



Momentum effect on the Russian stock market.

Whether emerging markets are not profitable for Momentum Strategies?

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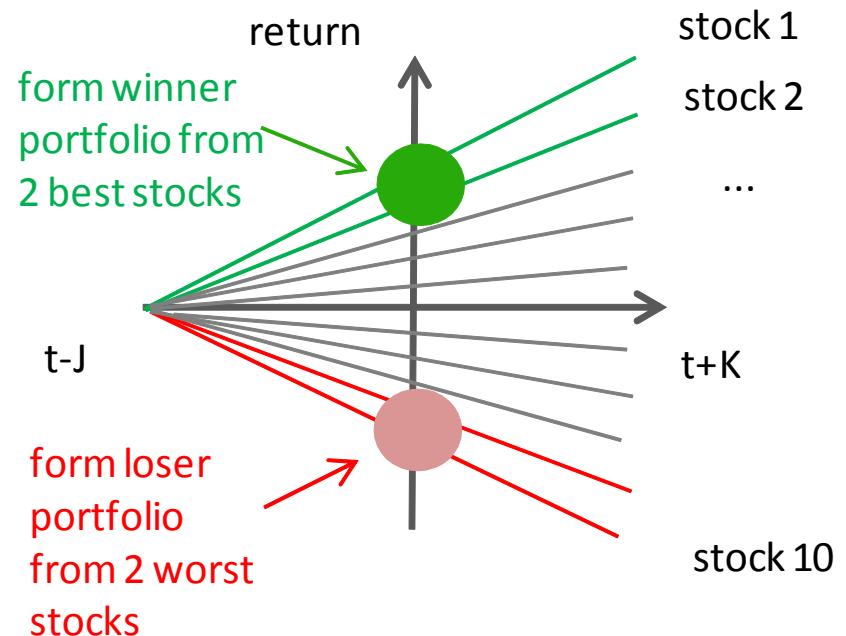
Momentum effect and momentum strategy

Momentum effect:

- A price anomaly on the assets of the same class when securities that have performed relatively well (poorly) to peers in past continue to outperform (underperform) in future

Momentum strategy:

- Investment strategy, based on momentum effect with proving the elements of strategy's design



The actuality of research

- Momentum effect **has grown in popularity in investment industry** and has made substantial inroads into investors' portfolios (MSCI World Momentum Index, iShares MSCI USA Momentum Factor ETF, AQR Momentum Index).
- Momentum is empirically observed in more than **40 countries** and during the **different and long-term periods of time** (212 years in the US, dating back to the Victorian age in U.K. equity data).
- The momentum return premium is robust **across different asset classes** (stocks, bonds, indices, commodities, currency).
- Momentum is proved to be a challenge to the **efficient market hypothesis** (EMH).

Popularity of momentum strategy

Cumulative Index Performance — Gross Returns (Aug 1999 – Aug 2014) — USD



Momentum effect is not due to data mining

Authors	Design of strategy	Data	Time period	Monthly return
Jegadeesh and Titman (1993)	12/0.25/3	US	1965-1989	1.96%
Schiereck, Weber, 1995	12/0/6	Germany	1961-1991	0.9%
Rouwenhorst (1998)	9/1/6	Europe (12 capital markets)	1978-1995	1.45%
Rouwenhorst (1999)	6/1/6	Emerging markets (20 capital markets)	1982-1997	0.39%
Moskowitz and Grinblatt (1999)	6/0/6	US	1963-1995	0.78%
Chui et al. (2000)	6/1/6	Asia region (8 capital markets)	1975-2000	0.38% (not stat. significant)
Bacmann, Dubois, Isakov, 2001	12/0/12	G-7 countries	1973-2000	from 0.8% to 2.128%
Bhojraj, Swaminathan, 2001	6/0/12	Cross-country study (38 capital markets)	1975-1999	1.2%
Hameed, Yuanto, 2002	6/0/6	Asia region (9 capital markets)	1981-1994	0.37%
Griffin et al. (2003)	6/1/6	Cross-country study (39 capital markets)	1975-2000	0.49%
Forner and Marhuenda (2003)	12/0/12	Spain	1967-1997	0.133%
Doukas and McKnight (2005)	12/0/12	Europe (13 capital markets)	1998-2001	0.73%
Dimson (2008)	12/1/12	UK	1900-2007	0.9%
Alsubaie and Najand, 2008	12/0/12	Saudi Arabia	1993-2005	0.76%

The purpose of our research

To prove the evidence of cross sectional momentum effect in Russian stock market within the variety of momentum strategy design elements and disclosure of the momentum effect nature

- The data cover the sample period from **January 2003 to December 2013**.
- Our study is based on the **monthly return** of Russian common stocks previously traded and which continue to trade on the MICEX, RTS, "the Moscow Stock Exchange" and FB "St. Petersburg."
- **Delisted stocks** are **included** on the Russian market sample.

Key elements of momentum strategy's design

✓ Time periods of 3 window lengths

✓ (3 or 6 or 9 or 12 months) for (to determine winners and losers according to stocks' past performance),

a) ranking period;



b) skip;



c) holding period.



✓ Momentum indicators for ranking periods

(past cumulative returns or the ratio of current stock price to its 52-week high price or ratio of the short-term moving average to the long-term moving average);

Momentum strategy's design

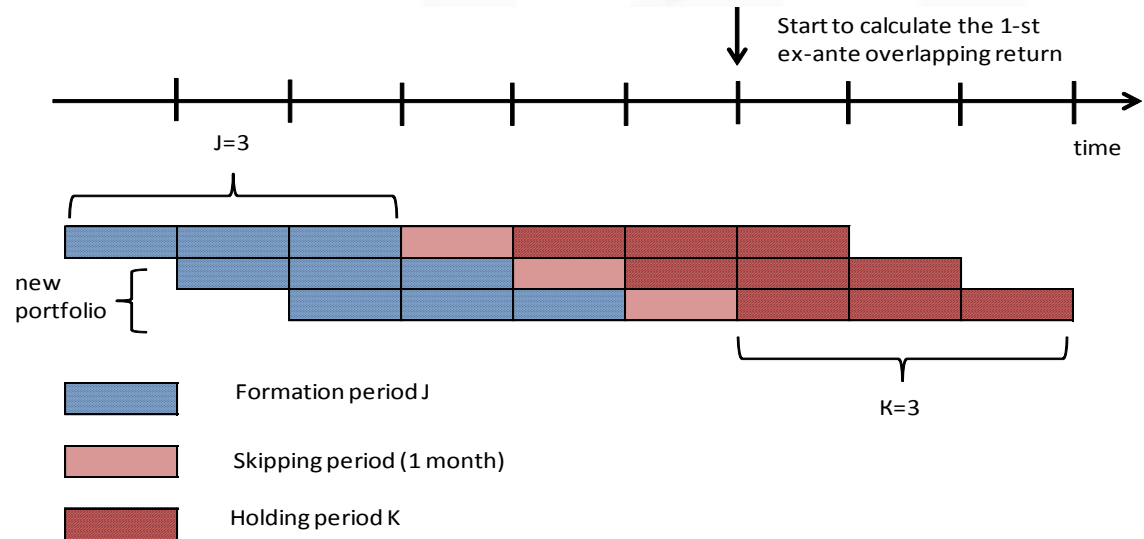
✓ The way of calculating stocks' weights in portfolio (equal- **or** value-weighted);

✓ The method of portfolio formation:

RSS (Relative Strength Strategies) **or**
WRSS (Weighted Relative Strength
Strategies).

Our portfolio construction

- **Momentum indicator** - cumulative returns over the past J months' formation period (3, 6, 9 and 12 months).
- **Relative strength strategy** (Jegadeesh, Titman, 1993)
- **Equal-weighted portfolio**
- **Overlapping holding periods.**



Summary of testing momentum without transaction costs

Russian case

	Momentum strategies with statistically significant profits	Statistical significance	Monthly returns	
Momentum effect and reversal effect	The arbitrage portfolio	3/1/3	at the 10% level	0.0159
	The loser portfolio	3/1/12	at the 10% level	0.0164
		9/1/12	at the 10% level	0.0185
		12/1/9	at the 10% level	0.0199
	The winner portfolio	12/1/12	at the 10% level	0.0199
		3/1/3	at the 5% level	0.0268
		3/1/6	at the 5% level	0.0232
		3/1/9	at the 5% level	0.0181
		3/1/12	at the 10% level	0.0147
		6/1/3	at the 5% level	0.0216
	6/1/6	at the 10% level	0.0169	
	9/1/3	at the 10% level	0.0156	

Summary of testing momentum with transaction costs

innovations in modeling transaction costs

Momentum strategies with statistically significant profits

Statistical significance

Monthly returns

The arbitrage portfolio

no

The loser portfolio

no

The winner portfolio

3/1/3

3/1/6

3/1/9

at the 10% level

at the 10% level

at the 10% level

0.0166

0.0179

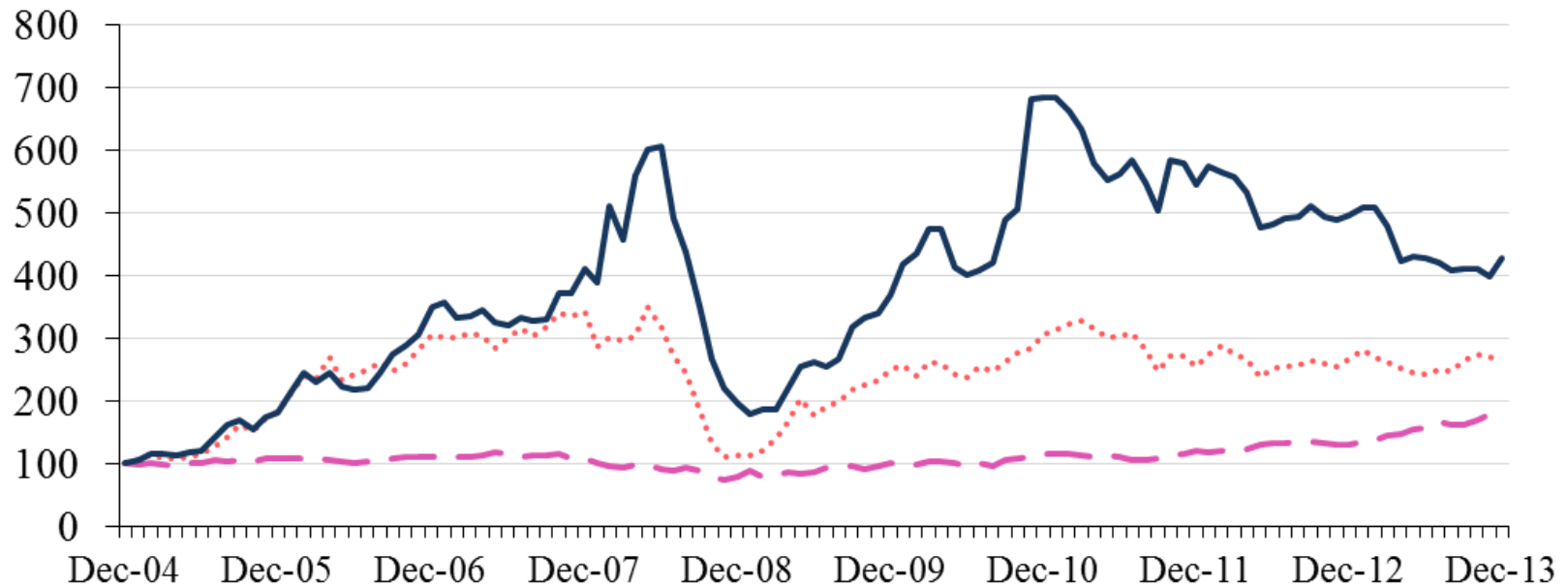
0.0145

Momentum effect and reversal effect



Cumulative returns of momentum strategy (long portfolio) vs buy and hold strategies

Our results



..... Value of the portfolio invested in the passive strategy (in MICEX index)

--- Value of the portfolio invested in the passive strategy (in S&P index)

— Value of the portfolio invested in winners (3/1/6) with subtracting of transaction costs

Size, liquidity and seasonality patterns to momentum profitability

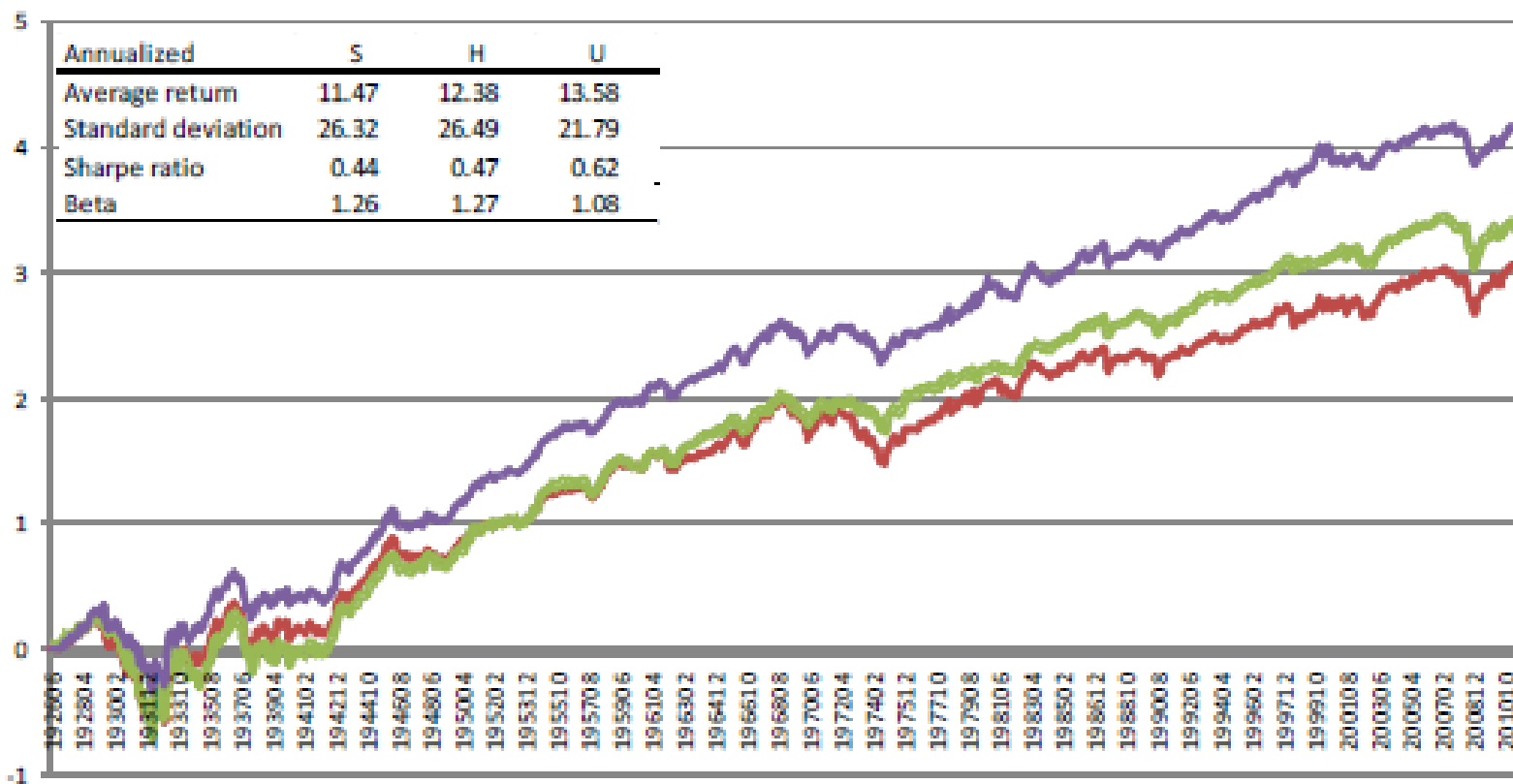
Discussion questions

- Excluding transaction costs we have got mixed results on the size influence on momentum effect; taking into account transaction costs, momentum effect only exists among small caps.
- Seasonally, momentum strategies tend to perform better in December and worse in January. Excluding January from our sample has improved the performance of momentum strategy in Russian stock market.
- More liquid stocks are more likely to trend due to behavioral finance

Momentum for portfolio formation vs Size (worst result) and Value

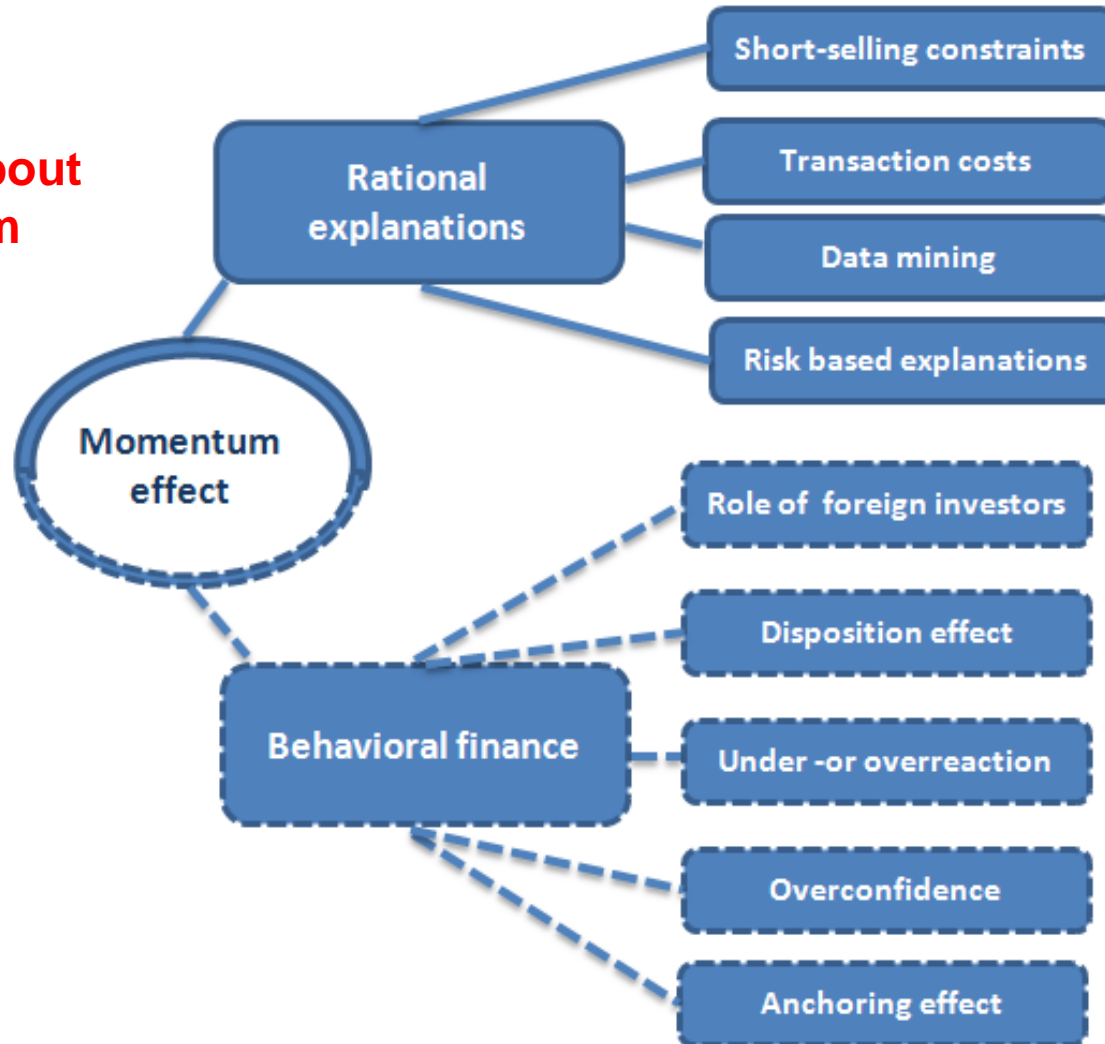
**Figure 1(C): Cumulative Raw Excess Returns to Size, Value and Momentum
Long Only Portfolios**

— S (Size) — H (Value) — U (Momentum)



The nature of momentum effect

what we understand about the momentum effect



The dual nature of the momentum effect on the Russian stock market

Next testing

the nature $Win_t = Win_{inf\ flow} INFLOW_t + Win_{outflow} OUTFLOW_t + e_t$

	Holding period = 3 mec.			
	1-3 Months	1-6 Months	1-9 Months	1-12 Months
Foreign investors' optimism				
CAPM (MICEX) alpha	0.039 0.000 **	0.036 0.000 **	0.037 0.000 **	0.031 0.000 **
Fama-French (MICEX) alpha	0.025 0.005 **	0.029 0.000 **	0.031 0.000 **	0.027 0.000 **
Foreign investors' pessimism				
CAPM (MICEX) alpha	0.009 0.370	0.003 0.683	-0.003 0.580	-0.003 0.488
Fama-French (MICEX) alpha	0.014 0.119	0.003 0.629	-0.004 0.397	-0.005 0.181

Our contribution (1)

- It is revealed that the **design of the strategy is important** for existence of momentum effect:
 - 3 time periods of windows lengths (ranking period, skipping or short-term reversal period and holding period),
 - momentum indicator,
 - way of calculating stocks' weights in portfolio ,
 - method of constructing portfolio.

Momentum results depend on the choice of the analyst
- It is found the elements of design strategy allowing to **obtain statistically significant profit within arbitrage portfolio** as well as only winner or loser portfolios in the Russian stock market.

Our contribution (2)

- It is estimated the influence of changes in economic conditions on the performance of momentum strategy. **During the period of economic recovery arbitrage momentum strategy demonstrates losses** due to the advanced recovery of past losers.
- **The inclusion of transaction costs does not eliminate the momentum effect** and does not explain the abnormal returns of momentum strategy in the Russian market.

Our contribution (3)

- Asset pricing tests

show that the momentum effect in the Russian stock market has a **dual nature**: statistically significant risk - adjusting momentum return is supported by **periods of foreign capital inflow in the Russian equity funds** and up stock market (in the context of return of the MICEX index over the last 36 months).



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Thank you for your attention!