

Global Market Inefficiencies

Söhnke M. Bartram, Mark Grinblatt
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王健

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1. Introduction

Background & Motivation

- Neoclassical finance contends that competition among arbitrageurs eliminates profitable trading opportunities based on public information.
- In a semi-strong form efficient market, investors cannot earn alpha by trading on public information about mispricing.
- Bartram and Grinblatt (2018) find a brand new mispricing signal that can lead to risk-adjusted profits so that we can use this signal to test market efficiency.

1. Introduction

Question

- Is the mispricing signal profitable internationally?

Yes

- What is the key driver for the significant return based on mispricing signal?

Transaction costs

- Is the mispricing signal profitable after transaction costs?

Yes

1. Introduction

Research contents

- We improve the robustness of the Bartram and Grinblatt (2018) findings.
- We study cross-country heterogeneity in the risk-adjusted returns and its determinants.
- We study whether the strategy earns risk-adjusted profits after transaction costs

1. Introduction

Related researches

- Bartram and Grinblatt (2018): estimate fair values by restricting replicating portfolio weights to be best-fit functions of the most commonly reported accounting items.

1. Introduction

Contribution

- Our findings speak to the robustness of the Bartram and Grinblatt (2018) findings.
- We study cross-country heterogeneity and identify country-specific attributes that account for differences in the strategy's profitability (an interesting phenomenon)
- Our paper also adds to the literature on the determinants of cross-sectional expected returns more generally.

1. Introduction

Eliminate firm-level characteristics

Cross-section
geography and country-level effects

1. cross-country
heterogeneity in risk-
adjusted returns based on
mispricing signal

2. Sources of alpha
heterogeneity across the
globe

4. Turnover and risk-
adjusted profits net of
transaction costs

3. Mispricing versus
risk premium

What is the key driver for the
significant return based on
mispricing signal?

Time-series
80/50 factors and other 22 anomalies
effects, and IPCA-predicted return.

2.Data

- **Data:** stock pool
- **Resources:** Thomson Reuters Datastream and Worldscope PIT
- **Sample time interval:** April 1993 to September 2016
- **Frequencies** : monthly
- **Details:** including stock selection and small amount of filtering and winsorization in returns
- we often report US and Japanese equity separately because of their relative sizes.

2.Data

- **Data:** signal variables and other firm-level variables including factors, Z-score and so on.
- **Resources:** Thomson Reuters' Worldscope Point-in-Time (PIT) database and some literatures
- **Frequencies :** annually (not quarterly)
- **Details:** 21(not 28)items—11 from the balance sheet, 9 from the income statement, and 1 from the cash flow statement

Mispricing signal:

$$\text{Mispricing signal} = -1 \times \frac{\text{residual}}{\text{market capitalization}}$$

2.Data

- **Data:** transaction costs, common law and other country-level variables:
- **Resources :** Elkins McSherry LLC, World Bank Financial Development Database, PRS Group, Central Intelligence Agency (CIA) Factbook and so on.
- **Frequencies :** annually

3.1 Empirical results

- Raw return spreads

	Signal quintiles					Q5-Q1 (undervalued - overvalued)			
	Q1 (overvalued) (5)	Q2 (6)	Q3 (7)	Q4 (8)	Q5 (undervalued) (9)	Fraction > 0 (10)	[p-value] (11)	Average (12)	[t-statistic] (13)
<i>Panel A: Equal-weighted</i>									
World	0.63	0.70	0.81	0.95	1.16	62.1	[0.00]	0.53	[4.44]
World (excl. US)	0.57	0.60	0.69	0.85	1.17	64.2	[0.00]	0.60	[5.95]
Developed	0.65	0.71	0.82	0.92	1.07	57.4	[0.01]	0.42	[3.34]
Developed (excl. US)	0.57	0.60	0.68	0.79	1.04	57.8	[0.01]	0.47	[4.18]
Emerging	0.81	0.79	0.97	1.27	2.04	68.4	[0.00]	1.23	[6.30]
Americas	0.82	0.89	0.99	1.10	1.14	52.8	[0.34]	0.32	[1.87]
Europe	0.92	0.89	0.91	0.94	1.00	50.0	[1.00]	0.08	[0.80]
Asia-Pacific	0.19	0.29	0.45	0.74	1.28	67.4	[0.00]	1.09	[6.54]
United States	0.82	0.88	1.00	1.09	1.08	50.0	[1.00]	0.26	[1.46]
Japan	0.19	0.23	0.40	0.62	1.15	64.2	[0.00]	0.96	[4.89]
<i>Panel B: Value-weighted</i>									
World	0.65	0.77	0.78	0.85	0.96	54.3	[0.15]	0.31	[1.40]
World (excl. US)	0.46	0.68	0.65	0.73	0.95	57.8	[0.01]	0.49	[2.21]
Developed	0.68	0.78	0.81	0.90	0.91	52.1	[0.47]	0.23	[1.08]
Developed (excl. US)	0.50	0.70	0.69	0.78	0.91	55.3	[0.07]	0.40	[1.86]
Emerging	0.33	0.63	0.90	1.00	1.57	61.7	[0.00]	1.24	[3.76]
Americas	0.82	0.83	0.95	1.12	1.03	52.1	[0.47]	0.20	[0.93]
Europe	0.79	0.82	0.77	0.91	1.10	57.4	[0.01]	0.31	[1.66]
Asia-Pacific	0.05	0.42	0.53	0.69	1.07	60.3	[0.00]	1.03	[3.38]
United States	0.80	0.82	0.99	1.15	1.03	52.8	[0.34]	0.23	[0.97]
Japan	0.13	0.44	0.52	0.67	0.96	61.3	[0.00]	0.84	[3.44]

3.1 Empirical results

- We then use Fama MacBeth test to address whether omitted variables tied to the cross-section of average returns explain raw return differences.

$$R_{j,t+1} = a_t + b_t M_{j,t} + \sum_{s=1}^S c_{j,s,t} X_{j,s,t} + e_{j,t+1}$$

- where $R_{j,t+1}$ is the return of stock j in month $t+1$; $M_{j,t}$ is the value of j 's mispricing signal at the end of month t ; $X_{j,s,t}$ is value of control variable s of stock j at the end of month t .

- Fama-MacBeth regressions on firm-level characteristic

	Specification 1		Specification 2	
	Coefficient	[t-statistic]	Coefficient	[t-statistic]
<i>Panel A: Global sample</i>				
Mispricing signal (Q5)	0.43	[6.55]	0.29	[4.47]
Beta (Q5)	-0.01	[-0.05]	0.03	[0.18]
Market capitalization (Q5)	0.06	[0.47]	0.06	[0.47]
Book/market (Q5)	0.29	[3.23]	0.39	[4.90]
Short-term reversal (Q5)	-1.06	[-8.54]	-1.09	[-8.81]
Momentum (Q5)	0.62	[3.96]	0.65	[4.30]
Long-term reversal (Q5)	-0.19	[-2.19]	-0.23	[-2.73]
Accruals Q5			-0.27	[-5.35]
SUE (Q5)			-0.08	[-1.37]
Gross profitability (Q5)			0.51	[8.11]
Earnings yield (Q5)			0.37	[4.33]
Intercept	0.86	[1.96]	0.59	[1.31]
Number of observations	3,445		3,445	
Adj. R-squared	0.15		0.15	
Country controls	Yes		Yes	
Industry controls	Yes		Yes	
<i>Panel B: Results by region</i>				
World	0.43	[6.55]	0.29	[4.47]
World (excl. US)	0.49	[6.45]	0.35	[4.58]
Developed	0.37	[5.09]	0.22	[3.14]
Developed (excl. US)	0.41	[4.96]	0.26	[3.13]
Emerging	0.83	[3.02]	0.63	[2.21]
Americas	0.27	[2.36]	0.12	[1.02]
Europe	0.08	[1.01]	-0.03	[-0.35]
Asia Pacific	0.82	[6.57]	0.60	[4.53]
United States	0.24	[1.84]	0.10	[0.77]
Japan	0.78	[5.51]	0.54	[3.78]

3.2 Empirical results

- Now, we want to figure out the sources of alpha heterogeneity across the globe.
- The correlation between economic and geographic region complicates assessments of whether emerging markets are less efficient than developed markets, *ceteris paribus*.
- Therefore, we need to isolate the impact of geography and development.

- Emerging versus developed markets

Regressions with country fixed effects				
	Specification 1		Specification 2	
	Coefficient	[t-statistic]	Coefficient	[t-statistic]
<i>Mispricing signal (Q5)</i>	0.29	[2.68]	0.13	[1.22]
<i>Mispricing signal (Q5) * Emerging</i>	0.61	[2.17]	0.65	[2.35]
<i>Mispricing signal (Q5) * Asia-Pacific</i>	0.48	[2.52]	0.47	[2.52]
<i>Mispricing signal (Q5) * Europe</i>	−0.30	[−2.24]	−0.23	[−1.75]
<i>Mispricing signal (Q5) * Africa</i>	−0.32	[−0.74]	−0.30	[−0.69]
Number of observations	3,445		3,445	
Adj. R-squared	0.15		0.16	
Firm characteristic controls	Yes		Yes	
Country controls	Yes		Yes	
Development control	No		No	
Geographic region controls	No		No	
Industry controls	Yes		Yes	

Regressions with geographic region and development controls				
	Specification 1		Specification 2	
	Coefficient	[t-statistic]	Coefficient	[t-statistic]
<i>Mispricing signal (Q5)</i>	0.25	[2.27]	0.08	[0.78]
<i>Mispricing signal (Q5) * Emerging</i>	0.62	[2.20]	0.66	[2.38]
<i>Mispricing signal (Q5) * Asia-Pacific</i>	0.50	[2.65]	0.50	[2.68]
<i>Mispricing signal (Q5) * Europe</i>	−0.26	[−1.96]	−0.19	[−1.45]
<i>Mispricing signal (Q5) * Africa</i>	−0.34	[−0.79]	−0.32	[−0.74]
Number of observations	3,445		3,445	
Adj. R-squared	0.12		0.12	
Firm characteristic controls	Yes		Yes	
Country controls	No		No	
Development control	Yes		Yes	
Geographic region controls	Yes		Yes	
Industry controls	Yes		Yes	

3.2 Empirical results

- Up to now, we isolate the firm-level effect and geography fixed effect. However, the significant alpha still exists in emerging market.
- If profits to trading strategies based on mispricing measure inefficiency, then profit variation across countries should reflect frictions that impede the forces that tie a stock's price to its fair value

- Fama-MacBeth regressions on country-level characteristic

	Specification 1		Specification 2	
	Coefficient	[t-statistic]	Coefficient	[t-statistic]
<i>Mispricing signal (Q5)</i>	0.04	[0.29]	1.45	[0.54]
Trading costs				
<i>Mispricing signal (Q5) * Transaction costs</i>	0.75	[2.13]	1.43	[1.87]
Regulatory				
<i>Mispricing signal (Q5) * Short sales dummy</i>			0.00	[0.00]
<i>Mispricing signal (Q5) * Common law</i>			-0.94	[-2.21]
Economic & financial development				
<i>Mispricing signal (Q5) * Deposit banks' assets/GDP</i>			-0.01	[-1.19]
<i>Mispricing signal (Q5) * Private credit by deposit money banks/GDP</i>			0.01	[0.81]
<i>Mispricing signal (Q5) * Stock market turnover ratio</i>			0.00	[0.14]
<i>Mispricing signal (Q5) * Country risk (inverse index)</i>			0.01	[0.38]
<i>Mispricing signal (Q5) * Geographical size (log)</i>			0.05	[0.61]
Informational environment				
<i>Mispricing signal (Q5) * Analyst coverage</i>			-0.01	[-0.73]
Characteristics of equity market				
<i>Mispricing signal (Q5) * Market volatility</i>			-8.11	[-2.53]
<i>Mispricing signal (Q5) * Correlation with world market</i>			-1.76	[-1.29]
<i>Mispricing signal (Q5) * Number of listed companies (log)</i>			0.15	[1.09]
Intercept	0.49	[1.10]	-0.23	[-0.24]
Number of observations	3,440		3,440	
Adj. R-squared	0.15		0.16	
Firm characteristic controls	Yes		Yes	
Country controls	Yes		Yes	
Industry controls	Yes		Yes	

3.3 Empirical results

- We estimate factor model alphas of quintile portfolios of firms constructed from the mispricing signal.

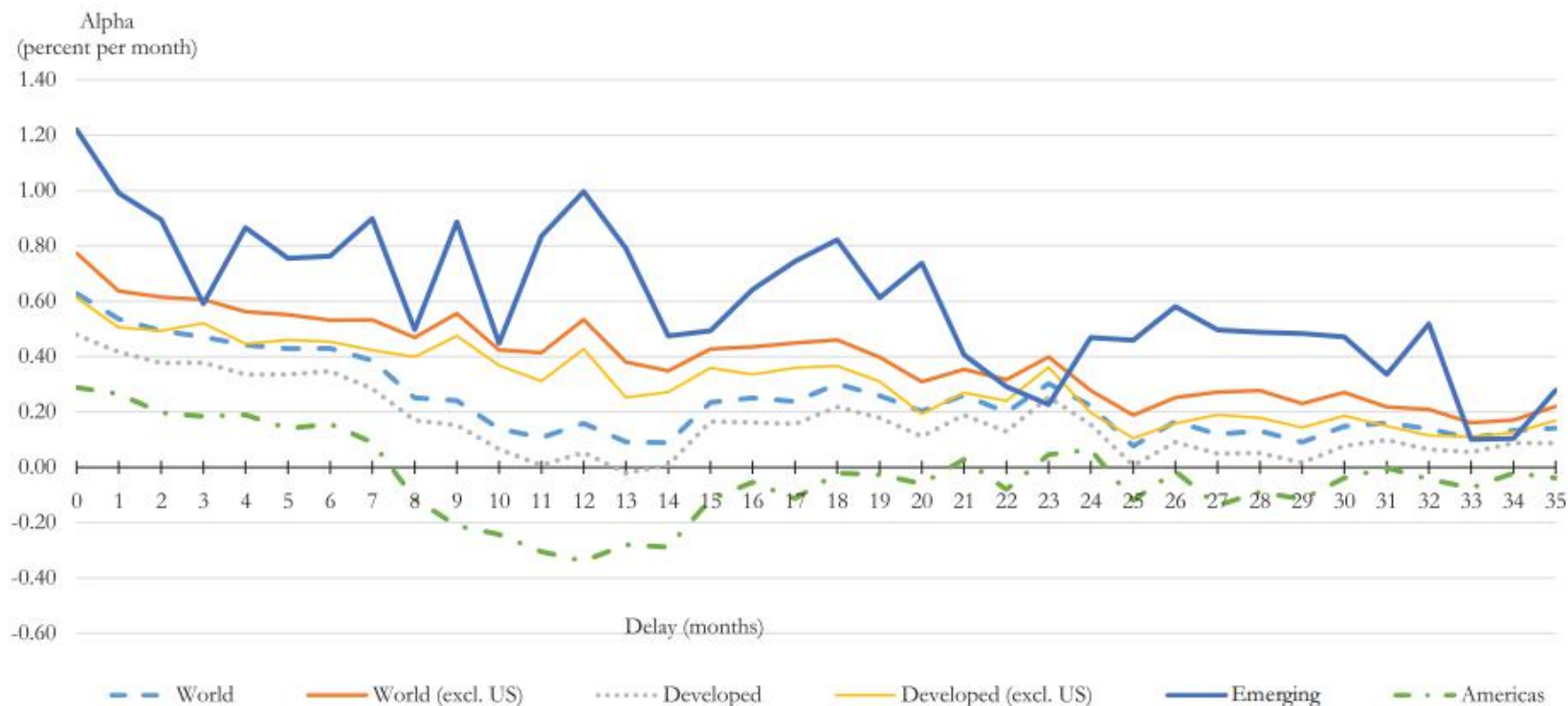
$$r_{q,t+1} = a_q + \sum_l^L \beta_{q,l} F_{l,t+1} + \epsilon_{q,t+1}$$

- $r_{q,t+1}$ is the USD industry-adjusted month t+1 return on portfolio q; $F_{l,t+1}$ is excess return of the l^{th} factor portfolio; quintile q's alpha is the intercept in the time-series regression.

- Time-series factor model regressions

	Q5-Q1			Q5-Q1	
	Coefficient	[t-statistic]		Coefficient	[t-statistic]
<i>Panel A: Equal-weighted portfolios</i>			<i>Panel B: Value-weighted portfolios</i>		
<i>Industry-adjusted returns</i>			<i>Industry-adjusted returns</i>		
World	0.55	[5.51]	World	0.35	[1.78]
World (excl. US)	0.61	[6.89]	World (excl. US)	0.51	[2.62]
Developed	0.45	[4.20]	Developed	0.28	[1.47]
Developed (excl. US)	0.49	[4.91]	Developed (excl. US)	0.44	[2.33]
Emerging	1.16	[5.95]	Emerging	1.14	[3.52]
Americas	0.35	[2.41]	Americas	0.23	[1.13]
Europe	0.09	[1.01]	Europe	0.35	[2.33]
Asia-Pacific	1.10	[7.11]	Asia-Pacific	1.05	[3.71]
United States	0.29	[1.89]	United States	0.25	[1.13]
Japan	0.97	[5.32]	Japan	0.87	[3.90]
<i>Factor model alphas (80 factors)</i>			<i>Factor model alphas (80 factors)</i>		
World	0.59	[5.99]	World	0.29	[1.67]
World (excl. US)	0.73	[6.96]	World (excl. US)	0.44	[2.35]
Developed	0.48	[4.65]	Developed	0.14	[0.82]
Developed (excl. US)	0.63	[5.38]	Developed (excl. US)	0.29	[1.56]
Emerging	0.97	[3.82]	Emerging	0.98	[2.55]
Americas	0.27	[1.99]	Americas	0.01	[0.07]
Europe	0.23	[2.29]	Europe	0.32	[1.98]
Asia-Pacific	1.15	[6.21]	Asia-Pacific	1.29	[4.73]
United States	0.18	[1.27]	United States	0.02	[0.11]
Japan	1.07	[4.78]	Japan	0.93	[3.90]
<i>Factor model alphas (Fama-French data library, 50 factors)</i>			<i>Factor model alphas (Fama-French data library, 50 factors)</i>		
World	0.70	[6.73]	World	0.60	[3.21]
World (excl. US)	0.80	[7.42]	World (excl. US)	0.52	[2.27]
Developed	0.65	[5.87]	Developed	0.51	[2.90]
Developed (excl. US)	0.76	[6.34]	Developed (excl. US)	0.40	[1.84]
Emerging	0.92	[3.45]	Emerging	1.15	[2.57]
Americas	0.46	[3.09]	Americas	0.42	[2.21]
Europe	0.25	[2.35]	Europe	0.25	[1.39]
Asia-Pacific	1.29	[6.63]	Asia-Pacific	1.34	[3.81]
United States	0.41	[2.55]	United States	0.45	[2.18]
Japan	1.30	[5.56]	Japan	1.13	[4.21]

- Lagged signals



The slower decay is consistent with non-US equity markets, especially emerging markets, being less efficient than US markets.

- Mispricing strategies within quintiles of other anomalies

	Q1		Q2		Q3		Q4		Q5	
	Coefficient	[t-statistic]	Coefficient	[t-statistic]	Coefficient	[t-statistic]	Coefficient	[t-statistic]	Coefficient	[t-statistic]
<i>Panel A: 80-factor model alphas</i>										
<i>Beta</i>	0.59	[4.58]	0.51	[4.51]	0.45	[4.41]	0.36	[2.84]	0.59	[3.16]
<i>Book/market</i>	0.36	[2.12]	0.23	[1.87]	0.34	[2.68]	0.58	[5.05]	0.66	[4.99]
<i>Market capitalization</i>	0.69	[6.11]	0.48	[4.48]	0.36	[3.08]	0.22	[1.63]	0.27	[2.58]
<i>Short-term reversal</i>	0.89	[5.67]	0.42	[3.47]	0.52	[4.41]	0.48	[3.95]	0.33	[1.95]
<i>Momentum</i>	0.63	[3.73]	0.43	[3.88]	0.65	[5.99]	0.59	[5.12]	0.85	[5.41]
<i>Long-term reversal</i>	0.74	[4.66]	0.67	[5.44]	0.58	[5.31]	0.35	[3.08]	0.46	[3.13]
<i>Accruals</i>	0.90	[6.23]	0.73	[6.25]	0.40	[3.84]	0.66	[5.25]	0.32	[2.05]
<i>SUE</i>	0.47	[2.80]	0.56	[3.91]	0.42	[3.06]	0.41	[3.17]	0.72	[4.25]
<i>Gross profitability</i>	0.59	[4.13]	0.69	[5.95]	0.65	[4.94]	0.61	[4.80]	0.30	[1.91]
<i>ROA</i>	0.76	[4.38]	0.70	[5.58]	0.63	[5.54]	0.61	[5.38]	0.34	[2.33]
<i>Scaled NOA</i>	0.59	[3.34]	0.70	[5.48]	0.69	[6.13]	0.47	[4.48]	0.45	[3.42]
<i>Share issuance</i>	0.46	[3.50]	0.69	[5.32]	0.67	[4.56]	0.14	[0.94]	0.49	[2.67]
<i>Composite equity issuance</i>	0.58	[3.63]	0.70	[6.33]	0.50	[4.41]	0.32	[2.88]	0.26	[1.89]
<i>Asset growth</i>	0.60	[4.21]	0.64	[5.38]	0.80	[7.02]	0.50	[3.97]	0.30	[1.95]
<i>Capital investment</i>	0.68	[4.79]	0.51	[4.21]	0.59	[4.64]	0.72	[5.76]	0.33	[2.66]
<i>Investment ratio</i>	0.84	[6.58]	0.70	[5.58]	0.48	[3.57]	0.49	[3.76]	0.37	[2.76]
<i>External financing</i>	0.53	[5.07]	0.48	[4.51]	0.96	[6.66]	0.53	[3.50]	0.33	[2.19]
<i>Z-score</i>	0.39	[2.79]	0.41	[3.75]	0.47	[3.99]	0.86	[6.30]	0.71	[4.51]
<i>Leverage</i>	0.72	[3.55]	0.44	[3.19]	0.51	[4.60]	0.58	[5.20]	0.64	[4.81]
<i>Earnings/price</i>	0.61	[3.47]	0.57	[3.75]	0.25	[2.08]	0.42	[4.15]	0.61	[5.05]
<i>Dividends/price</i>	0.37	[2.24]	0.77	[5.27]	0.66	[5.69]	0.57	[5.49]	0.35	[3.52]
<i>Cash flow/price</i>	0.73	[3.59]	0.28	[2.02]	0.41	[3.61]	0.39	[3.84]	0.58	[4.45]

The 22 other anomalies are unlikely to explain the alphas generated by our mispricing signal

3.3 Empirical results

- We employ IPCA method to further address whether we have controlled for the risk.

$$\begin{aligned}x_{i,t} &= \beta_{i,t}^T f_t + \mu_{i,t} \\ \beta_{i,t}^T &= c_{i,t} \Gamma + \eta_{i,t}\end{aligned}$$

- Where $x_{i,t}$ is scalar panel data; f_t and $\beta_{i,t}^T$ are K factors and factor loading; $\mu_{i,t}$ is the idiosyncratic error.
- The second equation links information from L-vector of instrumental variables $c_{i,t}$ to dynamic factor loading $\beta_{i,t}^T$
- The key restriction in this model is that the mapping instruments to loadings, parameterized by the $L \times K$ matrix Γ , applies universally across i and t .

3.3 Empirical results

- IPCA model design
- Factors: 5
- instrumental variables: 12
- Process: iterate between two projections:
 - 1) Using returns and characteristics for all stocks with data, the first projection regresses returns on factor betas each month to obtain factor realizations in the month.
 - 2) The second projection, using the full panel, estimates a time invariant matrix mapping from a set of time-varying instruments to obtain a time series of factor beta vectors.

$$x_{i,t} = \beta_{i,t}^T f_t + \mu_{i,t}$$
$$\beta_{i,t}^T = c_{i,t} \Gamma + \eta_{i,t}$$

- Fama-MacBeth regressions with IPCA expected returns

	Unconstrained model		Constrained model	
	Coefficient	[t-statistic]	Coefficient	[t-statistic]
<i>Panel A: Global sample</i>				
Mispricing signal (Q5)	0.41	[4.95]	0.21	[2.22]
Mispricing signal (Q4)	0.25	[3.67]	0.11	[1.31]
Mispricing signal (Q3)	0.11	[1.92]	0.13	[1.71]
Mispricing signal (Q2)	0.04	[0.81]	-0.02	[-0.29]
IPCA model expected return	0.22	[10.36]		
Intercept	0.77	[2.03]	0.86	[1.19]
Number of observations	3,445		3,445	
Adj. R-squared	0.13		0.05	
Country controls	Yes		Yes	
Industry controls	Yes		Yes	
<i>Panel B: Results by region</i>				
World	0.41	[4.95]	0.21	[2.22]
World (excl. US)	0.48	[5.48]	0.25	[2.61]
Developed	0.34	[4.13]	0.11	[1.10]
Developed (excl. US)	0.41	[4.33]	0.48	[4.35]
Emerging	0.85	[3.67]	0.51	[2.10]
Americas	0.21	[2.05]	0.01	[0.09]
Europe	0.09	[1.10]	0.15	[1.12]
Asia-Pacific	0.90	[7.95]	0.42	[3.00]
United States	0.17	[1.53]	-0.03	[-0.25]
Japan	0.67	[5.26]	0.29	[2.14]

The lessons from Table 3 are unchanged with the expected return controls from the five-factor IPCA model, even though we additionally control for the factor risk premiums implicit in the mispricing signal.

3.4 Empirical results

- The third and final key issue we investigate is whether transaction costs negate trading profits from mispricing
- We build a buy-and-hold portfolio compared with former long-short portfolio rebalancing monthly.

- Overlapping buy-and-hold investment strategies

Q5-Q1			Q5-Q1	
	Coefficient	[t-statistic]	Coefficient	[t-statistic]
<i>Industry-adjusted returns</i>			<i>Panel A: Equal-weighted portfolios</i>	
World	0.42	[4.92]	World	0.55 [5.51]
World (excl. US)	0.49	[5.90]	World (excl. US)	0.61 [6.89]
Developed	0.35	[3.85]	Developed	0.45 [4.20]
Developed (excl. US)	0.42	[4.61]	Developed (excl. US)	0.49 [4.91]
Emerging	0.71	[4.39]	Emerging	1.16 [5.95]
Americas	0.22	[1.81]	Americas	0.35 [2.41]
Europe	0.10	[1.12]	Europe	0.09 [1.01]
Asia-Pacific	0.82	[6.38]	Asia-Pacific	1.10 [7.11]
United States	0.16	[1.24]	United States	0.29 [1.89]
Japan	0.77	[5.17]	Japan	0.97 [5.32]
<i>Factor model alphas (80 factors)</i>			<i>Factor model alphas (80 factors)</i>	
World	0.42	[5.18]	World	0.59 [5.99]
World (excl. US)	0.51	[5.50]	World (excl. US)	0.73 [6.96]
Developed	0.33	[3.86]	Developed	0.48 [4.65]
Developed (excl. US)	0.41	[4.08]	Developed (excl. US)	0.63 [5.38]
Emerging	0.87	[4.47]	Emerging	0.97 [3.82]
Americas	0.19	[1.70]	Americas	0.27 [1.99]
Europe	0.22	[2.41]	Europe	0.23 [2.29]
Asia-Pacific	0.74	[4.52]	Asia-Pacific	1.15 [6.21]
United States	0.11	[0.89]	United States	0.18 [1.27]
Japan	0.60	[3.17]	Japan	1.07 [4.78]

Alpha spreads from the buy-and-hold strategy remain significant if they were previously significant with Table 6's monthly rebalancing strategy

- Turnover and transaction costs

	Q5-Q1				
	Alpha	One-way turnover	Transaction costs	Net performance	[t-statistic]
<i>Monthly rebalancing</i>					
World	0.59	29%	0.19	0.40	[4.11]
World (excl. US)	0.73	30%	0.22	0.51	[4.86]
Developed	0.48	28%	0.16	0.32	[3.14]
Developed (excl. US)	0.63	29%	0.19	0.45	[3.83]
Emerging	0.97	36%	0.53	0.44	[1.63]
Americas	0.27	26%	0.14	0.13	[1.01]
Europe	0.23	32%	0.23	0.00	[0.04]
Asia-Pacific	1.15	29%	0.22	0.94	[5.02]
United States	0.18	26%	0.13	0.05	[0.41]
Japan	1.07	28%	0.15	0.92	[4.12]
<i>Buy-and-hold</i>					
World	0.42	6%	0.04	0.38	[4.72]
World (excl. US)	0.51	6%	0.05	0.47	[5.04]
Developed	0.33	6%	0.03	0.29	[3.48]
Developed (excl. US)	0.41	6%	0.04	0.37	[3.73]
Emerging	0.87	7%	0.10	0.77	[3.99]
Americas	0.19	6%	0.03	0.16	[1.44]
Europe	0.22	6%	0.05	0.17	[1.94]
Asia-Pacific	0.74	6%	0.05	0.70	[4.26]
United States	0.11	5%	0.03	0.08	[0.67]
Japan	0.60	6%	0.03	0.57	[3.01]

4. Conclusion

- The returns based on mispricing signal, even when risk adjusted, are significantly larger in emerging than developed markets.
- The signal's profitability is more likely to reflect the relative efficacy than other explanations.
- In a hypothetical country with zero trading costs, the mispricing signal predicts no significant alpha.
- We do not know whether our discovery represents one more anomaly.