Interim
Trading Skills
of
Institutional
Investors

Puckett and
Yan

Interim Trading Skills of Institutional Investors

Puckett and Yan

March 14, 2019

Introduction

Overview

- Examines interim (intra-quarter) trading skills of institutional investors using ANcerno data
- Find strong evidence that investors earn significant abnormal returns on trades within trading quarter
- Interim trading is persistent
- Trading skills documented by previous studies are biased downward since they cannot account for interim trades

Introduction

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Related Literature

- Stocks that mutual funds purchase earn higher returns than the stocks they sell
  - Chen, Jegadeesh and Wermers (2000), Kacperczyk, Sialm, and Zheng (2005), and more
- Trading performance has since declined or reversed in recent times
  - Duan, Hu, McLean (2009)
- Conflicting results whether institutional traders can predice future stock returns
  - Bennett, Sias, and Starks (2003), Cai and Zheng (2004)

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Claim: Previous studies have used quarterly trading data as a proxy which cannot adequately capture intraquarter data, limiting this proxy:

1. Quarterly data cannot capture buys and sells of the same stock inbetween quarters
2. Quarterly holdings cannot identify exact timing and execution of trades

Previous studies assume all trades occur at the end of the quarter, but they can occur at any time. This can limit the researcher in properly assessing superior trading skills

Data

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Solution:

Use ANcerno!

- Identifies exact date and execution price of each transaction for each stock.
- Gives number of stocks traded
- Commissions
- Buy or Sell
- Distinguishes trades made by different institutions

Limitation

There is no information on management fees or fund returns

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Data

- Sample period 1999 - 2005
- 840 different institutions in sample period
- 3,816 different funds within those institutions
- Trading activity in sample accounts for 8% of dollar value of trading volume in CRSP
- Of the 3,816 funds:
    - 227 Money Managers
    - 3,589 pension funds

Data

		1999	2000	2001	2002	2003	2004	2005
	Panel A: ANcerno Data							
Total number of funds		1,846	1,699	1,733	1,717	1,600	1,545	1,241
Total number of institutions		382	376	404	430	405	406	376
Median number of funds per inst.		4	4	4	4	4	3	3
Total number of stocks		6,150	5,906	5,082	4,692	4,736	4,927	4,763
Total number of trades (millions)		5.64	7.56	9.05	12.32	12.35	21.43	19.10
Total share volume (billion)		50.69	73.44	100.99	135.04	112.30	155.92	127.40
Total dollar volume ($trillion)		2.25	3.20	3.06	3.23	2.76	4.46	3.95
Average share volume per trade		8,988	9,714	11,159	10,961	9,093	7,276	6,669
Median share volume per trade		1,700	1,500	1,400	1,300	1,050	700	453
Average dollar volume per trade		398,803	423,726	337,633	262,359	223,126	208,027	206,902
Median dollar volume per trade		60,030	54,970	39,200	30,300	27,297	20,568	14,232

Data

Panel B: Stock Characteristics					
	Mean	Median	*SD*	Maximum	Minimum
Market capitalization ($billion)	2.67	2.76	0.34	3.28	2.03
Book-to-market ratio	0.51	0.49	0.06	0.63	0.43
Lagged 12-month return (%)	4.31	2.38	19.11	57.78	−24.83
Turnover (%)	163.42	158.39	15.84	195.98	143.13
Idiosyncratic volatility (%)	47.93	49.71	11.28	65.30	31.09
Amihud illiquidity measure ($\times 10^4$)	0.22	0.15	0.14	0.58	0.09
Quoted spread (%)	0.06	0.04	0.04	0.14	0.02

Data

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- Additionally, complement data with:
    - CRSP
    - Compustat
    - TAQ

Database Integrity

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No Survivorship Bias

1. ANcerno says so
2. Not all sample firms are present by the end of the sample
3. Authors collected data year by year

Database Integrity

No Selection Bias

1 ANcerno clients may be different than the average institution

- no names of institutions given
- ANcerno provided offers with some names
- Compare changes in quarterly holdings between ANcerno and 13F

2 Authors find that characteristics of stock holdings of ANcerno does not differ from average 13F

3 ANcerno may not represent random selection of firm holdings and trades

- Nature of ANcerno should not give this incentive of firms to misreport

Methodology

Interim
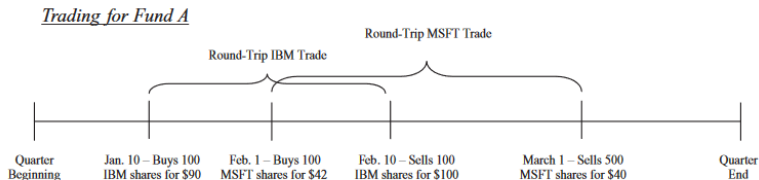Trading Skills
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Intraquarter Round-trip trades

1. Select all trades in a quarter where firm buys and sells particular stock
2. Calculate Holding Period return
3. Subtract DGTW return to get abnormal return
4. Compute average principal-weighted raw and abnormal return, with and without commissions, of all round-trip trades for each fund during each quarter

Methodology

Trading for Fund A

Round-Trip MSFT Trade

Round-Trip IBM Trade

Quarter Beginning — Jan. 10 – Buys 100 IBM shares for \$90 — Feb. 1 – Buys 100 MSFT shares for \$42 — Feb. 10 – Sells 100 IBM shares for \$100 — March 1 – Sells 500 MSFT shares for \$40 — Quarter End

Example

- IBM holding period return is $11.1\% = ((\$100 - \$90)/\$90)$
- MSFT is $-4.76\% = ((\$40 - \$42)/\$42)$
- Take principle-weighted raw average where:
    - IBM has $.6818 = (\$9000/\$13200)$ and MSFT $0.3182 = (\$4200/\$13200)$
    - Total Turn then is 6.06%

Methodology

All Trades

1. For each fund separate all trades within the quarter into buys and sells
2. Track performance of each trade until the end of the quarter
3. Subtract DGTW Benchmark return over same period
4. Compute equal and principle weighted abnormal return for buys and sells separately
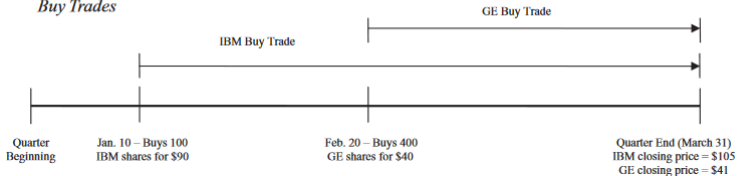5. Calculate difference in return before and after commission

Methodology

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Trading for Fund B

Buy Trades
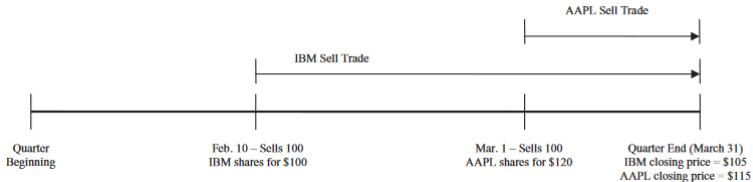
IBM Buy Trade

GE Buy Trade

| Quarter Beginning | Jan. 10 – Buys 100 IBM shares for $90 | Feb. 20 – Buys 400 GE shares for $40 | Quarter End (March 31) IBM closing price = $105 GE closing price = $41 |

Sell Trades

IBM Sell Trade

AAPL Sell Trade

| Quarter Beginning | Feb. 10 – Sells 100 IBM shares for $100 | Mar. 1 – Sells 100 AAPL shares for $120 | Quarter End (March 31) IBM closing price = $105 AAPL closing price = $115 |

Methodology

Example

- Buy trades have holding period return of 16.67% and 2.5% for IBM and GE
- Sell trades have 5.0% and −4.17% for IBM and AAPL
- Assume DGTW is 0, and we have EW return of: $(9.59\% - 0.42\%) = 9.17\%$

Hypothesis

If funds possess trading skill, their abnormal round-trip trading perfomcance will be positive

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Empirical Results - Round Trip Trades

Table 2

Panel A: Performance of Round-Trip Trades			
	All	Pension Funds	Money Manager Funds
Raw return	2.99	3.07	2.00
	(4.79)	(4.70)	(4.23)
Raw return (after commissions)	2.71	2.79	1.69
	(4.30)	(4.24)	(3.64)
DGTW adj. return	2.09	2.17	1.17
	(3.81)	(3.84)	(2.28)
DGTW adj. return (after commissions)	1.80	1.88	0.87
	(3.27)	(3.32)	(1.71)
% of intra-quarter round-trip trades	22.89	18.30	33.65

Table 2

Panel B: Performance Persistence of Round-Trip Trades					
Current Quarter DGTW adj. Return Quintiles	Quarters				
	Q+0	Q+1	Q+2	Q+3	Q+4
q1	−13.16	−2.67	−2.54	−2.05	−1.82
	(−20.11)	(−4.79)	(−3.63)	(−2.75)	(−2.00)
q2	−2.98	−0.20	−0.23	−0.32	−0.21
	(−8.77)	(−0.38)	(−0.46)	(−0.50)	(−0.34)
q3	0.94	1.28	1.40	1.29	1.32
	(2.31)	(2.43)	(2.36)	(2.48)	(2.19)
q4	5.48	3.74	3.51	2.96	3.02
	(9.00)	(5.02)	(4.33)	(3.89)	(4.66)
q5	20.15	6.85	6.89	6.10	6.09
	(12.60)	(7.91)	(8.13)	(9.24)	(6.47)
q5–q1	33.31	9.53	9.43	8.15	7.91
	(17.08)	(11.37)	(11.99)	(10.23)	(7.10)

Concerns

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- Mechanical Factors from rebalancing
- Behavioral Bias - selling winners to quickly, holding losers too long

Solution

Look at all trades measured from earlier

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Hypothesis

If funds have trading skills, then the stocks a fund bus will outperform the stocks it sells

- Some trades might be due to fund flows and rebalancing
- Will bias against study of finding evidence of trading skill

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Table 3

	All	Pension Funds	Money Manager Funds
Panel A: Equal-Weighted DGTW Adjusted Return			
Buy	0.67	0.68	0.50
	(4.04)	(3.96)	(4.38)
Sell	−0.06	−0.06	−0.13
	(−0.43)	(−0.40)	(−1.06)
Buy−Sell	0.74	0.74	0.63
	(7.73)	(7.51)	(6.28)
Buy−Sell (after commissions)	0.34	0.34	0.27
	(3.26)	(3.16)	(2.87)

Empirical Analysis - All Trades

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Table 3

Panel B: Principal-Weighted DGTW Adjusted Return		
Buy	0.54	0.55	0.45
	(3.57)	(3.48)	(4.22)
Sell	−0.03	−0.01	−0.26
	(−0.18)	(−0.08)	(−1.73)
Buy−Sell	0.57	0.56	0.72
	(5.73)	(5.52)	(4.75)
Buy−Sell (after commissions)	0.27	0.26	0.40
	(2.67)	(2.52)	(2.74)

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Empirical Analysis - All Trades

Table 4

Current Quarter Performance Quintiles		Quarters				
		Q+0	Q+1	Q+2	Q+3	Q+4
q1	Buy	−3.88	0.15	0.13	0.21	0.11
		(−14.12)	(0.95)	(0.63)	(1.23)	(0.57)
	Sell	4.79	0.48	0.38	0.44	0.27
		(10.70)	(2.38)	(1.81)	(2.48)	(1.26)
	Buy−Sell	−8.67	−0.33	−0.24	−0.23	−0.16
		(−15.11)	(−1.49)	(−1.38)	(−1.14)	(−0.66)
q2	Buy	−0.78	0.36	0.29	0.21	0.30
		(−8.16)	(3.73)	(2.73)	(1.36)	(2.35)
	Sell	1.05	0.05	−0.08	−0.01	0.11
		(6.98)	(0.33)	(−0.61)	(−0.07)	(0.64)
	Buy−Sell	−1.84	0.31	0.37	0.22	0.18
		(−11.59)	(2.50)	(3.01)	(1.75)	(1.12)
q3	Buy	0.37	0.36	0.50	0.46	0.36
		(3.60)	(2.63)	(4.04)	(2.54)	(3.93)
	Sell	−0.25	−0.14	−0.15	0.02	−0.16
		(−2.45)	(−1.11)	(−1.08)	(0.10)	(−1.06)
	Buy−Sell	0.62	0.50	0.65	0.44	0.52
		(10.06)	(5.04)	(4.97)	(3.76)	(3.69)
q4	Buy	1.72	0.59	0.54	0.64	0.59
		(12.58)	(3.44)	(3.38)	(3.82)	(3.73)
	Sell	−1.41	−0.15	−0.17	−0.30	−0.36
		(−14.18)	(−0.70)	(−0.86)	(−1.40)	(−2.64)
	Buy−Sell	3.13	0.74	0.70	0.93	0.96
		(20.29)	(5.18)	(4.82)	(6.42)	(7.41)
q5	Buy	5.29	1.13	0.96	1.13	0.63
		(10.35)	(3.55)	(3.45)	(3.44)	(2.56)
	Sell	−4.31	−0.44	−0.20	−0.20	−0.46
		(−15.80)	(−2.18)	(−0.95)	(−0.88)	(−2.61)
	Buy−Sell	9.60	1.56	1.16	1.33	1.10
		(16.19)	(5.69)	(5.73)	(6.40)	(6.12)

Table 4

q5–q1	Buy	9.17	0.97	0.82	0.91	0.52
		(15.21)	(3.74)	(4.18)	(2.87)	(2.49)
	Sell	−9.11	−0.92	−0.58	−0.64	−0.74
		(−16.02)	(−4.86)	(−3.19)	(−3.53)	(−3.39)
	Buy−Sell	18.27	1.89	1.41	1.56	1.26
		(16.26)	(5.16)	(5.55)	(5.47)	(5.19)

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Results support hypothesis that institutions possess significant
interim trading skill

Question

What if we ignore round-trip trades and timing of interim trades
within the quarter?

Implied Quarterly Trades - Method

1 For each fund and each stoc, aggregate all trades in quarter

2 Calculate cumulative net trading position as of the quarter-end

3 Calculate DGTW equal and principle weighted returns for buys and sells, get abnormal returns

4 Compute difference between abnormal returns buys and sells

Implicitly assumes all trades occur at the closing price on the last day of the quarter

Implied Quarterly Trades - Results

Panel A: Implied Quarterly Trading Performance			
	All	Pension Funds	Money Manager Funds
Equal-weighted DGTW adj. Return			
Buy	−0.05	−0.06	0.20
	(−0.14)	(−0.17)	(0.70)
Sell	0.28	0.28	0.27
	(0.79)	(0.79)	(0.73)
Buy−Sell	−0.33	−0.34	−0.08
	(−2.14)	(−2.20)	(−0.38)
Principal-weighted DGTW adj. Return			
Buy	−0.05	−0.05	−0.10
	(−0.17)	(−0.15)	(−0.84)
Sell	0.19	0.20	0.10
	(0.78)	(0.81)	(0.74)
Buy−Sell	−0.24	−0.24	−0.20
	(−1.70)	(−1.66)	(−1.21)

Panel B: Persistence of Implied Quarterly Trading Performance					
Performance	Quarters				
Quintiles	Q+0	Q+1	Q+2	Q+3	Q+4
q1 (low)					
Buy	−7.23	−0.03	0.04	0.01	−0.03
	(−10.74)	(−0.07)	(0.07)	(0.02)	(−0.08)
Sell	7.02	0.45	0.21	−0.01	0.42
	(11.76)	(1.17)	(0.53)	(−0.04)	(0.99)
Buy−Sell	−14.24	−0.48	−0.18	0.03	−0.46
	(−15.37)	(−1.71)	(−0.61)	(0.07)	(−1.19)

q5–q1

Buy	14.56	0.07	0.33	0.03	0.20
	(14.24)	(0.17)	(0.57)	(0.08)	(0.51)
Sell	−13.23	−0.42	−0.02	0.44	−0.55
	(−15.96)	(−1.27)	(−0.08)	(1.13)	(−1.37)
Buy−Sell	27.78	0.49	0.36	−0.41	0.75
	(16.07)	(1.05)	(0.68)	(−1.00)	(1.72)

Sources of Trading Skill

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Panel B: Abnormal Trading Performance by Stock Characteristics				
	Average Decile	Buy	Sell	Buy–Sell
Growth stocks	2.75	0.43	−0.15	0.58
		(2.51)	(−0.97)	(5.88)
Value Stocks	8.29	1.34	0.50	0.84
		(3.56)	(1.50)	(5.02)
Growth−Value				−0.26
				(−1.42)
Past losers	2.55	0.35	−0.15	0.50
		(1.68)	(−0.64)	(3.19)
Past winners	8.34	0.61	−0.11	0.71
		(3.55)	(−0.57)	(6.94)
Losers−Winners				−0.21
				(−1.09)
Low turnover stocks	2.38	0.80	0.06	0.74
		(2.56)	(0.19)	(6.93)
High turnover stocks	8.54	0.55	−0.08	0.63
		(2.08)	(−0.35)	(5.01)
Low−High				0.11
				(0.66)
Low IVOL stocks	3.08	0.56	0.11	0.45
		(2.43)	(0.47)	(5.06)
High IVOL stocks	9.03	0.79	−0.09	0.88
		(2.16)	(−0.24)	(5.58)
Low−High				−0.43
				(−2.52)
Low illiquidity stocks	3.16	0.35	−0.15	0.49
		(2.31)	(−1.05)	(4.65)
High illiquidity stocks	9.07	1.82	0.53	1.29
		(4.92)	(1.83)	(4.26)
Low−High				−0.80
				(−2.41)
Low quoted spread stocks	2.62	0.36	−0.21	0.56
		(2.43)	(−1.27)	(5.22)
High quoted spread stocks	8.61	1.59	0.55	1.05
		(5.39)	(2.14)	(6.10)
Low−High				−0.48
				(−2.79)

Illiquidity?

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Question

Does compensation for liquidity provision drive interim trading performance? If so, funds with higer interim trading performance should experience lower or negative implicity trading costs.

Result

High-skill funds incur higher implicit trading costs - more likely to demand liquidity

Illiquidity

Interim Trading Performance Quintiles	Average Interim Trading Performance (%)	Implicit Trading Costs (%)
Q1 (low)	−8.67	0.051 (5.87)
Q2	−1.84	0.058 (8.21)
Q3	0.62	0.056 (9.32)
Q4	3.13	0.070 (8.71)
Q5 (high)	9.60	0.090 (7.42)
Q5–Q1	18.27	0.039 (3.82)

Robustness

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- Trading performance and trading horizon does not appear to be correlated
- Using FIFO and LIFO give similar results
- Pre- and Post-bubble (tech) yields similar results
- Some success is determined by insitutional-level factors
- Funds with the highest dinterim trading performance have higher monthly fund alphas

Conclusion

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- Authors seek to sort out the real story of trading skills of institutional investors
- Use interim (intraquarter) data whereas former studies use discrete quarterly
- Show that institutional investors do have above average skill, and it persists
- Using same data but with discrete quarterly measures nullify results
- Illiquidity appears to be important factor, and indicates asymmetric information with arbitrage

Questions

- How long do winners win? Persistence more than 4 quarters? Where should I put my money in long-run?
- 1999 - 2005 sample too small?