Are Foreign Investors Informed? Trading Experiences of Foreign Investors in China

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China: Huge market ... increasingly accessible, but under-owned?

How big is it?

China is #2 by market cap but still short of its GDP. Too big to ignore, yet overlooked and under-researched.

Where is the market?

China Onshore (Shanghai & Shenzhen: A/B) vs. Hong Kong (H/Red-chips/P-chips) vs. Overseas (U.S.).

Who trades in the market?

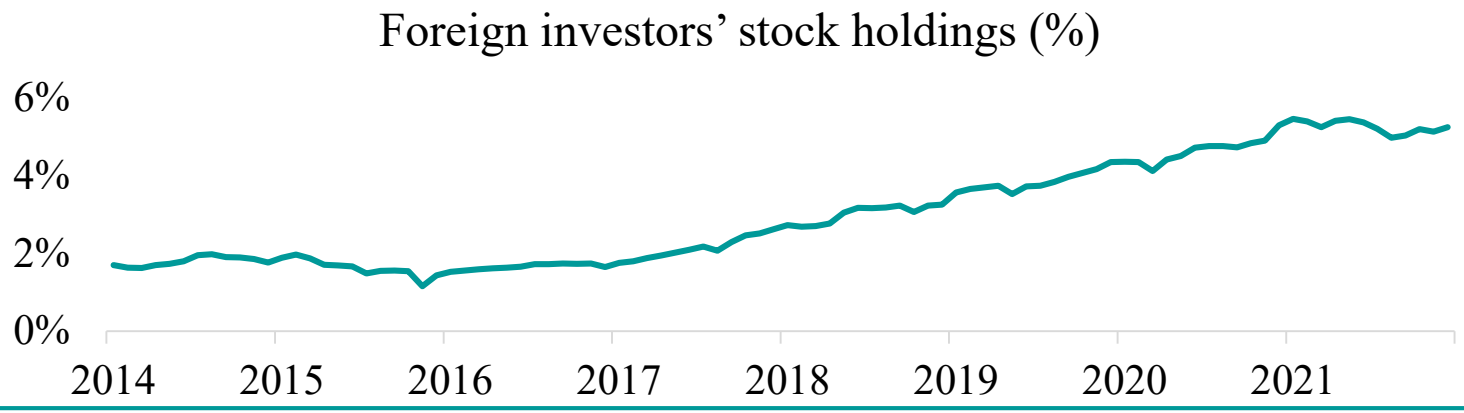
Shanghai A remains retail dominated, very different from Hong Kong.

Is it open to foreign investors?

Significant liberalization efforts, plus MSCI revisions of China's weight.

Why Foreign Investors in China?

- Foreign capital plays a significant and positive role in equity markets
  - Cost of capital, new investment, and growth (Bekaert, Harvey, and Lundblad (2005),…)
  - Promotes corporate governance (Aggarwal et al., 2011),
  - Expedites global information transmission (Bae et al., 2012)
  - Improves price efficiency (Kacperczyk, Sundaresan and Wang, 2021).
- Over the past 20 years, regulators from China consistently invited foreign investors to enter the Chinese stock market



QFII, RQFII and HKC

	QFII	RQFII	HKC
Time	2002	2011	2014
Investor	Institutional investors with requirements on the scale of asset and operation periods.	Institutional Investors	Both retail and institutional investors.
Investment Scope	1. All A-share stocks 2. Fixed income securities and others	1. All A-share stocks 2. Fixed income securities and others	1.Constituent stocks of the SSE 180 Index and SSE 380 Index. 2.AH dual-listed stocks
Investment Quota	1. Basic quota for a single QFII 2. Aggregated quota ($300 billion)	1. Basic quota for a single RQFII 2. Aggregated quota (RMB 500 billion for Hong Kong)	1. RMB 300 billion aggregate quota (abolished in Aug, 2016) 2. RMB 52 billion daily quota
Capital Control	3-month lockdown period and 20% capital repatriation limitation	3-month lockdown period	Not required

QFII, RQFII and HKC

- QFII: Generally international institutions
  - Barclays Bank, Goldman Sachs International
- RQFII: subsidiaries of overseas and mainland institutions
  - Huaxia Fund Management HK, BlackRock Asset Mgmt North Asia
- HKC: retail (less than 5%) and institutions (e.g., JP Morgan China A-share funds)

- Capital restrictions
  - QFII/RQFII: 3-month lock-up period and capital repatriation

- Accessible stocks
  - All A-share stocks for QFII/RQFII, a subset for HKC

Our Research Question

- Are foreign investors informed in the Chinese stock market?
- We obtain proprietary data from the Shanghai Stock Exchange
  - Does foreign investors' trading activity predict future local stock returns?
  - If so, what sorts of information are they able to process?
    - Firm-level vs. Market-level
    - Local vs. Global
  - How do liberalization efforts affect these patterns?

Previous Literature

- Whether foreign investors face informational disadvantages in local equity market: mixed results
  - Kang and Stulz (1997), Grinblatt and Keloharju (2000), Choe, Kho and Stulz (2005), Dvořák (2005), Froot and Ramadorai (2008), Ferreira et al. (2017).
- How foreign investors behave in the Chinese stock market
  - Chan, Menkveld and Yang (2008), Huang and Zhu (2015), Jia, Wang and Xiong (2017), Chen, Wang and Zhu (2019), Bian et al. (2020), Yoon (2021) and Ma, Rogers and Zhou (2021).
- Institutional investors' informational advantages
  - Irvine, Lipson and Puckett (2007), Campbell, Ramadorai and Schwartz (2009), Hendershott, Livdan, and Schürhoff (2015), Huang, Tan and Wermers (2020).

Contribution

- Relying on detailed proprietary trading data, we are one of the first studies to provide comprehensive evidence on the trading behavior of foreign investors (QFII, RQFII and HKC).

- We provide an in-depth analysis of whether and how foreign investors' order flows are related to many layers of public information, firm or market and local or global.

  Early studies, mostly using quarterly institutional ownership data, are unable to provide direct evidence on how these investors anticipate and process information

- We provide evidence that regulatory changes, which facilitate foreign investors' access, improve their predictive power on local stock returns.

Data

- Proprietary data from the Shanghai Stock Exchange (SSE)
  - Sample period: January 2016 to June 2019
  - All foreign investors' trading and holding data of all A-share stocks from SSE main board
  - Local institutions as a benchmark
    - Mutual funds, hedge funds, insurance companies and others
- Obtain stock returns and characteristics from WIND
  - Filters mainly followed Liu, Stambaugh and Yuan (2019)
  - We exclude stocks with less than 15 days of the trading records during the previous month

Summary Statistics

	QFII	RQFII	HKC	Local INST
Number of stocks held	1,261	901	744	1,297
Number of stocks traded	946	174	561	1,227
Daily trading volume (Bil. RMB)	1.51	0.16	4.33	28.95
Trading volume of total market (%)	0.79%	0.08%	2.24%	14.80%
Daily Holding (Bil. RMB)	240.23	58.01	311.14	3590.2
Holding shares of total market (%)	0.95%	0.23%	1.20%	14.19%

Order Imbalances

- For each type of investor *G*, trading stock *i* on day *d*, the order imbalance measure is:

$$Oib(i,d,G) = \frac{Buyvol(i,d,G) - Sellvol(i,d,G)}{Buyvol(i,d,G) + Sellvol(i,d,G)}$$

				Correlations		
	Mean	Std	AR(1)	Oib(QFII)	Oib(RQFII)	Oib(HKC)
Oib(QFII)	-0.01	0.86	0.09			
Oib(RQFII)	0.02	0.82	0.44	0.09		
Oib(HKC)	0.02	0.58	0.12	0.14	0.04	
Oib(Local INST)	-0.01	0.47	0.18	0.09	0.06	0.06

Question 1. Are Foreign Investors Informed in China?

- H1: Foreign investors from the QFII, RQFII, and HKC programs are informed about stock prices in the Chinese stock market; that is, their order flows can predict future stock returns.

- Fama-MacBeth regressions for each investor group:

$$Ret(i,d) = a0(d,G) + a1(d,G)Oib(i,d-1,G) \\ +a2(d,G)'Controls(i,d-1) + \epsilon(i,d,G)$$

  - Newey-West (1987) correction with 5 lags

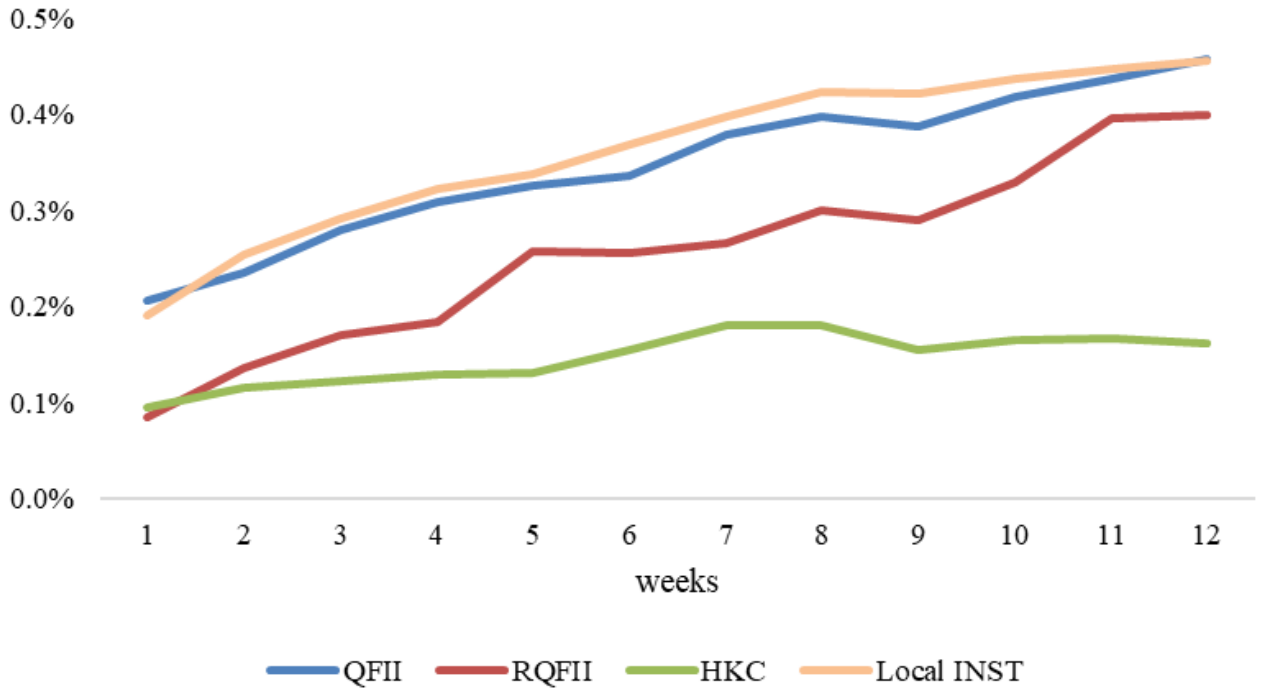
Predict Next-day Returns

Dep: Ret(d)	(1)	(2)	(3)	(4)
	QFII	RQFII	HKC	Local INST
Oib(d-1)	0.0649***	0.0247***	0.0783***	0.1330***
	(17.02)	(3.10)	(10.44)	(18.57)
Interquartile Return	0.1188%	0.0305%	0.0757%	0.0933%
Interquartile Return Difference	QFII-Local	RQFII-Local	HKC-Local	
	0.0255%***	-0.0626%***	-0.0184%***	
	(3.29)	(-5.52)	(-2.64)	

Predict Future Weekly Returns

- Is the predictive power transient or persistent?

$$Ret(i, w+1, w+k) = a0(d, G) + a1(d, G)Oib(i, d-1, G) + a2(d, G)'Controls(i, d-1) + \epsilon(i, d, G)$$



Against whom do foreign investors trade?

- Jones et al. (2022) find that smaller retail investors, on average, *negatively* predict future stock returns.
- Is it true that foreign investors mostly trade against local retail investors?

Trade direction	(1) QFII-Local INST-RT	(2) RQFII-Local INST-RT	(3) HKC-Local INST-RT
BBS	27%	24%	26%
SSB	26%	25%	25%
BSS	4%	5%	5%
SBB	4%	4%	4%
BSB	19%	22%	21%
SBS	19%	20%	18%
Observations	755, 991	134,851	430,067

Predictive Patterns with Different Counterparties

$$Ret(i,d) = a0(d,G) + [\sum_{k=1}^{6} a1(k,d,G) * I(k,d,G)]Oib(i,d-1,G) + a2(d,G)'Controls(i,d-1) + \epsilon(i,d,G).$$

Dep: Ret(d)	(1) QFII	(2) RQFII	(3) HKC
Oib(d-1)*BBS	0.0500***	0.0695	0.1890***
Oib(d-1)*SSB	0.2009***	0.1194**	0.1188***
Oib(d-1)*BSS	-0.0097	-0.0550	0.0808***
Oib(d-1)*SBB	0.1388***	0.1132*	0.0612**
Oib(d-1)*BSB	-0.0749***	-0.0405	0.0009
Oib(d-1)*SBS	0.0432***	-0.0743	-0.0729***
Interquartile return			
BBS	0.0101%***	0.0049%	0.0940%***
SSB	0.0333%***	0.0075%**	0.0633%***
BSS	-0.0017%	-0.0048%	0.0342%***
SBB	0.0226%***	0.0089%*	0.0275%**
BSB	-0.0185%***	-0.0032%	0.0004%
SBS	0.0108%***	-0.0059%	-0.0379%***

Question 2. Foreign Investors vs. Firm-Level Information?

- Long-standing idea that geographic distance engenders information asymmetries among investors; investors located near their investment possess informational advantages. Or, ….
  - H2: Foreign investors can process local firm information. That is, foreign investors' order flows can predict ***firm-level news***, and the predictive power of future returns is higher on local firm news days than on non-news days.
- Local firm earnings news: earnings announcements from CSMAR, and analyst data from CSMAR, WIND, SUNTIME and RESSET
- Local firm media news: news from CFND

Whether Foreign Investors Can Predict Earnings News?

- Quarterly Fama-MacBeth regressions

$$CAR(i,d,d+k) = c0(q,G) + c1(q,G)Oib(i,d-1,G) + c2(q,G)'Controls(i,d-1) + \epsilon(i,d,G)$$

	(1) QFII	(2) RQFII	(3) HKC	(4) Local INST
Coefficients on Oib(-1)				
AR[0]	0.0878***	0.0580	0.1018*	0.3610***
CAR[0,1]	0.1464***	0.0914***	0.2064**	0.5515***
CAR[0,61]	0.2712**	0.2933	0.3680***	1.9058***
CAR[0, 251]	0.6318***	0.6809***	1.5919*	3.3235***
Interquartile return				
AR[0]	0.1713%	0.1161%	0.0891%	0.2270%
CAR[0,1]	0.2856%	0.1829%	0.1806%	0.3468%
CAR[0,61]	0.5292%	0.5867%	0.3221%	1.1985%
CAR[0, 251]	1.2327%	1.3617%	1.3931%	2.0901%

Predictive Power on Event Days vs. Non-Event Days

- Fama-MacBeth regressions:

$$Ret(i,d) = e0(q,G) + [e1(q,G) + e2(q,G)\, Bignews(i,d) + e3(q,G) NBignews(i,d)] \times Oib(i,d-1,G) + e4(q,G)' Controls(i,d) + \epsilon(i,d,G).$$

  - Separate non-news days (e1) from news days (e2 and e3).
  - Separate news days into big-news-days vs. otherwise:
    - $Bignews(i,d)$ is equal to 1 if stock i's return on event day d is outside of the 5th and 95th percentiles of all event day returns, and otherwise it is zero
    - $NBignews(i,d)$ is equal to 1 if, on event day d, stock i's return is within the 5th and 95th percentiles, and otherwise it is zero

Earnings and Analyst News

Dep: Ret(d)	(1) QFII	(2) RQFII	(3) HKC	(4) Local INST
$\widehat{e1}$: Oib(d-1)	0.0977***	0.0433***	0.0954***	0.2120***
$\widehat{e2}$: Oib(d-1)×Bignews(d)	0.5177***	0.6788***	0.3035	2.4531***
$\widehat{e3}$: Oib(d-1)×NBignews(d)	-0.0342***	0.0292	0.0824**	-0.0042
Interquartile (Oib)× $\widehat{e1}$	0.1787%	0.0535%	0.0922%	0.1487%
Interquartile (Oib)× $(\widehat{e1} + \widehat{e2})$:	1.1259%	0.8913%	0.3856%	1.8688%
Interquartile (Oib)× $(\widehat{e1} + \widehat{e3})$:	0.1161%	0.0896%	0.1718%	0.1457%
Contribution of Bignews days (0.49%)	3.06%	7.38%	1.94%	5.83%
Contribution of NBignews days (4.45%)	2.86%	6.73%	7.87%	4.13%

Predict Media News from CFND

	(1) QFII	(2) RQFII	(3) HKC	(4) Local INST
Coefficients on Oib(-1)				
AR[0]	0.0798***	0.0140***	0.0775***	0.1839***
CAR[0,1]	0.1300***	0.0390***	0.1307***	0.3061***
CAR[0,61]	0.3653***	0.2363**	0.2746***	1.1970***
CAR[0, 251]	0.5475***	0.6655***	0.9926*	1.9756***
Interquartile return				
AR[0]	0.1570%	0.0279%	0.0732%	0.1239%
CAR[0,1]	0.2559%	0.0779%	0.1235%	0.2063%
CAR[0,61]	0.7189%	0.4716%	0.2593%	0.8069%
CAR[0, 251]	1.0774%	1.3281%	0.9374%	1.3317%

Media News Days vs. Non-News Days

Dep: Ret(d)	(1) QFII	(2) RQFII	(3) HKC	(4) Local INST
$\widehat{e1}$: Oib(d-1)	0.0906***	0.0323*	0.0910***	0.1847***
$\widehat{e2}$: Oib(d-1)×Bignews (d)	0.3550***	0.2713	0.1473	1.4984***
$\widehat{e3}$: Oib(d-1)×NBignews (d)	-0.0085	0.0162	0.0156	-0.0553*
Interquartile (Oib)× $\widehat{e1}$	0.1657%	0.0398%	0.0880%	0.1295%
Interquartile (Oib)× ($\widehat{e1} + \widehat{e2}$	0.8153%	0.3747%	0.2304%	1.1802%
Interquartile (Oib)× ($\widehat{e1} + \widehat{e3}$): $\widehat{Ret3}$	0.1502%	0.0599%	0.1031%	0.0908%
Contribution of Bignews days (3.47%)	15.42%	22.53%	8.18%	26.61%
Contribution of NBignews days (31.23%)	25.57%	32.39%	32.97%	18.42%

How Do Foreign Investors Process Local Firm Level Information?

- First, the information environment in China during our sample period improves and increasingly becomes accessible to foreign investors
- Second, foreign institutions may establish offices in places nearby Mainland China, like Hong Kong.
- Third, Chinese firms are important participants in the global supply chain both as suppliers and, increasingly, consumers.

Dep: Ret(d)	(1) QFII	(2) RQFII	(3) HKC	(4) Local INST
$\widehat{a1}$: Oib(d-1)	0.0625***	0.0225**	0.0741***	0.1292***
$\widehat{a2}$: Oib(d-1)×|Overseas(d-1)|	0.0427**	0.0524	0.0720**	0.0601**
Interquartile Returns				
Interquartile Oib(d-1)× $\widehat{a1}$	0.1144%	0.0278%	0.0716%	0.0906%
Interquartile Oib(d-1) × ($\widehat{a1}$ + $\widehat{a2}$)	0.1925%	0.0925%	0.1412%	0.1327%

Question 3. Foreign Investors vs. Market-Level Information?

- Given that many foreign investors in China are affiliated with the best investment institutions in the global market, it is possible that these investors can process market-level news, especially global news, better than their local counterparts.

  - H3: Foreign investors can process market-level news, especially global news. That is, foreign order flows predict *market* returns, and the cross-sectional predictive power of foreign order flows is stronger on market-level news days relative to non-news days.

Whether Aggregate Foreign Order Flows Predict Market Return?

- Time-series regression with the aggregate order flows

$$MktRet(d, d+k) = f0(G) + f1(G)AggOib(d-1, G) + \epsilon(d, G).$$

- We also separate days into big market news days and non-big-news days

$$MktRet(d) = f0(G) + [f1(G) + f2(G) * BignewsMkt(d)] \times AggOib(d-1, G) + \epsilon(d, G)$$

  - $BignewsMkt(d)$, which equals 1 if the stock market return on day d is outside the 5th and 95th percentiles of all market return days in the sample, and zero otherwise.

Market Return Prediction

	(1) QFII	(2) RQFII	(3) HKC	(4) Local INST
MktRet[0]	0.6602***	0.1884	0.7181**	0.7735*
MktRet[0,4]	1.4568**	0.5493	0.8818	0.0285
Interquartile MktRet[0]	0.1736%	0.1010%	0.1628%	0.0940%
Interquartile MktRet[0,4]	0.3830%	0.2943%	0.1999%	0.0035%
Chinese stock market news				
$\widehat{f1}$: AggOib(d-1)	0.1306	0.0742	0.1308	0.5017*
$\widehat{f2}$: AggOib(d-1)×BignewsMkt(d)	3.9059***	1.1607	5.3511**	2.7660
Contribution of BignewsMkt days (9.89%)	77.23%	64.61%	82.14%	41.69%
Global stock market news				
$\widehat{f1}$: AggOib(d-1)	0.3856*	0.2209*	0.4533*	0.6514
$\widehat{f2}$: AggOib(d-1)×BignewsMkt(d)	1.6800**	-0.2380	2.0441	2.3672
Contribution of BignewsMkt days (9.89%)	37.02%	-0.85%	37.68%	33.71%

Market Information and Cross-Sectional Predictive Power

- Specification:

$$\widehat{a1}(d,G) = h0(G) + h1(G)BignewsMkt(d) + \epsilon(d,G).$$

  - $\widehat{a1}(d,G)$: FM first stage coefficient estimates of Oib(d-1,G).

Dep: $\widehat{a1}(d)$	(1) QFII	(2) RQFII	(3) HKC	(4) Local INST
Local Market				
$\widehat{h0}$: Intercept	0.0673***	0.0276***	0.0754***	0.1378***
$\widehat{h1}$: BignewsMkt(d)	-0.0241	0.0173	0.0285	-0.0487**
MSCI Global Market				
$\widehat{h0}$: Intercept	0.0627***	0.0247***	0.0750***	0.1300***
$\widehat{h1}$: BignewsMkt(d)	0.0229*	0.0450	0.0376	0.0316

Question 4. Regulations and Foreign Investors' Return Predictive Power

- Open and accessible markets may provide lower transaction cost, which can increase the participation of both informed and uninformed foreign investors.
  - H4: The relaxation of restrictions on foreign investors improves their return predictive power in the Chinese stock market.
- Specification:

$$\widehat{a1}(d,G) = l0(G) + l1(G)'Regulations(d-1) + \epsilon(d,G)$$

  - $\widehat{a1}(d,G)$: FM first stage coefficient estimates on oib(d-1,G)
  - $Regulation(d-1)$: regulation relaxation regarding quota and cross-border capital flows.

Question 4. Regulations and Foreign Investors' Return Predictive Power

Dep: $\hat{a}_1(d)$	QFII		RQFII		HKC
Intercept	0.0095	Intercept	0.0260*	Intercept	0.0289***
	(0.61)		(1.81)		(3.43)
Quota2016	0.0585***	Invest2016	-0.0099	Quota2016	0.0234**
	(3.66)		(-0.54)		(2.05)
FX2018	0.0028	FX2018	0.0215	Quota2018	0.0913***
	(0.27)		(1.09)		(5.25)
Quota2019	-0.0187				
	(-1.18)				
Adj-R^2	0.59%	Adj-R^2	-0.09%	Adj-R^2	6.58%

Conclusion

- Using proprietary data from SSE, we find that QFII, RQFII, and HKC investors predict future stock returns over both short and longer horizons.
- Foreign investors successfully predict firm-level earnings news
  - Their return predictive power is significantly stronger on the most value-relevant firm news days with large price movements, and the magnitude is comparable among foreign and local institutions.
- Foreign investors predict market-level news, local and global, but the magnitude is smaller, and the significance is lower.
- Relaxed regulations improve foreign investors' return predictive power.