

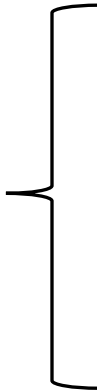
Alliances and Return Predictability

Jie Cao, Tarun Chordia and Chen Lin
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王念硕

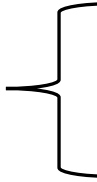
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1. Introduction

Example

1. On Sept. 1, 1991, Teradyne and Xilinx formed a joint venture to develop software-driven equipment. When Teradyne had the extreme high and low returns in month t , Xilinx had returns of 3.91% and 0.24%, respectively, in month $t + 1$, and when Xilinx had the extreme high and low returns in month t , Teradyne had returns of 3.89% and 0.29%, respectively, in month $t+1$.

1. Introduction

Background

1. There is a large literature on strategic alliances between firms that examines their sources of value creation.
2. Alliances are formed when it is difficult to enforce contracts internally and when companies undertake diversifying projects.
3. Alliances are created for learning and knowledge acquisition.
4. Partners experience positive stock price reactions at the announcement and experience improved operating performance in subsequent years.

1. Introduction

Motivation

1. Although many scholars have studied the relationship between partnership alliance and enterprise value, no one has formally tested whether the stock return of partnership alliance can predict the stock return.

1. Introduction

Research question

1. Whether a partner's stock return affects the stock return of the firm?

Yes

2. What is the source of this predictability?

Limited attention and limits to arbitrage

1. Introduction

Research Contents

1. We examine the impact of a partner's stock return on that of the firm. This long-short portfolio provides an average raw return of 89 basis points per month.
2. We believe that alliances are an appropriate place to look for investor inattention. If, due to inattention, investors miss the alliance announcement, it is unlikely that they will learn about the alliance from future announcement.
3. Partner-based trading-strategy profits are more prevalent among stocks that are more difficult to arbitrage.

1. Introduction

Related researches

1. Bodnaruk, Massa, and Simonov (2013) document a causal link between corporate governance and alliances, suggesting that well-governed firms are more likely to form alliances.
2. McConnell and Nantell (1985) and Chan et al. (1997) find that partners experience positive stock price reactions at the announcement and experience improved operating performance in subsequent years.
3. Whereas Boone and Ivanov (2012) find that firms experience a negative price reaction around their partners' bankruptcy filing, we find that the partners' positive and negative returns, both, affect the firm's next-month return.

1. Introduction

Contribution

1. This article is the first to study the relationship between the stock returns of alliance partners and the future stock returns of the company.
2. This article also contributes to the broader literature on information, risk, and return transmission across firms with interfirm links.

2. Research design: Variable

Some firms could be linked to multiple partners, we construct an equal-weighted portfolio of all unique partners and rebalance these portfolios every calendar month as the partners change over time.

If in month t a firm has formed alliance deals with three unique partners the equal-weighted return of the three partners is computed in month $t-1$.

For deals with valid termination dates, the partnership lasts until the deal termination month. For deals with missing termination dates, we assume the partnership lasts for 5 years.

2. Research design: Data

Data Source: the Securities Data Company(SDC)、Compustat、CRSP、Thomson Reuters

Period: 1991.01 to 2012.12.

Sample: All New York Stock Exchange (NYSE), American Stock Exchange (Amex), and Nasdaq. We focus the analysis on common stocks (CRSP share codes 10 and 11). To avoid extremely illiquid stocks, we exclude stocks with a closing price at the end of the previous month below \$1.

2. Research design: method

Univariate portfolio analysis

Bivariate sort analysis

Fama-MacBeth regressions

3.1 Empirical result: Alliances and Excess Returns

Panel A. Monthly Portfolio Returns Sorted on Partners' Last-Month Return: EWP_RET_{t-1}

	Q1 Low	2	3	4	Q5 High	5 – 1
Return Measures	Equal-Weighted Portfolio Returns (%)					
Raw returns	0.74 (1.52)	1.11 (2.41)	1.20 (2.72)	1.32 (2.94)	1.63 (3.23)	0.89*** (4.51)
CAPM alpha	-0.37 (-1.52)	0.04 (0.18)	0.16 (0.80)	0.29 (1.34)	0.57 (2.06)	0.94*** (4.99)
Carhart-4 alpha	-0.21 (-1.44)	0.15 (1.13)	0.27 (2.22)	0.35 (2.73)	0.63 (4.08)	0.84*** (4.77)
HXZ-4 alpha	0.05 (0.24)	0.32 (1.70)	0.48 (3.16)	0.55 (3.72)	0.94 (4.70)	0.89*** (3.58)
FF-5 alpha	-0.29 (-1.62)	0.10 (0.61)	0.24 (1.90)	0.37 (2.76)	0.75 (4.16)	1.04*** (4.18)

The raw returns of equal-weighted portfolios increase monotonically from the low-partner-return quintile to the high-partner-return quintile. A partner-based long-short portfolio delivers a monthly return of 0.89% (t-statistic = 4.51).

3.1 Empirical result: Alliances and Excess Returns

		Equal-Weighted Portfolio Returns (%)						Value-Weighted Portfolio Returns (%)					
Size Quintiles	Average CRSP Size Percentile	Q1 Low	2	3	4	Q5 High	5 - 1	Q1 Low	2	3	4	Q5 High	5 - 1
P1 Small	0.28	0.73 (1.03)	1.78 (2.44)	1.58 (2.35)	1.68 (2.55)	2.52 (3.29)	1.79*** (5.09)	0.63 (0.90)	1.39 (1.99)	1.38 (2.00)	1.68 (2.47)	2.44 (3.07)	1.81*** (4.40)
P2	0.57	0.66 (1.13)	0.92 (1.49)	1.33 (2.12)	1.19 (1.89)	2.04 (3.25)	1.39*** (3.97)	0.60 (1.07)	0.86 (1.43)	1.25 (2.02)	1.14 (1.85)	1.99 (3.07)	1.38*** (3.92)
P3	0.77	0.61 (1.24)	0.97 (2.01)	1.12 (2.34)	1.31 (2.78)	1.27 (2.41)	0.67** (2.21)	0.57 (1.17)	1.01 (2.12)	1.12 (2.38)	1.30 (2.83)	1.28 (2.56)	0.72** (2.45)
P4	0.91	0.73 (1.88)	1.14 (2.86)	1.24 (3.07)	1.28 (3.39)	1.38 (3.25)	0.65** (2.57)	0.70 (1.82)	1.15 (2.95)	1.22 (3.08)	1.29 (3.42)	1.27 (3.09)	0.57** (2.39)
P5 Big	0.98	0.76 (2.33)	0.81 (2.68)	0.93 (3.07)	1.09 (3.55)	0.89 (2.74)	0.14 (0.62)	0.75 (2.43)	0.91 (3.08)	0.78 (2.78)	0.90 (2.99)	0.75 (2.25)	0.00 (0.01)

Both equal- and value-weighted 5 - 1 return spreads become statistically and economically significant among size quintiles 1 through 4. Not surprisingly, the partner-based trading strategy is more profitable among the smaller stocks, and there is a monotone decline in the long-short portfolio returns from the smallest to the largest stocks.

3.1 Empirical result: Alliances and Excess Returns

Alliance Partner-Based Strategy

Panel C. Monthly Rebalanced Holding-Period Returns over 5-Trading-Day Windows

Holding-Period Returns	All Deals					5 – 1
	1	2	3	4	5	
First 5-trading-day RET	0.20 (0.84)	0.39 (1.75)	0.39 (1.78)	0.42 (1.87)	0.49 (2.15)	0.29*** (3.22)
Second 5-trading-day RET	0.00 (0.01)	0.04 (0.21)	0.17 (0.90)	0.21 (1.16)	0.31 (1.52)	0.31*** (2.98)
Third 5-trading-day RET	-0.10 (-0.48)	0.04 (0.25)	0.00 (0.01)	0.07 (0.38)	0.15 (0.80)	0.25** (2.47)
Fourth 5-trading-day RET	0.43 (2.52)	0.37 (2.27)	0.42 (2.70)	0.33 (2.07)	0.37 (2.20)	-0.06 (-0.79)
Fifth 5-trading-day RET	0.65 (2.53)	0.73 (3.00)	0.66 (2.86)	0.76 (3.14)	0.83 (3.31)	0.19* (1.77)

We also examine returns over a higher frequency than the monthly results presented thus far.

Overall, the high-frequency results suggest that long-short portfolio returns are higher in the first 3 weeks after portfolio formation and become insignificant in the fourth week.

3.1 Empirical result: Alliances and Excess Returns

Panel A. Sample with Alliance Deals

Independent Variables	All Deals					
	1	2	3	4	5	6
Intercept	0.462*** (4.36)	1.754*** (4.34)	1.747*** (4.29)	1.700*** (4.28)	1.771*** (4.38)	1.809*** (4.47)
EWP_RET_{t-1}	1.692*** (3.75)	1.996*** (4.91)	1.991*** (4.94)	2.040*** (4.98)		
EWP_RET_{t-2}				0.863** (2.09)		
EWP_RET_{t-3}				0.244 (0.68)		
VWP_RET_{t-1}					1.636*** (4.20)	
$EWP_RET_{(t-6,t-1)}$						0.535*** (3.12)
$\ln(ME)$		-0.208*** (-4.55)	-0.206*** (-4.48)	-0.206*** (-4.51)	-0.207*** (-4.55)	-0.209*** (-4.57)
$\ln(BE/ME)$		0.011 (0.10)	0.020 (0.18)	0.020 (0.19)	0.008 (0.08)	0.013 (0.12)

The coefficient estimate for EWP_RET_{t-1} is positive and significant either when used alone in model 1 or with other controls in model 2.

A coefficient of 1.996 in model 2 implies that a 1 -standard-deviation increase in EWP_RET_{t-1} would increase the firm's risk-adjusted monthly return on average by 0.26%.

3.1 Empirical result: Alliances and Excess Returns

Fama–MacBeth Regressions

Panel B. Bad versus Good News of Partners

Independent Variables	All Deals		
	1	2	3
Intercept	1.657*** (4.08)	2.002*** (4.75)	1.823*** (4.35)
$EWP_RET_{t-1}(+)$	2.324*** (3.31)		1.832** (2.46)
$EWP_RET_{t-1}(-)$		3.673*** (3.77)	2.600*** (2.61)
$\ln(ME)$	-0.203*** (-4.44)	-0.219*** (-4.71)	-0.211*** (-4.56)
$\ln(BE/ME)$	0.012 (0.11)	0.001 (0.01)	0.005 (0.05)

We now investigate whether return predictability from the partner-based strategy is driven by the slow diffusion of the partner's bad news or good news.

By design, $EWP_{RET_{t-1}}(+)$ captures the partner's good news, and $EWP_{RET_{t-1}}(-)$ captures bad news.

Thus, the better (worse) the partners' good (bad) news, the higher (lower) the stock returns.

3.1 Empirical result: Alliances and Excess Returns

We now examine the effect of industry affiliation on partner-based trading-strategy returns.

The 5 - 1 raw returns and the HXZ-4 alpha are both less than half when the firm and its partners are from different industries than when they are from the same industry.

This does suggest that firms have a stronger connection with partners from the same industry.

3.2 Empirical result: Limited attention and return predictability

One explanation is that investors pay limited attention to announcements of strategic alliances.

Our proxy is based on a measure of daily news intensity of strategic alliance announcements.

We first count the total number of alliance announcements on day t , using all alliance announcements. We then scale the daily number of alliance events by the previous calendar year's daily average to give us a measure of daily news intensity.

3.2 Empirical result: Limited attention and return predictability

Panel A. Average Cumulative Abnormal Returns (%) around Deal Announcements

	<u>CAR(-1, 1)</u>	<u>CAR(-2, 2)</u>	<u>CAR(-3, 3)</u>
Deals on low-alliance-news-intensity days (less distraction and more attention)	1.62*** (10.42)	1.80*** (12.57)	1.82*** (13.30)
Deals on high-alliance-news-intensity days (more distraction and less attention)	1.21*** (6.90)	1.19*** (9.16)	1.00*** (11.01)
High – Low	-0.41** (-2.51)	-0.61*** (-3.16)	-0.82*** (-3.62)

Table 6 reports the average cumulative abnormal returns (CARs) for the alliance partners around the announcement day. The CARs are higher (lower) on low- (high-) news-intensity days. CAR(- 1, 1) is 1.21% on high-intensity days, whereas it is 1.62% on low-intensity days. Investors are indeed distracted on high-news-intensity day.

3.2 Empirical result: Limited attention and return predictability

Recall that the 5 - 1 long-short portfolio return is 89 basis points per month.

This long-short portfolio return declines monotonically to 70 basis points if 3 years after the alliance announcement are omitted.

Omitting 5 years leads to a further decline, to 45 basis points per month.

If we assume that the nature of the economic link between alliance partners does not change over time, this decline in the profitability is consistent with investors learning about the alliance relationship over time.

3.2 Empirical result: Limits to arbitrage and return predictability

	<u>Idiosyncratic Volatility</u>	<u>Illiquidity</u>	<u>Institutional Ownership</u>	<u>Stock Price</u>	<u>Analyst Coverage</u>
<i>Panel A. Equal-Weighted (5 – 1) Spread (%) Sorted on Partners' Last-Month Return: All Stocks</i>					
G1 Low	0.36** (2.35)	0.33 (1.34)	1.29*** (4.07)	1.42*** (4.42)	1.02*** (3.95)
G2	0.73*** (3.27)	0.85*** (3.12)	0.78*** (3.24)	0.73*** (2.83)	0.97*** (3.90)
G3 High	1.37*** (4.40)	1.48*** (5.29)	0.43** (2.23)	0.50** (2.12)	0.31 (1.21)
G3 – G1	1.00*** (3.31)	1.15*** (3.54)	–0.86*** (–2.73)	–0.93*** (–2.61)	–0.70** (–2.19)

If partner-based strategy returns reflect some type of mispricing, we should expect that these returns are more pronounced among stocks that are more difficult to arbitrage.

4. Conclusion

1. Lagged returns of strategic alliance partners affect returns of the firm in the alliance. A long-short portfolio formed by sorting on the partners' lagged average return yields 89 basis points per month.
2. Investor inattention may be the source of a firm's underreaction to its partners' returns.
3. Proxies for limits of arbitrage also strongly affect partner-based trading-strategy returns.

4. Comment & Inspiration

1. 战略联盟对于公司价值的影响已经被证实，公司宣布战略合作当天股价会有积极的相应，长期会对公司的绩效产生正的影响，但是不同行业、不同的合作伙伴类型会有不完全一致的作用。关于合作联盟伙伴与股票收益之间的研究，中文还没有看到。