Strategic Trading in the Wrong Direction by a Large Institutional Investor

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Abstract

Numerous theoretical papers suggest that large informed traders should make misleading or random trades to disguise their trading. Alternatively, informed traders may trade purely on their estimate of stock value. This paper examines the case of a large institutional investor that periodically trades in the wrong direction, i.e., makes occasional sell (buy) trades within packages of buy (sell) trades. Using a unique data set, we show that three quarters of the trade packages include wrong-direction trades. We describe the characteristics of the wrong-direction trades and show that they appear to be used more to disguise trade direction because they are relatively small, executed on low-volume days, and not very profitable, although gains on wrong-trade buys may offset losses on wrong-trade sells.

1. Introduction

The strategic trading models of Allen and Gale (1992), John and Narayanan (1997), Fishman and Hagerty (1995), and Huddart, Hughes, and Levine (2001) suggest that informed traders should sometimes make misleading (or random) trades, but there has been little empirical work documenting such trading behavior[1]. This could be because traders are unlikely to freely report misleading trades. This paper considers the case of a large institutional investor who is required to disclose daily trades and occasionally trades in the wrong direction. We infer the motivations for wrong-direction trades (hereafter wrong trades) by examining trade tactics and profitability, along with the characteristics of the traded stocks.

We study large packages of trades made by Gabelli Asset Management Company (GAMCO), where three quarters of the packages include wrong trades. Wrong-direction buy (sell) trades are occasional buy (sell) trades interspersed within a package of sell (buys) trades. Wrong trades are interesting because market efficiency implies that they should be unprofitable or, at best, a waste of time. Selling some shares only to buy them back shortly afterward cannot be profitable unless the negative price impact of the sale is not completely reversed by the positive price impact of the subsequent buy.

Earlier studies of institutional equity investors' trades by Holthausen, Leftwitch, and Mayers (1987, 1990), Chan and Lakonishok (1993, 1995), Keim and Madhavan (1995), Gemmill (1996) do not report that their data contain wrong direction trades or do not examine their significance. They use proprietary databases to examine the price impact, trading costs, order placement strategy, or liquidity of individual trades, or packages of trades.

One reason that earlier studies' data may not include wrong trades is that they involve relatively small trade packages. The trade packages studied by Keim and Madhavan (1995) and Chan and Lakonishok (1995) are typically completed within one to four trading days and average

[1] Recent research by Merrick, Naik, and Yadav (2005) and Jiang, Mahoney, and Mei (2005) consider squeezes and trading pools, respectively, but they cover a few trading events as opposed to a trading strategy executed continuously over a long period of time, involving many firms' shares.

about 30,000 shares worth $1.2 million. GAMCO's average package covers 24 trading days and involves 600,000 shares worth $15.2 million. These long-duration packages of large trades could make wrong trades more effective either because the large trades have more market price impact, or because a longer execution period provides more opportunity to exploit favorable market conditions for wrong trades.

One consequence of GAMCO's large shareholdings is that they become insiders, and must publicly disclose their daily trades as quickly as ten days after they are made. This could mean that GAMCO's trading strategy will differ from those observed in earlier studies that use proprietary trade data. John and Narayanan (1997), Fishman and Hagerty (1995) and Huddart, Hughes, and Levine (2001) use forced trade disclosure to motivate their informed trading strategies. But the ten-day disclosure lag is probably too long after a particular day's wrong trade to be of much use in manipulating market price. Instead, we assume that partial disclosure exists because uninformed traders' have real-time access to the stream of all trades. That is, they know the direction of GAMCO's recent trades from disclosures and can see the current market order flow, but they do not know for certain who is currently trading.

Under these conditions, theory suggests two reasons why wrong trades could be profitable. First, wrong trades can create noise that helps confuse other traders about whether GAMCO is trading in a particular direction or whether GAMCO is informed (see Huddart, Hughes, and Levine (2001) and Allen and Gale (1992)). Wrong trades can break up strings of same-direction trades. If wrong trades can keep prices from fully reflecting the informed trader's information for a longer period of time, GAMCO can make more profitable trades. We call this the disguise hypothesis.

Second, Jarrow (1992) shows how price momentum generated from a sequence of trades can create profitable opportunities for subsequent trade reversals by uninformed traders. Fishman and Hagerty (1995) show how uninformed outside investors buy (sell) after insiders disclose their

buys (sells), further increasing (decreasing) prices[2]. Because GAMCO must periodically disclose its trades, uninformed traders may try to free-ride on GAMCO's information or on the momentum created by GAMCO's informed trades, hoping to profitably reverse their trades later. One way GAMCO can discipline free-riders is to occasionally trade against them when they push stock price too far above GAMCO's current estimate of firm value. Jiang, Mahoney, and Mei (2005) show that the 1920's stock trading pools, attacked for supposed disguise and market manipulation, instead traded on valuation. We call this the value hypothesis.

The disguise and the value hypotheses are not necessarily mutually exclusive. But one way to try to distinguish between them is to compare the features of packages that contain wrong trades with those that do not. Also, one can compare prices and trade size between right-direction trades and wrong-direction trades within packages that include wrong trades. For example, the value hypothesis suggests that wrong trades are made at extreme prices while the disguise hypothesis does not. Another way to distinguish between hypotheses is to examine when wrong trades are typically made during a trade package. The disguise hypothesis suggests that wrong trades are made uniformly during a trade package, while the value hypothesis suggests that wrong trades are made later in a package after price gains momentum.

We focus exclusively on GAMCO because they are the only financial institution to publicly disclose enough of their daily trades to create a reasonably large database. For the most part, our results show that GAMCO trades according to the disguise hypothesis. The paper is organized as follows. Section 2 describes the data sample. Section 3 reports the results and Section 4 is a conclusion.

[2] Allen and Gale (1992) describe similar behavior except without disclosure.

2. The Data and the Sample

We construct our sample using GAMCO's Schedule 13D filings from the SEC's Electronic Data Gathering, Analysis and Retrieval (EDGAR) database covering January 1994 – April 2003. Sections 13(d) and 13(g) of the Securities and Exchange Act of 1934 define institutions as insiders under certain conditions, and require them to disclose their shareholdings. Filings under section 13(g) are called 13Gs and filings under section 13(d) are called 13Ds.

Section 13(d) requires an institution to disclose its daily trades over the previous 60 days as well as its holdings, whenever its holdings reach five percent or more of a firm's outstanding shares. Subsequent large holdings changes (one percentage point of shares outstanding or more) must also be disclosed until holdings drop to a minimal amount. The disclosure must occur no later than ten days after a large change[3].

Section 13(g) is more lenient in some ways. Disclosure is not required until holdings reach a ten percent threshold, and an institution can delay disclosure until ten days after the end of the month in which the holdings breach the threshold. Daily trades do not have to be disclosed. But 13(g) is not available to an institution that believes it might be involved in changing a company's management. Given the relative leniency of the 13(g) statute, and the limited management involvement of most large institutions (such as mutual fund groups), almost all large institutional investors file under 13(g).

GAMCO is an exception because it files 13Ds almost exclusively (99 percent of its ownership filings). It is the largest filer of 13Ds. Some other large institutions occasionally file 13D's, but they mostly file 13G's. Some smaller institutions file 13D's exclusively, but they are not large enough to own many five-percent positions[4].

[3] Because a wrong trade could have occurred on any one of the previous 60 days covered by the filing, a wrong trade is disclosed at least 10 days and up to 70 days after it is executed.

[4] For example, FMR Corp., Fidelity funds' management company, controlled $484 billion in stocks in 2003. FMR owns more "insider" positions than any other institution. FMR filed 13,371 13Gs and only 517 13Ds during the sample period. Merrill Lynch & Company, which controlled $21 billion, filed 1453 13Gs

GAMCO is an investment advisory company controlled and directed by Mario Gabelli, through his ownership of about 97 percent of the voting shares of GAMCO's parent. GAMCO controlled about $27 billion in stocks in 2003. Mr. Gabelli is well-known for his value investment style[5] and his willingness to engage the management of the companies in which he invests[6].

Few earlier studies employ 13D data. Mikkelson and Ruback (1985) examined the announcement effects of 473 13D filings, but these mostly involved takeovers. They did not examine the associated daily trade data. Studies such as Chen, Jegadeesh and Wermers (2000) and Wermers (2000) infer mutual fund's quarterly stock trades from their quarterly reports, but

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and only 10 13Ds. Steel Partners, which controlled $249 million and specializes in purchasing insider-sized holdings in order to influence management, filed 334 13Ds and no 13Gs.

[5] GAMCO's investment strategy is articulated on its website. "In the tradition of Graham and Dodd, we utilize fundamental research to identify undervalued companies with dominant industry positions… we add our assessment of the private market value of the business. In other words, what would this company be worth to an informed industrialist attempting to create or purchase a business with similar characteristics? …We continually visit hundreds of company managements and integrate their input with our knowledge base. Our goal is to understand management's motivations and expectations. Given our long term approach, we want to know who our partners are and if they are working to enhance shareholder value. This process, coupled with our financial analysis, helps us select the most attractive investment candidates for our clients."

[6] We assume Mr. Gabelli decides when to confront management, as well as when to accumulate and trade large positions, for all of the funds and institutional portfolios managed by GAMCO. Given that he started his firm as a broker/dealer in 1977, he is experienced in trading strategies. It is possible that wrong-trades could be generated by one or more GAMCO fund that prefers to sell (buy) while most of the other funds buy (sell). But Mr. Gabelli's tight control is likely to limit such conflicts, especially considering the agency issues created by one fund trading against the others. Furthermore, internal fund differences cannot account for all wrong trades because GAMCO's initial 13D filings often contain wrong trades. Even if many wrong trades are due to conflicting objectives among GAMCO's funds, it is still reasonable to assume that GAMCO uses these wrong trades to its strategic advantage when executing them. The boilerplate language found in the filings confirms that GAMCO's decisions concerning it large holdings are centralized in Mr. Gabelli. For example, the following is taken from GAMCO's December 30, 2002 initial 13D filing for Baycorp.

> This statement is being filed by Mario J. Gabelli ("Mario Gabelli") and various entities which he directly or indirectly controls or for which he acts as chief investment officer. … the Reporting Persons analyze the operations, capital structure and markets of companies in which they invest, including the Issuer, on a continuous basis through analysis of documentation and discussions with knowledgeable industry and market observers and with representatives of such companies (often at the invitation of management). The Reporting Persons do not believe they possess material inside information concerning the Issuer. As a result of these analytical activities one or more of the Reporting Persons may issue analysts reports, participate in interviews or hold discussions with third parties or with management in which the Reporting Person may suggest or take a position with respect to potential changes in the operations, management or capital structure of such companies as a means of enhancing shareholder values … most portfolio decisions are made by or under the supervision of Mario Gabelli … With respect to voting of the Securities, the Reporting Persons have adopted general voting policies relating to voting on specified issues affecting corporate governance and shareholder values.

this data does not include daily trades. To our knowledge, our study is the first to examine daily trade strategy using 13D filings.

We believe that because GAMCO bears the extra costs and inconvenience of 13D filings, they could be better informed than other institutions or investors. Its large ownership positions, with implied options to initiate management changes, could lead to special treatment from management. Indeed, 13(d) filing requirements are comparable to those for management insiders; hence, the government apparently assumes that 13(d) filers have inside information or that their large trades could unduly affect stock prices.

Information in each 13D filing includes the traded company's name, state, SIC code, and CUSIP number, the date on which GAMCO records its total shareholdings (the holding date), the filing date, total shareholdings, and GAMCO's shareholdings as a percentage of shares outstanding. More important, each filing reports information on the individual trades on each day over the period of 60 days preceding the holding date. This data includes the trade day, shares traded, and trade price. If GAMCO makes more than one trade on a particular day, which it often does, the shares traded and price of each trade is given, but not the time of day.

The initial data set of 2647 filings is reduced to 2238; including 1472 that contain mostly buy trades and 766 that contain mostly sell trades. Filings are excluded from the sample when they cover stocks, convertible securities, or foreign stocks which do not appear on the Center for Research in Security Prices (CRSP) database. The final sample consists of 72,679 individual trades.

Trades are grouped into "packages". A buy (sell) package is defined as a sequence of mostly buy (sell) trades with less than eight trading days between adjacent trades. A package ends if GAMCO fails to trade in the company's stock for at least seven trading days. A buy (sell) package always results in an increase (decrease) in GAMCO's total shareholdings. A "package" can include two or more filings if there is less than eight trading days between the trades

disclosed in consecutive filings[7]. Consequently, the sample summary statistics in Table I cover 2,238 filings in Panels A and B, but only 1,428 packages in Panels C and D.

[Table I here]

The number of trades in a package or filing usually exceeds the number of trading days because GAMCO typically makes more than one trade per day. For instance, Panel A shows that the average number of trading days in a filing for the full sample is 15. The average number of trades in a filing for the full sample is 32 (Panel B). A similar pattern is reported in Panels C and D for trades within a package.

About two thirds of the packages are buy packages (911) and one third (517) are sell packages. This is because GAMCO's equity holdings are growing during the period from $7.7 billion in 1994 to $27 billion in 2003. Panel C shows that the average package covers 24 trading days, with a range of one to 207 days. Panel D shows that the average number of trades per package is 50, with a range of one to 543. This implies that GAMCO makes about two trades per day on average. Sell packages cover fewer trading days (20 vs. 26) and fewer trades (38 vs. 57) than buy packages on average. But as shown below, this is because individual sell trades are about twice as large as buy trades. That is, the average size of its buy and sell packages are about the same, but GAMCO sells at a faster pace. Keim and Madhavan (1993, 1995) and Chan and Lakonishok (1995) also find that sells are executed faster than buys.

3. The Empirical Results

[7] Each filing does not necessarily represent a package because once a series of trades significantly changes GAMCO's holdings, they must file even if they continue to trade.

Whether GAMCO uses wrong trades to disguise its trading intentions or as a way to exploit their informed stock valuation is analyzed using four types of evidence. Section 3.1 examines whether the packages with wrong trades involve stocks with different characteristics than those without wrong trades. Section 3.2 compares GAMCO's average trade prices for packages with and without wrong trades. Section 3.3 does the same for returns and Section 3.4 does the same for volume.

3.1. Characteristics of the Stocks that GAMCO Trades

The characteristics of the stocks that GAMCO trades are examined by estimating the following four-factor return model for each stock over the one-year (255 trading day) period that ends one month before GAMCO starts to trade the stock. The model is;

$$(R_{it} - R_{ft}) = \alpha + \beta_m (R_{mt} - R_{ft}) + \beta_s SML_t + \beta_h HML_t + \beta_u UMD_t + \varepsilon_t, \qquad (1)$$

where for each trading day t, R_{it} is stock i's return, R_{ft} is the risk-free return, R_{mt} is the CRSP value-weighted stock index return, SML_t is the size factor, HML_t is the book-to-market factor, and UMD_t is the momentum factor. α is the alpha, β_m is the beta (market factor loading), β_s is the size factor loading, β_h is the book-to-market factor loading, β_u is the momentum factor loading, and ε_t is a residual error term. The factor data are taken from Kenneth French's website.

Table II lists the average factor loadings and residual standard deviations for the stocks that GAMCO trades. Averages are calculated across companies grouped by how GAMCO trades their stocks (buy, sell, wrong-trade, no-wrong-trade). Note that about three-quarters of the packages involve wrong trades. This is true for both buys and sells. The average factor loadings and residual standard deviations do not differ between the full samples of buys and sells. This is not surprising because the stocks that GAMCO buys later become sells. Unless loadings change

between purchase and sale, or GAMCO sells only stocks with certain loadings and holds the others, sells and buys should have similar loadings.

[Table II here]

Combining both buys and sells together, the average beta, size, book-to-market, and momentum factor loadings are about 0.88, 0.71, 0.43, and -0.14, respectively. We compare these to Carhart's (1997) averages for equity mutual funds of 0.90, 0.30, -0.05, and 0.08, respectively. Comparison shows that GAMCO's stocks have about the same average beta, but that is still less than one, hence, its stocks' market risk is moderate. GAMCO's average size loading is more than twice that of the average mutual fund. GAMCO's value style shows up in its relatively large average book-to-market factor loading and negative momentum factor loading. Overall, the loadings imply that GAMCO's "insider" stocks are small cap value stocks.

When buys and sells are subset by whether GAMCO makes wrong trades in the stock, the wrong-trade stocks appear to differ from the no-wrong-trade stocks on average. The average factor loadings for the wrong-trade stocks are usually larger and the residual standard deviations are smaller. The only statistically significant factor loading difference, however, is for the buy packages' market factor loadings. The residual standard deviations of wrong-trade and no-wrong-trade stocks differ significantly for both buys and sells.

Overall, these results tend to support the disguise hypothesis. The average wrong-trade stock has a smaller residual return standard deviation. This means that its returns are less noisy. Wrong-trades can add noise to returns to help disguise or moderate the effects of the bulk of GAMCO's trades. GAMCO's wrong trades could have their greatest effect on days when the stock price is already moving in the opposite direction from its package trade direction. For example, if GAMCO is executing a buy package it likely creates some positive price pressure

given its large purchases. GAMCO could create more uncertainty (return noise) if it sells on a day when the stock price is already falling or not rising as fast. This possibility is considered next.

3.2. Average Transaction Prices for GAMCO's Wrong-Trade and No-Wrong-Trade Packages

Table III reports the average transactions prices of GAMCO's trades grouped by trade direction, and whether the trade is part of a package with wrong trades or a package without wrong trades. Equally-weighted and trade-size weighted averages are reported. Trade-size weight is the market value of a transaction divided by the total value of all transactions in the group. Trade-size-weighted prices show whether the equal-weighted results are drive by numerous small trades. Furthermore, one might expect to better observe GAMCO's trading intentions in its largest trades because any trading benefit or cost is magnified in larger trades. This is consistent with Admati and Ross (1985) who show that informed traders make their larger trades in those stocks for which they are better-informed.

Panel A of Table III reports average transactions prices for buy package trades grouped as follows; only the buy trades for all 911 buy packages, only the buy trades for 700 buy packages that contain sells, only the sell trades for these 700 packages, and only the buy trades for 211 buy packages with no sell trades. First, compare GAMCO's average equally-weighted and trade-size-weighted prices. In each group, the trade-size-weighted price is better. That is, GAMCO's larger buy (sell) transactions come at lower (higher) prices on average. This supports the idea that GAMCO makes larger transactions when it is better-informed.

[Table III here]

Note also that GAMCO obtains a better price than the closing price on average. Its average prices are almost exactly midway between the average highs and lows for each group.

Looking across closing prices for the day before, day of, and day after the trades, prices are rising except for one instance. This is not surprising because the market prices of most stocks rose during the sample period on average. Furthermore, GAMCO's accumulation of stock through its buy packages could be creating upward price pressure.

The one instance of a decrease in average closing price is on the day after the sell trades. This means that GAMCO is selling on days before close prices drop on average. Furthermore, its size-weighted sell price ($25.63) is higher than its size-weighted buy price ($25.46) among the 700 buy packages with wrong trades. This implies that GAMCO's sells are profitable (ignoring transactions costs). By profitable we mean that if GAMCO buys back its sells at its size-weighted buy price ($25.46), the day-after close price ($25.61), or the midpoint between the day-after high and low ($25.60), then it earns something on the trades. And this is not because it is selling stocks that are experiencing downward price momentum; the trade-day close ($25.62) is higher than the day-before close ($25.57).

Lastly, note that the average transactions prices for the 211 buy packages without wrong trades ($16.18) are much lower than those of the other groups. This means that GAMCO tends to avoid wrong trades when it is trading low-priced stocks. This could reflect the higher transaction costs of low-priced stocks, which would support the value hypothesis. However, an alternative explanation is that these stocks already had relatively high residual return volatility before GAMCO started trading them (Table II), hence, GAMCO may not need to try to disguise its trades in these stocks.

Panel B of Table III reports average transactions prices for sell package trades. Except for one case, these results are analogous to those for buy packages. The trade-size weighted transactions prices are better than the equal-weighted prices except for the buy trades. The trade-size-weighted buy transaction price ($28.86) exceeds the equal-weighted buy price ($28.80). But it is still below the size-weighted sell price ($29.60) among the 384 sell packages with wrong trades. Furthermore, it is below the day-after close price ($28.89). Assuming that GAMCO sells

back its wrong-trade buys at the average sell price or the day after close price, the wrong-trades are profitable.

Overall, these results mostly support the value hypothesis. When making wrong-trades, GAMCO trades at favorable prices as opposed to trading randomly or at unfavorable prices. If GAMCO was solely interested in creating greater price volatility, it would wrong-trade randomly or perhaps at unfavorable prices. Random selling could break up a series of buy trades, but likely would attain the average buy price. Wrong-trade sells (buys) executed on down (up) market days would create more price variation but would attain below (above) average prices.

One possible explanation for what looks like profitable wrong-direction trades is that GAMCO wrong-trades towards the end of its buy (sell) packages, when price momentum from its own trades have pushed prices up (down). This possibility is considered in Figure I. The figure shows the timing of wrong trades across the days covered by a package. Trade days are chronologically grouped into quintiles[8]. Panels A and B show that wrong trades are evenly distributed across days. There are slightly more wrong trades in the first two quintiles, but the differences between them and the other quintiles are not statistically significant. Wrong trades are clearly not coming mostly at the end of the packages.

Another possible explanation is that wrong trades look profitable based upon average prices but may not if returns are considered. Average prices differences do not translate directly into returns because price changes (and perhaps dividends) are not necessarily distributed proportionately across stocks of different prices. Therefore, returns are considered next.

3.3. Average Returns for GAMCO's Wrong-Trade and No-Wrong-Trade Packages

[8] If a package covers less than five trading days, wrong trades are assigned to the closest quintile. For example, if a three-day package has wrong trade on the second day, it goes into the third quintile. If it has a wrong trade on the third day, it randomly assigned to either the fourth or fifth quintile.

Table IV reports GAMCO's average day-of-trade returns and compares them to the average close-to-close returns for the traded stocks as well as the value-weighted CRSP Index return. Otherwise, the same format as Table III is used, including equal and trade-size weighting. The price results and return results are qualitatively similar, but the net returns for wrong trades are not clearly profitable.

Panel A of Table IV reports average percent daily returns for buy package trades. First, compare GAMCO's average equally-weighted and trade-size-weighted returns. Over all buys in the 911 packages, the trade-size-weighted return is better (0.22 vs. 0.18). This supports the idea that GAMCO makes larger transactions when it is better-informed, but this is driven by the buys in the 700 packages with wrong trades. For the buys from the 211 packages with no wrong trades, the trade-size weighted returns are smaller than the equal-weighted returns (0.30 vs. 0.34). Nevertheless, GAMCO earns relatively higher returns on those buys. Of course, the close-to-close return for the 211 package trades is about twice that of the 700 package trades.

[Table IV here]

One return pattern observed for all groups of trades is that the average close-to-close returns on the day before and the day of the trades are relatively large compared to the day-after returns. Furthermore, all but one of the average returns for the stocks that GAMCO trades are large relative to the CRSP value-weighted index return. This could reflect the fact that GAMCO stocks have relatively large average size and book-to-market factor loadings.

The one case where the average day-after CRSP return exceeds GAMCO's stocks' average returns is for the sell trades (0.10 vs. 0.09). But recall from Table III that the day-after close prices for those trades fell slightly on average. The positive 0.09 percent return implies that prices did not fall proportionately. Low-priced stock prices increased proportionately more than the high-priced stock prices fell. This shows that GAMCO's wrong-trade sells may not be

profitable. Nevertheless, wrong-trades do not cost as much as shorting the market (CRSP) for the day after. And GAMCO earns about twice as much on its buys.

Besides having small average returns relative to the buys, the wrong-trade sells show a different daily return pattern, particularly compared to the CRSP return pattern. First, average close-to-close sell trade returns decline between the day before and the day of the trades (0.22 vs. 0.21), whereas they increase considerably for the buys (0.81 vs. 1.18). Second, average buy returns follow the same pattern as average CRSP returns, but average sell returns move opposite from CRSP. In particular, average day-after sell returns fall from 0.21 to 0.09 percent but the average CRSP returns rise from 0.06 to 0.10 percent. This shows that GAMCO is able to sell stocks that do poorly compared to the market average, even if they do not earn a profit on the sells.

Panel B of Table IV reports average returns for sell package trades. The trade-size weighted returns are larger than the equal-weighted returns. If GAMCO is informed, one should expect to see the reverse, except for its buy trades. Like for the buy packages in Panel A, the average day-after close-to-close returns are all relatively small compared to the average trade-day and day-before returns. But a difference arises when the CRSP returns are considered. Average day-after returns fall for both the buy trades (0.76 to 0.23) and CRSP (0.15 to 0.02). This means that the day after GAMCO buys shares, both the stock and the market do relatively poorly on average. GAMCO's close-to-close sell returns also fall from the trade day to the day after (0.21 to 0.18), but CRSP returns rise from 0.05 to 0.11 percent. This implies that GAMCO is able to sell stocks whose returns fall the day after the trade while the market return rises.

Overall, the evidence on returns is mixed. GAMCO's buy package trades look informed but their sell package trades do not. Keim and Madhavan (1995) find a similar buy-sell dichotomy in their institutional trade data. Part of the dichotomy could be due to the pattern of market (CRSP) returns, which are comparatively high (low) during buy (sell) packages. Judged

on an absolute return basis, GAMCO does not earn a profit on wrong trades, but compared to the day-after market return they perform well.

The evidence largely supports the disguise hypothesis because wrong-trade sells (buys) are made on relatively low (high) return days. GAMCO does not disregard value but the purpose of wrong trades appears to be disguise. For buy packages, GAMCO makes buy (sell) trades on days when close-to-close returns are 1.18 (0.21) percent on average. For sell packages, GAMCO makes sell (buy) trades on days when returns are 0.21 (0.76) percent on average. That is, any price pressure created by GAMCO's wrong-direction trades reinforces that day's relative return, creating more return noise.

Wrong trades do not seem value-driven based upon trade-day or day-after returns. The positive returns on wrong-trade buys (0.15 trade day or 0.23 day after) could offset the implicit buy back costs of wrong-trade sells (0.12 trade day or 0.09 day after), but the net returns from wrong trades are minimal at best.

Another way to decide between the value and disguise hypothesis is to consider the size of the wrong-direction trades relative to the right-direction trades. The size of the trade could tell us something about GAMCO's conviction in the trade. If wrong trades are relatively large, this would support the value hypothesis in that GAMCO tries to maximize the gain from the trades, taking on many shares when the price hits extremes. Informed trades should make large trades when they feel most confident in their informed valuation. If wrong trades are relatively small compared to typical trades in the stocks, it shows less confidence and more like they are trying to hide the trades in the order flow. We consider trade size next.

3.4. Average Trade Size for GAMCO's Wrong-Trade and No-Wrong-Trade Packages

Table V reports GAMCO's average trade size and compares them to the average volume for the traded stocks as well as the New York Stock Exchange (NYSE). Because CRSP does not report the number of trades for NYSE stocks and most of GAMCO's holdings trade on the NYSE, the average number of trades for GAMCO's stocks is not reported. However, the NYSE website reports the daily total number of NYSE trades so we report the NYSE average on GAMCO's trade days to show whether changes in overall NYSE volume are driven by changes in trade size or number of trades.

Panel A of Table V reports average trade size for buy package trades. The most important result is that the wrong-direction sell trades average about half the size of the buy trades. Note that this is not because sell trades are made disproportionately in stocks with fewer shares outstanding. The market volume for traded firms on the trade day is somewhat less for the sell trades than the buy trades (160.38 vs. 196.79 thousand shares), but only about 15 percent less. This supports the disguise hypothesis. But the relatively small size of wrong trades indicates that GAMCO is not willing to make large bets on these trades like they might if prices had risen above their estimate of firm value.

Next consider the 211 buy packages without wrong trades. These buy trades are about three times the size of the sells (12,678 vs. 4,286) and about 50 percent larger than the other buys (12,678 vs. 8,737). But recall from Table III that the average price for the no-wrong-trade buys was about 50 percent smaller ($16.18 vs. $25.46). Therefore, the average dollar values of trades for both groups of buys are about the same ($205.3 vs. $222.6 thousand). The average dollar value of the sells, however, is only about half of that ($109.8 thousand).

The pattern of total trade volume for the traded stocks on the day before, trade day, and day after is the same for each group. First, volume increases on the trade day compared to the day before, which could partly reflect GAMCO's trades. Recall from Table I that GAMCO makes two trades per trade day on average. This could account for some of the increased trade-day

volume. NYSE volume also increases between the day before and the trade day (about two percent on average). Therefore, GAMCO trades on relatively high market volume days, but its own trades probably account for some of the volume increase for the stocks that it trades. Nevertheless, by trading on high-volume days, GAMCO may be attempting to disguise its trades in the larger order flow.

Second, volume drops on the day after. If GAMCO trades and then skips one or more trade days, then its own trading could account for part of the drop. But systematically skipping days between trades should also reduce the average volume on the day before the next trade. This is true for the sell trades but not the buys. The buy trades' day-before volume is only slightly smaller than their trade-day volume. This implies that GAMCO selects relatively high-volume days when it buys. But it may skip a trading day or two after wrong-direction sells.

These results support the idea that GAMCO attempts to disguise its trades, in this case, by waiting to mix its buy trades in with many others on high-volume days. Average volume on days when it sells is smaller than on days when it buys. This makes sense if GAMCO does not necessarily want to disguise its sells. If other traders know GAMCO is selling, this could enhance the negative effects that they have on prices. This effect could be further enhanced if GAMCO skips a few trade days after a sell, creating uncertainty among other traders about whether GAMCO will soon continue to sell or revert to buying.

The results for the 211 buy packages without wrong trades are notable for two reasons. First, given the average price and shares outstanding for the firms being traded, it is clear that these firms are small compared to the firms comprising the 700 buy packages with wrong trades. On average, the outstanding equity value of firms with wrong trades is about three times that of the firms without wrong trades ($175 vs. $585 million)[9]. Second, the trades are made when NYSE volume is relatively high compared to the other trades. This makes sense because there is probably greater liquidity in these smaller stocks on high-volume days and GAMCO can better

[9] Of course, these figures are weighted by the number of trades made in each firm's stock so that firms involved in many trades are more highly weighted.

hide its trades. Conversely, GAMCO makes wrong-direction sell trades when market volume for traded firms is relatively low. This makes sense if GAMCO actually wants other traders to know when it is selling in order to mislead them, and disguise the fact that is executing a buy package.

Panel B of Table V reports average trade size for sell package trades. Many of the same patterns observed for buy package trades are apparent for sell package trades. The average size of wrong-direction trades, in this case buys, is smaller than that of the sells. The pattern of total trade volume for the traded stocks on the day before, trade day, and day after shows an increase from the day before to the trade day, and a decrease from the trade day to the day after. And again, this pattern is not driven by similar size changes for NYSE average volume and trades. Furthermore, the sell trades for the 133 sell packages without wrong trades are for relatively small companies. The average equity value for these firms is $351 million, compared to $716 million for the sell group with wrong trades, and $692 million for the buy group.

An interesting feature of the sell trades for all 517 sell packages is that they are relatively large compared to the wrong-direction sell trades in Panel A. Recall from Table I that sell packages are executed faster than buy packages, hence the large average size of sells trades compared to buy trades. Keim and Madhavan (1993, 1995) and Chan and Lakonishok (1995) also observe this in their data and suggest that there is something inherently different about executing sell trades as opposed to buy trades. But Table V shows that this is only true when comparing right-direction trades across buy and sell packages. Wrong-direction sell trades mixed into buy packages are smaller than the trades in any other group. If wrong-direction sells were like any other sell trade, we would expect them to be relatively large.

Next, compare Panel A and Panel B with respect to the market volume for the traded stocks, NYSE volume, and NYSE trades. With one exception, the averages for the buy package groups exceed the averages for the sell package groups. That is, compared to sell-package sell trades, the buy-package buy trades are executed during high-volume periods for both the traded stocks and the NYSE. This could be explained by GAMCO investors' fund deposits

(withdrawals) over time if investors make deposits (withdrawals) in up (down) markets when trade volume rises (falls).

The one exception is the comparison between the traded-stock volumes for the wrong-trade groups. The average traded-stock volume of the wrong-trade buys in Panel B exceeds that of the wrong-trade sells in Panel A. But NYSE volume is actually lower during the buy trades. This shows that GAMCO tends to buy (sell) when traded-stock volume is relatively high (low), without regard to NYSE volume. The larger average size of wrong-trade buys (6,815 vs. 4,286) could partly drive this result but may not. For example, the relatively large sell trades in the sell packages (18,239 vs. 6,815) do not drive traded-stock volume higher for that group.

Finally, note that sell trades for the 133 sell packages without wrong trades are only about half the size of the other sell trades. This could be explained by the low market volume for the traded stocks for the 133 sell packages. In turn, their low volume could be partly due to comparatively low NYSE volume. This implies that GAMCO tends to sell these stocks when overall market volume is low, but perhaps compensates by reducing its trade size. Nevertheless, this is surprising because the average equity value of the firms that comprise the 133 sell packages is smaller than that of the firms that comprise the other 384 sell packages ($350 vs. $713 million). One might expect them to sell when the overall market volume and liquidity is relatively high.

4. Conclusion

Many theoretical studies of large informed traders show that they should sometimes make misleading trades, but there is little work documenting such trade behavior. This paper examines the wrong-direction trades of a large institutional insider (GAMCO) to decide whether it uses wrong-direction trades to disguise its right-direction trades, or trades purely on stock valuation.

Overall, the evidence supports disguise, although GAMCO does not disregard value. The positive returns from wrong-trade buys approximately offset the implicit costs of wrong-trade sells, but net returns are minimal at best. If valuation is the prime motivation for wrong trades, net returns would likely be larger.

Evidence of disguise includes the following. First, trade packages with wrong trades involve stocks with relatively small residual return variation. That is, GAMCO makes wrong trades in stocks whose returns may not otherwise be volatile enough to naturally disguise its trades. Second, GAMCO's wrong trades appear to be designed to create return volatility that could help disguise its other trades. In particular, GAMCO makes wrong-direction sells (buys) on days when firms' stock returns are already relatively low (high), reinforcing the return variation. Third, GAMCO makes wrong (right) trades when traded-firm market volume is relatively low (high). This suggests that GAMCO tries to hide its right-direction trades in the larger order flow of high volume days, but does not do this for its wrong-direction trades. This strategy makes it easier for other traders to detect its wrong-direction trades, perhaps making them more effective. Fourth, wrong-direction trades are small compared to right-direction trades. If wrong direction trades were based on valuation as opposed to disguise, one would expect them to be at least as large as right-direction trades. Finally, wrong-direction trades are evenly distributed throughout trade packages. If they were motivated primarily by valuation, one would expect GAMCO to wait to execute them at the end of trade packages, when they would receive better prices.

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Figure I – Timing of Wrong Trades

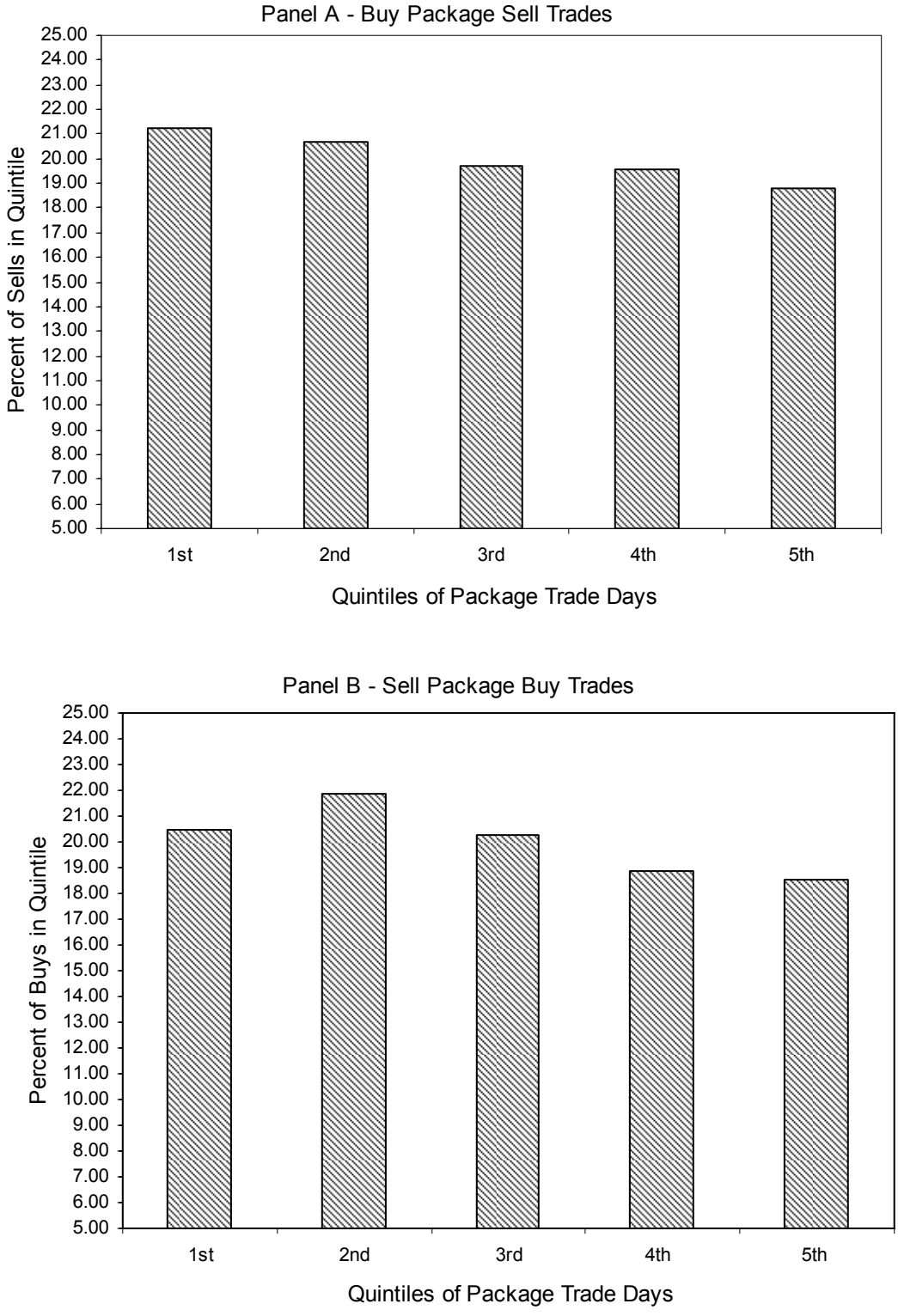

Table I

Summary Statistics for GAMCO's Insider Filings and Trade Packages

Summary statistics are computed for GAMCO's "insider" trades reported in Schedule 13D filings on the SEC's Electronic Data Gathering, Analysis and Retrieval (EDGAR) database covering January 1994 through April 2002. Section 13(d) of Securities and Exchange Act of 1934 requires an institution to disclose its daily trades over the previous 60 days as well as its holdings, whenever its holdings reach five percent or more of a firm's outstanding shares. Subsequent large holdings changes must also be disclosed. Daily trades reported in filings are grouped into packages of buy and sell trades. A buy (sell) package is defined as a sequence of mostly buy (sell) trades with less than eight trading days between adjacent trades. A package ends if GAMCO fails to trade in the company's stock for at least seven trading days.

Sample	N	Mean	Median	Standard Deviation	Min	Max	Skewness
Panel A: Number of Trading Days in a Filing							
All	2238	15	13	10.86	1	96	0.83
Buys	1472	16	14	10.91	1	69	0.67
Sells	766	14	12	10.63	1	96	1.17
Panel B: Number of Trades in a Filing							
All	2238	32	23	30.13	1	263	2.23
Buys	1472	35	25	31.89	1	263	2.03
Sells	766	26	20	25.49	1	250	2.78
Panel C: Number of Trading Days in a Package							
All	1428	24	19	22.83	1	207	2.81
Buys	911	26	21	23.92	1	207	2.59
Sells	517	20	16	20.26	1	197	3.41
Panel D: Number of Trades in a Package							
All	1428	50	29	61.59	1	546	3.28
Buys	911	57	34	67.18	1	546	3.01
Sells	517	38	24	48.10	1	468	3.90

Table II

Average Factor Loadings and Residual Standard deviations from a Four Factor Model for the Stocks of Firms that GAMCO Trades Grouped by Package Type

The following four-factor return model is estimated for each stock over the one-year (255 trading day) period before GAMCO starts to trade the stock.

$$(R_{it} - R_{ft}) = \alpha + \beta_m (R_{mt} - R_{ft}) + \beta_s SML_t + \beta_h HML_t + \beta_u UMD_t + \varepsilon_t, \qquad (1)$$

where for each trading day t, R_{it} is stock i's return, R_{ft} is the risk-free return, R_{mt} is the CRSP value-weighted stock index return, SML_t is the size factor, HML_t is the book-to-market factor, and UMD_t is the momentum factor. α is the alpha, β_m is the beta (market factor loading), β_s is the size factor loading, β_h is the book-to-market factor loading, β_u is the momentum factor loading, and ε_t is a residual error term. The factor data are taken from Kenneth French's website. Loadings are averaged across companies grouped by how GAMCO trades its shares, including buy or sell, and whether the trade package of the company includes wrong trades.

	Factor Loadings					
	α Alpha	β_m Market	β_s Size	β_h Bk/Mkt	β_u Moment.	St. Dev. Residuals
All 1,428 Packages (508 companies)	0.02 (0.16)	0.90 (0.51)	0.71 (0.58)	0.43 (0.66)	-0.14 (0.53)	2.74 (1.53)
1084 Packages with Wrong Trades (406 companies)	0.02 (0.14)	0.93*** (0.50)	0.71 (0.51)	0.45 (0.67)	-0.15 (0.54)	2.52* (1.19)
344 Packages without Wrong Trades (102 companies)	0.03 (0.20)	0.78*** (0.56)	0.71 (0.63)	0.36 (0.62)	-0.12 (0.51)	3.63* (2.24)
All 911 Buy Packages (286 companies)	0.01 (0.15)	0.87 (0.51)	0.71 (0.57)	0.44 (0.63)	-0.14 (0.51)	2.81 (1.45)
700 Buy Packages with Wrong Trades (212 companies)	0.004 (0.14)	0.93* (0.49)	0.72 (0.56)	0.47 (0.65)	-0.15 (0.53)	2.55* (1.20)
211 Buy Packages without Wrong Trades (74 companies)	0.03 (0.19)	0.70* (0.54)	0.68 (0.61)	0.38 (0.58)	-0.11 (0.47)	3.56* (1.80)

All 517 Sell Packages (222 companies)	0.03 (0.16)	0.93 (0.52)	0.72 (0.59)	0.41 (0.70)	-0.14 (0.56)	2.65 (1.62)
385 Sell Packages with Wrong Trades (194 companies)	0.03 (0.15)	0.92 (0.51)	0.71 (0.58)	0.42 (0.70)	-0.14 (0.55)	2.48** (1.17)
132 Sell Packages without Wrong Trades (28 companies)	0.05 (0.20)	1.00 (0.58)	0.77 (0.69)	0.32 (0.74)	-0.17 (0.61)	3.83** (3.17)

* (**, ***) Average factors loading differ significantly between wrong-trade package companies and no-wrong-trade companies at the 1 (5, 10) percent level.
Standard deviations in parentheses.

Table III

GAMCO's Average Buy and Sell Transaction Prices by Type of Trade Package Compared to Average High, Low, and Close Prices

Panel A. Buy Packages

	42997 Buy Trades for 911 Buy Packages			39532 Buy Trades for 700 Buy Packages with Wrong Trades			8544 Sell Trades for 700 Buy Packages with Wrong Trades			3465 Buy Trades for 211 Buy Packages without Wrong Trades		
	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After
Equally-Weighted GAMCO Trading Price		23.33Δ			25.48Δ, ***			25.60ΔΔΔ, ***			16.20	
Trade-Size-Weighted GAMCO Trading Price		23.31Δ			25.46Δ, **			25.63**			16.18	
Close Price	23.26#	23.37	23.40♦	25.43#	25.52	25.56♦	25.57##	25.62	25.61	16.05#	16.23	16.24
Trade-Size-Weighted Close Price	23.21#	23.36	23.39♦	25.38#	25.51	25.55♦	25.57##	25.64	25.62	15.98#	16.21	16.24♦♦
Low Price	22.99##	23.04	23.14♦	25.12###	25.16	25.26♦	25.26###	25.30	25.31	15.90	16.01	16.11♦♦♦
Trade-Size-Weighted Low Price	22.93###	22.99	23.13♦	25.07	25.11	25.25♦	25.25##	25.31	25.32	15.83###	15.96	16.11♦
High Price	23.49#	23.62	23.62	25.69#	25.79	25.81♦♦♦	25.84#	25.93	25.89♦♦	16.19#	16.41	16.37
Trade-Size-Weighted High Price	23.44#	23.62	23.62	25.65#	25.79	25.80	25.85#	25.97	25.91♦♦	16.12#	16.40	16.38

Panel B. Sell Packages

	15826 Sell Trades for 517 Sell Packages			13950 Sell Trades for 385 Sell Packages with Wrong Trades			3916 Buy Trades for 385 Sell Packages with Wrong Trades			1876 Sell Trades for 132 Sell Packages without Wrong Trades		
	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After
Equally Weighted GAMCO Trading Price		28.24♀			29.54♀,*			28.89*			24.46♀♀	
Trade-Size-Weighted GAMCO Trading Price		28.37♀			29.69♀,*			28.95*			24.53♀♀	
Close Price	28.20#	28.25ΔΔΔ, Δ	28.27	29.49#	29.55ΔΔΔ	29.57♦♦♦	28.82##	28.89	28.98♦	24.45	24.47	24.46
Trade-Size-Weighted Close Price	28.34#	28.40Δ, Δ	28.42	29.64#	29.72Δ	29.76	28.91##	29.00Δ	29.09♦	24.53	24.55	24.52
Low Price	27.90#	27.94	27.98♦	29.16#	29.22	29.27♦	28.49	28.51	28.66♦	24.22	24.23	24.23
Trade-Size-Weighted Low Price	28.01#	28.07	28.12♦	29.28#	29.36	29.44♦	28.59	28.61	28.77♦	24.28	24.30	24.29
High Price	28.47#	28.54	28.53	29.76#	29.84	29.44	29.10##	29.17	29.23♦	24.69##	24.72	24.68♦♦
Trade-Size-Weighted High Price	28.59#	28.69	28.68	29.90#	30.01	30.03	29.19#	29.28	29.36♦	24.77##	24.82	24.75♦

(##, ###) indicates that the market price on the trading day is statistically different from the market price on the day before the trading day at the 1 (5, 10) percent level.

♦ (♦♦, ♦♦♦) indicates that the market price on the trading day is statistically different from the market price on the day after the trading day at the 1 (5, 10) percent level.

Δ (ΔΔ, ΔΔΔ) indicates that GAMCO's equally-weighted (trade-size-weighted) prices are statistically different from the market closing price (trade-size-weighted close price) on the trading day at the 1 (5, 10) percent level.

♀ (♀♀, ♀♀♀) indicates that GAMCO's equally-weighted price is statistically different from GAMCO's trade-size-weighted price at the 1 (5, 10) percent level.

* (**, ***) indicates that GAMCO's equally-weighted (or trade-size-weighted) price for the buy (sell) trades for (sell) buy packages with wrong trades is statistically different from GAMCO's equally weighted (or trade-size-weighted) price for the sell (buy) trades for buy (sell) packages with wrong trades at the 1 (5, 10) percent level.

Table IV

GAMCO's Average Day-of-Trade Buy and Sell Percent Returns by Type of Trade Package Compared to Close-to-Close Stock Returns and CRSP Index Return

Panel A. Buy Packages

	42997 Buy Trades for 911 Buy Packages			39532 Buy Trades for 700 Buy Packages with Wrong Trades			8544 Sell Trades for 700 Buy Packages with Wrong Trades			3465 Buy Trades for 211 Buy Packages without Wrong Trades		
	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After
Equally Weighted Trading Return		0.18Δ, ♀			0.14Δ, ♀♀			0.12			0.34Δ	
Trade-Size-Weighted Trading Return		0.22Δ, ♀			0.20Δ, ♀♀			0.12			0.30Δ	
Close-to-Close Share Return	0.81#	1.18	0.16♦	0.61#	0.91	0.17♦	0.22	0.21	0.09	1.50##	2.05	0.14♦
Trade-Size-Weighted Close-to-Close Share Return	0.90#	1.60	0.21♦	0.70#	1.27	0.17♦	0.30	0.29	0.10	1.54#	2.70	0.33♦
Value-Weighted CRSP Return	0.15	0.18	0.07♦	0.15	0.17	0.081♦	0.04	0.06	0.10	0.14	0.20	0.06♦♦

Panel B. Sell Packages

	15826 Sell Trades for 517 Sell Packages			13950 Sell Trades for 385 Sell Packages with Wrong Trades			3916 Buy Trades for 385 Sell Packages with Wrong Trades			1876 Sell Trades for 132 Sell Packages without Wrong Trades		
	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After
Equally-Weighted Trading Return		0.19			0.14			0.09			0.32	
Trade-Size-Weighted Trading Return		0.23			0.18			0.15			0.37	
Close-to-Close Share Return	0.36	0.21	0.18	0.40##	0.26	0.23	0.40##	0.76Δ	0.23♦♦	0.23	0.05ΔΔΔ	0.05
Trade-Size-Weighted Close-to-Close Share Return	0.59	0.39	0.25	0.68##	0.48ΔΔΔ	0.30	0.46##	0.93Δ	0.24♦♦	0.32	0.12	0.09
Value-Weighted CRSP Return	0.01	0.05	0.11	0.03	0.07	0.13	0.09	0.15	0.02♦♦	-0.03	0.00	0.06

(##, ###) indicates that the market return on the trading day is statistically different from the market return on the day before the trading day at the 1 (5, 10) percent level.
♦ (♦♦, ♦♦♦) indicates that the market return on the trading day is statistically different from the market return on the day after the trading day at the 1 (5, 10) percent level.
Δ (ΔΔ, ΔΔΔ) indicates that GAMCO's equally-weighted (trade-size-weighted) returns are statistically different from the share market return (trade-size-weighted share market return) on the trading day at the 1 (5, 10) percent level.
♀ (♀♀; ♀♀♀) indicates that GAMCO's equally-weighted return is statistically different from GAMCO's trade-size-weighted return at the 1 (5, 10) percent level.

Table V

GAMCO's Average Buy and Sell Trade Size by Type of Trade Package Compared to Average Traded Firms' Market Volume, NYSE Volume, and NYSE Trades

Panel A. Buy Packages												
	42997 Buy Trades for 911 Buy Packages			39532 Buy Trades for 700 Buy Packages with Wrong Trades			8544 Sell Trades for 700 Buy Packages with Wrong Trades			3465 Buy Trades for 211 Buy Packages without Wrong Trades		
	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After
Shares Traded		9,650.01			8,737.08			4,286.27			12,678.67	
Volatility of Shares Traded (if cases of num_trades=0 are eliminated)		12,206.45 (794 packs)			11,602.14 (595)			4,570.10 (595)			14,013.32 (199)	
Volatility of Shares Traded (if cases of num_trades=0 are not eliminated)		11,996.76			11,663.66			3,927.02			13,101.85	
Shares Outstanding for Traded Firms*(1,000)		20,086.57			22,893.38			22,923.01			10,774.88	
Market Volume for Traded Firms*(1,000)	172.30#	196.79	124.92♦	169.14#	199.04	135.00♦	119.14	160.38	125.84	182.80	189.34	91.49♦
NYSE Volume*(1,000,000)	855.70#	871.53	871.38	832.93#	849.14	848.18	832.91#	851.43	853.57	931.24##	945.82	948.36
NYSE Trades	899.01	898.42	897.65	861.47	863.17	861.19♦♦♦	863.06	864.96	863.72	1,023.54###	1,015.35	1,018.59

Panel B. Sell Packages

	15826 Sell Trades for 517 Sell Packages			13950 Sell Trades for 385 Sell Packages with Wrong Trades			3916 Buy Trades for 385 Sell Packages with Wrong Trades			1876 Sell Trades for 132 Sell Packages without Wrong Trades		
	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After	Day Before	Trade Day	Day After
Shares Traded		18,021.59			20,458.78			6,807.08			10,913.13	
Volatility of Shares Traded (if cases of num_trades=0 are eliminated)		25,751.00 (497)			34,237.70 (301)			8,205.28 (301)			12,717.85 (196)	
Volatility of Shares Traded (if cases of num_trades=0 are not eliminated)		24,754.83			29,323.97			6,813.27			11,428.17	
Shares Outstanding for Traded Firms*(1,000)		21,682.53			24,162.70			24,001.93			14,448.70	
Market Volume for Traded Firms*(1,000)	127.42#	140.78	110.09♦	150.01#	166.18	130.99♦	147.75##	174.75	134.53♦	61.52###	66.69	49.13♦
NYSE Volume*(1,000,000)	758.09#	773.04	766.20♦♦♦	790.22#	806.20	794.37♦	779.90#	795.84	801.38	664.40#	676.34	684.06
NYSE Trades*(1,000)	818.68	819.43	809.69♦	860.33	861.48	847.90♦	847.57	846.25	853.73	697.20	696.80	698.26

(##, ###) indicates that the market volume for traded firms (NYSE volume; NYSE trades) on the trading day is statistically different from the market volume for traded firms (NYSE volume; NYSE trades) on the day before the trading day at the 1 (5, 10) percent level.
♦ (♦♦, ♦♦♦) indicates that the market volume for traded firms (NYSE volume; NYSE trades) on the trading day is statistically different from the market volume for traded firms (NYSE volume; NYSE trades) on the day after the trading day at the 1 (5, 10) percent level.