ARBITRAGEUR ACTIVITY AND MARKET ANTICIPATION IN PREDICTING TAKEOVER SUCCESS

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ABSTRACT

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For decades, merger arbitrageurs have enjoyed significantly higher returns than those enjoyed by targets, on average. However, these returns are only enjoyed if the merger or acquisition ultimately occurs. An arbitrageur estimates several critical and interrelated factors before assuming any position. These factors are transaction risks, potential reward and the probability of event occurrence. The literature, thus far, has failed to establish a successful takeover success prediction model, which by definition, would use publicly available information at the time of the announcement.

In this paper, we use a simple logistic model to test the ability of our four proposed takeover success prediction models. Our sample consists of the targets associated with the first or initial bids for corporate control in bidding contests between 1993 and 2005. We introduce two new variables, turnover and run-up as indicators of arbitrageur activity and market anticipation, respectively. Consistent with theory, turnover, when high enough to facilitate arbitrageur influence on deal outcomes without the dilution of their information advantage, is significant in predicting deal success. This relationship is strongest for seller-initiated turnover. In addition, we find that market anticipation is positively and significantly related to the probability of deal success.

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DEDICATION

This thesis is dedicated to my family and my boyfriend, Ronald. In addition, I would like to give special mention of my professor, Imants Paeglis. Thank you all for your unending support, whether direct or indirect. Thank you for believing in me, even when I did not believe in myself. Without your perpetual support and unconditional love I would not have made it this far.

"Nothing happens to anyone that they are not fitted to bear."

-Gladiator (Wick et al. (2000))

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1. INTRODUCTION

Ivan Frederick Boesky was a very successful arbitrageur who made approximately $200 million US from betting on corporate takeovers.[1] However, he is infamous for his involvement in the 1980's insider trading scandal, his prosecution in 1986 and his cooperation in the case against junk-bond mogul, Michael Milken (Hanes and Hanes (2006)). After his prosecution, both the investment industry and the academic world began to express great interest in merger arbitrage (Cramer (2003)). This interest is well deserved. In 1999, *Fortune* magazine estimated that over $30 billion in capital, distributed over 200 firms, is assigned to arbitrage activity alone (Moore (1999)).

Merger or risk arbitrage is event-driven. It is the process of investing in securities affected by or involved in the events that constitute the market for corporate control.[2] The objective of arbitrageur activity is to extract the offer premium by taking a position in target stock or target securities after the event is announced.[3]

Before assuming a position, arbitrageurs try to establish the three key components that are associated with each announced transaction: the risks of the transaction, the potential return and the probability that the transaction will be completed. All three components are interrelated. For instance, risk is a function of the probability of deal success and probability is a function of risk. For simplicity, Moore (1999) classifies total risk as the expected or potential loss. Further, he models returns a function of expected profit and expected loss. The potential returns can only be enjoyed if the transaction is

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[1] http://en.wikipedia.org/wiki/Ivan_Boesky#cite_note-3

[2] See Manne (1965) for the definition of the market for corporate control.

[3] The offer premium is the difference between the deal value or transaction price and the target stock price at the time of the announcement (Branch and Yang (2003)).

completed. Basically, the arbitrageur is a speculator who cares about the factors that affect the outcome of a proposed deal (Brown and Raymond (1989)).

The existing literature has failed, thus far, to establish a statistically significant takeover success prediction model. In this paper we examine the influence of two factors, arbitrageur activity and market participation, on the probability of deal success. The literature suggests that these variables are essential components of a takeover success prediction model. However, their validity has not been empirically tested to date.[4]

Cornelli and Li (2002) recommend turnover as a proxy for arbitrageur participation. They suggest that arbitrageurs have a significant impact of the probability of deal success at intermediate levels of turnover. At low levels, the bargaining power accumulated by arbitrageurs cannot alter the outcome of the deal. At high levels, the arbitrageurs begin to compete for shares and as a result their presence is revealed and their information advantage disappears. In other words, Cornelli and Li (2002) find that turnover, when high enough to facilitate effect but low enough to preserve the arbitrageur's information advantage, is positively and significantly related to deal success.

We extend the theory established by Cornelli and Li (2002) using the microstructure constructs discussed by Lee and Ready (1991). Our intuition, consistent with basic microstructure theory, suggests that the nature of the trades examined make a difference in terms of the information they convey. We hypothesize that seller-initiated turnover is a better indicator of arbitrageur activity than buyer-initiated or total turnover.

[4] For notable exception, see Branch and Wang (2008).

Run-up has been commonly used as a proxy for market anticipation (see for example Betton and Eckbo (2000)). In particular, we expect that run-up will have a positive and significant impact on the probability of deal success. Market anticipation reflects the overall reception of a proposed deal by the market. Indirectly, it reveals the likelihood that the shareholders will vote for the deal to go through.

Our results can be summarized as follows. Consistent with Cornelli and Li (2002), we find that turnover, in the intermediate range, has a positive and significant effect on the probability of deal success. Inconsistent with Cornelli and Li (2002) we find that turnover in the highest range is also a positive and significant predictor of the probability of deal occurrence. Further, we find that seller-initiated turnover is a better indicator of success than buyer-initiated or total turnover. Consistent with our intuition, run-up is a significant predictor of deal success.

The remainder of our paper is organized as follows. Section 2 reviews the existing literature on merger arbitrage and success-prediction models. Section 3 discusses the theory that is used to develop the testable hypotheses that will serve as the basis for our empirical tests. Section 4 presents sample selection, contest formation and data collection details. Section 5 describes our methodology. Section 6 reports the results and outlines our analysis. Section 7 concludes.

2. LITERATURE REVIEW

Merger arbitrage, also known as risk arbitrage, is a bet that an announced transaction will close. It is an investment strategy that seeks to profit from the offer premium or spread while the proposed offer remains outstanding (Betton, Eckbo and

Thorburn (2008a) and Moore (1999)). Inevitably the arbitrageur can only enjoy returns if the merger or acquisition is successfully completed (Brown and Raymond (1989)). For the last 30 years there have been numerous attempts to identify the factors that estimate the probability that an announced transaction will ultimately occur (for example see Hoffmeister and Dyl (1980), Samuelson and Rosenthal (1986), Walkling (1985), Dodd (1989), Schwert (2000), Branch and Yang (2003), Officer (2003) and Branch, Wang and Yang (2008)). The factors identified fall into four information categories: firm information, deal information, risk arbitrageur information and market price information (Branch and Yang (2003)).

2.1 Firm Information

The most commonly used firm factor in takeover prediction models is the size of the target firm. On one hand, the literature suggests that there is a significant and negative relationship between the market value of the target and the probability that the deal will eventually close (Hoffmeister and Dyl (1981) and Branch and Yang (2003)). In contrast, other authors conclude that there is no relationship between the size of the target and the probability of deal success (Cotter, Shivdasani and Zenner (1997), Schwert (2000), Fich and Stefanescu (2003) and Branch, Wang and Yang (2008)). A closely related factor, relative size, has been found to have a positive and extremely significant effect on the probability of deal success (Daul (2008)). [5]

The second commonly included firm factor is target leverage. Unlike the results for target size, the results concerning leverage are relatively consistent. Most papers find

[5] Relative size is defined as market value of the acquirer divided by the market value of the target.

that the relationship between leverage and the probability of deal completion is negative and significant (Harris and Raviv (1988), Stultz (1988), Raad and Ryan (1995), Assem and Titman (1999) and Schwert (2000)). However, more recent papers find that there is either a marginally significant and positive or insignificant relationship between leverage and the likelihood of deal occurrence (Branch and Yang (2003) and Branch, Wang and Yang (2008), respectively).

Less commonly used firm information factors in models of takeover success include toehold and industry effects. Toehold, as defined by Betton and Eckbo (2000), has a significant and positive effect on the probability of deal success (Hsieh and Walkling (2004)). Whether or not the merger is horizontal appears to have little to no impact on the likelihood of deal success (Fich and Stefanescu (2003) and Daul (2008))[6].

2.2 Deal Information

Deal information factors are amongst the most frequently used in success prediction models. They include consideration details, the implementation of defence mechanisms, regulatory challenges and general deal attitude. The literature suggests that of these factors, the most important are consideration details and deal attitude. The other factors are not generally used as success predictor variables. Some find them significant, some find them insignificant.

Bid premium or takeover premium, in risk arbitrage literature, is usually defined as the offer price divided by the target stock price twenty (20) days prior to the announcement of the merger or acquisition (Baker and Savaşoglu (2001)). The consensus

[6] A deal is classified as horizontal when both the target and the acquirer are in the same industry.

is that there is a positive but insignificant relationship between bid or takeover premium and the likelihood that a proposed deal will close (Jennings and Mazeo (1993), Mitchell and Pulvino (2002), Baker and Savaşoglu (2001), Branch, Wang and Yang (2008) and Daul (2008)). However, the arbitrage spread or offer premium, as defined above, is found to have a negative and extremely significant impact on the probability of deal success (Hsieh and Walkling (2004) and Branch, Wang and Yang (2008)). In other words, the wider the spread or the greater the offer premium the less likely it is that the deal will eventually close. The intuition here is that the larger the offer premium the less likely it is that the shareholders of the acquiring company will be in favour of the terms of the acquisition or merger.

Another important feature of the offer is the type of the consideration offered. Several authors find that there is a significantly higher probability of deal success associated with cash offers (Branch and Yang (2003) and Branch, Wang and Yang (2008)). Others find that stock offers are associated with a significant and negative effect on deal success (Fich and Stefanescu (2003), Branch, Wang and Yang (2008) and Daul (2008)). However, there are others that find consideration details insignificant in predicting deal completion (Hsieh and Walkling (2004)).

In the literature, deal attitude is referred to as a measure of target resistance. The response of the target management toward the deal, hostile or friendly, is a significant factor in predicting deal success (Hoffmeister and Dyl (1981), Walkling (1985), Schwert (2000) and Branch and Wang (2008)). However, there are conflicting opinions concerning the nature of that relationship. Roughly half of the literature concludes that there is a positive relationship (Schwert (2000), Branch and Yang (2003), Fich and

Stefanescu (2003), Branch, Wang and Yang (2008) and Daul (2008)). The remaining literature suggests that there is a negative relationship (Walkling and Long (1984), Mikkelson and Partch (1989), Cotter and Zenner (1994)). Whatever the relationship, hostile takeovers deserve arbitrageurs' undivided attention. These transactions develop quickly and represent some of the most attractive investment opportunities to arbitrageurs (Moore (1999)).

Three other factors have been briefly mentioned in several papers are the implementation of defence mechanisms, target termination fees and the size of the deal. Literature suggests that there is no relationship between the presence of defence mechanisms, such as a poison pill defence, and the probability of deal success (Hsieh and Walkling (2004) and Branch, Wang and Yang (2008)). Branch and Wang (2008) find that target termination fees play a significant role in the prediction process but the exact nature of the relationship remains unclear. However, indirect results imply that the existence of termination fees will increase the probability that a deal will be completed (Officer (2001)). Finally, there is a significant and negative relationship between deal size and likelihood that a deal will close (Branch, Wang and Yang (2008)).

Moore (1999) suggests that there are other factors that are included in an arbitrageur's assessment of the probability of deal success. The three main factors not covered thus far are the existence of a definitive agreement, possible regulatory challenges and the existence of rumours prior to event announcements. Moore (1999) argues that when a deal is announced without a definitive agreement it should be considered a warning signal (due to the high risk or probable loss). He also suggests that

potential regulatory challenges, such as anti-competition concerns, reduce the probability of deal success.

Where rumours are concerned, Moore (1999) indicates that arbitrageurs must pay attention to them as they may soon be followed by official deal announcements. If the arbitrageurs do not keep abreast of possible transactions, they will be delayed in conducting due diligence and analysis when the deal is finally announced. However, no relationship has been discussed between the existence of a rumour prior to the announcement of an event and the probability of event completion.

2.3 Risk Arbitrageur Information

Larker and Lys (1987) suggest that arbitrageurs are better informed about the probability of deal success than the market due to their active collection of costly information. Following that train of thought, many papers examine institutional merger arbitrage activity via their change in target holdings and find a positive and significant relationship between change in holdings and deal success (Hsieh (2001), Hsieh and Walkling (2004) and Branch and Wang (2008)).

Conversely, Cornelli and Li (2002) believe that the arbitrageur's information advantage exists simply due to the arbitrageur's participation. The arbitrageur wants the deal to be successful in order to secure the offer premium. Therefore, the information advantage that exists is simply the presence of the arbitrageurs. Cornelli and Li (2002) discuss the validity of order flow as an indicator of arbitrageur activity and by extension the probability of success. To achieve this, their theoretical model splits turnover into three ranges. They expect that each range will be associated with a different probability

of deal success. However, within each range they do not expect turnover to have an effect. Further, they predict that the arbitrageur will not enter if the ex-ante volume is very low or very high. This will result in a reduction in the probability of deal success. This concept forms the basis of our paper.

Barclay and Warner (1993) propose the stealth trading hypothesis, which suggests that private information is revealed through trading, especially in medium size trades.[7] The intuition is based on the attempts made by informed traders, like arbitrageurs, to hide their participation. This logic is at the centre of the Cornelli and Li (2002) proposal. Allen and Gale (1995) describe a manipulator as someone with no additional information to the uninformed investors except their own presence and activity. They attempt to manipulate the stock by mimicking the actions of informed traders. Except for the mimicking aspect, this definition is very similar to the role of the arbitrageur described by Cornelli and Li (2002). The information advantage that exists is the presence of the arbitrageurs.

2.4 Market Price Information

In the past, the literature has focused on the post announcement target stock price behaviour. It is widely accepted that there is a positive relationship between that behaviour and the probability of deal success (Brown and Raymond (1986), Samuelson and Rosenthal (1986) and Huston (2000)). However, in recent studies the focus has turned to the target stock pre-bid run-ups as defined by Schwert (2000) and Betton, Eckbo and Thorburn (2008a). There is a significant and positive relationship between target price run-up and the probability of deal success (Branch and Wang (2008)).

[7] A medium size trade is defined as a transaction of 500 to 10,000 shares.

3. SAMPLE SELECTION, CONTESTS AND DATA

3.1 Sample Selection

The initial sample includes the 45,696 deals listed on Securities Data Company Database (SDC Platinum) between 1985 and 2006 that involve public targets. If targets are not traded publicly the required turnover data would not be available via the sources accessible to us. We remove the 1,282 deals involving acquisition of assets, acquisition of certain assets and exchange offers, which leaves 44,414 deals.[8]

We exclude the 6,118 deals that concern target firms that are not found on the Center for Research on Security Prices (CRSP) database. We remove a further 851 deals with targets with less than one hundred (100) days of data on CRSP in a (-250, 0) window. Targets are required to be listed on the New York Stock Exchange (NYSE) to satisfy the required microstructure assumption that the market maker is uninformed. Hence, we drop 5,113 deals with targets listed on any exchange other than the NYSE. Finally, we keep the 1,291 deals between 1993 and 2005 as ISSM data or pre-1993 data (drop 1,092 deals) and 2006 Trade and Quote (TAQ) database data (drop 100 deals) are unavailable.

3.2 Establishing Contests

We are interested in deals that represent the first bid for corporate control associated with a given target during a given time period. In order to identify these deals

[8] Acquisitions of assets include deals in which the assets of a company, subsidiary, division or branch are acquired (used in all transaction when a company is being acquired and the consideration sought is not given). Acquisitions of certain assets include deals in which the sources state that "certain assets" of a company, subsidiary or division are acquired. Exchange offers are deals in which a company offers to exchange new securities for its equity securities outstanding or its securities convertible into equity.

it is necessary to identify bidding contests.[9] Figure 1 illustrates the process for establishing the contest and bid numbers. A contest begins with the first offer for a given target. Contests are extended by overlapping events or deals. Deals are overlapping when they occur within the 3-month (90 calendar days) period that follows the deal prior that concerns the same target. The contest is then extended from the time of the overlapping deal to the subsequent 3 months. A contest ends after the 3 months that follows the last overlapping or extending event or deal.

An offer is considered a bid for corporate control if it includes either a merger or acquisition of majority interest.[10] The first offer in a given contest that represents a bid for corporate control is designated as bid number one (1). The remaining bids are labelled in chronological order thereafter.

After establishing the bidding contests for given targets over given time periods, we drop 287 offers that were prior to the first control bid in each contest. We eliminate the 480 deals which included REITs, financial firms (all firms with SIC codes between 6000 and 6999) or utilities (all firms with SIC codes between 4000 and 4999). Finally, we remove 28 targets not found in either ISSM or TAQ between 1993 and 2005. 43 deals with missing data were also excluded from the sample. This leaves us with a final sample of 453 deals. Table 1 provides these details concerning sample selection. The distribution of control contests by year is summarized in Table 2.

[9] See Betton and Eckbo (2000), Bhagat, Dong, Hirshleifer and Noah (2005), Burkart and Panuzi (2006), Boone and Mulherin (2007) and Betton, Eckbo and Thorburn (2007) among others.

[10] Mergers describe the combination of business or when one hundred percent of the stock of a public or private company is acquired. Acquisition of majority interest refer to deals in which the acquirer must have held less than fifty percent and is seeking to acquirer fifty percent of more, but less than one hundred percent of the target company's stock.

3.3 Data

The consideration, deal attitude, deal status, tender offer flag and rumour flag data is retrieved from SDC Platinum. We manually collect additional data from Dow Jones' FACTIVA. The data include consideration details, the presence of definitive agreements, anti-trust concerns, rumour details and actual announcements (dates, times and sources). We set the announcement date as day 0. We obtain the number of shares outstanding and stock prices from CRSP. We calculate the cumulative abnormal returns (CARs) corresponding to the target stock over the run-up window of (-40, -5), the premium window of (-20, 0) and other general event study windows ((0, 1), (-1, 1), (-2, 2) and (-5, 5)). This is done in order to confirm that our sample is representative. Table 3 provides preliminary results of the event study.

The high frequency transaction level data is collected from TAQ database. To be included in our sample, the stock's price must be within \$5 and \$999. This filter is applied to avoid the influence of extreme price levels. Trades that are out of sequence (recorded before *market open* or after *market close*) are discarded. Several other standard filters are also employed to ensure the validity of the TAQ data.[11]

[11] We drop all trades with the following characteristics: non-positive trade size, non-positive trade price, recorded before opening time, recorded after closing time, associated with negative bid-ask spreads, negative transaction prices and those associated with quotes that have conditions of 5, 7, 8, 9, 11, 13, 14, 15, 16, 17, 19, 20, 27, 28 or 29. The later list of conditions results from the use of only BBO (best bid or offer) eligible primary market (NYSE) quotes (Chordia, Roll and Subrahmanyam (2001)), which arises due to the fact that no reliable method exists to exclude auto-quotes in TAQ. Further, we exclude all quotes that have a quoted spread that is greater than 20% (given that the midpoint is greater than \$10) or greater than \$2 (given the midpoint is less than \$10). In addition, when the ask or the bid component of the spread moves by more than 50%, we eliminate the quote. We keep trades with a correction indicator of 0 or 1 and condition of B, J, K or S (as in Ravi (2006)).

3.4 Descriptive Statistics

Table 4 provides a definitive list of all variables, both dependent and independent. Table 5 provides the summary statistics of those variables used in our empirical tests. In Panel A of Table 5 the focus is on the continuous variables, calculated from the target's perspective. The mean (median) total turnover, as a percentage of shares outstanding, on the announcement day is 0.692 (0.266).[12] The mean (median) buyer-initiated turnover on the day of the announcement is 0.344 (0.104). The mean (median) seller-initiated turnover on the announcement day is 0.348 (0.102). The mean (median) premium is 0.303 (-0.024). The mean (median) cumulative abnormal return (CAR) over the run-up window of (-40,-5) is 4.771 (3.287) percent.

Panel B of Table 5 focuses on the dummy variables, both dependent and independent. Of the 453 deals in our study 8 deals exhibit potential anti-trust concerns or regulatory challenges, 131 deals include a definitive agreement and 132 deals concern targets and acquirers in the same industry. Two hundred and fifty-one (251) deals are successful or completed. Eight-one (81) deals include a defence mechanism other than a poison pill. Twelve (12) deals involve a poison pill. One hundred and twenty-seven (127) deals involve a tender offer for target shares.

Many independent variables have two sources, Dow Jones' FACTIVA and SDC Platinum. The FACTIVA figures will be reported with the SDC Platinum figures in parentheses. There are 200 (66) deals that have cash consideration while there are 189 (138) deals utilizing common stock consideration. There are 67 (218) deals that offer consideration that is neither solely for cash nor solely for common stock. There are 7 (42)

[12] If the deal is announced on a non-trading day, we use the next available trading day instead of the announcement day.

deals classified as hostile. There are 67 (29) deals that begin as rumours or reports about a likely transaction, which have been published in the media but no formal announcement was made by either the target or acquirer.

4. THEORY AND HYPOTHESES

4.1 Traditional Predictors Model

The existing literature, in general, has focused on establishing the nature of the relationships between information factors and deal success. Few papers have examined the overall performance of their prediction models. In this paper we attempt to establish both the significance of individual factors and the predictive ability of each model. We begin with the approach commonly used in the extant literature. The literature suggests that deal and firm factors are sufficient for the formation of a significant takeover success prediction model.

The firm information factor we consider is the presence of a horizontal merger. We indirectly control for the size of the target in the development of our arbitrage information factors.[13] The deal information factors we consider are takeover premiums, definitive agreements, tender offers, regulatory challenges, poison pills, other defence mechanisms, consideration type, target resistance and rumour-precedence. Deal and firm information factors will be the focus of our first hypothesis, which we identify as the traditional predictors model.

Hypothesis 1: ***Traditional Predictors Model***

[13] Leverage is not considered as the data, over time, are sporadic. This would render our conclusions unreliable or our sample size unsatisfactory.

The coefficient estimates associated with deal and firm characteristics are jointly equal to zero as predictors of takeover success.

According to the existing literature, this hypothesis should be rejected. We, in contrast, believe that there will be insufficient evidence to reject this hypothesis.

4.2 Arbitrageur Activity Model

Cornelli and Li's (2002) theoretical model suggests that trading activity is a good indicator of the probability of deal success. The logic is based on the participation of risk arbitrageurs and their information advantage. This advantage is based on the fact that the arbitrageur wants the deals, in which they participate, to succeed. They will agree to tender their shares and as a result their mere presence increases the probability of deal success.

The arbitrageur will only enter if they can potentially affect the outcome of the deal without losing their information advantage. If the arbitrageurs cannot alter the outcome they will be assuming the risk of deal failure without any superior information concerning the probability of deal closure. Further, if the arbitrageurs' information advantage is lost, they will have the same information as the market. This will improve the overall market outlook on the probability of deal success. As a result, the target stock price should go up and the offer premium that could have possibly been extracted by the arbitrageur will either diminish or even turn into a loss.

We need to find a way to infer arbitrageur presence or activity. To facilitate this, Cornelli and Li (2002) suggest that we look at the volume traded in a universe where all

firms are equal in size. To satisfy this theoretical condition we standardize daily trade volume by the number of shares outstanding and the result is referred to as turnover.

The theory suggests that turnover needs to be cut into three ranges. Range 1 is identified as the level of turnover that will not allow the arbitrageurs to accumulate enough shares to potentially sway the outcome of the takeover attempt without revealing their presence. Range 3 is the range of turnover that is greater than the number of shares outstanding. In this range the arbitrageurs' participation becomes evident and will thereby remove their information advantage. In range 2, between ranges 1 and 3, turnover is high enough to facilitate influence without reducing the arbitrageurs' information advantage. Based on Cornelli and Li's argument we form our second set of hypotheses.

Hypothesis 2: ***Arbitrageur Activity Model***

(i) *Total turnover in range 2 is associated with a greater probability of deal success than in ranges 1 and 3.*

(ii) *Within ranges, turnover levels will have an insignificant effect on the probability of deal occurrence.*

(iii) *A model with turnover variables will significantly predict the probability of deal success.*

4.3 Trade Direction Model

Different information is produced or conveyed by trades, depending on whether the trade was buyer-initiated or seller-initiated. Information, whether directly aggregated or inferred, is at the centre of the core questions addressed by the market microstructure

literature. Total turnover is a suitable medium of inferring arbitrageur participation. However, there are ways to improve this measure.

Consider the following scenario. Assume that most shareholders do not wish to sell their shares. Then the arbitrageur will have to carry out buyer-initiated trades if they wish to participate in the takeover gamble. One possible outcome is that the arbitrageurs will probably fail to accumulate enough bargaining power. Alternatively, they will eventually compete with other investors, rendering their information advantage null and void. As a result, we expect that buyer-initiated trades will not significantly contribute toward predicting the probability of deal success. This hypothesis is developed from the information-based argument established by Cornelli and Li (2002).

Now let us consider the small uninformed shareholders. This group of shareholders will sell their shares in order to avoid the assumption of the risk associated with deal failure. The arbitrageur, with superior information, will enter on the other side of the small shareholders' seller-initiated trade. Consequently, we expect that seller-initiated turnover will be a better predictor of deal success than total or buyer initiated turnover. This leads us to our third set of hypotheses.

Hypothesis 3: ***Trade Direction Model***

(i) In terms of predicting deal success, seller-initiated turnover will be more significant than buyer-initiated turnover and total turnover.

(ii) A model with seller-initiated turnover variables will significantly predict the probability of deal success.

4.4 Market Anticipation Model

Run-up, which is typically measured over the hold-out period in the event timeline, is used to capture market anticipation. There is a positive relationship between target stock price run-ups and bidder gains (Betton, Eckbo and Thorburn (2008b)). The relationship is consistently observed, whether it exists because of rumour leaks or an increase in the target's fundamental value. As the literature suggests, we predict that target stock price run-ups will be positively related to the probability of deal success. Ultimately, the run-up suggests that with or without the arbitrageurs' participation it is likely that shareholders will tender their shares. We expect that run-up will increase the power of the models developed under the trade direction model. This is the basis of the fourth and last set of hypotheses.

Hypothesis 4: ***Market Anticipation Model***

(i) The probability that the deal will ultimately occur increases significantly with target run-up.

(ii) A model, which includes run-up, will significantly predict the probability of deal success.

5. METHODOLOGY

For all our empirical tests we employ a simple logistic model of the following form:

$$P(y=1 \mid X)=\frac{1}{1+e^{-\beta X}}$$

where y = 1 represents completed deals and y = 0 represents deals that have failed. We model the probability that a proposed deal will ultimately occur given the corresponding observed predictor variables in each theory. In this model there are k predictor variables with $\beta = [\beta_0, \beta_1, \beta_2 \ldots \beta_k]$ and $X = [1, X_1, X_2 \ldots X_k]$.[14] The likelihood ratio (LR) chi-square goodness of fit test, which is particularly well suited for logistic regression models, is used to test the overall significance of the models. To test individual factor significance, we use a z-statistic as our test statistic and its associated p-value. If p-values associated with the likelihood ratio chi-square statistic are less than 0.1, the models are considered to be significant at predicting deal success. If the p-value associated with the z-statistic is less than 0.1 the variables are considered to be significant predictors of deal success.

5.1 Traditional Predictors Model

Although we seek to confirm the strength and nature of the relationships between each variable and deal success, our focus in the traditional model is to test the overall fit of the models. In addition, we establish a base case for the subsequent turnover and market anticipation models. The variables we include in these regressions are horizontal (HORI), takeover premium (PREM), definitive agreement (DEF), tender offer (TEN), regulatory challenges (ANTI), poison pill (P_PILL), non-poison pill defence (NON_PILL), cash consideration (CASH), stock consideration (STOCK), hostile (HOS) and rumour (RUM) (see Table 4 for detailed variable definition). First, we run the logistic regression with the FACTIVA definition of CASH, STOCK, HOS and RUM. Second, we run the logistic regression with the SDC equivalents. We expect that both models will be

[14] Logistic regressions perform as well as neural networks in predicting successful takeover attempts (Branch, Wang and Yang (2008)).

insignificant. In other words, we predict that these variables are not collectively statistically adequate in terms of their ability to predict the outcome of a proposed takeover.

5.2 Arbitrageur Activity Model

Turnover is total volume traded divided by the number of shares outstanding. It is calculated in terms of target stock trades. Moore (1999) states that takeover attempts elicit the immediate attention of arbitrageurs as these deals are characterized by rapidly changing circumstancing.[15] To extract the optimal offer premium, arbitrageurs react immediately to any changes in the offer or the probability of success. This suggests that daily trades, which occur on the announcement day or the subsequent trading day, should provide the necessary evidence to reveal the nature of the relationship in question (between turnover and the likelihood of deal success).

As previously discussed, it is necessary to divide total turnover into three (3) ranges. We select cut-offs in two ways (see Figure 2). The first set of cut-off points are based on turnover percentiles. Arbitrageurs are not the only investors or shareholders that will vote for a deal to go through. We select the specification that best fits the data statistically. In particular, range 1 represents turnover that is lower than the 20^{th} percentile. Range 3 represents turnover that is greater than the 75^{th} percentile. Range 2 is between ranges 1 and 3 (see Table 6). The second set of cut-offs are those suggested by Cornelli and Li (2002). Range 1 represents turnover that is less than 0.5. Range 3 represents turnover that is greater than 1. Range 2 is in between ranges 1 and 3. In

[15] Moore (1999) discusses the magnitude of the profits and losses that can arise from one deal. This justifies the need for a way to estimate the probability of deal occurrence for each deal.

addition to testing the validity of the variables and models, we attempt to see if the cut-off points affect our results.

The variables we include in these regressions are turnover (TURN), turnover ranges (T2, T3) and interaction variables (T2_T and T3_T) (see Table 4 for detailed variable definition). First, we look at T2 and T3 to establish if there is a difference in the probability of success associated with each range for each cut-off specification. We expect the coefficient estimate of T2 to be positive and significant while the other coefficient estimates are expected to be insignificant. Second, we look at T2, T3, TURN, T2_T and T3_T to examine the difference in the impact of turnover on the probability of deal success within the different ranges. We expect that, for both specifications, the coefficient estimates of T2_T and T3_T will be insignificant. As Cornelli and Li (2002) explain, within a given range turnover level becomes irrelevant.

Third, we examine the overall significance of each model. In addition, we examine the percentage correctly classified (PCC) to determine if the model is more reliable than chance (50%). We expect the models to be significant and more reliable than chance. We end these tests by estimating the probability of deal success incorporating deal, firm and turnover variables. We do not expect the relationships between the traditional variables and the probability of success to change.[16] The objective of this analysis is to evaluate whether turnover results change when we control for traditional factors.

[16] We do not expect these relationships to change because the variables are not significantly interrelated based on regressions not shown here.

5.3 Trade Direction Model

In order to define a trade as buyer-initiated or seller-initiated we apply the signing methodology employed by Lee and Ready (1991) (see Figure 3). We use the five (5) seconds rule and quote comparison when trades are inside the quoted spread and a tick test for quote midpoint trades. For trades that are not at the midpoint, the trade price is compared to the quote that was recorded five (5) seconds before the trade occurred. If the trade price is closer to the bid (ask) then the trade is classified as a buyer-initiated (seller-initiated) trade. For trades that are at the quote midpoint a tick test is used. It compares the current trade price to adjacent trades or classically to the previous trade price. If the trade was on an up-tick (down-tick) or on a zero-tick preceded by an up-tick (down-tick) it is classified as a buyer-initiated (seller-initiated) trade.

The variables we include in these regressions are those relating to buyer and seller initiated trading turnover (see Table 4 for detailed variable definition). First, we look at the range dummies (B2, B3, S2, S3, T2 and T3) to establish whether or not seller-initiated turnover ranges are more significant than buyer-initiated and total turnover range variables. We predict that the coefficient estimates for S2 will be significant and positive. All other coefficient estimates are expected to be insignificant. We expect that our results will be consistent with our previous findings concerning the effect of turnover within each range. We expect the coefficient estimates of the turnover variables (B_TURN, S_TURN and TURN) and interaction variables (B2_BT, B3_BT, S2_ST, S3_ST, T2_T and T3_T) to be insignificant. We end these tests by examining seller-initiated turnover models as a whole, with and without control variables.

5.4 Market Anticipation Model

We expect the coefficient estimate of the run-up (RUN) as defined in Table 4, to be significant and positive. We expect a model with deal, firm, arbitrageur activity and market anticipation information factors to be significant. In addition, we expect such a model to have a PCC that is greater than 50% (chance).

6. RESULTS

Before we test our models we establish that our sample is representative of the takeover universe. We examine at the cumulative abnormal returns (CARs) for both the targets and the acquirers, to determine whether they are consistent with the existing literature (see Table 3). In general, past analysis has found average target CARs measured over the window (-1, 1) to be significant and in the range of 13.27% and 20.23% (Betton, Eckbo and Thorburn (2008c)). For our sample the respective CARs are 18.32% on average and are significant at the 0.001 level.

The average acquirer CAR over the window (-1, 1) is typically between -2.3% and -0.2% (see Dong, Hirshleifer, Ricardson and Teoh (2006), Moeller, Schlingemann and Stulz (2007), Betton, Eckbo and Thorburn (2007, 2008b, 2008c) and Hackbarth and Morellec (2008) for details). For the window (-2, 2), deals with acquirers that acquire public targets during the period 1990 to 2000 have received CARs ranging from -1.0% to -0.7%, on average (Fuller, Netter and Stegemoller (2002) and Bradley and Sundaram (2006)). Our sample exhibits CARs of -1.05% for (-1, 1) and -1.10% for (-2, 2), both significant the 0.001 level.

6.1 Traditional Predictors Model

Table 7 reports the results for our test of the traditional predictors model. Column (1) reports the results based on the FACTIVA definitions of the method of payment, hostility and rumour (CASH, STOCK, HOS and RUM) while column (2) reports the results with the SDC equivalents. The model using the FACTIVA definitions (see column (1)) has a chi-square of 11.72 and a p-value of 0.385. The corresponding statistics using the SDC data (see column (2)) are 13.95 and 0.236 respectively. Our conclusion is that there is insufficient statistical evidence to reject hypothesis 1.[17] The choice of FACTIVA or SDC data does not appear to have a significant impact on the overall performance of the estimated models.

6.2 Arbitrageur Activity Model

Table 8 reports the results of the models based solely on turnover variables. Table 9 reports the results for the models extended to include the traditional predictors or control variables as well as turnover variables. Panel A in both tables are dedicated to total turnover results. In this subsection we examine the arbitrageur activity model.

Panels A of Tables 8 and 9 address hypothesis 2 with or without control variables, respectively. Columns (1) and (2) of both tables report the results establishing the difference in success probability between ranges 2 and 1 and between ranges 3 and 1. For the percentile specification, the coefficient estimates of the total turnover range variables (T2 and T3) are positive and significant when we only make provisions for changes in intercept and not for that in slope. This means that deals in ranges 2 and 3 are more likely

[17] We re-run these and all subsequent regressions excluding 1998 observations.

to be successful than deals in range 1. However, using Cornelli and Li's specification, the coefficient estimates of the total turnover range variables (T2 and T3) are insignificant. The only exception is found in Column (2) in Panel A of Table 8 where the coefficient estimate for T2 is positive and marginally significant.

In other words, our results confirm the relationship described by Cornelli and Li (2002) for range 2 turnover, with or without control variables but for our range specifications. Contrary to our expectation, we also find that range 3 is associated with a significantly higher probability of event occurrence. In other words, we partially accept part (i) of hypothesis 2. We conclude that total turnover levels in ranges 2 and 3 are associated with a greater probability of deal success than in range 1 given the percentile-based specifications.

Columns (3) and (4) of Panels A in Tables 8 and 9 report the results examining the slope in each range. Table 8 reports the results without control variables while Table 9 includes the control variables. As expected, the coefficient estimates of the total turnover and interaction variables (TURN, T2_T and T3_T) are all insignificant. These coefficient estimates are insignificant regardless of cut-off specification and of whether or not the control variables are included. As a result, there is insufficient statistical evidence to reject part (ii) of hypothesis 2.

In order to test part (iii) of hypothesis 2, we examine the p-values in Panels A of Tables 8 and 9 to identify if the models that include total turnover variables are significant as a whole. The only model that is significant excludes the control variables and the interaction variables. This conclusion is based on the results in Column (1) of Panel A of Table 8. The sole model that is significant only includes the turnover range

dummies, which are specified using percentile cut-offs, with a chi-square of 6.26 and a p-value of 0.044. Thus we accept part (iii) of hypothesis 2.

6.3 Trade Direction Model

Table 10 reports the results corresponding to part (i) of hypothesis 3. Panel A of Table 10 compares models including total turnover and seller-initiated turnover. In Column (1), using percentile based specification, we see that seller-initiated turnover in range 2 is more significant than in any other range for both total and seller-initiated turnover. This result suggests that seller-initiated turnover is more significant than total turnover. However, in Column (2) with the Cornelli and Li based range specification, we find that the coefficient estimate for the range 2 total turnover variable (T2) is significant and positive. This suggests that total turnover is more significant than seller-initiated turnover. For both specifications we find that turnover levels have no effect within ranges.

Panel B of Table 10 compares buyer-initiated turnover and seller-initiated turnover. For our percentile based specification, the coefficient estimate for the range 2 seller-initiated turnover variable (S2) is the only estimate that is significant. This suggests that seller-initiated turnover is more significant at predicting deal success than is buyer-initiated turnover. For the Cornelli and Li based range specification, none of the coefficient estimates are significant. For both specifications we find that turnover levels have no effect within ranges. The one exception is with the coefficient estimate for the level of seller-initiated turnover (S_TURN) in Column (4) of Panel B in Table 10, which suggests that there should be a positive slope in range 1.

Given that the only comparison that is significant collectively is the one with percentile specifications and range dummy variables only, we will use these results to develop our conclusions. We accept part (i) of hypothesis 3. In other words, we conclude that seller-initiated turnover is more significant variable than total or buyer-initiated turnover.

We examine Panels B of Tables 8 and 9 to evaluate the overall significance of the models based on seller-initiated turnover. In the case of no control variables (Panel B of Table 8) and percentile based specifications, we find that the coefficient estimates for the range 2 and 3 seller-initiated turnover range variables (S2 and S3) are positive and significant and overall, the models are significant at the 5% level. We also find that turnover has no effect within ranges for the significant models. For the Cornelli and Li range specifications, none of the coefficient estimates for the range variables are significant and overall, the models are also insignificant on an aggregate level. However, these results suggest that the slope in range 1 is significant and positive (as turnover increases, the probability of deal success increases), the slope in range 3 is significant and negative (as turnover increases, the probability of deal decreases) and the slope in range 2 is insignificant (turnover has no effect within range 2).

When we introduce control variables or traditional predictors, as reported in Panel B of Table 9, the results become stronger for our specification and weaker for Cornelli and Li's. In Columns (1) and (2) of Panel B in Table 9, seller-initiated turnover in range 2 and range 3 is positive and significant for percentile specifications for both the FACTIVA and SDC variable definitions. In Column (3) and (4) of Panel B in Table 9, none of the coefficient estimates are significant.

All other results are consistent with those discussed above. The models that are significant as a whole are those that are based on percentile cut-offs and SDC variable definitions. Thus, we accept part (ii) of hypothesis 3. We conclude that a model with seller-initiated turnover will significantly predict deal success. However, the results are sensitive to the range specifications and variable data source.

6.4 Market Anticipation Model

Table 11 examines the impact of adding market anticipation, measured by the run-up, to our takeover success prediction models. Panel A reports the results corresponding to total turnover models, Panel B to buyer-initiated and Panel C to seller-initiated. Regardless of cut-off specification or variable data source, the run-up is positively and significantly related to the probability of deal success. These results are significant at the 5% level for each type of turnover (total, buyer-initiated and seller-initiated). As a result, the statistical evidence overwhelmingly supports part (i) of hypothesis 4.

Table 11 is also used to test part (ii) of hypothesis 4. When run-up is added to a model with total turnover and traditional predictor variables, the models go from being insignificant to significant (see Columns (1), (2) and (4) of Panel A of Table 11). The same result holds true for buyer-initiated turnover models with control variables (see Columns (1), (2) and (6) of Panel B of Table 11). Finally, when run-up is added to models with seller-initiated turnover and traditional predictor variables, the models go from being significant at the 10% level to the 5% level in some cases (see Columns (2) and (6) of Panel C of Table 11). In other cases, the models go from being insignificant to

significant (see Columns (1) and (5) of Panel C of Table 11). We accept part (ii) of hypothesis 4 based on percentile based specifications, especially when SDC variable definitions are used.

7. CONCLUSION

The general intuition established by Cornelli and Li (2002) holds, but not at their theoretically based cut-offs. In particular, we find that turnover variables in range 2 are significant factors that should be included in any takeover success prediction model, especially seller-initiated turnover variables. Overall, the most significant prediction models include SDC defined traditional predictors, seller-initiated turnover variables and the run-up.

Our recommendation for future research is to make the cut-off points a function of the target's ownership structure. Ownership structure will affect the number of shares that arbitrageurs have to accumulate in order to have enough tendering power to potentially sway the outcome of a proposed deal.

One other note for future research would be in the defence mechanisms component. The existence of a poison pill appears to affect deal success under the percentile cut-off specification. We suggest examining the effect of other defence mechanisms on an individual basis rather than using our general dummy variable approach. Looking at the mechanisms together may have underestimated the effects of each component as they may act to negate the effect of one another.

Figure 1 Establishing Contest Numbers and Bid Numbers

Each arrow represents the 3 months (90 calendar days) following an event, whether it is a repurchase, a bid for corporate control or any of the remaining deal forms. Each box represents an announcement of an event or deal. A contest begins with the first event announced for a given target based on their 10-digit CUSIP provided by SDC Platinum. Contests are extended by the type of deals represented by the box labelled B. Event B occurs within the 3 months after event A and therefore extends the contest from B to the 3 months following event B. This extension process continues until an event such as the type represented by the box labelled C occurs. This is the last extending event or deal. The end of a contest is represented by the dotted vertical line. This line represents the end of the 3 month period following the last overlapping or extending event that corresponds to a given target. A bid for corporate control is any deal that is designated, by SDC Platinum, as a merger or acquisition of majority interests. The first deal or event in the contest that represents a bid for corporate control is designated as bid number one (1). The remaining bids are labelled in chronological order. Any other deal or event is awarded a bid number of zero (i.e. any deal which occurs in the same contests before the bid labelled bid one (1)).

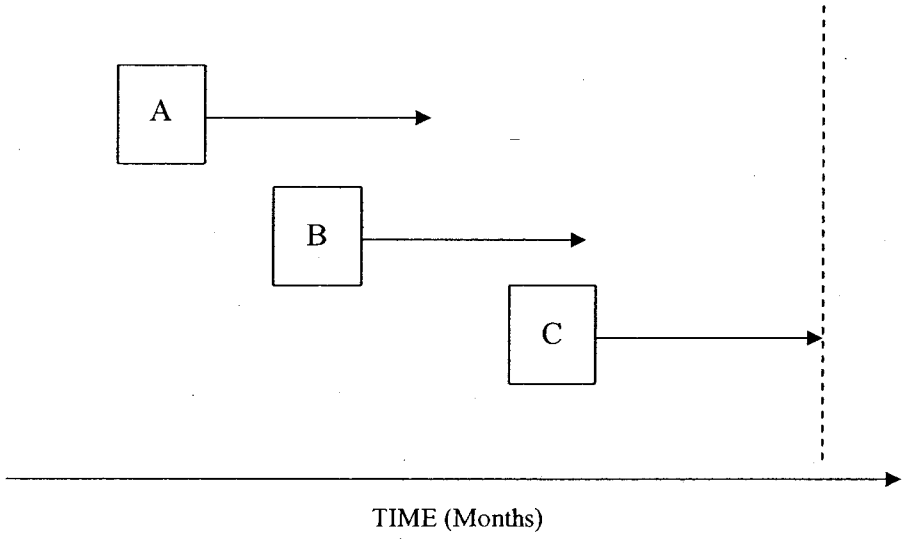
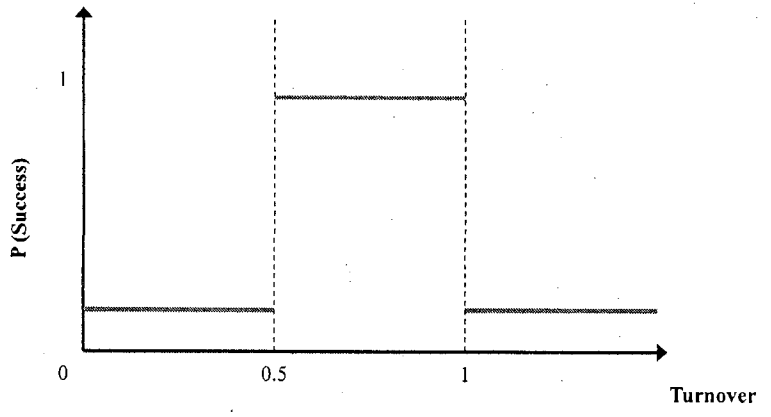


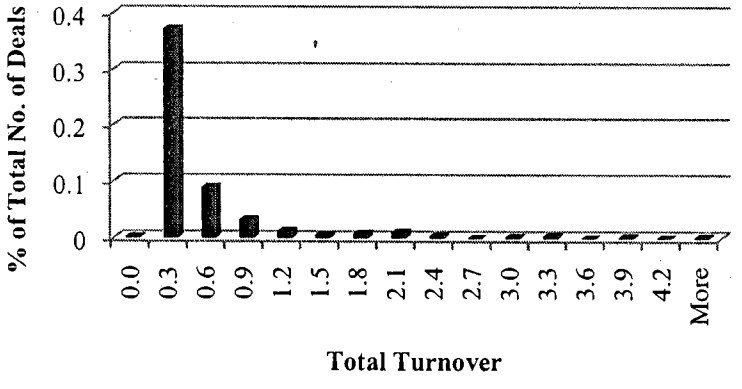
Figure 2 Establishing Cut-offs for Total Turnover Percentile Specification

Cornelli and Li (2002) recommend 0.5 and 1 as the cut-offs for each range as illustrated in part (a). Part (b) illustrates the distribution of successful deals by total turnover level. This diagram suggests that the cut-offs should be 0.3 to 0.9. Part (c) demonstrates the percentile specification that best fit the data, corresponding to the 20th and 75th percentile. This diagram suggests that the cut-offs should be 0.1 and 0.8. This process was applied to buyer-initiated turnover and seller-initiated turnover in order to identify alternative cut-offs to those suggested by Cornelli and Li (2002).

(a)



(b)



(c)

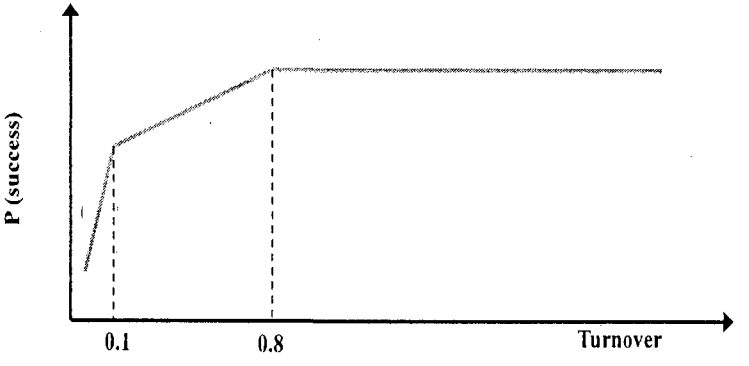


Figure 3 Signing Trades

The *quote comparison method* is illustrated on the left and the *tick test* on the right. Quote Comparison Method: For a particular trade, the quote established 5 seconds prior to the trade is identified. The current trade, illustrated by the circle, is compared to the ask price (price the stock would be bought at) and the bid price (price the stock would be sold at) components of the quote or spread. If the trade price is closer to the ask price (bid price) then the trade will be signed as a buyer-initiated (seller-initiated) trade. However, if the trade occurs at the mid-point of the quote, illustrated by the horizontal dashed line, this test will be inconclusive and will not be able to sign the trade. In this scenario, a tick test will be employed. Tick Test: the current trade price is compared to the previous trade price. If the current trade price is higher (lower) than the previous trade price the trade will be classified as a buyer-initiated (seller-initiated) trade. In other words, when the current trade occurs on an up-tick (down-tick) it will be signed as buyer-initiated (seller-initiated).

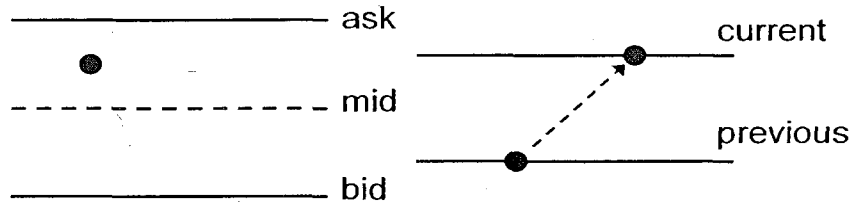


Table 1 Sample Selection

AA represents acquisitions of assets, includes deals in which the assets of a company, subsidiary, division or branch are acquired (used in all transaction when a company is being acquired and the consideration sought is not given). AC represents acquisitions of certain assets, including deals in which the sources state that "certain assets" of a company, subsidiary, or division are acquired. EO represents exchange offers, which are deals in which a company offers to exchange new securities for its equity securities outstanding or its securities convertible into equity.

DETAILS		NO. OF DEALS
SDC Platinum 1985-2006, Public Targets		45,696
REMOVE THE FOLLOWING DEALS		
	REMOVED	BALANCE
Remove Deal Forms: AA, AC, EO	(1,282)	44,414
Targets not on CRSP	(6,118)	38,296
Targets with less than 100 days data on CRSP	(851)	37,445
Not the first or initial bid for corporate control in each contest	(24,710)	12,735
No acquirers in contest on CRSP	(5,139)	7,596
Targets on AMEX (CRSP exchange code 2)	(677)	6,919
Targets on NASDAQ (CRSP exchange code 3)	(4,436)	2,483
ISSM data unavailable (1985 - 1992)	(1,092)	1,391
TAQ data unavailable (2006)	(100)	1,291
All but the first BID for corporate control	(287)	1,004
Financials, REITs and Utilities	(480)	524
Not on TAQ	(28)	496
Missing data	(43)	**453**

Table 2 Sample Distribution by Year

This table compares the initial SDC sample of announcements and our final sample of control contests in terms of the number of observations per year. The objective is to establish if any of the years may be driving our results.

YEAR	INITIAL SDC SAMPLE	FINAL SAMPLE
1985	986	0
1986	1146	0
1987	2044	0
1988	1864	0
1989	2404	0
1990	2244	0
1991	1590	0
1992	1701	0
1993	1859	20
1994	2657	21
1995	2936	37
1996	3452	50
1997	2917	37
1998	3488	91
1999	3008	61
2000	2256	60
2001	1595	33
2002	1199	13
2003	1195	11
2004	1132	19
2005	1296	0
2006	1445	0
Total	44,414	453

Table 3 Event Study Cumulative Abnormal Returns (CARs)

The purpose of this analysis is to establish that our sample is representative of a typical mergers and acquisitions sample. The announcement day is the date of the first control bid in the control contest and designated as day 0 and all other dates are relative to day 0. We estimate a market model using the CRSP equally weighted index. The estimation window is (-255, -46) and the hold out period is (-45, -6). Precision weighted cumulative average abnormal returns (PWCAAR) are standardized cumulative returns adjusted for the relative weights used in the standardization process (see Cowan (1992)). The symbols $,*,** and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a 2-tail test. The symbols < or > etc. correspond to $,* and show the significance and direction of the generalized sign test.

Panel A. Target CARs

DAYS	N	MEAN CARs	Precision Weighted CAAR	Positive : Negative	Patell Z	Generalized Sign Z
(0, 1)	453	18.32%	17.79%	622:119>>>	156.217***	20.057***
(-1, 1)	453	20.26%	19.76%	642:99>>>	141.656***	21.528***
(-2, 2)	453	20.97%	20.48%	636:105>>>	113.742***	21.087***
(-5, 5)	453	23.01%	22.40%	644:97>>>	83.851***	21.676***

Panel B. Acquirers CARs

DAYS	N	MEAN CARs	Precision Weighted CAAR	Positive : Negative	Patell Z	Generalized Sign Z
(0, 1)	453	-0.91%	-0.71%	309:403<	-6.940***	-2.047*
(-1, 1)	453	-1.05%	-0.73%	326:386	-5.851***	-0.771
(-2, 2)	453	-1.10%	-0.69%	306:406<	-4.235***	-2.273*
(-5, 5)	453	-1.32%	-0.81%	325:387	-3.365***	-0.846

Table 4 List of Variables

PERCENT represents our cut-offs for each turnover range. C&L represents the cut-off specification recommended by Cornelli and Li (2002). FACTIVA identifies the variables defined using hand collected Dow Jones' FACTIVA data. SDC identifies the variables defined using the SDC Platinum data.

VARIABLE	DESCRIPTION
	Dependent Variable
SUCCESS	A dummy variable that takes on a value of one (1) if the deal has a deal status of completed and the transaction is closed.
	Independent Variables
ANTI	A dummy variable that takes on a value of one (1) if there is any expressed fear of anti-trust issues or regulatory challenges that might potentially block deal completion.
B_TURN	Buyer-initiated turnover, calculated as buyer-initiated trade volume divided by the number of shares outstanding on the announcement day of the merger or acquisition.
B2	PERCENT: A dummy variable that takes a value of one (1) when the value of B_TURN is greater than the 20th percentile and lower than the 75th percentile of B_TURN. C&L: A dummy variable that takes a value of one (1) when the value of B_TURN is greater than 0.5 and less than 1.
B2_BT	An interaction variable between B2 and B_TURN.
B3	PERCENT: A dummy variable that takes on a value of one (1) when the value of B_TURN is greater than the 75th percentile of B_TURN. C&L: A dummy variable that takes a value of one (1) when the value of B_TURN is greater than 1.
B3_BT	An interaction variable between B3 and B_TURN.
CASH	A dummy variable that takes on a value of one (1) if the type of consideration offered is cash. This variable has two sources: Dow Jones' FACTIVA data and SDC Platinum data.
DEF	A dummy variable that takes on a value of one (1) when the parties involved in the deal have signed a definitive agreement.
HORI	A dummy variable that takes on a value of one (1) when the target and the acquirer are from the same industry based on the first digit of their 4-digit SIC codes.
HOS	A dummy variable that takes on a value of one (1) if there is evidence to suggest that the deal is hostile. This variable is based on one of two sources: Dow Jones' FACTIVA or SDC Platinum. SDC Platinum defines a deal as hostile when the board rejects the offer but the acquirer persists with the takeover. FACTIVA defines a deal as hostile if the newspaper articles within the two weeks surrounding the announcement use the word hostile (or any synonyms).
MIXED	A dummy variable that takes on a value of one (1) if the type of consideration offered is neither solely cash nor solely common stock or equity. This variable has two sources: Dow Jones' FACTIVA data and SDC Platinum data.
NON_PILL	A dummy variable that takes on a value of one (1) if there is any takeover provisions or defence mechanisms in play other than poison pill defence such as white knight.

P_PILL	A dummy variable that takes on a value of one (1) when the target company invokes a poison pill or the existence or enactment of a poison pill, which discourages the potential acquirer (indicated only if it affects the transaction). A poison pill is the implementation of any strategy that increases the odds in favour of negative outcomes which affect both the bidder and the target. This strategy is used to discourage hostile takeovers.
PREM	The deal premium, which is calculated as the difference between the deal price per share and the price per share of the target's stock as of market close 20 days prior to the announcement of the event.
RUM	A dummy variable that takes on a value of one (1) when reports about a likely transaction have been published in the media, but no formal announcement has been made either by the target or acquirer (within two (2) weeks prior to the official announcement of the event). This variable is based either on Dow Jones' FACTIVA or SDC Platinum classification.
RUN	The cumulative abnormal return recorded over the run-up event window (-40,-5) in trading days.
S_TURN	Seller-initiated turnover, equal to seller-initiated trade volume divided by shares outstanding on the announcement day of the merger or acquisition.
S2	PERCENT: A dummy variable that takes on a value of one (1) when the value of S_TURN is greater than the 20th percentile and lower than the 75th percentile of S_TURN. C&L: A dummy variable that takes a value of one (1) when the value of S_TURN is greater than 0.5 and less than 1.
S2_ST	An interaction variable between S2 and S_TURN.
S3	PERCENT: A dummy variable that takes on a value of one (1) when the value of S_TURN is greater than the 75th percentile of S_TURN. C&L: A dummy variable that takes a value of one (1) when the value of S_TURN is greater than 1.
S3_ST	An interaction variable between S3 and S_TURN.
STOCK	A dummy variable that takes on a value of one (1) if the type of consideration offered is common stock or equity. This variable has two sources: Dow Jones' FACTIVA data and SDC Platinum data.
T2	PERCENT: A dummy variable that take on a value of one (1) when the value of TURN is greater than the 20th percentile and lower than the 75th percentile of TURN. C&L: A dummy variable that takes a value of one (1) when the value of TURN is greater than 0.5 and less than 1.
T2_T	An interaction variable between T2 and TURN.
T3	PERCENT: A dummy variable that takes on a value of one (1) when the value of TURN is greater than the 75th percentile of TURN. C&L: A dummy variable that takes a value of one (1) when the value of TURN is greater than 1.
T3_T	An interaction variable between T3 and TURN.
TEN	A dummy variable that takes on a value of one (1) if the deal is to be executed via a tender offer.
TURN	Total turnover, calculated as total trade volume divided by shares outstanding on the announcement day of the merger or acquisition.

Table 5 Descriptive Statistics

Panel A provides summary statistics for the continuous independent variables in our study. All variables in Panel A are from the target's stock perspective. For variable definition see Table 4. N represents the number of observations. MIN represents the minimum value of all observations. MAX represents the maximum value of all observations. SD represents the standard deviation of observations. MEAN and MEDIAN represent the average and median observation for each variable, respectively. Panel B provides the summary statistics for the dummy variables, both dependent and independent ones alike. NO. OF 1's (Yes's) represent the number of times, out of 453 observations, the given dummy variable took a value of 1. % OF TOTAL (Yes's) is NO. OF 1's (Yes's) as a percentage of the total number of observations. MEAN represents the arithmetic average for each variable. NO. OF 0's (No's) represent the number of times, out of 453 observations, the given dummy variable took a value of 0. % OF TOTAL (No's) is NO. OF 0's (No's) as a percentage of the total number of observations.

Panel A. Summary statistics of continuous independent variables

VARIABLE	MIN	MEAN	MEDIAN	MAX	SD	N
B_TURN	0.000	0.344	0.104	4.505	0.599	453
PREM	-0.999	0.303	-0.024	35.724	2.156	453
RUN	-0.899	0.048	0.033	0.924	0.208	453
S_TURN	0.000	0.348	0.102	4.897	0.582	453
TURN	0.002	0.692	0.266	8.131	1.101	453

Panel B. Summary statistics of the dummy dependent and independent variables

VARIABLE	NO. OF 1's (Yes's)	% OF TOTAL (Yes's)	MEAN	NO. OF 0's (No's)	% OF TOTAL (No's)	N
ANTI	8	1.766	0.018	445	98.234	453
$CASH_{FACTIVA}$	200	44.150	0.442	253	55.850	453
$CASH_{SDC}$	66	14.569	0.146	387	85.430	453
DEF	131	28.918	0.289	322	71.082	453
HORI	132	29.139	0.291	321	70.861	453
HOS	7	1.545	0.015	446	98.455	453
HOS_{SDC}	42	9.272	0.093	411	90.728	453
$MIXED_{FACTIVA}$	67	14.790	0.148	386	85.210	453
$MIXED_{SDC}$	218	48.123	0.481	235	51.876	453
NON_PILL	81	17.881	0.179	372	82.119	453
P_PILL	12	2.649	0.026	441	97.351	453
$RUM_{FACTIVA}$	67	14.790	0.148	386	85.210	453
RUM_{SDC}	29	6.402	0.064	424	93.598	453
$STOCK_{FACTIVA}$	189	41.722	0.417	264	58.278	453
$STOCK_{SDC}$	138	30.464	0.305	315	69.536	453
SUCCESS	251	55.408	0.554	202	44.592	453
TEN	127	28.035	0.280	127	28.035	453

Table 6 Cut-off Specifications

This table summarizes the different cut-off points used under each specification for each turnover variable. These cut-off points will be used to establish the ranges described by Cornelli and Li (2002). Range 1 is identified as the range that will not allow the arbitrageurs to accumulate enough shares to potentially sway the outcome of the takeover attempt. Range 3 is the range of turnover that is greater than the number of shares outstanding. In this range the arbitrageurs' participation becomes evident and will remove their information advantage. In range 2, between ranges 1 and 3, turnover is high enough to facilitate arbitrageurs' influence without reducing their information advantage.

	Range 1	Range 2	Range 3
		CORNELLI & LI CUT-OFF	
ALL	TURN<0.5	0.5<TURN<1	TURN>1
		PERCENTILE-BASED CUT-OFF	
	(<20th)	(between 20th & 75th)	(>75th)
TURN	TURN<0.094	0.094<TURN<0.759	TURN>0.759
B_TURN	B_TURN<0.032	0.032<B_TURN<0.369	B_TURN>0.369
S_TURN	S_TURN<0.027	0.027<S_TURN<0.395	S_TURN>0.395

Table 7 Deal and Firm Information

The purpose of these results is to establish the predictive power of deal and firm information variables, collectively, in a predictive model for deal closure. For variable definition see Table 4. The dependent variable is SUCCESS. The independent variables include the variables that fall into the deal information and firm information categories. In column (1) the consideration variables (CASH, STOCK and MIXED), the rumour variable (RUM) and the deal attitude variable (HOS) are based on hand collected Dow Jones' FACTIVA data. Column (2) is based on the SDC Platinum equivalents. N represents the number of observations. P-value represents the p-value associated with the significance of the model. Coefficient p-values are reported in parentheses. PCC represents the percentage of deals correctly classified as either successful or unsuccessful. The symbols *, ** and *** denote statistical significance at the 0.10, 0.05 and 0.01, respectively, using a 2-tail test.

	SUCCESS	
	(1)	(2)
	FACTIVA	SDC
HORI	-0.181	-0.175
	(0.393)	(0.409)
PREM	0.036	0.035
	(0.469)	(0.484)
DEF	0.009	-0.049
	(0.966)	(0.822)
TEN	0.338	0.237
	(0.193)	(0.37)
ANTI	-0.787	-0.789
	(0.290)	(0.296)
P_PILL	-1.474	-1.073
	(0.046)**	(0.146)
NON_PILL	-0.361	-0.336
	(0.157)	(0.193)
CASH	0.096	0.428
	(0.758)	(0.189)
STOCK	0.228	0.170
	(0.448)	(0.46)
HOS	0.756	-0.456
	(0.411)	(0.227)
RUM	0.037	-0.100
	(0.891)	(0.803)
Intercept	0.125	0.244
	(0.655)	(0.194)
N	453	453
Adj. R-sq	0.019	0.022
P-value	0.385	0.236
PCC	56.07%	58.28%

Table 8 Arbitrageur Information

The purpose of these results is to establish the power of turnover variables in a predictive model for deal closure, both as individual factors and collectively. For variable definition see Table 4. The dependent variable is SUCCESS. The independent variables include the turnover (total, buyer-initiated and seller-initiated), the range dummies and interactive terms between turnover and the range dummies. PERCENT represents the regressions that are based on percentile cut-off specification. C&L represents the same for Cornelli and Li's cut-off specification. N represents the number of observations. P-value represents the p-value associated with the significance of the model. Coefficient p-values are reported in parentheses. PCC represents the percentage of deals correctly classified as either successful or unsuccessful. The symbols *, ** and *** denote statistical significance at the 0.10, 0.05 and 0.01, respectively, using a 2-tail test.

Panel A. Total Turnover

	SUCCESS			
	(1)	(2)	(3)	(4)
	PERCENT	C&L	PERCENT	C&L
T2	0.542	0.508	0.980	-0.656
	(0.028)**	**(0.067)***	**(0.059)***	(0.622)
T3	0.656	0.119	1.267	0.261
	(0.022)**	(0.632)	**(0.024)****	(0.578)
TURN			9.911	1.358
			(0.220)	(0.132)
T2_T			-9.752	0.612
			(0.230)	(0.763)
T3_T			-9.971	-1.316
			(0.218)	(0.150)
Intercept	-0.243	0.120	-0.728	-0.126
	(0.250)	(0.299)	(0.108)	(0.529)
N	453	453	453	453
Adj. R-sq	0.01	0.006	0.013	0.011
P-value	**0.044****	0.178	0.154	0.218
PCC	57.84%	55.41%	57.84%	57.40%

Panel B. Seller-Initiated Turnover

	SUCCESS			
	(1) PERCENT	(2) C&L	(3) PERCENT	(4) C&L
S2	0.715	0.186	0.957	-0.441
	(0.004)**	(0.575)	**(0.050)****	(0.793)
S3	0.636	0.005	1.162	0.160
	(0.026)**	(0.986)	**(0.034)****	(0.828)
S_TURN			34.345	1.985
			(0.208)	**(0.027)****
S2_ST			-32.569	-0.749
			(0.233)	(0.768)
S3_ST			-34.397	-1.940
			(0.208)	**(0.046)****
Intercept	-0.333	0.200	-0.802	-0.033
	(0.118)	**(0.059)***	**(0.065)***	(0.823)
N	453	453	453	453
Adj. R-sq	0.014	0.001	0.019	0.009
P-value	**0.013****	0.852	**0.036****	0.334
PCC	58.72%	55.41%	59.38%	57.84%

Table 9 Deal, Firm and Arbitrageur Information

The purpose of these results is to establish the predictive power of models that combine turnover variables with traditional predictor variables. For variable definition see Table 4. The dependent variable is SUCCESS. The independent variables include those that fall into the deal information, firm information and arbitrageur information factors. They include the turnover (total, buyer-initiated and seller-initiated), the range dummies and interactive terms between turnover and the range dummies. FACTIVA represents models that include consideration variables (CASH, STOCK and MIXED), the rumour variable (RUM) and the deal attitude variable (HOS) as defined by the hand collected Dow Jones' FACTIVA data. SDC represents models using the SDC Platinum equivalents. PERCENT represents the models using percentile cut-off specifications. C&L represents the same for Cornelli and Li's cut-off specification. N represents the number of observations. P-value represents the p-value associated with the significance of the model. Coefficient p-values are reported in parentheses. PCC represents the percentage of deals correctly classified as either successful or unsuccessful. The symbols *, ** and *** denote statistical significance at the 0.10, 0.05 and 0.01, respectively, using a 2-tail test.

Panel A. Total Turnover

	SUCCESS							
	(1) PERCENT FACTIVA	(2) PERCENT SDC	(3) C&L FACTIVA	(4) C&L SDC	(5) PERCENT FACTIVA	(6) PERCENT SDC	(7) C&L FACTIVA	(8) C&L SDC
T2	0.502	0.465	0.409	0.391	0.933	0.904	-0.728	-0.684
	(0.050)**	**(0.068)***	(0.152)	(0.170)	**(0.085)***	**(0.094)***	(0.587)	(0.614)
T3	0.606	0.511	0.097	0.026	1.145	1.065	0.253	0.138
	(0.045)**	**(0.086)***	(0.710)	(0.919)	**(0.048)***	**(0.064)***	(0.599)	(0.776)
TURN					8.662	9.048	1.211	1.148
					(0.305)	(0.278)	(0.190)	(0.213)
T2_T					-8.678	-9.015	0.704	0.656
					(0.307)	(0.282)	(0.731)	(0.752)
T3_T					-8.720	-9.100	-1.181	-1.107
					(0.302)	(0.275)	(0.208)	(0.237)
HORI	-0.177	-0.169	-0.190	-0.183	-0.185	-0.179	-0.194	-0.188
	(0.405)	(0.429)	(0.372)	(0.389)	(0.389)	(0.404)	(0.365)	(0.380)
PREM	0.036	0.034	0.030	0.030	0.039	0.0375	0.031	0.030

	(0.471)	(0.493)	(0.546)	(0.559)	(0.440)	(0.466)	(0.543)	(0.556)
DEF	0.010	-0.044	0.012	-0.042	0.017	-0.036	0.018	-0.040
	(0.962)	(0.841)	(0.957)	(0.847)	(0.937)	(0.870)	(0.935)	(0.857)
TEN	0.294	0.205	0.324	0.213	0.300	0.229	0.297	0.181
	(0.261)	(0.440)	(0.213)	(0.420)	(0.254)	(0.393)	(0.258)	(0.498)
ANTI	-0.718	-0.746	-0.737	-0.738	-0.665	-0.684	-0.745	-0.734
	(0.340)	(0.327)	(0.323)	(0.329)	(0.384)	(0.375)	(0.321)	(0.333)
P_PILL	-1.416	-0.966	-1.406	-1.007	-1.333	-0.874	-1.374	-0.973
	(0.060)*	(0.193)	**(0.058)***	(0.173)	**(0.080)***	(0.245)	**(0.066)***	(0.191)
NON_PILL	-0.322	-0.293	-0.321	-0.298	-0.328	-0.297	-0.282	-0.260
	(0.213)	(0.261)	(0.212)	(0.253)	(0.206)	(0.257)	(0.276)	(0.321)
CASH	0.117	0.409	0.100	0.435	0.152	0.401	0.126	0.447
	(0.712)	(0.212)	(0.750)	(0.183)	(0.634)	(0.221)	(0.693)	(0.174)
STOCK	0.286	0.187	0.250	0.158	0.304	0.188	0.272	0.151
	(0.346)	(0.420)	(0.408)	(0.494)	(0.318)	(0.418)	(0.370)	(0.518)
HOS	0.952	-0.452	0.760	-0.467	0.900	-0.460	0.803	-0.462
	(0.297)	(0.234)	(0.412)	(0.218)	(0.330)	(0.231)	(0.386)	(0.226)
RUM	0.112	0.002	0.084	-0.081	0.079	0.004	0.123	-0.076
	(0.689)	(0.997)	(0.760)	(0.842)	(0.779)	(0.993)	(0.659)	(0.853)
Intercept	-0.349	-0.153	0.026	0.182	-0.795	-0.609	-0.227	-0.027
	(0.327)	(0.581)	(0.930)	(0.365)	(0.153)	(0.227)	(0.510)	(0.920)
N	453	453	453	453	453	453	453	453
Adj. R-sq	0.027	0.029	0.022	0.026	0.029	0.031	0.027	0.030
P-value	0.219	0.165	0.387	0.254	0.334	0.260	0.406	0.293
PCC	60.04%	58.72%	55.85%	57.84%	59.82%	59.38%	56.29%	58.94%

Panel B. Seller-Initiated Turnover

	SUCCESS							
	(1) PERCENT FACTIVA	(2) PERCENT SDC	(3) C&L FACTIVA	(4) C&L SDC	(5) PERCENT FACTIVA	(6) PERCENT SDC	(7) C&L FACTIVA	(8) C&L SDC
S2	0.660	0.670	0.124	0.072	0.945	0.997	-0.615	-0.592
	(0.009)* **	**(0.008)*** **	(0.716)	(0.831)	**(0.060)***	**(0.048)** **	(0.718)	(0.728)
S3	0.553	0.532	-0.055	-0.080	1.069	1.087	0.001	0.006
	(0.062)*	**(0.073)***	(0.861)	(0.798)	**(0.056)***	**(0.054)***	(0.999)	(0.994)
S_TURN					34.189	37.120	1.765	1.745
					(0.223)	(0.189)	**(0.054)***	**(0.057)***
S2_ST					-32.747	-35.673	-0.384	-0.481
					(0.244)	(0.207)	(0.882)	(0.851)
S3_ST					-34.231	-37.158	-1.671	-1.671
					(0.222)	(0.188)	**(0.094)***	**(0.093)***
HORI	-0.185	-0.178	-0.180	-0.173	-0.176	-0.167	-0.175	-0.167
	(0.385)	(0.407)	(0.397)	(0.415)	(0.413)	(0.438)	(0.414)	(0.436)
PREM	0.039	0.037	0.035	0.034	0.044	0.043	0.037	0.036
	(0.447)	(0.470)	(0.477)	(0.493)	(0.397)	(0.414)	(0.446)	(0.463)
DEF	-0.027	-0.080	0.012	-0.045	-0.013	-0.064	0.000	-0.059
	(0.902)	(0.715)	(0.954)	(0.837)	(0.953)	(0.774)	(0.999)	(0.790)
TEN	0.288	0.205	0.336	0.239	0.269	0.189	0.305	0.210
	(0.271)	(0.443)	(0.195)	(0.367)	(0.309)	(0.482)	(0.247)	(0.433)
ANTI	-0.703	-0.716	-0.798	-0.801	-0.697	-0.708	-0.760	-0.769
	(0.352)	(0.351)	(0.284)	(0.289)	(0.357)	(0.355)	(0.310)	(0.310)
P_PILL	-1.389	-0.978	-1.467	-1.070	-1.298	-0.912	-1.463	-1.055
	(0.065)*	(0.189)	**(0.048)** **	(0.147)	**(0.085)***	(0.226)	**(0.051)***	(0.155)
NON_PILL	-0.323	-0.298	-0.359	-0.336	-0.329	-0.317	-0.305	-0.281

	(0.213)	(0.256)	(0.160)	(0.194)	(0.206)	(0.230)	(0.238)	(0.281)
CASH	0.146	0.454	0.098	0.421	0.155	0.481	0.105	0.422
	(0.644)	(0.166)	(0.756)	(0.197)	(0.627)	(0.146)	(0.742)	(0.199)
STOCK	0.257	0.179	0.234	0.167	0.253	0.200	0.231	0.161
	(0.398)	(0.440)	(0.438)	(0.467)	(0.407)	(0.391)	(0.445)	(0.486)
HOS	0.741	-0.460	0.761	-0.462	0.673	-0.430	0.780	-0.465
	(0.424)	(0.228)	(0.408)	(0.223)	(0.474)	(0.265)	(0.400)	(0.222)
RUM	0.014	-0.051	0.043	-0.101	0.030	-0.032	0.100	-0.047
	(0.960)	(0.901)	(0.876)	(0.801)	(0.914)	(0.938)	(0.719)	(0.907)
Intercept	-0.391	-0.258	0.114	0.246	-0.869	-0.788	-0.107	0.037
	(0.260)	(0.345)	(0.687)	(0.206)	**(0.099)***	(0.108)	(0.731)	(0.868)
N	453	453	453	453	453	453	453	453
Adj. R-sq	0.030	0.034	0.019	0.023	0.034	0.038	0.026	0.030
P-value	0.136	**0.073***	0.535	0.398	0.172	**0.094***	0.443	0.316
PCC	59.82%	58.94%	55.63%	58.50%	60.04%	62.03%	55.41%	57.17%

Table 10 Trade Direction Model

The purpose of these results is to establish whether or not seller-initiated turnover is a more significant predictor than buyer-initiated turnover or total turnover. For variable definition see Table 4. The dependent variable is SUCCESS. The independent variables include the turnover variables (total, buyer-initiated and seller-initiated), the range dummies and interactive terms between turnover and the range dummies. PERCENT represents the models based on percentile cut-off specification. C&L represents the same for Cornelli and Li's cut-off specification. N represents the number of observations. P-value represents the p-value associated with the significance of the model. Coefficient p-values are reported in parentheses. PCC represents the percentage of deals correctly classified as either successful or unsuccessful. The symbols *, ** and *** denote statistical significance at the 0.10, 0.05 and 0.01, respectively, using a 2-tail test.

Panel A. Seller-initiated turnover vs. total turnover

	SUCCESS			
	(1)	(2)	(3)	(4)
	PERCENT	C&L	PERCENT	C&L
S2	0.555	-0.080	0.893	-0.719
	(0.057)*	(0.863)	(0.130)	(0.683)
S3	0.180	-0.140	0.808	0.233
	(0.681)	(0.801)	(0.268)	(0.811)
S_TURN			34.613	1.006
			(0.232)	(0.427)
S2_ST			-33.540	0.262
			(0.250)	(0.925)
S3_ST			-34.841	-1.244
			(0.229)	(0.377)
T2	0.275	0.528	0.254	-0.614
	(0.349)	**(0.079)***	(0.703)	(0.653)
T3	0.617	0.225	0.604	-0.062
	(0.163)	(0.646)	(0.443)	(0.933)
T_TURN			1.560	0.883
			(0.870)	(0.413)
T2_T			-1.351	0.729
			(0.889)	(0.727)
T3_T			-1.487	-0.705
			(0.876)	(0.529)
Intercept	-0.435	0.120	-0.958	-0.129
	(0.066)*	(0.299)	**(0.075)***	(0.519)
N	453	453	453	453
Adj. R-sq	0.017	0.006	0.022	0.013
P-value	**0.031****	0.475	0.203	0.595
PCC	58.28%	55.41%	58.94%	55.85%

Panel B. Seller-initiated turnover vs. buyer-initiated turnover

	SUCCESS			
	(1) PERCENT	(2) C&L	(3) PERCENT	(4) C&L
S2	0.599	0.135	0.920	-0.283
	(0.024)**	(0.703)	**(0.075)***	(0.870)
S3	0.398	-0.278	1.078	-0.208
	(0.224)	(0.811)	**(0.067)***	(0.828)
S_TURN			37.747	1.764
			(0.176)	**(0.067)***
S2_ST			-36.071	-0.740
			(0.197)	(0.780)
S3_ST			-37.877	-1.656
			(0.175)	(0.132)
B2	0.297	0.079	0.218	0.703
	(0.264)	(0.811)	(0.667)	(0.687)
B3	0.504	0.415	0.249	0.474
	(0.123)	(0.397)	(0.664)	(0.658)
B_TURN			-12.892	0.873
			(0.597)	(0.346)
B2_BT			11.684	-1.916
			(0.633)	(0.495)
B3_BT			12.930	-0.883
			(0.596)	(0.406)
Intercept	-0.500	0.188	-0.815	-0.110
	(0.046)**	**(0.083)***	(0.126)	(0.515)
N	453	453	453	453
Adj. R-sq	0.018	0.002	0.024	0.012
P-value	**0.026****	0.902	0.132	0.682
PCC	57.17%	55.63%	59.16%	56.73%

Table 11 Deal, Firm, Arbitrageur and Market Price Information

The purpose of these results is to establish the predictive power of models that combine market anticipation variables (RUN) with traditional predictor and turnover variables. For variable definition see Table 4. The dependent variable is SUCCESS. The independent variables include the variables that fall into the deal information, firm information, arbitrageur information and market price information factors. They include the turnover (total, buyer-initiated and seller-initiated), the range dummies and interactive terms between turnover and the range dummies. FACTIVA represents regressions that include consideration variables (CASH, STOCK and MIXED), the rumour variable (RUM) and the deal attitude variable (HOS) as defined by the hand collected Dow Jones' FACTIVA data. SDC represents regressions that are based on the SDC Platinum equivalents. PERCENT represents the regressions that are based on percentile cut-off specification. C&L represents the same for Cornelli and Li's range specifications. N represents the number of observations. P-value represents the p-value associated with the significance of the model. Coefficient p-values are reported in parentheses. PCC represents the percentage of deals correctly classified as either successful or unsuccessful. The symbols *, ** and *** denote statistical significance at the 0.10, 0.05 and 0.01, respectively, using a 2-tail test.

Panel A. Total Turnover

	SUCCESS							
	(1) PERCENT FACTIVA	(2) PERCENT SDC	(3) C&L FACTIVA	(4) C&L SDC	(5) PERCENT FACTIVA	(6) PERCENT SDC	(7) C&L FACTIVA	(8) C&L SDC
T2	0.474	0.441	0.434	0.416	0.787	0.765	-0.593	-0.574
	(0.065)*	**(0.085)***	(0.132)	(0.147)	(0.152)	(0.160)	(0.660)	(0.674)
T3	0.567	0.473	0.081	0.003	1.041	0.972	0.244	0.135
	(0.062)*	(0.113)	(0.759)	(0.991)	**(0.074)***	**(0.093)***	(0.615)	(0.782)
TURN					7.036	7.458	1.175	1.133
					(0.409)	(0.375)	(0.206)	(0.221)
T2_T					-6.920	-7.301	0.579	0.550
					(0.420)	(0.388)	(0.779)	(0.792)
T3_T					-7.100	-7.521	-1.150	-1.101
					(0.405)	(0.371)	(0.222)	(0.241)
RUN	1.085	1.110	1.174	1.187	1.060	1.088	1.144	1.169
	(0.028)**	**(0.024)****	**(0.018)****	**(0.016)****	**(0.033)****	**(0.028)****	**(0.021)****	**(0.018)****
HORI	-0.188	-0.177	-0.201	-0.193	-0.192	-0.184	-0.205	-0.197
	(0.380)	(0.408)	(0.346)	(0.368)	(0.374)	(0.393)	(0.341)	(0.361)
PREM	0.044	0.044	0.040	0.040	0.046	0.046	0.039	0.040
	(0.418)	(0.420)	(0.479)	(0.474)	(0.411)	(0.417)	(0.480)	(0.475)
DEF	0.006	-0.042	0.009	-0.037	0.014	-0.034	0.014	-0.036

	(0.978)	(0.851)	(0.966)	(0.865)	(0.949)	(0.879)	(0.948)	(0.873)
TEN	0.310	0.186	0.337	0.189	0.309	0.203	0.309	0.157
	(0.240)	(0.488)	(0.198)	(0.478)	(0.242)	(0.450)	(0.242)	(0.561)
ANTI	-0.801	-0.833	-0.818	-0.826	-0.763	-0.786	-0.827	-0.825
	(0.296)	(0.282)	(0.282)	(0.284)	(0.326)	(0.317)	(0.282)	(0.289)
P_PILL	-1.450	-1.031	-1.439	-1.066	-1.378	-0.950	-1.408	-1.032
	(0.055)*	(0.167)	**(0.054)***	(0.152)	**(0.072)***	(0.208)	**(0.061)***	(0.168)
NON_PILL	-0.283	-0.265	-0.274	-0.262	-0.286	-0.265	-0.239	-0.227
	(0.277)	(0.314)	(0.292)	(0.318)	(0.274)	(0.315)	(0.359)	(0.389)
CASH	0.011	0.422	-0.012	0.449	0.044	0.413	0.0152	0.462
	(0.974)	(0.200)	(0.969)	(0.172)	(0.892)	(0.211)	(0.962)	(0.163)
STOCK	0.244	0.235	0.208	0.208	0.259	0.234	0.231	0.202
	(0.424)	(0.314)	(0.494)	(0.375)	(0.397)	(0.319)	(0.450)	(0.391)
HOS	0.938	-0.411	0.759	-0.425	0.892	-0.424	0.808	-0.421
	(0.310)	(0.282)	(0.419)	(0.266)	(0.339)	(0.270)	(0.389)	(0.273)
RUM	0.063	-0.059	0.038	-0.143	0.042	-0.058	0.076	-0.136
	(0.822)	(0.886)	(0.892)	(0.727)	(0.882)	(0.888)	(0.787)	(0.741)
Intercept	-0.307	-0.194	0.039	0.115	-0.673	-0.568	-0.205	-0.090
	(0.391)	(0.486)	(0.894)	(0.574)	(0.230)	(0.262)	(0.552)	(0.734)
N	453	453	453	453	453	453	453	453
Adj. R-sq	0.035	0.037	0.032	0.035	0.036	0.039	0.036	0.039
P-value	**0.089***	**0.059***	0.142	**0.080***	0.167	0.115	0.178	0.110
PCC	60.71%	60.71%	60.71%	59.82%	57.84%	60.49%	58.94%	60.04%

Panel B. Buyer-Initiated Turnover

	SUCCESS							
	(1) PERCENT FACTIVA	(2) PERCENT SDC	(3) C&L FACTIVA	(4) C&L SDC	(5) PERCENT FACTIVA	(6) PERCENT SDC	(7) C&L FACTIVA	(8) C&L SDC
B2	0.481	0.506	0.053	0.011	0.589	0.583	0.503	0.802
	(0.063)*	**(0.050)****	(0.871)	(0.974)	(0.225)	(0.230)	(0.761)	(0.628)
B3	0.609	0.568	0.096	0.043	0.676	0.613	0.134	0.141
	(0.042)**	**(0.055)***	(0.784)	(0.901)	(0.203)	(0.246)	(0.877)	(0.871)
B_TURN					-1.146	-3.973	1.390	1.301
					(0.962)	(0.869)	(0.131)	(0.158)
B2_BT					0.127	2.856	-1.821	-2.277
					(0.996)	(0.906)	(0.488)	(0.387)
B3_BT					1.066	3.875	-1.325	-1.274
					(0.965)	(0.873)	(0.189)	(0.206)
RUN	1.131	1.157	1.137	1.150	1.124	1.156	1.200	1.207
	(0.022)**	**(0.019)****	**(0.021)****	**(0.019)****	**(0.024)****	**(0.020)****	**(0.016)****	**(0.015)****
HORI	-0.191	-0.181	-0.194	-0.184	-0.188	-0.178	-0.175	-0.161
	(0.372)	(0.399)	(0.363)	(0.389)	(0.382)	(0.408)	(0.418)	(0.455)
PREM	0.047	0.049	0.043	0.044	0.047	0.048	0.044	0.044
	(0.401)	(0.391)	(0.431)	(0.421)	(0.407)	(0.403)	(0.423)	(0.424)
DEF	-0.002	-0.049	-0.003	-0.049	-0.009	-0.054	0.013	-0.037
	(0.991)	(0.827)	(0.989)	(0.825)	(0.969)	(0.808)	(0.954)	(0.868)
TEN	0.345	0.212	0.352	0.211	0.344	0.215	0.342	0.203
	(0.190)	(0.431)	(0.180)	(0.432)	(0.192)	(0.425)	(0.198)	(0.454)
ANTI	-0.801	-0.813	-0.874	-0.883	-0.768	-0.780	-0.865	-0.857
	(0.298)	(0.298)	(0.250)	(0.252)	(0.320)	(0.319)	(0.263)	(0.273)
P_PILL	-1.440	-1.000	-1.509	-1.137	-1.454	-1.022	-1.497	-1.093
	(0.059)*	(0.184)	**(0.042)****	(0.126)	**(0.057)***	(0.176)	**(0.046)****	(0.144)
NON_PILL	-0.299	-0.287	-0.308	-0.298	-0.300	-0.290	-0.289	-0.275
	(0.252)	(0.277)	(0.234)	(0.254)	(0.252)	(0.274)	(0.266)	(0.296)
CASH	0.022	0.473	-0.024	0.439	0.034	0.481	-0.010	0.428

	(0.945)	(0.154)	(0.940)	(0.181)	(0.917)	(0.147)	(0.976)	(0.196)
STOCK	0.259	0.270	0.193	0.223	0.260	0.274	0.216	0.220
	(0.396)	(0.251)	(0.524)	(0.341)	(0.395)	(0.244)	(0.479)	(0.349)
HOS	0.936	-0.424	0.760	-0.409	0.921	-0.421	0.850	-0.437
	(0.313)	(0.267)	(0.416)	(0.284)	(0.321)	(0.272)	(0.364)	(0.254)
RUM	0.034	-0.111	-0.002	-0.157	0.030	-0.108	0.027	-0.161
	(0.905)	(0.788)	(0.994)	(0.700)	(0.916)	(0.794)	(0.924)	(0.694)
Intercept	-0.337	-0.273	0.127	0.172	-0.323	-0.216	-0.071	0.010
	(0.350)	(0.339)	(0.655)	(0.383)	(0.535)	(0.640)	(0.821)	(0.964)
N	453	453	453	453	453	453	453	453
Adj. R-sq	0.036	0.040	0.028	0.032	0.036	0.040	0.032	0.035
P-value	**0.077***	**0.042****	0.235	0.139	0.162	**0.094***	0.285	0.188
PCC	60.26%	59.38%	56.73%	59.38%	59.82%	60.49%	58.50%	59.60%

Panel C. Seller-Initiated Turnover

	SUCCESS							
	(1) PERCENT FACTIVA	(2) PERCENT SDC	(3) C&L FACTIVA	(4) C&L SDC	(5) PERCENT FACTIVA	(6) PERCENT SDC	(7) C&L FACTIVA	(8) C&L SDC
S2	0.597	0.611	0.180	0.126	0.844	0.897	-0.283	-0.189
	(0.020)**	**(0.017)****	(0.601)	(0.713)	**(0.095)***	**(0.076)***	(0.870)	(0.913)
S3	0.508	0.489	-0.119	-0.148	1.033	1.065	-0.128	-0.105
	(0.089)*	(0.102)	(0.711)	(0.642)	**(0.065)***	**(0.058)***	(0.865)	(0.890)
S_TURN					32.206	35.409	1.733	1.742
					(0.252)	(0.210)	**(0.059)***	**(0.057)***
S2_ST					-30.685	-33.846	-0.754	-0.980
					(0.276)	(0.232)	(0.772)	(0.706)
S3_ST					-32.283	-35.491	-1.603	-1.644
					(0.250)	(0.209)	(0.108)	**(0.099)***
RUN	1.010	1.030	1.182	1.189	1.017	1.048	1.164	1.182
	(0.042)**	**(0.038)****	**(0.017)****	**(0.016)****	**(0.043)****	**(0.036)****	**(0.020)****	**(0.018)****
HORI	-0.194	-0.185	-0.190	-0.181	-0.181	-0.170	-0.187	-0.177
	(0.365)	(0.391)	(0.374)	(0.398)	(0.402)	(0.433)	(0.384)	(0.412)
PREM	0.046	0.046	0.042	0.043	0.052	0.052	0.044	0.045
	(0.400)	(0.406)	(0.426)	(0.426)	(0.361)	(0.364)	(0.400)	(0.400)
DEF	-0.029	-0.076	0.012	-0.040	-0.012	-0.057	0.001	-0.051
	(0.896)	(0.730)	(0.957)	(0.859)	(0.956)	(0.797)	(0.997)	(0.818)
TEN	0.305	0.187	0.350	0.218	0.281	0.168	0.319	0.187
	(0.248)	(0.485)	(0.181)	(0.414)	(0.291)	(0.535)	(0.229)	(0.486)
ANTI	-0.783	-0.801	-0.895	-0.905	-0.780	-0.797	-0.847	-0.860
	(0.310)	(0.306)	(0.240)	(0.240)	(0.313)	(0.308)	(0.268)	(0.266)
P_PILL	-1.414	-1.038	-1.502	-1.133	-1.336	-0.980	-1.507	-1.124
	(0.060)*	(0.164)	**(0.044)****	(0.128)	**(0.078)***	(0.193)	**(0.046)****	(0.134)
NON_PILL	-0.286	-0.271	-0.313	-0.300	-0.290	-0.288	-0.259	-0.246
	(0.273)	(0.305)	(0.225)	(0.249)	(0.268)	(0.278)	(0.320)	(0.350)
CASH	0.044	0.464	-0.015	0.427	0.057	0.491	-0.006	0.432

	(0.892)	(0.160)	(0.962)	(0.194)	(0.862)	(0.140)	(0.984)	(0.192)
STOCK	0.219	0.226	0.193	0.218	0.215	0.245	0.193	0.214
	(0.473)	(0.335)	(0.524)	(0.349)	(0.484)	(0.300)	(0.527)	(0.361)
HOS	0.724	-0.419	0.752	-0.421	0.669	-0.393	0.785	-0.428
	(0.438)	(0.272)	(0.420)	(0.270)	(0.480)	(0.307)	(0.404)	(0.263)
RUM	-0.023	-0.104	-0.004	-0.162	-0.005	-0.093	0.051	-0.113
	(0.933)	(0.801)	(0.989)	(0.691)	(0.985)	(0.823)	(0.858)	(0.783)
Intercept	-0.332	-0.276	0.129	0.180	-0.784	-0.779	-0.089	-0.029
	(0.342)	(0.316)	(0.651)	(0.362)	(0.137)	(0.112)	(0.774)	(0.899)
N	453	453	453	453	453	453	453	453
Adj. R-sq	0.037	0.041	0.029	0.032	0.041	0.046	0.035	0.039
P-value	**0.063***	**0.030****	0.217	0.127	**0.086***	**0.041****	0.194	0.120
PCC	60.49%	61.59%	58.50%	60.04%	59.60%	62.69%	58.94%	59.82%

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