.0	6.1
Median	2.6	2.4	2.5	2.6	2.8	2.9	2.5	2.3	2.4	2.6	2.6	2.7
StDev	6.8	4.6	6.2	6.9	8.0	8.5	6.7	4.9	6.4	6.5	7.1	8.0
25%	1.7	1.5	1.7	1.8	1.8	1.8	1.7	1.5	1.6	1.7	1.7	1.8
75%	4.4	3.9	3.9	4.2	5.8	7.6	4.2	3.8	4.0	4.2	4.2	5.9
99%	36.8	25.3	34.9	38.2	40.5	40.5	35.7	30.1	37.5	34.4	36.9	38.2

Appendix B
Table BI: Explicit Transaction Costs

In this table, we regress the explicit brokerage costs for trade packages against a number of independent variables: manager style dummies (growth or value), log manager size), broker dummies (for the most popular seven brokers which account for the majority of manager trades). Trade packages are defined according to Chan and Lakonishok (1995), where a package end after a five day period of no trades or a trade is made in the opposite direction. All beta values are in basis points.

Variables	All Trades
Constant	25.63***
Growth Manager	8.51***
Value Manager	-6.13***
log (Manager Size)	-6.18***
Broker 1	7.13***
Broker 2	2.52
Broker 3	-1.10
Broker 4	3.71*
Broker 5	-1.88
Broker 6	3.62
Broker 7	0.26

*,**, and *** display significance at the 90, 95 and 99% confidence interval, respectively.