THE TRADING BEHAVIOR OF INSTITUTIONAL AND INDIVIDUAL INVESTORS, EVIDENCE FROM IRAN

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Outline

Introduction

Trading Strategy (Behavior) Litretature

- This literature investigates about how different players in the financial markets react to recent price changes or returns.
- In short, The effect of price changes on investors behavior.
- Mostly, the literature investigates the existense and the strength of momentum or contrarian strategies among investors (Griffin et al. (2003)).
- These studies are categorized as a part of **Behavioral Finance**.

Introduction (cont'd)

What Are The Momentum And Contrarian Strategies?

- A momentum investor buys winners and sell losers, in contrast, a contrarian investor sells winners and buys losers.
- A momentum investor follows the trend and a contrarian does the opposite.
- Momentum strategy is also called **"Trend-Chasing"** or **"Positive Feedback Trading"**.
- Contrarian strategy is also called **"Anti-Momentum"**.

The Question

- I am investigating the trading patterns of both *"Institutional"* and *"Individual"* investors in the Tehran Stock Exchange market.
- Specifically, I am asking whether these institutions and individuals tend to follow momentum or contrarian strategies when they trade.
- Also, do theoretical and empirical results of the literature hold in TSE?
- The focus of this study is on institutions because they're major players in the market, and naturally we expect them to make trades based on fundamentals.
- I am exploring momentum and contrarian strategies because of how they can influence market herding. This might push prices far from their real values and even lead to market bubbles (Delong et al. (1990), Hong & Stein(1999)).

Expectations

Based on the extant literature (both theory and empirical), I have three expectations:

1. On average, institutional investors perform a momentum-trading strategy, individual investors perform a contrarian trading strategy (Koesrindartoto et al.n (2020)).
2. We expect institutions to have a stronger herding behavior compared to individuals (Lakonishok, Shleifer, Vishny (1992)).
3. As instutions are more focused on large firms we expect stronger behavior from them in large firms comparing to small firms.

Results Summary

Results vs Expectations

- Institutional investors follow momentum strategy on average in different time frames exept one-day and Individuals are contrarian excecpt for the one-day period. These aligns with the first expectation.
- Just like our second expectation, institutions herd more comparing to individuals.
- Confirming the third expectation, institutions have stronger behavior in large firms versus small firms.

Data

1. **TSE Stocks' Retruns**, *Daily*
2. **TSE Overall Index Returns (Market Return)**, *Daily*
3. **CBI Risk-Free Rate**, *Monthly*
4. **All Codal News (Letters)**, *Secondly*
   - Both before 1389 (1382 to 1389) and after 1389
5. **TSE Individual-Institutional Trade**, *Daily*
6. **TSE Stocks' Market Capitalization**, *Daily*
7. **TSE Stocks' Nominal Prices**, *Daily*

Litretature Review

- The literature on the trading behavior of investors is vast and diverse.
- Theoretically, institutional investors are viewed as informed investors with the power to drive the market, while individual investors are seen as proverbial noise traders with a tendency to engage in psychologically biased trading (Kyle (1985); Black (1985)).

Litretature Review (cont'd)

Why we expect institutions herd more than individuals?

1. The institution will try to infer information about the quality of investment from one institution or another. As a result, institutions will have a greater understanding of each other's trading practices than do individuals, and so will herd to a greater extent (Lakonishok et al. (1992); Shiller and Pound (1989); Banerjee (1992)).
2. Second, institutional investors have an incentive to hold the same portfolio as other money managers to avoid falling behind in peer group performance (Scharfstein and Stein (1990)).
3. Third, an institution might react to the same exogenous signal, and since the signal received by institutions is typically the same, institutions tend to herd more than individual investors (Lakonishok (1992)).

Litretature Review (cont'd), Some Empirical Evidence

- Lakonishok et al. (1992) find weak evidence of herding behavior among pension funds managers using quarterly data of the NYSE.
- Ng, Wu (2007), Chinese institutions are momentum investors, while less wealthy Chinese individual investors at large are contrarian investors.
- Kaniel et al. (2008), on the other hand, take a different perspective and also find that individual investors are contrarian toward institutional investors. This contrarian tendency leads them to act as liquidity providers for institutional investors requiring immediate action.
- Koesrindartoto et al. (2020), using $250M$ transaction observations in Indonesia find that institutional investors are momentum traders and individual investors are contrarian traders in the Indonesian Stock Exchange.

Methodology

This research has two stages:

1. The first stage revolves around the categorization of company-specific news as either positive or negative.
2. In stage two, I analyze the trading behavior of institutions and individuals within mutally non-overlapping time frames.

Stage 1
News Labeling

Why News Are Important?

- Abundant evidence suggests that news pertaining to individual stocks, characterized as either "positive" or "negative," significantly impacts the trading choices made by investors (Chan(2003), Chen-Hui & Chan-Jane(2017)).
- Any study or research design intending to analyze the trading behavior of investors of any type must take into account information related to companies.
- Regrettably, we currently lack a database containing company-specific news curated through assessments and opinions from expert capital market analysts.
- Creating such a dataset would significantly enhance the research landscape within the Tehran Stock Exchange market.

How I Solve The News Challenge?

- In the first stage, I use a systematic and simple method for categorizing stock-specific news as either "Positive" or "Negative" or "Neutral".
- The labels generated during this initial stage are then employed in the second stage as dummy variables to account for the presence of "positive" and "negative" news associated with each individual stock.

How I Lebel News as Good or Bad?

To categorize news systematically:

1. I consider a two month window for each stock prior to each day.
2. Within this moving window, I fit the CAPM model (Rolling CAPM approach).
3. By utilizing the CAPM betas, I compute the expected return for each specific firm-day.
4. Based on the calculated expected return in the previous step, I find the **"Abnormal Returns"**.
5. Employing a symmetric threshold, I determine how news should be classified.

Source of Firm-Specific News

- I rely on Codal.ir for firm-specific news.
- I perceive every letter posted on Codal as a news item.
- Thankfully, each company-specific update on Codal is consistently linked to the respective company's ticker.

Stage 2
The Trading Behavior

How to Measure Trading Activity?

- Following the literature, to assess investors' purchasing and selling activities, I use below measure of **"Trade Imbalance"**. Lakonishok, Shleifer, Vishny(1992), Ng & Wu(2007)
- For the group G of investors in stock i at time t let:

$$\mathrm{TI}^{\mathrm{G}}_{\mathrm{i,t}} = \frac{\sum_{\mathrm{g}=1}^{\mathrm{N_G}} \mathrm{Buy}^{\mathrm{g}}_{\mathrm{i,t}} - \sum_{\mathrm{g}=1}^{\mathrm{N_G}} \mathrm{Sell}^{\mathrm{g}}_{\mathrm{i,t}}}{\sum_{\mathrm{g}=1}^{\mathrm{N_G}} \mathrm{Buy}^{\mathrm{g}}_{\mathrm{i,t}} + \sum_{\mathrm{g}=1}^{\mathrm{N_G}} \mathrm{Sell}^{\mathrm{g}}_{\mathrm{i,t}}}$$

- Where:

$$\mathrm{G} \in \{\mathrm{Institutional},\ \mathrm{Individual}\}$$

- $\mathrm{N_G}$ is the number of investors in the group G.
- for all i and t we have: $-1 < \mathrm{TI} < 1$
- The firm size and stock price is canceled out in TI.

The Model

- I employ a fixed-effects OLS model on panel data with t–statistics adjusted for panel-corrected standard errors (PCSE) and with adjustment for a moving average (MA) process in the dependent variable.

$$\mathrm{Y_{i,t}} = \alpha + \beta \mathrm{R1} + \gamma \mathrm{R2} + \delta \mathrm{R6} + \zeta \mathrm{R28} + \sum_{\mathrm{i}} \kappa_{\mathrm{i}} \mathrm{d_i} + \epsilon$$

- Where:

$$\mathrm{Y} \in \{\mathrm{TI}^{\mathrm{Institutional}}_{\mathrm{i,t}},\ \mathrm{TI}^{\mathrm{Individual}}_{\mathrm{i,t}}\}$$

Independent Variables

$$\mathrm{Y_{i,t}} = \alpha + \beta \mathrm{R1} + \gamma \mathrm{R2} + \delta \mathrm{R6} + \zeta \mathrm{R28} + \sum_{\mathrm{i}} \kappa_{\mathrm{i}} \mathrm{d_i} + \epsilon$$

- $\mathrm{R1} \triangleq \mathrm{R}(-1)$
  Returns of the one-day holding period prior to trading day.
- $\mathrm{R2} \triangleq \mathrm{R}(-2, -5)$
  Returns of the holding period of 5 to 2 days prior to the trading day.
- $\mathrm{R6} \triangleq \mathrm{R}(-6, -27)$
  Returns of the holding period of 27 to 6 days before the trading day.
- $\mathrm{R28} \triangleq \mathrm{R}(-28, -119)$
  Returns of the holding period of 119 to 28 days before the trading day.

Independent Variables (cont'd)

Some remarks:

- Holding periods are mutually non-overlapping.
- The holding period returns are market-adjusted returns.
- The market return is the TSE Overall Index.

Control Variables

$$\mathrm{Y_{i,t}} = \alpha + \beta \mathrm{R1} + \gamma \mathrm{R2} + \delta \mathrm{R6} + \zeta \mathrm{R28} + \sum_{\mathrm{i}} \kappa_{\mathrm{i}} \mathrm{d_i} + \epsilon$$

The control variables are:

- Two contemporaneous firm-specific news dummies: "Good news" and "Bad News" dummies (Base group is No News).
- One-day and two-day lagged news, in two separate specifications.
- Day of the week effects (4 dummies).
- Reference point' effects dummies (2 dummies), the month highest price and the month lowest price.
- Jalali year fixed effects, to control for boom and bust years and partial out the year average.

Summary Statistics

Trading Days and Number of Stocks Traded

Jalali Year	Trading Days	Stocks Traded
1387	71	242
1388	200	320
1389	243	339
1390	241	370
1391	239	387
1392	243	429
1393	241	483
1394	243	504
1395	242	530
1396	241	550
1397	241	581
1398	238	611
1399	243	668
1400	239	695
1401	194	697

Volume and Value of Trades

	Volume(Bilions)				Value(TrilionTomans)			
	Institutional		Individual		Institutional		Individual	
Jalali Year	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell
1387	0.68	0.64	0.32	0.35	0.16	0.14	0.06	0.08
1388	4.61	5.25	6.0	5.36	1.18	1.25	1.19	1.12
1389	17.85	17.96	18.05	17.93	5.31	5.28	4.64	4.68
1390	19.76	17.73	19.28	21.31	6.79	6.27	5.68	6.2
1391	32.47	31.3	23.25	24.42	11.57	11.38	7.6	7.78
1392	49.58	55.54	85.66	79.7	24.11	25.14	32.7	31.67
1393	36.59	33.46	81.21	84.34	11.7	10.45	19.65	20.91
1394	42.69	47.43	115.47	110.72	10.06	10.86	22.33	21.52
1395	47.02	42.74	102.46	106.75	11.09	10.29	22.74	23.54
1396	36.48	35.84	99.98	100.62	9.47	9.06	19.74	20.15
1397	86.07	100.94	295.64	280.77	31.36	34.16	75.27	72.48
1398	181.3	214.04	848.49	815.76	78.76	97.02	363.06	344.8
1399	170.85	185.98	895.77	880.65	234.62	249.91	1059.47	1044.18
1400	134.62	82.3	638.5	690.82	106.17	73.12	370.38	403.43
1401	188.64	147.93	836.42	877.13	96.85	79.29	363.41	380.97

Unique Traders Mean and STD

	Mean				STD			
	Institutional		Individual		Institutional		Individual	
Jalali Year	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell
1387	0.87	1.09	6.87	11.69	1.32	2.24	18.19	27.77
1388	1.09	0.95	16.58	13.91	2.86	2.36	184.86	34.81
1389	1.48	1.12	24.42	21.27	3.66	2.61	93.35	46.59
1390	1.35	0.94	27.79	25.02	3.13	2.34	67.7	50.27
1391	1.46	1.06	32.05	28.47	3.55	2.62	92.17	54.55
1392	1.76	1.38	86.38	70.74	4.06	2.94	187.88	127.38
1393	1.08	0.77	51.95	48.0	2.07	1.74	247.67	84.45
1394	1.01	0.8	50.74	44.55	2.43	2.14	133.15	102.83
1395	1.11	0.83	58.86	50.93	2.16	1.9	178.69	103.49
1396	1.21	0.91	52.09	45.9	2.44	2.15	94.07	79.0
1397	1.54	1.36	109.01	90.44	3.75	3.42	233.55	173.75
1398	2.3	2.09	401.66	294.92	4.6	4.19	661.2	432.58
1399	3.11	2.59	999.84	780.25	8.09	6.08	2807.13	1653.21
1400	1.86	1.5	298.91	393.26	2.74	2.67	692.58	1063.5
1401	2.15	1.79	238.67	271.8	2.9	2.74	467.31	508.91
1387 - 1401	1.67	1.36	202.77	181.61	3.84	3.19	886.98	634.55

Variation Analysis

Variable	Mean	STD	Min	Q1	Median	Q3	Max
TI^{Ins}	0.12	0.64	−1.0	−0.02	0.0	0.77	1.0
TI^{Ind}	−0.05	0.28	−1.0	−0.08	0.0	0.0	1.0
R1	−0.02%	2.46%	−7.12%	−1.58%	−0.1%	1.45%	7.17%
R2	−0.2%	5.75%	−17.5%	−3.74%	−0.48%	2.96%	17.62%
R6	−0.48%	13.26%	−43.48%	−8.46%	−1.39%	6.41%	44.37%
R28	1.62%	35.63%	−129.72%	−19.25%	−2.53%	17.4%	138.08%
CI^{Ins}	0.1	0.58	−1.0	0.0	0.0	0.33	1.0
CI^{Ind}	0.01	0.35	−1.0	−0.19	0.0	0.22	1.0

Results

First Stage Paremeters

Parameter	Value
Window Start Day	-60
Window End Day	-1
CAPM Model Significance Level	5%
Min Absolute Value of Abnormal Return	0.25% & 0.5%

First Stage Results

- The first stage of the study is to label the news as good or bad.
- The distributions of firm-specific news are:

News Type	Freq.	Percent	Cum.
Bad	25,703	44.78	44.78
Good	25,621	44.64	89.42
Neutral	6,075	10.58	100.00
Total	57,399	100.00	

The Main Result: The Trading Behavior of Institutions and Individuals

	Institutions			Individuals		
	(1)	(2)	(3)	(4)	(5)	(6)
R(-1)	-2.343***	-2.309***	-2.308***	0.721***	0.703***	0.703***
	(-26.42)	(-25.90)	(-25.89)	(23.17)	(22.60)	(22.61)
R(-5, -2)	0.154***	0.156***	0.160***	-0.0292**	-0.0300**	-0.0325**
	(5.154)	(5.196)	(5.346)	(-2.236)	(-2.299)	(-2.492)
R(-27, -6)	0.134***	0.134***	0.134***	-0.0638***	-0.0636***	-0.0635***
	(9.346)	(9.322)	(9.297)	(-9.708)	(-9.687)	(-9.666)
R(-119, -28)	0.0275***	0.0274***	0.0274***	-0.0183***	-0.0183***	-0.0183***
	(4.115)	(4.117)	(4.119)	(-5.803)	(-5.818)	(-5.830)
Lag 1 News FE	No	Yes	Yes	No	Yes	Yes
Lag 2 News FE	No	No	Yes	No	No	Yes
All Mentioned FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	882,133	882,133	882,133	882,133	882,133	882,133
R^2	2.2%	2.2%	2.2%	1.6%	1.6%	1.6%
Number of Firms	741	741	741	741	741	741

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Large VS. Small Firms

	Institutions		Individuals	
	Large	Small	Large	Small
R(-1)	-3.810***	-1.018***	1.241***	0.296***
	(-32.58)	(-16.17)	(24.82)	(9.389)
R(-5, -2)	0.319***	0.00435	-0.0781***	0.00684
	(6.830)	(0.136)	(-3.522)	(0.500)
R(-27, -6)	0.134***	0.0584***	-0.0742***	-0.0218***
	(5.392)	(3.922)	(-6.808)	(-3.545)
R(-119, -28)	-0.00109	0.0242***	-0.0151**	-0.00947***
	(-0.0954)	(3.887)	(-2.567)	(-4.320)
Lag 1 News FE	Yes	Yes	Yes	Yes
Lag 2 News FE	Yes	Yes	Yes	Yes
All Mentioned FEs	Yes	Yes	Yes	Yes
Observations	303,846	214,570	303,846	214,570
R^2	4.4%	0.8%	4.3%	0.9%
Number of Firms	643	405	643	405

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Count Imbalance Index

	Institutions			Individuals		
	(1)	(2)	(3)	(4)	(5)	(6)
R(-1)	-1.897***	-1.878***	-1.877***	-1.092***	-1.098***	-1.097***
	(-27.09)	(-26.50)	(-26.48)	(-25.09)	(-25.20)	(-25.14)
R(-5, -2)	0.0981***	0.0986***	0.102***	-0.401***	-0.402***	-0.402***
	(3.967)	(3.982)	(4.092)	(-15.82)	(-15.84)	(-15.78)
R(-27, -6)	0.111***	0.110***	0.110***	-0.0148	-0.0149	-0.0150
	(9.753)	(9.732)	(9.703)	(-1.123)	(-1.126)	(-1.135)
R(-119, -28)	0.0294***	0.0293***	0.0293***	0.0284***	0.0283***	0.0282***
	(5.412)	(5.410)	(5.403)	(4.487)	(4.456)	(4.431)
Lag 1 News FE	No	Yes	Yes	No	Yes	Yes
Lag 2 News FE	No	No	Yes	No	No	Yes
All Mentioned FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	922,066	922,066	922,066	922,066	922,066	922,066
R^2	1.6%	1.6%	1.6%	4.0%	4.0%	4.0%
Number of Firms	741	741	741	741	741	741

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

No News Days

	Institutions		Individuals	
	3 Days	5 Days	3 Days	5 Days
R(-1)	-2.114***	-1.985***	0.632***	0.591***
	(-21.70)	(-19.97)	(18.04)	(16.30)
R(-5, -2)	0.189***	0.167***	-0.0585***	-0.0562***
	(5.605)	(4.655)	(-3.736)	(-3.298)
R(-27, -6)	0.182***	0.176***	-0.0886***	-0.0851***
	(11.75)	(10.96)	(-12.34)	(-11.27)
R(-119, -28)	0.0484***	0.0475***	-0.0294***	-0.0285***
	(7.242)	(7.029)	(-8.566)	(-8.210)
All FEs Except News	Yes	Yes	Yes	Yes
Observations	510,802	346,636	510,802	346,636
R^2	1.8%	1.6%	1.3%	1.2%
Number of Firms	736	735	736	735

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Conculsion

- The present study introduces an approach to categorize stock-specific news into positive and negative classifications.
- The findings suggest that institutions tend to go against momentum trading in the context of a one-day holding period. Conversely, for the three longer time horizons, institutions seem to adopt a momentum-oriented strategy.
- On the other hand, the results reveal that individuals engage in momentum trading within a one-day holding period but shift towards an anti-momentum approach for longer horizons.

THANK YOU!