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The Relationship between Investment Horizons and Signals of Insider Trading in Takeover

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Abstract

Insider trading in target companies prior to mergers and acquisitions (M&A) can be regarded as an important information about the future profitability of the company. Suk and Wang (2021) find that net purchases by insiders in target companies are positively correlated with abnormal returns at the time of the M&A announcement, M&A synergy, bid premiums, and the probability of M&A completion. Fu et al. (2020) document that long-term investment horizon shareholders can impede insider trading because they can obstruct insiders from using their informational advantages through direct supervision. In this paper, we find that the positive impact of net insider purchases in target companies on abnormal returns at the time of the M&A announcement is stronger in companies with shorter shareholder investment horizons. However, there is no evidence to support that net insider purchases in target companies have a stronger positive impact on M&A synergy in companies with shorter shareholder investment horizons. Furthermore, there is no evidence to indicate that net insider purchases in target companies have an impact on bid premiums, nor that this impact is stronger in companies with shorter shareholder investment horizons. Moreover, we find that the positive impact of net insider purchases in target companies on the probability of M&A completion is stronger in companies with shorter shareholder investment horizons.

JEL classification numbers: G11, G14, G34.
Keywords: Insider trading, Shareholder investment horizon, Insider investment horizon, Acquisition.

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1. Introduction

Many researches focus on the impact of insider trading on company decisions. Information asymmetry in target companies negatively impacts the acquisition performance of acquiring companies (Moeller et al., 2007, Morellec and Zhdanov, 2005, McNichols and Stubben, 2015). Moeller et al. (2007) suggest that disagreement among investors and asymmetry in transaction formation lead to negative abnormal returns for acquiring companies. McNichols and Stubben (2015) find that uncertainty or information risk about target company results in wealth losses for acquiring companies post-acquisition. Cai et al. (2016), Martin and Shalev (2017) discover the performance of M&A synergy is poor, indicating that information asymmetry indeed has significant negative impacts on acquiring companies. Nonetheless, Suk and Wang (2021) find that insider trading in target companies reduces the lemon problem in the M&A market and provides information on whether the M&A will be completed, thereby reducing the negative impacts of information asymmetry on acquiring companies. Moreover, there is positive correlation between net insider purchases in target companies and abnormal returns at the time of M&A announcements, M&A synergy, bid premiums, and the probability of M&A completion.

Shareholder investment horizons affect the trading behavior of company insiders, thereby influencing company decisions (Derrien et al., 2013; Harford et al., 2018). Fu et al. (2020) find that shareholders with longer investment horizons hinder insider trading by directly supervising and obstructing insiders from using their informational advantages. Therefore, shareholders with shorter investment horizons have a stronger influence on insider trading compared to those with longer investment horizons.

This paper primarily builds on the findings of Suk and Wang (2021) and Fu et al. (2020) to further examine whether there are stronger positive impact of net insider purchases in target companies on abnormal returns at the time of M&A announcements, M&A synergy, bid premiums, and the probability of M&A completion in companies with shorter shareholder investment horizons.

The remainder of this paper is organized as follows. Literature review is presented in Section 2. Section 3 describes the sample and variable measurement. In Section 4, we present the empirical results. Section 5 provides the conclusion.

2. Literature Review

2.1 The Impact of Insider Trading on Corporate M&A

Moeller et al. (2004) find that when the size of the acquiring company is disproportionately large, the acquisition gains for shareholders of the acquiring company are small, suggesting that information asymmetry between the acquiring and target companies plays a role. Morellec and Zhdanov (2005) argue that imperfect information regarding synergy effects leads to negative returns for acquiring companies. Moeller et al. (2007) suggest that diverse opinions among investors and asymmetry in transaction formation result in negative abnormal returns for acquiring companies. McNichols and Stubben (2015) find that uncertainty or information risk about the target company leads to wealth losses for acquiring companies in post-acquisition period and poor M&A synergy. Cai et al. (2016) and Martin and Shalev (2017) document that information asymmetry negatively impacts acquiring companies.

Skaife and Wangerin (2013), Ahern and Sosyura (2014), and Amel-Zadeh and Zhang (2015) suggest that during the early stages of negotiation, acquiring companies must rely entirely on publicly available information to screen potential target companies. Even when a target company is selected and due diligence begins, access to private information remains limited. Lajoux and Elson (2000), Copeland et al. (2000), Bruner (2004), and Cai et al. (2016) believe that in such cases, acquiring companies affected by adverse selection and overpayment issues strive to collect synergy information from target companies to make effective acquisition decisions. Suk and Wang (2021) find that net insider purchases in target companies before M&A announcements are informative regarding the acquirer's returns, M&A synergy, and premiums in upcoming M&As, indicating that insider trading in target companies improves M&A market efficiency. Acquiring a target company with high net insider purchases benefits both the acquirer and the target company's shareholders.

2.2 The Impact of Investment Horizons on Insider Trading

Derrien et al. (2013), Harford et al. (2018), and Fu et al. (2020) believe that shareholder investment horizons influence various corporate decisions. Cohen et al. (2012) classify insider trading into opportunistic and routine trades, showing a negative correlation between shareholder investment horizons and the proportion of opportunistic insider trading. Opportunistic trades carry more information than routine trades, suggesting that insiders in companies with more long-term investors are less likely to trade on private information.

Biggerstaff et al. (2020) classify insider trades into sequential and isolated trades, finding that insiders in companies with shorter shareholder investment horizons strategically plan sequential trades over several months to maximize profits. Gaspar et al. (2005) and Chen et al. (2007) argue that institutions with longer investment horizons are more effective at supervising managers, possibly preventing insiders from exploiting their informational advantages. On the contrary, Yan and Zhang

(2009) suggest that investors with shorter investment horizons are more likely to increase stock price informativeness because they are better informed and actively trade to capitalize on their informational advantages. Fu et al. (2020) find that when shareholder investment horizons are longer, insiders are less likely to trade based on private information, and the profits from insider trading are lower.

2.3 Hypothesis

Target insider trades prior to takeover are more likely to play a role as a costly signal for long-term profitability instead of short-term trade. If target firm insiders' trading help the bidder differentiate between lemons, a higher acquisition return is expected when the target firm has a higher ratio of insider purchases. Suk and Wang (2021) find that target insider net purchases can predict the acquirer's abnormal returns at the acquisition announcement. This positive association is not transitory and does not reverse over the year after the acquisition.

Since target insiders have private information and the acquirer can use target insider trading to deduce the target's synergy potential, target insider trading contains a signal of the target's potential for generating synergies. Suk and Wang (2021) document that target insider net purchase volume ratios prior to the acquisition announcement are positively associated with the target's synergy potential.

The takeover premium is defined as the acquirer's excess offer price over the target's stock price, where the offer price reflects the acquirer's valuation of the target's potential for creating acquisition benefits (Amel-Zadeh and Zhang, 2015). If the acquirer perceives the target insiders' high net purchase ratio as a positive signal of the target's potential for generating acquisition benefits, the acquirer would be more willing to buy this target at a higher offer premium. Suk and Wang (2021) find that acquirers are willing to offer higher premiums when target insiders purchase more (or sell less) of their own company stocks.

If target insider net purchases signal the potential worthiness of acquiring target, the acquirer should be more willing to complete the announced deal. Suk and Wang (2021) find that the probability of merger completion increases with target insiders' pre-M&A net purchase ratios. Thus, the acquirer is more likely to complete the announced merger deal with a target firm that has a high insider buying ratio, and that firms seeking a takeover target are more attracted to firms with higher insider purchase ratios.

Longer investment horizons can hamper informed insider trading because investors with longer investment horizons can discourage insiders from using their informational advantages through direct monitoring. Long-horizon investors have greater incentives to devote resources on monitoring since they are more likely to remain shareholders of the firm long enough to obtain the corresponding benefits (Chen et al., 2007). Moreover, corporate insiders are strictly scrutinized and inappropriate insider trades are highly subject to litigation risks (Chen et al., 2017). The potential legal risks, which can result in a firm's serious market value and reputation loss (Haslem et al., 2017), matter more to long-horizon shareholders than

to short-horizon shareholders. Consistent with the direct monitoring channel, Fu et al. (2020) find that insiders in firms with longer shareholder investment horizons are more likely to move trades from the month right before earnings announcements to the month right after earnings announcements. Therefore, we infer that insiders in firms with longer shareholder investment horizons are more inclined to move pre-M&A trades to post-M&A period and the impacts of pre-M&A target insiders' trade on acquirer returns, acquisition synergies, takeover premium, and the probability of an announced merger being completed should be weaker.
Based on the above reasoning, the following hypotheses are proposed.

Hypothesis 1: The positive impacts of target insiders' pre-M&A net purchase ratios on the acquirer's abnormal returns from an acquisition are stronger in the target firms with shorter shareholder investment horizons.

Hypothesis 2: The positive impacts of target insiders' pre-M&A net purchase ratios on the acquisition synergies are stronger in the target firms with shorter shareholder investment horizons.

Hypothesis 3: The positive impacts of target insiders' pre-M&A net purchase ratios on the takeover premiums are stronger in the target firms with shorter shareholder investment horizons.

Hypothesis 4: The positive impacts of target insiders' pre-M&A net purchase ratios on the probability of an announced merger being completed are higher in the target firms with shorter shareholder investment horizons.

3. Data and variable measurement

3.1 Data

The sample period spans from January 1, 2010, to December 31, 2022, and includes all publicly traded companies listed on the Taiwan Stock Exchange (TWSE). The definition of insiders includes directors, supervisors, managers, shareholders holding more than ten percent of the company's total shares, and the aforementioned individuals' shares, including those held by their spouses, minor children, and those held in the names of others. Due to the unique business characteristics, capital structures, and regulatory environments of the financial, securities, and insurance industries, companies from these sectors are excluded from the sample. The data source is from Taiwan Economic Journal (TEJ).

3.2. Variable Measurement

3.2.1. SHAIH

In Equation (1), SHAIH represents the shareholder investment horizon.

$$\text{SHAIH}_{k,i,q} = d_{k,i,q} = \sum_{t=q-w}^{q} \left[\frac{(q-t)\alpha_{k,i,t}}{H_{k,i}+B_{k,i}} \right] + \frac{w*H_{k,i}}{H_{k,i}+B_{k,i}} \quad (1)$$

$B_{k,i}$ is the percentage of stock k purchased by institution i between q−w and q, where t and q are quarters. $H_{k,i}$ denotes the percentage of shares outstanding held by institution i at q−w. $a_{k,i,t}$ is the percentage of stock k bought or sold by institution i at t−1, with purchases being positive and sales being negative. According to Cremers and Pareek (2015), we set w to 20 quarters, as very few stocks are held continuously for over five years.

3.1.1 NIP

In Equation (2), NIP is the net insider purchase. i represents the target company, and t is the announcement date in the SDC (Securities Data Company) U.S. M&A database.

$$\text{NIP}_{i(\text{t}-365\text{day},\text{t}-1\text{day})} = \frac{\text{Purchase}_{i(\text{t}-365\text{day},\text{t}-1\text{day})} - \text{Sold}_{\text{i}(\text{t}-365\text{day},\text{t}-1\text{day})}}{\text{Purchase}_{i(\text{t}-365\text{day},\text{t}-1\text{day})} + \text{Sold}_{\text{i}(\text{t}-365\text{day},\text{t}-1\text{day})}} \quad (2)$$

Purchase is the number of shares bought by senior management of the target company i on the open market, while Sold is the number of shares sold by senior management of the target company ii on the open market.

3.1.2 CAR

CAR is the cumulative abnormal return. We calculate CAR over the three-day window (-1, +1) surrounding the M&A announcement for both the acquiring and target companies. The weights applied are the relative market values of the acquirer and target companies 60 days prior to the announcement. Expected returns are estimated using the market model or the Carhart four-factor model, with model parameters estimated from day -300 to day -60 before the M&A announcement.

3.1.3 ROA

In Equation (3), ROA is the return on assets and is used to measure M&A synergy.

$$\text{ROA}_{3\text{yrAdj}} = \text{ROA}_{\text{Post\_3yr\_avgAdj}} - \text{ROA}_{\text{Pre\_3yr\_avgAdj}} \quad (3)$$

$\text{ROA}_{\text{Pre\_3yr\_avgAdj}}$ is the weighted average ROA of the acquirer and target companies for the three years before the announcement year, weighted by their relative market values 60 days before the M&A announcement. $\text{ROA}_{\text{Post\_3yr\_avgAdj}}$ is the average ROA of the merged company for the three years

following the acquisition, adjusted by subtracting the median ROA of companies with the same two-digit SIC code. The measurement is the change in the three-year average adjusted ROA from before the announcement to after the acquisition.

3.1.4 Premium

In Equation (4), Premium is the acquisition premium, measured by the offer price exceeding the target stock price.

$$\text{Offer}_{P4W} = \frac{(\text{Offer price} - \text{Target Closing Stock Price 4 weeks before announcement day})}{(\text{Target Closing Stock Price 4 weeks before announcement day})} \quad (4)$$

The target stock price is taken as the closing stock price four weeks before the announcement, constructing OfferP4W (4) as the measure.

3.2 Summary statistics of variables

Table 1 shows the summary statistics of variables. The kurtosis of SHAIH is 3.9356, indicating a right-skewed distribution. Most values of the shareholder investment horizon are concentrated in a smaller range, with some extreme values suggesting that shareholders tend to hold shorter investment horizons, although some cases exhibit relatively longer horizons. NIP_12M has a standard deviation of 0.7664, and SHAIH has a standard deviation of 0.3995. These relatively small standard deviations imply that the values of net insider purchases, and shareholder investment horizon are relatively stable. A positive mean for NIP_12M (0.1416) suggests optimism among insiders about the company's prospects, indicating a belief that the stock's value will increase. Similarly, a positive mean for SHAIH suggests high confidence among shareholders in the company, with a willingness to hold more stocks, possibly due to positive expectations about the company's future development. ACQ_RUN_UP (past market returns of the acquirer company) indicates the performance of acquirer companies in the past, with a positive value (0.0693) suggesting good performance and optimistic market outlook for their future profitability and growth.

Table 1: Descriptive Statistics

	Mean	SD	Median	Skewness	Kurtosis	N
NIP_12M_	0.1416	0.7664	0	-0.2504	1.5676	28
SHAIH	0.7544	0.3995	0.7503	0.7263	3.9356	28
NIP_12M_*SHAIH	0.0719	0.7015	0	-0.3748	2.1620	28
ACQ_LEV	0.5499	0.3154	0.5361	0.6210	3.5786	28
ACQ_MTB	21.0189	13.6668	17.4950	1.8648	6.5607	28
ACQ_RUN_UP	0.0693	0.1311	0.0625	-0.7257	9.3265	28
ACQ_SIZE	10.2469	0.8311	10.3822	-1.4333	5.9080	28
ROA	0.0284	0.0323	0.0273	0.3983	5.0725	28
TGT_LEV	4.5060	21.4212	0.4776	5.0010	26.0199	28
TGT_MTB	34.6630	77.0838	15.6650	4.4205	22.1677	28
TGT_ROA	0.0436	0.0620	0.0343	1.7499	7.4490	28
TGT_RUN_UP	-0.5193	4.2114	0.0892	-4.5397	23.5512	28
TGT_SIZE	10.1051	0.8874	10.2876	-0.9252	3.5773	28
DEAL_CONTROLS	0.7143	0.4600	1.0000	-0.9487	1.9000	28
MULBIDDER	13.9643	23.7135	9.0000	4.4966	22.8077	28
PCT_STOCK	0.3883	0.2499	0.3427	0.5238	2.5930	28
REL_SIZE	0.2233	0.2008	0.1642	2.9403	12.0288	28

4. Empirical Results

4.1 Impact of Net Insider Purchases of Target Companies on Abnormal Returns at M&A Announcement

In equation (5), we examine the impact of net insider purchases of target companies on abnormal returns at M&A announcement.

$$\text{Acq\_CAR} = \beta_0 + \beta_1 \text{NIP}_{i,t} + \beta_2 SHAIH_{i,t} + \beta_3 NIP_{i,t}\, SHAIH_{i,t} + \sum \beta_j \text{Acquirer\_Control}_j + \sum \beta_i \text{Target\_Control}_i + \sum \beta_k \text{Deal\_Control}_k + \sum \gamma_t \text{Year}_t + \sum \tau_l \text{Industry}_l + \varepsilon \quad (5)$$

Dependent variable is Acq_CAR, which is defined as the abnormal returns within a three-day window (-1, +1) around the M&A announcement day. Main independent variables include NIP (Net Insider Purchases of the target company) and SHAIH (Shareholder Investment Horizon). Acquirer_Controls include company size (Acq_SIZE), market-to-book ratio (Acq_MTB), financial leverage (Acq_LEV), and ROA. Target_Controls include company size (Tgt_SIZE), market-to-book ratio (Tgt_MTB), financial leverage (Tgt_LEV), ROA, and past market returns (Tgt_RUN-UP)). Deal_Controls include tender offer indicator (TENDER), multiple bidders indicator (MULBIDDER), percentage of stock payment (Pct_STOCK), and

relative size of deal value to the acquirer's market value (REL_SIZE). Fixed effects for year and industry are included to account for M&A waves and industry heterogeneity.

In Model 4 of Table 2, the impact of ACQ_LEV on Acq_CAR is significantly positive at the 5% significance level (coefficient = 0.2098, P-VALUE = 0.026), implying that higher financial leverage of the acquiring company is associated with larger abnormal returns at the announcement of the acquisition. The impact of NIP_12M_*SHAIH on Acq_CAR is significantly negative at the 10% significance level (coefficient = -0.446, P-VALUE = 0.056), supporting Hypothesis 1. It indicates that the positive impact of net insider purchases of the target company on the abnormal returns at the announcement of the acquiring company is stronger in companies with shorter shareholder investment horizons.

4.2 Impact of Net Insider Purchases of Target Companies on M&A Synergy

In equation (6), we examine the impact of net insider purchases of target companies on M&A synergy.

$$\Delta ROA = \beta_0 + \beta_1 NIP_{i,t} + \beta_2 SHAIH_{i,t} + \beta_3 NIP_{i,t}\ SHAIH_{i,t} + \sum \beta_j Acquirer\_Control_j + \sum \beta_i Target\_Control_i + \sum \beta_k Deal\_Control_k + \sum \gamma_t Year_t + \sum \tau_l Industry_l + \varepsilon \quad (6)$$

The dependent variable in this study is ΔROA, which measures M&A synergy primarily defined around changes in long-term operating performance post-acquisition. This reflects whether the anticipated synergy or benefits at the announcement are realized in the operating performance post-acquisition. ΔROA is defined as the change in the average return on assets (ROA) over three years post-acquisition compared to three years pre-acquisition, adjusted by subtracting the median ROA of companies with the same two-digit SIC code. The independent variables in this regression are similar to those used in the regression for Acq_CAR.

In MODEL 4 of Table 3, the impact of ACQ_LEV is significantly negative at the 5% level (coefficient = -0.5012, P-VALUE = 0.048). This implies that in acquisition cases, higher financial leverage of the acquiring company is associated with smaller acquisition synergies. Nonetheless, the impact of NIP_12M_*SHAIH on ΔROA is insignificantly negative (coefficient = -5.322, P-VALUE = 0.523). It does not support Hypothesis 2. Thus, we do not have empirical evidence to argue that the positive impacts of target insiders' pre-M&A net purchase ratios on the acquisition synergies are stronger in the target firms with shorter shareholder investment horizons.

Table 2: Impact of Net Insider Purchases of the Target Company on Abnormal Returns at Acquisition Announcement

	Acq_CAR	Acq_CAR	Acq_CAR	Acq_CAR
	MODEL 1	**MODEL 2**	**MODEL 3**	**MODEL 4**
C	0.5212 (0.508)	2.1015 (0.948)	2.1406 (0.960)	-15.8747 (0.482)
NIP_12M_	-1.3986 (1.043)	-1.4329 (1.061)	1.5595 (0.408)	-2.2073 (0.291)
SHAIH		-2.0884 (0.806)	-2.3675 (0.901)	-1.4096 (0.249)
NIP_12M_*SHAIH			-3.5058 (0.838)	-0.4460* (0.056)
ACQ_LEV				0.2098** (0.026)
ACQ_MTB				0.0375 (0.243)
ACQ_RUN_UP				-38.8785 (1.161)
ACQ_SIZE				1.3568 (0.526)
ROA				109.8730 (0.699)
TGT_LEV				0.2712 (1.536)
TGT_MTB				-0.0224 (0.955)
TGT_ROA				-23.1232 (0.460)
TGT_RUN_UP				0.4813 (0.742)
TGT_SIZE				0.8649 (0.326)
DEAL_CONTROLS				-4.9740 (1.260)
MULBIDDER				0.0166 (0.230)
PCT_STOCK				4.8381 (0.620)
REL_SIZE				1.2229 (0.143)
YEAR				-0.3989 (0.360)
INDUSTRY				-4.7525 (0.351)

Table 3: Impact of Net Insider Purchases of the Target Company on Acquisition Synergies

	ΔROA	**ΔROA**	**ΔROA**	**ΔROA**
	MODEL 1	**MODEL 2**	**MODEL 3**	**MODEL 4**
C	-3.2129 (2.385)	-0.6474 (0.224)	-0.6914 (0.237)	21.2174 (0.499)
NIP_12M_	0.4338 (0.246)	0.3779 (0.214)	-2.9964 (0.599)	8.3061 (0.419)
SHAIH		-3.3902 (1.001)	-3.0755 (0.895)	-4.6371 (0.635)
NIP_12M_*SHAIH			3.9532 (0.722)	-5.3219 (0.523)
ACQ_LEV				-0.5012** (0.048)
ACQ_MTB				-0.0734 (0.369)
ACQ_RUN_U				26.7657 (0.619)
ACQ_SIZE				-4.0673 (1.222)
ROA				-110.5073 (0.545)
TGT_LEV				-0.3108 (1.364)
TGT_MTB				0.0309 (1.020)
TGT_ROA				56.4945 (0.871)
TGT_RUN_UP				-0.2519 (0.301)
TGT_SIZE				0.8832 (0.257)
DEAL_CONTROLS				8.2515 (1.621)
MULBIDDER				-0.0748 (0.803)
PCT_STOCK				5.4893 (0.546)
REL_SIZE				4.8303 (0.439)
YEAR				0.4365 (0.305)
INDUSTRY				3.9599 (0.639)

4.3 Impact of Net Insider Purchases of Target Companies on M&A Premium

In equation (7), we examine the impact of net insider purchases of target companies on M&A premium.

$$\text{Premium} = \beta_0 + \beta_1 \text{NIP}_{i,t} + \beta_2 SHAIH_{i,t} + \beta_3 NIP_{i,t}\, SHAIH_{i,t} + \sum \beta_j \text{Acquirer\_Control}_j + \sum \beta_i \text{Target\_Control}_i + \sum \beta_k \text{Deal\_Control}_k + \sum \gamma_t \text{Year}_t + \sum \tau_l \text{Industry}_l + \varepsilon \quad (7)$$

Dependent variable is Premium, defined as the ratio of the offer price to the target stock price four weeks before the announcement. Independent variables in this regression are similar to those used in the regression for Acq_CAR.

In model 4 of Table 4, NIP_12M_*SHAIH is not significantly positively correlated with M&A Premium (coefficient is -56.470 and P-VALUE is 4.341). Therefore, we cannot accept Hypothesis 3, suggesting no enough evidence to support the impact of net insider purchases of the target company on the M&A premium is stronger in companies with shorter shareholder investment horizons.

4.4 Impact of Net Insider Purchases of Target Companies on M&A Completion Probability

In equation (8), we examine the impact of net insider purchases of target companies on M&A completion probability.

$$\text{Probability of completion} = \beta_0 + \beta_1 \text{NIP}_{i,t} + \beta_2 SHAIH_{i,t} + \beta_3 NIP_{i,t}\, SHAIH_{i,t} + \sum \beta_j \text{Acquirer\_Control}_j + \sum \beta_i \text{Target\_Control}_i + \sum \beta_k \text{Deal\_Control}_k + \sum \gamma_t \text{Year}_t + \sum \tau_l \text{Industry}_l + \varepsilon \quad (8)$$

Dependent variable is probability of completion. Independent variables are similar to those used in the regression for Acq_CAR.

In Table 5, several significant findings are highlighted across different models. In MODEL 1, the impact of NIP_12M on the probability of M&A completion is significantly negative at the 10% level (coefficient = -0.0091, P-VALUE = 0.091). This indicates that as the net insider purchases in the target company increase, the probability of M&A completion decreases. In MODEL 3, the impact of SHAIH on the probability of M&A completion is significantly positive at the 5% confidence level (coefficient = 0.0041, P-VALUE = 0.021). This suggests that longer shareholder investment horizon is associated with higher probability of M&A completion.

Table 4: Impact of Net Insider Purchases multiplied by Shareholder Investment Horizon on M&A Premium

	Premium_4W	Premium_4W	Premium_4W	Premium_4W
	(1)	(2)	(3)	(4)
C	12.2929 (3.843)	18.1832 (2.599)	18.4866 (2.848)	-130.1088 (2.392)
NIP_12M_	-7.1618 (1.685)	-7.3034 (1.714)	16.3688 (1.474)	43.5941 (3.485)
SHAIH		-7.7009 (0.947)	-9.8154 (1.291)	1.6507 (0.176)
NIP_12M_*SHAIH			27.7492 (2.281)	-56.470 (4.341)
ACQ_LEV				-14.0209 (1.057)
ACQ_MTB				-0.2153 (0.845)
ACQ_RUN_U				45.9521 (0.830)
ACQ_SIZE				-6.0826 (1.428)
ROA				-320.734 (1.236)
TGT_LEV				-0.3470 (1.189)
TGT_MTB				0.0679 (1.752)
TGT_ROA				61.5074 (0.740)
TGT_RUN_UP				-2.0202 (1.885)
TGT_SIZE				17.0672 (3.893)
DEAL_CONTR				11.6121 (1.781)
MULBIDDER				0.2895 (2.427)
PCT_STOCK				1.7197 (0.133)
REL_SIZE				17.9831 (1.276)
YEAR				0.2021 (0.110)
INDUSTRY				32.7149 (4.125)

In MODEL 4, the impact of NIP_12M_*SHAIH on the probability of M&A completion is significantly negative at the 1% confidence level (coefficient = -0.0061, P-VALUE = 0.009). Hence, we can accept Hypothesis 4, providing evidence that the positive impacts of target insiders' pre-M&A net purchase ratios on the probability of an announced merger being completed are higher in the target firms with shorter shareholder investment horizons. This finding implies that shareholder investment horizon amplifies negative impact of net insider purchases on the probability of M&A completion.

5. Conclusions

This paper examines whether the positive impacts of net insider purchases of the target company on the acquiring company's abnormal returns at the announcement, acquisition synergy, premium, and completion probability are stronger in the companies with shorter shareholder investment horizons. The data period spans from January 1, 2010, to December 31, 2022, and sample includes all publicly listed companies on the Taiwan Stock Exchange. We find that net insider purchases of the target company positively affect the acquiring company's abnormal returns at the announcement and completion probability. The positive impact on abnormal returns is stronger in companies with shorter shareholder investment horizons. This indicates that insider actions are more easily perceived and reacted by the external market within shorter investment periods, making the impact on M&A opportunities more pronounced.

Table 5: Impact of Target Company Net Insider Purchases on M&A Completion Probability

	CHANCE	CHANCE	CHANCE	CHANCE
	(1)	(2)	(3)	(4)
C	0.8227 (10.766)	0.7964 (4.770)	0.8007 (4.845)	0.8758 (0.329)
NIP_12M_	-0.0091* (0.091)	-0.0085 (0.933)	0.3182 (1.123)	-0.1666 (0.272)
SHAIH		0.0346 (0.860)	0.0041** (0.021)	0.2095 (0.458)
NIP_12M_*SHAIH			-0.3829 (1.235)	-0.0061*** (0.009)
ACQ_LEV				-0.2746 (0.423)
ACQ_MTB				0.0012 ** (0.099)
ACQ_RUN_U				0.6266 (0.231)
ACQ_SIZE				0.0955 (0.458)
ROA				-3.3978 (0.267)
TGT_LEV				0.0050 (0.351)
TGT_MTB				-0.0024 (0.131)
TGT_ROA				0.0010 (0.357)
TGT_RUN_UP				-0.0487** (0.020)
TGT_SIZE				0.0304 (0.227)
DEAL_CONTROLS				-0.0068* (0.095)
MULBIDDER				-0.9026 (1.178)
PCT_STOCK				-0.3297 (1.435)
REL_SIZE				-1.4527 (0.478)
YEAR				-0.0592 (0.661)
INDUSTRY				0.2316 (0.596)

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