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**The underpricing phenomenon in initial public offerings is explained by the
greed of financial speculators**

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Abstract: The article is devoted to the explanation of the reason of the post-IPO stock undervaluation phenomenon, which is quite widespread in the markets. The author shows that the first day of trading fundamentally differs from other trading days by a very large, uncharacteristic for other days volume of deals, the absolute majority of which are speculative. As a result, the real reason for the phenomenon of undervaluation is not information asymmetry, underwriter's reputation, taxation, etc., but the profit: speculative investors expect to get the maximum income from speculating on shares whose quotations have not yet settled in the market after the IPO.

Keywords: IPO, underpricing, Russia

JEL Classification: G11, G12, G23, G32, G41

Introduction

The purpose of this article is to find an answer to the question about the causes of the phenomenon known as IPO underpricing (the phenomenon).

At the end of the first day of trading after an initial public offering (IPO), the stock price begins to trade freely and, naturally, by the end of the first day of trading, will

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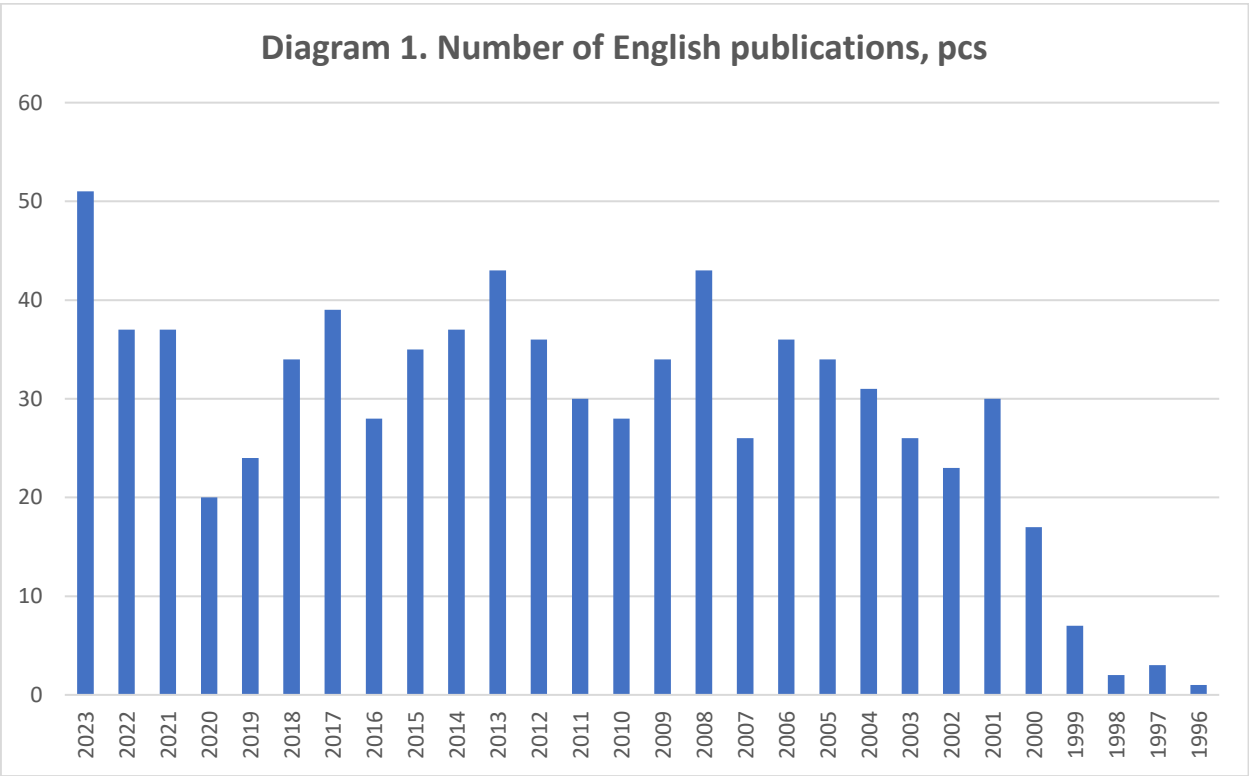
differ from the offering price. In some cases this difference turns out to be too big, which is not typical for shares of this issuer on other days. In other words, stock returns on the first day of trading immediately after the IPO are substantially higher/lower than returns earned in other periods.

The existence of this phenomenon has been repeatedly confirmed by many scholars [Ibbotson, 1975; Logue, 1973; Stoll&Curley, 1970], including numerical values of underestimation/overestimation [Ritter, 2023] in different countries of the world [Loughran, Ritter, Rydqvist, 2017]. On the Russian IPO market, the existence of the phenomenon of stock underpricing has also been confirmed [Lukashov, Mogin, 2008], [Ivashkovskaya, Kharlamov, 2007].

Review of literature

The phenomenon of underpricing is well known in the scientific literature and many articles have been written about it.

A search of the Social Sciences Research Networks International Digital Library (ssrn.com) using the keywords “IPO, underpricing” yielded 873 articles (as of January 2024). Of these, based on 694 papers, whose number of citations was greater than one, Diagram 1 was plotted, showing the publication of English-language articles by year.



Source: ssrn.com/, Author’s Calculations

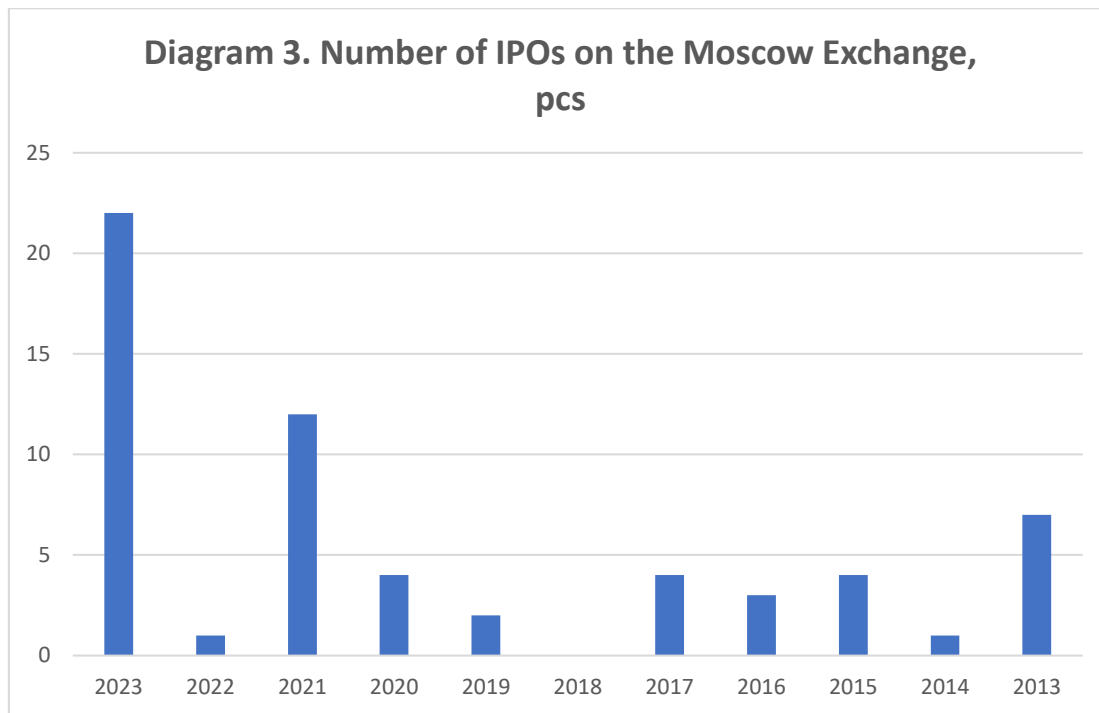
Diagram 1 clearly demonstrates the high relevance of research related to the phenomenon, with interest in the topic increasing rapidly over the past three years, apparently due to the increase in IPOs since the end of the coronavirus pandemic.

A search in the Russian electronic library with the Russian Science Citation Index (elibrary.ru) using the keywords “undervaluation, share(s), IPO” yielded 15 articles (as of December 2023), for which Diagram 2 is plotted, showing the number of Russian-language publications by year.



Source: elibrary.ru/, Author's Calculations

Diagram 2 shows the low level of scientific interest in the phenomenon in Russia, but given the IPO spike made by the Russian financial sector in 2023 (Diagram 3), we can expect an increase in the number of articles on this topic in Russia, too.



Source: <http://preqveca.ru/>, Author's Calculations

The available publications cover a very wide range of versions about the causes of the phenomenon. The following versions are the best known and most authoritative.

The asymmetric information model [Baron, 1982; Rock, 1986; Beatty and Ritter, 1986] assumes that some of the participants in an IPO (the issuing firm, the underwriting investment bank, and the investors) always have more information than the others and act in their favor.

The agency theory [Benveniste and Spindt, 1989; Loughran and Ritter, 2002] focuses on the underwriter and assumes that the underwriter is an agent and acts in the interest of the issuing company. A number of scholars [Carter and Manaster, 1990; Beatty and Ritter, 1986; Nanda and Yun, 1997] attempt to explain the phenomenon by the reputation of the underwriter. They prove that there is a negative relationship between the reputation of investment banks and the magnitude of stock underperformance.

The signaling hypothesis [Allen and Faulhaber 1989] treats IPO underpricing as a signal that the quality of the firm is high in the market and that underpricing losses are covered in the subsequent second offering. However, a number of scholars [Michaely and Shaw, 1994; Espenlaub and Tonks, 1998] have challenged this hypothesis.

The ownership dilution hypothesis [Booth and Chua, 1996] prioritizes the desire to maintain some sort of preferred ownership structure.

Another hypothesis [Brennan and Franks, 1997] suggests a reduced incentive for new outside shareholders to control the management of the issuing company.

The tax hypothesis [Rydqvist, 1997; Taranto, 2002] show that some of the excess returns on the first day of trading can be explained by the tax benefit from underpricing.

The advertising hypothesis [Habib and Ljungqvist, 2001] states that IPOs with higher advertising costs have a significant reduction in IPO underpricing.

The litigation risk avoidance hypothesis [Ibbotson, 1975; Tinic, 1988] suggests that issuers intentionally underprice their stock offerings to insure themselves against potential litigation by investors.

Another theory [Aggarwal, Prabhala, Puri 2002] sees the phenomenon as a consequence of price stabilization by the underwriters after the IPO.

The information cascade theory [Welch, 1992] states that investors are guided by the behavior of other investors when deciding to buy stocks.

In addition to the above widely known reasons for the phenomenon, there are other lesser known reasons, such as that underpricing is determined by the age of the company, or the size of the company, or that underpricing on the first day of trading is higher for high-tech companies, or that underpricing is higher when the underwriter is a Big 3 company. It is also argued that the phenomenon is due to investors' inflated optimism, their reliance on analysts' investment reports, and the size of the companies.

Thus, it can be stated that there is a huge range of diverse opinions, there is no single opinion on the problem and, accordingly, the cause of the phenomenon is far from being understood.

Progress of the research

The author of this paper plans to look at the problem in a fundamentally different way than his predecessors and emphasizes the use of previously untapped primary data - the number of deals per day. As it turns out, it is the number of deals that fundamentally distinguishes the first day of trading from other trading days.

The author examines how the number of deals varied over the days after the IPO, distinguishing between speculative and investment deals, studying the day and night returns on the asset, and calculating the daily volatility of the asset.

Full-fledged calculations are made for 13 Russian and one American companies that went public in 2023, for which the author was able to obtain the necessary primary information, primarily tick quotes. Source: Finam.ru/ and preqveca.ru/. All primary calculations are presented in Appendix 1. The results presented in the next paragraph are formulated based on them.

For the purposes of this article, it is necessary to clarify the content of the terms “speculative deal” and “investment deal”.

A speculative deal is a deal in which a small number of securities are sold/bought. “Small” is from 1 to 20 securities, provided that the minimum lot is 1 share; if this lot is 10 securities, the number of securities in the deal to recognize it as speculative is from 10 to 200; if the minimum lot is 100, then, respectively, from 100 to 2,000.

An investment deal is a deal in which a significant number of securities are sold/bought, i.e. more than 100 with a minimum lot of 1 security; more than 1 thousand with a lot of 10 securities; more than 10 thousand with a minimum lot of 100 securities.

Results of the research

The first day of trading after an IPO can show either an uncharacteristically high return on the asset or an uncharacteristically low return. Table 1 summarizes the results of changes in stock prices. For example, quotes of Svetofor Group, Genetico and Whoosh, whose yields on the first day of trading amounted to 50.2% 27.2% and -22.4%, respectively, demonstrate unusually high yields and, accordingly, confirm the existence of the phenomenon. In addition, we would like to point out that the price of an asset may also change during the night before the opening of trading. This aspect of the phenomenon - the difference between the opening quote and the offering price of the paper - has not been studied by almost any researcher before, although it is an important component of the phenomenon. According to Table 1, the quotes of Astro Group, Genetico, Whoosh and Russian Footwear showed abnormal movement on the night before the start of trading. The first two companies added nearly 54% overnight, while the second two added nearly 29%. If you don't take overnight returns into account, you can get erroneous results. For example, the shares of Renaissance Insurance Company showed a night yield of 4.2%, and the

day yield, already negative, of -5.6%. At the end of the first day of trading, the result is 1.4%, which is well within the normal trading performance.

Trading results of the first day after IPO

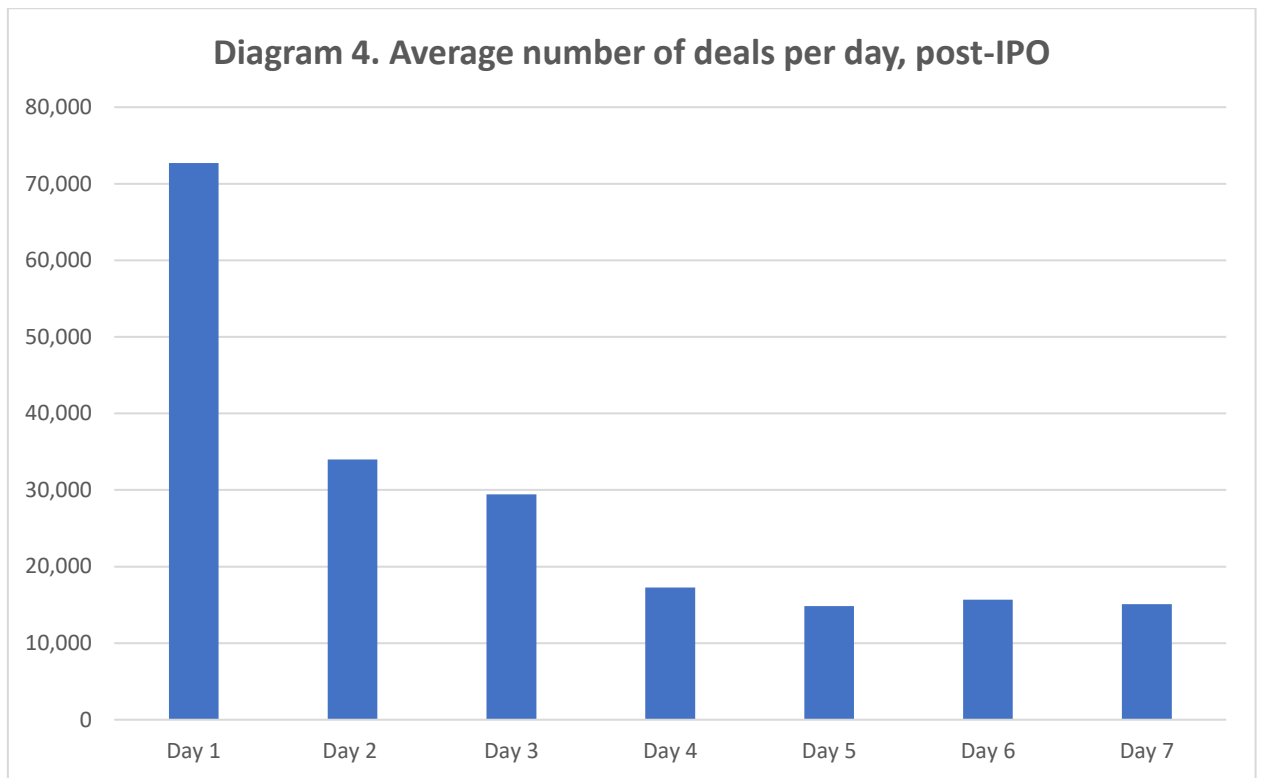
Table 1

Issuers	Yield		
	before the start of trading	on Day 1 of trading	amount
Henderson	0.03	-0.77	-0.74
Astra Group	53.99	9.20	63.19
SmartTechGroup	-0.32	5.33	5.01
Genetico	53.99	27.22	81.21
Whoosh	29.19	-22.43	6.76
Renaissance Insurance	4.17	-5.60	-1.43
European Medical Center	not available	-1.49	-1.49
Segezha Group	1.25	-1.63	-0.38
Fix Price	not available	-1.05	-1.05
Svetofor Group	not available	50.19	50.19
Samolet Group	2.00	-1.65	0.35
Sovkomflot	0.00	-4.29	-4.29
Nornickel	4.95	-2.28	2.67
Globaltrak Management	2.27	-1.30	0.97
Obuv Rossii	28.57	-20.04	8.53
Detskiy Mir	5.88	-5.56	0.32
Russneft	10.00	-7.77	2.23
FG Buduschee	3.26	-0.82	2.44
Novorossiysk Bakery Products Plant	2.54	-12.57	-10.03
HiTek Global Inc (US)	not available	-0.36	-0.36

Source: Appendix 1, Author's Calculations

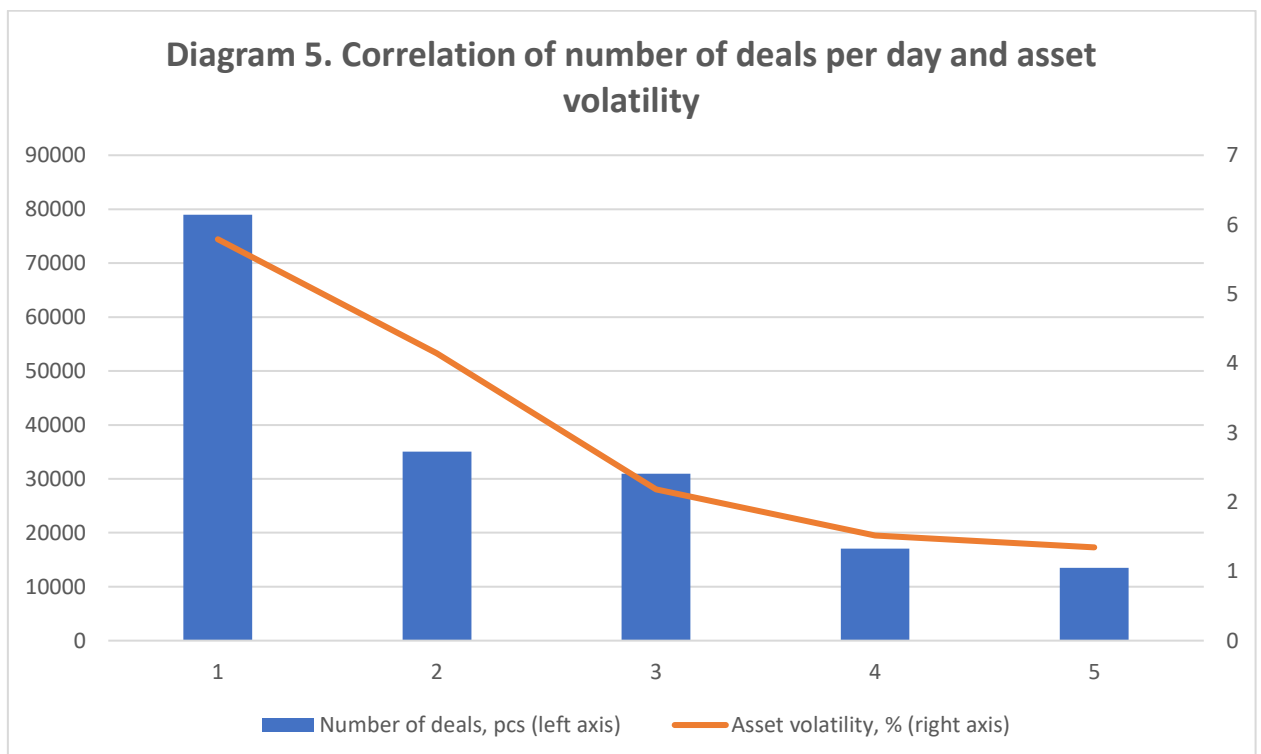
The first working day after the opening of trades following each IPO is marked by making the largest in absolute terms number of deals² (see Diagram 4). In the next trading days the number of deals is significantly reduced and stabilizes at the level of 3-6, and sometimes 10 times less. This increase in the number of deals occurs without regard to an increase or decrease in the yield of the asset, it occurs almost always after the IPO and therefore it can be confidently argued that a sudden significant increase in the number of deals is an important characteristic of the issuer's stock market on the first day after the IPO.

² Sometimes it can be the second day of bidding if the first day's bidding is purely nominal (with some restrictions).



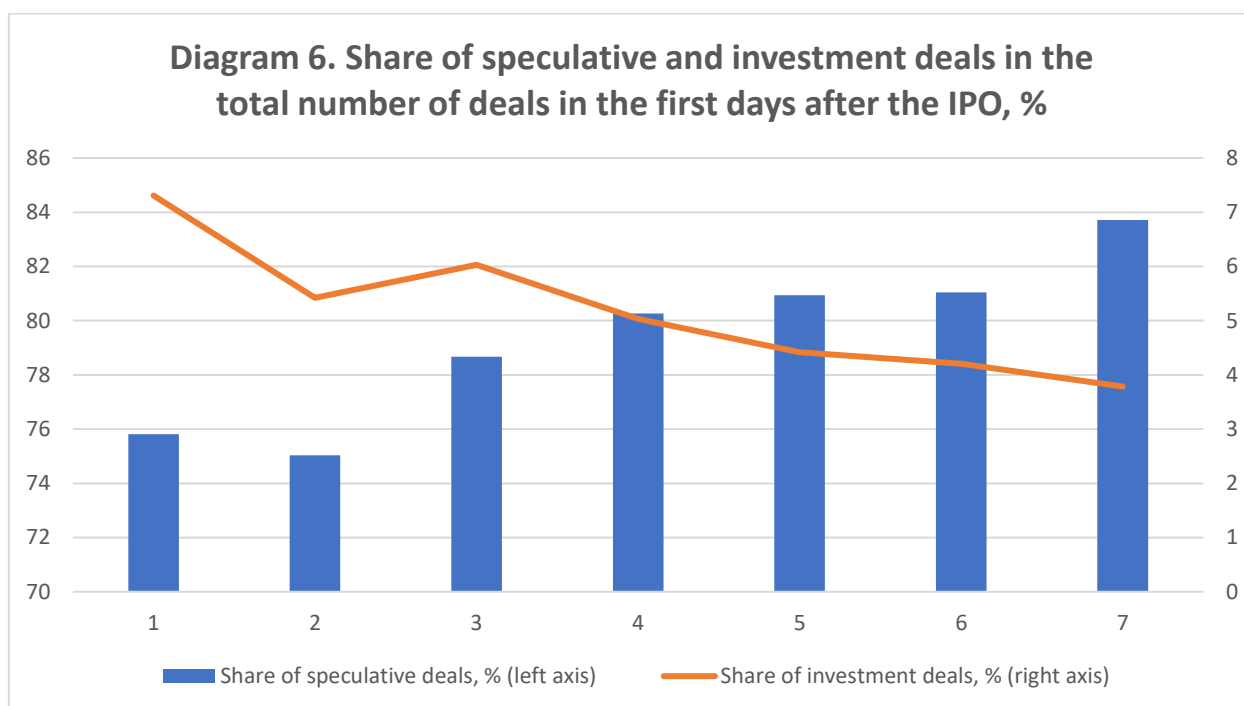
Source: Appendix 1, Author's Calculations

There is a generally stable relationship between the number of deals and the volatility of asset quotes (Diagram 5): the more deals are made, the higher, as a rule, the volatility of the asset, and the higher the volatility, the higher the probability that the return of the asset at the end of the day will show prohibitive results.



Source: Appendix 1, Author's Calculations

Analysis of the number of deals shows that the stock exchange market is a combination of speculative and investment deals in different proportions. The absolute majority of deals are speculative in nature. On the first day of trading after IPO the share of investment deals shows historically maximum values, it is usually not more than 10%, but on the second and following days their share starts to decrease and further stabilizes at some insignificant level (Diagram 6).



Source: Appendix 1, Author's Calculations

Conclusions

1. The phenomenon should be looked at not only as an uncharacteristic change in yield during the first day of trading, but also as any change in the opening price of the first day of trading relative to the offering price.
2. The emergence of the phenomenon is explained by the sudden influx of a large number of speculative investors and a small number of investment investors into the stock market of an issuer that has conducted an IPO.

Obviously, the motive of the former is the desire to gain an advantage from trading an asset that has not yet been established on the market (arbitrage), while the motive of the latter does not play any significant role due to the insignificance of their presence on the market, although the motive may be the desire to adjust/add to their investment portfolio.

Recommendation

The phenomenon creates a certain discomfort for the issuer, investors and other participants of the securities market. This includes giving the misleading impression that the offering price of the security was set erroneously. Hence all sorts of conspiracy theories and suspicions of impropriety that some participants in the IPO process are trying to outsmart others. But this, as we can see, is not the case. In most cases, the offering price is set fairly and is clearly fundamental. However, speculators then interfere in the pricing, seeking to change the quotes in their own, speculative interests.

In this regard, it is quite reasonable to see the need to eliminate the phenomenon from the market. For this purpose, it is proposed to multiply the size of the minimum trading lot on security exchanges, which will reduce the possibility of using this security for speculative purposes.

In lieu of a conclusion

Of course, the market has the right to set the quotation for a share as it sees fit, but the market itself should not be speculative (momentary, spontaneous, emotional, detached from production, etc.), but fundamental, where the factors of quotation formation are clear, logical and reasonable. Only such a market, I believe, is useful to society and contributes to its development, i.e. successful IPOs.

Russian IPO Market in 2023

1. Henderson

Date	Total deals,	Share of speculative deals (min. number of securities in the package), %		Share of investment	Opening price,	Closing price,	Yield for		Average price,	Volatility,	
	pcs	Total, 1-20 securities	including 1-3 securities	deals, % > 100 securities	rubles	rubles	night, %	day, %	rubles	rubles	as a % of average price
Offering price					675						
02.11.2023	70,567	73.6	34.7	6.6	675.2	670	0.03%	-0.77%	655.50	15.42	2.35%
03.11.2023	22,433	76.9	37.4	4.3	674.5	669	0.67%	-0.82%	653.22	6.67	1.02%
06.11.2023	8,898	77.9	47.3	3.7	664	650	-0.75%	-2.11%	655.02	2.53	0.39%
07.11.2023	7,205	77.4	43.4	3.8	660	659.5	1.54%	-0.08%	655.96	2.26	0.34%
08.11.2023	8,584	83.1	48.8	2.6	658	636	-0.23%	-3.34%	646.26	4.06	0.63%
09.11.2023	10,610	84.3	49.3	2.7	636.2	619.9	0.03%	-2.56%	624.72	2.62	0.42%
10.11.2023	15,699	84.4	51.9	2.9	620	581	0.02%	-6.29%	603.26	9.86	1.63%

Notes:

Minimum package - 1 security

Offering period: 25.10.2023 - 02.11.2023

Source: finam.ru/, preqveca.ru/

2. Astra Group

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 100 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 1-20 securities	including 1-3 securities				night, %	day, %		rubles	as a % of average price
	Offering price					333					
13.10.2023	10,927	73.1	39.3	10.6	466.2	466.2	40.00%	0.00%	466.20	0.00	0.00%
16.10.2023	377,824	63.4	32	11.1	512.8	560	10.00%	9.20%	557.60	24.15	4.33%
17.10.2023	139,702	67.9	35.5	8.3	569.65	531.6	1.72%	-6.68%	550.09	15.74	2.86%
18.10.2023	94,896	71.9	42.5	5.7	531.6	506	0.00%	-4.82%	512.90	4.22	0.82%
19.10.2023	48,832	72.3	39.9	5.3	506	502.7	0.00%	-0.65%	502.40	3.21	0.64
20.10.2023	42,129	75.1	42.6	4.9	505.9	480.75	0.64	-4.97%	488.37	4.57	0.94%
23.10.2023	83,778	62.6	31.7	9.2	477	497.7	-0.78%	4.34%	493.68	12.35	2.50%
24.10.2023	37,729	70.1	40.9	5.8	498.05	501	0.07%	0.59%	503.48	2.94	0.58%
25.10.2023	22,890	67.3	37.1	6.8	501.2	505.5	0.04%	0.86%	505.41	3.93	0.78%
26.10.2023	59,317	86.2	70.7	2.7	505.5	503.45	0.00%	-0.41%	513.78	3.11	0.61%
27.10.2023	17,067	79.7	45.1	3.4	503.45	499.1	0.00%	-0.86%	500.74	2.35	0.47%
30.10.2023	18,885	80.5	50.7	3.9	497.2	491	-0.38%	-1.25%	490.26	2.11	0.43%
31.10.2023	21,972	80.3	51.7	3.9	491	488	0.00%	-0.61%	487.86	4.99	1.02%
01.11.2023	12,384	77.8	49.9	4.9	491	493.25	0.61%	0.46%	496.30	2.41	0.49%
02.11.2023	19,132	77.1	47.3	5.1	495.95	490.5	0.55%	-1.10%	499.83	3.28	0.66%
03.11.2023	10,653	81.6	48.1	4.1	493.25	496	0.56%	0.56%	497.43	1.40	0.28%
06.11.2023	21,349	74.6	44.1	6.3	497.95	516.95	0.39%	3.82%	509.36	3.81	0.75%

Notes:

Minimum package - 1 security

Offering period: 02.10.2023 - 13.10.2023

Source: finam.ru/, preqveca.ru/

3. SmartTechGroup

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 10,000 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 100-2,000 securities	including 100-300 securities				night, %	day, %		rubles	as a % of average price
Offering price					3.16						
03.07.2023	107,621	59.5	27.4	14.2	3.15	3.318	-0.32%	5.33%	3.27	0.042	1.29%
04.07.2023	103,086	65.5	33.6	10.7	3.4405	3.024	3.69%	12.11%	3.12	0.112	3.59%
05.07.2023	32,145	74.7	38.4	6.3	3.023	2.89	-0.03%	-4.40%	2.92	0.014	0.47%
06.07.2023	34,527	75.5	39.3	5.8	2.89	2.7	0.00%	-6.57%	2.73	0.027	0.97%
07.07.2023	30,400	68.6	35.7	8.2	2.6995	2.805	-0.02%	3.91%	2.81	0.021	0.76%
10.07.2023	11,175	71.1	37.8	7.6	2.8	2.8	-0.18%	0.00%	2.87	0.070	2.44%
11.07.2023	8,265	78.3	42.7	5.5	2.803	2.801	0.11%	-0.07%	2.82	0.013	0.46%
12.07.2023	6,178	80.6	46.3	4.3	2.8035	2.805	0.09%	0.05%	2.81	0.003	0.12%
13.07.2023	7,602	82.7	51.7	3.4	2.8005	2.77	-0.16%	-1.09%	2.78	0.012	0.45%
14.07.2023	8,943	81.1	51.4	4.7	2.78	2.743	0.36%	-1.33%	2.74	0.007	0.25%

Notes:

Minimum package - 100 securities

Offering period: 21.06.2023 - 03.07.2023

Source: finam.ru/, preqveca.ru/

4. Genetico

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 1000 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 10-200 securities	including 10-30 securities				night, %	day, %		rubles	as a % of average price
	Offering price					17.88					
26.04.2023	2,357	53.5	23.5	16.4	25.032	25.032	40.00%	0.00%	25.03	0.00	0.00%
27.04.2023	14,756	61.9	31.7	12.6	27.534	35.03	10.00%	27.22%	33.87	0.99	2.91%
28.04.2023	5,943	60.1	27.9	13.4	38.496	38.496	9.89%	0.00%	38.35	0.22	0.58%
04.05.2023	21,862	79.8	45.5	4.9	35.51	32.824	-7.76%	-7.56%	33.71	0.47	1.38%
05.05.2023	23,906	72.8	43.6	6.8	32.922	32.2	0.30%	-2.19%	32.92	0.63	1.92%
10.05.2023	17,171	72.1	36.8	6.3	31.702	33.372	-1.55%	5.27%	33.06	0.42	1.27%
11.05.2023	11,014	74.5	40.9	5.9	33.528	33.3	0.47%	-0.68%	33.56	0.29	0.87%
12.05.2023	6,438	79.5	42.9	3.9	32.298	32.29	-3.01%	-0.02%	32.56	0.17	0.51%
15.05.2023	7,294	84.1	49.9	2.9	32.56	32.17	0.84%	-1.20%	32.30	0.17	0.53%
16.05.2023	5,779	81.1	46.1	5.4	32.198	31.892	0.09%	-0.95%	31.99	0.08	0.25%
17.05.2023	10,238	83.3	43.5	3.7	31.75	32	-0.45%	0.79%	32.08	0.10	0.31%
18.05.2023	8,561	78.4	39.6	4.6	32.14	31.86	0.44%	-0.87%	32.17	0.24	0.74%
19.05.2023	8,402	83.6	51.8	3.1	31.81	31.53	-0.16%	-0.88%	31.73	0.15	0.48%

Notes:

Minimum package - 10 securities

Offering period: 12.04.2023 - 25.04.2023

Source: finam.ru/, preqveca.ru/

5. Whoosh

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 100 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 1-20 securities	including 1-3 securities				night, %	day, %		rubles	as a % of average price
	Offering price					185					
14.12.2022	47054	71.6	46.8	9.4	239	185.4	29.19%	-22.43	183.83	1.19	0.65%
15.12.2022	25891	69.7	31.2	5.9	185	182.8	-0.22%	-1.19	183.97	0.59	0.32%
16.12.2022	47237	71.7	40.4	9.2	182.81	155	0.01%	-15.21	165.51	8.79	5.31%
19.12.2022	21841	75.3	42.9	7.2	155	159.13	0.00%	2.66	161.78	4.19	2.59%
20.12.2022	9457	83.2	45.7	4.4	159	160.48	-0.08%	0.93	163.14	1.40	0.86%
21.12.2022	15090	87.2	51.1	3.1	161.5	160.67	0.64	-0.51	161.92	1.85	1.14%
22.12.2022	7645	88.2	54.9	2.3	160.67	159.4	0.00%	-0.79	159.95	0.50	0.31%
23.12.2022	5230	90.1	58.5	2.3	160.9	158	0.94%	-1.80	158.94	0.52	0.33%

Notes: Minimum package - 1 security Offering period: 05.12.2022 - 14.12.2022. Source: finam.ru/, preqveca.ru/

6. Renaissance Insurance

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 1 000 stocks	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total,	including				night, %	day, %		rubles	as a % of average price
		10-200 securities	10-30 securities								
Offering price						120					
21.10.2021	25,124	85.4	54.8	3.1	125	118	<u>4.17%</u>	-5.60%	119.83	1.89	1.57%
22.10.2021	18,262	90.3	58.5	0.8	118.49	115	0.42%	-2.95%	115.61	1.16	1.00%
25.10.2021	15,151	87.4	55.5	1.2	114.99	116	-0.01%	0.88%	116.49	1.02	0.88%
26.10.2021	14,881	88.5	18.5	1.1	115.96	113	-0.03%	-2.55%	114.11	0.99	0.87%
27.10.2021	10,483	88.1	53.8	1.2	114.88	112.96	1.66%	-1.67%	111.87	1.14	1.01%
28.10.2021	6,896	85.2	52.1	1.3	110.6	110	-2.09%	-0.54%	110.64	0.58	0.52%
29.10.2021	10,710	91.9	61.9	0.4	110.8	112	0.73%	1.08%	113.22	1.18	1.04%

Notes: Minimum package - 10 securities Offering period: 30.09.2021 - 20.10.2021. Source: finam.ru/, preqveca.ru/

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 100 assets	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 1-20 securities	including 1-3 securities				night, %	day, %		rubles	as a % of average price
15.07.2021	9,685	73.3	51.2	9.4	940	926	<u>#ДЕЛ/0!</u>	-1.49%	924.52	1.38	0.15%
16.07.2021	3,677	75.9	49.6	3.1	927.98	925.5	0.21%	-0.27%	926.16	0.55	0.06%
19.07.2021	3,696	54.9	37.1	18.6	926.5	924	0.11%	-0.27%	922.44	1.62	0.18%
20.07.2021	1,651	72.1	46.9	8.1	924	923	0.00%	-0.11%	919.97	1.30	0.14%
21.07.2021	1,528	75.9	52.7	7.8	920.02	918.56	-0.32%	-0.16%	918.79	0.61	0.07%
22.07.2021	1,522	68.9	46.9	9.2	919.02	918	0.05%	-0.11%	917.94	0.88	0.10%
23.07.2021	1,638	77.9	54.5	6.7	919.06	916	0.12%	-0.33%	915.45	1.03	0.11%

Notes: Minimum package - 1 security Offering period: 07.07.2021 - 15.07.2021. Ticker: GEMC. Source: finam.ru/, preqveca.ru/

8. Segezha Group

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 10,000 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,		
		Total, 100-2,000 securities	including 100-300 securities				night, %	day, %		rubles	as a % of average price	
Offering price					8							
28.04.2021	51,993	73.8	46.7	6.9	8.1	7.968	<u>1.25%</u>	-1.63%	7.95	0.04	0.47%	
29.04.2021	21,682	76.9	53.2	9.3	8	7.9	0.40%	-1.25%	7.94	0.02	0.24%	
30.04.2021	90,371	91.9	55.3	0.7	7.901	7.88	0.01%	-0.27%	7.85	0.03	0.42%	
04.05.2021	10,144	67.9	42.4	14.4	7.88	7.91	0.00%	0.38%	7.91	0.01	0.07%	
05.05.2021	8,756	74.4	47.8	6.9	7.882	8	-0.35%	1.50%	7.96	0.04	0.46%	
06.05.2021	8,092	68.2	41.2	4.9	8	8	0.00%	0.00%	7.97	0.03	0.37%	
07.05.2021	5,016	81.7	57.1	5.1	8	8	0.00%	0.00%	7.97	0.02	0.27%	

Notes: Minimum package - 100 securities Ticker: SGZH. Offering period: 21.04.2021 - 28.04.2021. Source: finam.ru/, preqveca.ru/

9. Fix Price

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 100 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total,	including				night,	day,		rubles	as a % of average price
		1-20 securities	1-3 securities				%	%			
Offering price					not available						
10.03.2021	96,492	78.6	49.8	6.3	724.5	716.9	#VAL!	-1.05%	726.58	6.82	0.94%
11.03.2021	42,860	79.4	53.7	6.7	725	717	1.13%	-1.10%	702.70	13.04	1.86%
12.03.2021	15,828	84.2	59.1	6.1	720.9	715.5	0.54%	-0.75%	716.40	1.25	0.17%
15.03.2021	19,928	83.6	58.9	5.3	720	704.9	0.63%	-2.10%	708.56	2.50	0.35%
16.03.2021	16,972	79.6	55.6	6.3	708	697.9	0.44%	-1.43%	700.34	1.19	0.17%
17.03.2021	18,565	79.6	57.6	9.1	700	709.2	0.30%	1.31%	701.73	6.41	0.91%
18.03.2021	10,429	93.2	72.3	1.9	710.7	716	0.21%	0.75%	709.41	2.50	0.35%
19.03.2021	7,081	91.1	73.3	3.2	716	716.3	0.00%	0.04%	712.85	1.93	0.27%

Notes: Minimum package - 1 security Offering period: 01.03.2021 - 09.03.2021. Ticker: FIXP. Source: finam.ru/, preqveca.ru/

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, %	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total,	including				night,	day,		rubles	as a % of average price
		10-200 securities	10-30 securities	> 1000 securities			%	%			

Offering price					not available						
18.01.2021	629	89.2	63.3	0.6	70	105.13	#VAL!	50.19%	92.15	9.26	10.05%
19.01.2021	4,236	92.6	63.5	0.5	114	147.14	8.44%	29.07%	141.88	3.91	2.75%
20.01.2021	2,921	95.6	69.9	0.3	150	138.82	1.94%	-7.45%	141.58	4.28	3.02%
21.01.2021	2,430	94.4	62.4	0.7	139	142.25	0.13%	2.34%	142.13	0.76	0.53%
22.01.2021	909	96.4	67.1	0.2	145.9	131.5	2.57%	-9.87%	132.41	1.33	1.01%
25.01.2021	354	93.7	67.5	0	131.02	132.04	-0.37%	0.78%	132.47	0.48	0.36%
26.01.2021	819	95.4	73.5	1.1	130.2	123.14	-1.39%	-5.42%	124.04	1.63	1.31%

Notes: Minimum package - 1 security Offering period: 23.12.2020 - 17.01.2021. Ticker: SVET. Source: finam.ru/, preqveca.ru/

11. Samolet Group

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, %	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total,	including				night,	day,		rubles	as a % of average price
		1-20 securities	1-3 securities	> 100 securities			%	%			

Offering price					950						
29.10.2020	7,411	90.5	61.1	1.7	969	953	2.00%	-1.65%	954.10	5.56	0.58%
30.10.2020	2,118	88.9	61.7	3.1	955	955	0.21%	0.00%	957.75	6.09	0.64
02.11.2020	2,365	93.9	78.1	1.2	955	957	0.00%	0.21%	955.49	0.61	0.06%
03.11.2020	1,574	95.5	77.3	0.6	959.6	952.6	0.27%	-0.73%	954.17	1.43	0.15%
05.11.2020	2,161	94.4	79.7	0.7	959	952.8	0.67%	-0.65%	953.12	0.86	0.09%
06.11.2020	1,751	97.6	87.8	0.4	958.2	952	0.57%	-0.65%	953.36	0.61	0.06%

Notes: Minimum package - 1 security Offering period: 22.10.2020 - 28.10.2020. Source: finam.ru/, preqveca.ru/

12. Sovkomflot

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, %	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total,	including				night,	day,		rubles	as a % of average price
			10-200 securities	10-30 securities	> 1 000 stocks			%	%		
Offering price					105						
07.10.2020	134,717	75.6	50.4	9.1	105	100.5	<u>0.00%</u>	-4.29%	97.74	2.31	2.36%
08.10.2020	31,771	43.6	26.9	2.1	105.5	105.5	4.98%	0.00%	99.68	0.40	0.40%
09.10.2020	36,268	73.9	55.9	8.7	100.5	103	-4.74%	2.49%	101.73	0.66	0.65%
12.10.2020	19,209	73.4	43.3	7.1	103.48	103.55	0.47%	0.07%	103.79	0.12	0.12%
13.10.2020	13,737	76.7	51.8	6.1	103.88	103.2	0.32%	-0.65%	102.76	0.21	0.21%
14.10.2020	6,915	82.8	51.9	4.5	103.39	103	0.18%	-0.38%	102.66	0.10	0.10%
15.10.2020	12,314	80.3	53.5	6.2	103	100.26	0.00%	-2.66%	100.95	0.73	0.72%
16.10.2020	9,841	87.8	63.9	3.4	100.88	100.47	0.62%	-0.41%	100.70	0.45	0.45%

Notes: Minimum package - 100 securities; 7.1.10.2020. Minimum package in the morning — 100 securities, in the afternoon — 10 securities; 8.1.10.2020

Minimum package - 10 securities; 9.10.2020. Offering period: 28.09.2020 - 07.10.2020. Source: finam.ru/, preqveca.ru/

13. Nornickel

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 100 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,		
		Total,	including				night, %	day, %		rubles	as a % of average price	
		1-20 securities	1-3 securities									
Offering price					13,450							
04.03.2019	13,733	87.8	39.5	0.7	14116	13794	<u>4.95%</u>	-2.28%	13911.09	83.61	0.60%	
05.03.2019	11,168	90.5	37.5	0.3	13720	13770	-0.54%	0.36%	13753.04	28.51	0.21%	
06.03.2019	27,092	88.6	38.9	0.7	13832	14442	0.45%	4.41%	14283.92	135.29	0.95%	
07.03.2019	20,278	88.2	35.6	0.7	14450	14442	0.06%	-0.06%	14452.94	35.12	0.24%	
11.03.2019	24,090	86.7	37.2	0.9	14370	14100	-0.50%	-1.88%	14208.21	78.52	0.55%	
12.03.2019	21,666	87.8	42.4	0.7	14226	14380	0.89%	1.08%	14335.80	45.18	0.32%	
13.03.2019	73,033	82.2	26.3	1.6	13780	13850	-4.17%	0.51%	13879.13	40.70	0.29%	
14.03.2019	23,929	84.3	31.3	1.3	13872	13952	0.16%	0.58%	13935.87	33.06	0.24%	
15.03.2019	17,772	84.1	36.2	1.3	13990	14226	0.27%	1.69%	14132.02	43.16	0.31%	
18.03.2019	15,281	83.2	30.7	1.5	14226	14284	0.00%	0.41%	14222.47	33.46	0.24%	
19.03.2019	15,185	82.7	32.9	1.3	14310	14350	0.18%	0.28%	14340.98	32.73	0.23%	
20.03.2019	13,052	80.4	28.9	1.8	14392	14316	0.29%	0.53%	14307.70	30.68	0.21%	
21.03.2019	14,669	84.3	34.6	1.5	14316	14290	0.00%	-0.18%	14286.33	27.22	0.19%	
22.03.2019	10,181	82.1	29.6	1.1	14300	14280	0.07%	-0.14%	14264.81	28.03	0.20%	

Notes:

Minimum package - 1 security

Offering period: 12.03.2019 - 13.03.2019

Source: finam.ru/, preqveca.ru/

14. Globaltrak Management

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, %	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 10-200 securities	including 10-30 securities				night, %	day, %		rubles	as a % of average price

Offering price					132						
03.11.2017	22				135	133.25	<u>2.27%</u>	-1.30%			
07.11.2017	23				136	132		-2.94%			
08.11.2017	6				132	133	0.00%	0.76%			
09.11.2017	19				132	132	-0.75%	0.00%			
10.11.2017	15				132	132	0.00%	0.00%			

Notes: Minimum package - 10 securities / Ticker: GTRK / Offering period: 10.10.2017 - 03.11.2017/ Source: finam.ru/, preqveca.ru/

Small number of share deals makes the estimated figures unrepresentative

15. Obuv Rossii

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, %	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 10-200 securities	including 10-30 securities				night, %	day, %		rubles	as a % of average price

Offering price					140						
20.10.2017	208				180	143.93	<u>28.57%</u>	-20.04			
23.10.2017	57				141.01	141.05	-2.03%	0.03			
24.10.2017	53				142	139	0.67%	-2.11			
25.10.2017	81				139.1	139	0.07%	-0.07			
26.10.2017	74				138	137	-0.72%	-0.72			
27.10.2017	395				140	135	2.19%	-3.57			

Notes: Minimum package - 10 securities / Ticker: ORUP / Offering period: 26.09.2017 - 19.10.2017 / Source: finam.ru/, preqveca.ru/

Small number of share deals makes the estimated figures unrepresentative

16. Detskiy Mir

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 1000 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 10-200 securities	including 10-30 securities				night, %	day, %		rubles	as a % of average price

Offering price					85						
10.02.2017	15,780	22.1	7.7	52.3	90	85	5.88%	-5.56%	84.65	0.72	0.84%
13.02.2017	1,556	28.4	10.4	48.7	85.6	85.2	0.71%	-0.47%	85.24	0.15	0.17%
14.02.2017	1,722	21.7	5.4	50.8	85.5	85	0.35%	-0.58%	85.02	0.04	0.05%
15.02.2017	596				85.2	85	0.24%	-0.23%			
16.02.2017	809				85.09	84.99	0.11%	-0.12%			
17.02.2017	103				84	84.9	-1.16%	1.07%			

Notes: Minimum package - 1 security / Ticker: DSKY / Offering period: 26.01.2017 - 08.02.2017 / Source: finam.ru/, preqveca.ru/

Small number of share deals makes the estimated figures unrepresentative

17. Russneft

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 100 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 1-20 securities	including 1-3 securities				night, %	day, %		rubles	as a % of average price

Offering price					550						
25.11.2016	982				605	558	10.00%	-7.77%			
28.11.2016	696				550	551.9	-1.43%	0.35%			
29.11.2016	534				550	550.2	-0.34%	0.04%			
30.11.2016	838				550.7	556	0.09%	0.96%			
01.12.2016	222				555.7	557.3	-0.05%	0.29%			

Notes: Minimum package - 1 security / Ticker: RNFT / Offering period: 18.11.2016 - 24.11.2016 / Source: finam.ru/, preqveca.ru/

Small number of share deals makes the estimated figures unrepresentative

18. FG Buduschee

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 100 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 1-20 securities	including 1-3 securities				night, %	day, %		rubles	as a % of average price

Offering price					1190						
28.10.2016	94				1228.8	1218.7	3.26%	-0.82%			
31.10.2016	94				1221.7	1229.2	0.25%	0.61%			
01.11.2016	58				1221.7	1216.4	-0.61%	-0.43%			
02.11.2016	58				1203.1	1211	-1.09%	0.66%			
03.11.2016	40				1212.6	1218.7	0.13%	0.50%			

Notes: Minimum package - 1 security / Ticker: FTRE / Offering period: 20.10.2016 - 28.10.2016 / Source: finam.ru/, preqveca.ru/
Small number of share deals makes the estimated figures unrepresentative

19. Novorossiysk Bakery Products Plant

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, % > 1000 securities	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 10-200 securities	including 10-30 securities				night, %	day, %		rubles	as a % of average price

Offering price					512						
15.12.2015	172				525	459	2.54%	-12.57			
16.12.2015	112				460	458.97	0.22%	-0.22			
17.12.2015	82				450	457	-1.95%	1.56			
18.12.2015	172				440.2	515	-3.68%	16.99			
21.12.2015	204				513.5	514.95	-0.29%	0.28			
22.12.2015	52				490.51	491.05	-4.75%	0.11			

Notes: Minimum package - 10 securities / Ticker: NKHP / Offering period: 17.11.2015 - 15.12.2015 / Source: finam.ru/, preqveca.ru/
Small number of share deals makes the estimated figures unrepresentative

Other Russian companies 2015

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, %	Opening price, rubles	Closing price, rubles	Yield for		Average price, rubles	Volatility,	
		Total, 1-20 securities	including 1-3 securities				night, %	day, %		rubles	as a % of average price

Europlan

It was not possible to obtain a quotation for the company's shares

Moscow Credit Bank

It was not possible to obtain a quotation for the company's shares

United Wagon Company

It was not possible to obtain a quotation for the company's shares

The US IPO market in 2023

HiTek Global Inc

Date	Total deals, pcs	Share of speculative deals (min. number of securities in the package), %		Share of investment deals, %	Opening price, \$	Closing price, \$	Yield for		Average price, \$	Volatility,	
		Total, 10-200 securities	including 10-30 securities				night, %	day, %		\$	as a % of average price

03.04.2023	68,103	73.0	42.0	6.0	170.99	170.38	#####	-0.36%	170.21	0.43	0.25%
04.04.2023	149,732	66.0	34.0	9.0	171	172.55	0.36%	0.91%	173.65	1.20	0.69%
05.04.2023	68,565	66.0	36.0	9.0	172.55	173.86	0.00%	0.76%	172.97	0.65	0.38%
06.04.2023	78,984	71.0	41.0	7.0	174.02	171.6	0.09%	-1.39%	173.25	0.77	0.44%
07.04.2023	54,102	73.0	42.0	6.0	171.5	173.09	-0.06%	0.93%	172.32	0.29	0.17%

Notes: Minimum package - 10 securities

Source: finam.ru/, preqveca.ru/

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