

Nikkei 225 in February

As of the end of February, the Nikkei Stock Average (Nikkei 225) stood at 11559.36 up 420.70 points, or 3.8%, from the end of January. The reports on the Japanese government plans to nominate Mr. Haruhiko Kuroda, who is current head of the Asian Development Bank, for the governorship of the Bank of Japan caused the expectation of more monetary easing stance of the BOJ. It pushed the Nikkei 225 to 11662.52 on 25th, it's the highest level since the Lehman crisis.

This month's Topic : Volatility, surprising positive correlation with Nikkei 225

The Nikkei Stock Average Volatility Index stood at 27.80 on February 28, up 19.4% from January 31. The index indicates the expected degree of fluctuation of the Nikkei 225 in one month, which is calculated from prices of Nikkei 225 futures and options on the Osaka Securities Exchange.

Volatility indices are said to have upward trend while stock markets decline. A typical example was found in October 2008 when the global financial crisis was spread. The Nikkei 225 plunged by 24% while the Volatility Index soared by 119% to record its historical high at 92.03. In overseas, the volatility indices, VIX on the S&P500 in the US and VSTOXX on the STOXX50 in the Europe inversely surged to above 80 while stock markets tumbled for the same period.

It is possible to use correlations between the returns of the both indices to confirm such inverse moves. The correlation coefficients (between 1 and minus 1) is close to 1, i.e. positive correlation as the both figures move in the same way, while it is close to minus 1 i.e. negative correlation as they move in the opposite way, The correlation coefficients

Table 1: Annual Return and Correlation bet. 225 and VI

Year	Annual Return of Nikkei 225 (%)	Correlation between Nikkei 225 and VI
2008	-42.12	-0.71
2009	19.04	-0.66
2010	-3.01	-0.72
2011	-17.34	-0.81
2012	22.94	-0.37
2013	11.20	0.22

note) The data of Year 2013 are from Jan 4th to Feb 28th.

between daily returns of the Nikkei 225 and the Volatility Index had been negative until last year as described in the Table 1, representing the two indices moved in opposite direction basically.

However, while the Nikkei 225 has rose sharply since November 2012, the Volatility Index has increased concurrently. Consequently the correlation coefficient turned to a positive figure, i.e. positive correlation in 2013. Although theoretically the larger expected degree of the fluctuation could lead to the greater volatility even if it is in positive direction, it would be quite difficult to find

similar examples in overseas markets empirically.

According to some market participants, main reasons were because of increases in option prices on the background that (1)overseas investors who had decreased positions in Japanese equities resumed rapid aggressive purchases in the Nikkei 225 call options. (2)Short potions demanding option premiums during sluggish market were unwound due to unexpected stock market increase. As It would be specific in Japanese market, such surprising positive correlation between the two indices might draw attention from market participants for the time being.



To learn more about the Nikkei Stock Average Volatility Index, please [visit here](#).

Performance Summary of February 2013

○Nikkei 225 and its derived indices

(Data as of end of February)

Name of Index	Index Value	Monthly Return	Avg Return	Volatility	Yealy High	The Date	Yearly Low	The Date
Nikkei 225	11559.36	3.78%	0.08%	1.17%	11662.52	25-Feb	10486.99	23-Jan
Nikkei 225 TR	16463.47	3.85%	0.09%	1.16%	16598.94	25-Feb	14924.17	23-Jan
Nikkei 225 VI (Volatility)	27.80	19.36%	0.20%	5.08%	29.20	27-Feb	19.06	8-Jan
Nikkei 225 VI Futures	66841.70	24.91%	-0.12%	3.14%	66841.70	28-Feb	47519.52	23-Jan
Nikkei 225 Covered Call	10926.14	5.02%	0.06%	0.99%	10961.37	25-Feb	9865.49	23-Jan
Nikkei 225 Risk Control	13407.19	2.15%	0.05%	0.76%	13489.76	25-Feb	12624.71	8-Jan
Nikkei 225 Leveraged	6183.79	7.10%	0.15%	2.34%	6303.48	25-Feb	5125.79	23-Jan
Nikkei 225 Inverse	4736.18	-4.18%	-0.08%	1.17%	5261.18	8-Jan	4700.91	25-Feb

Name of Index	Index Value	Change	Hist. High	The year	Hist. Low	The year
Nikkei 225 DP (2012)	194.69	7.80%	208.45	2008	82.00	2002

○Benchmark and other indices

Name of Index	Index Value	Monthly Return	Avg Return	Volatility	Yealy High	The Date	Yearly Low	The Date
Nikkei 300	198.33	3.92%	0.07%	1.10%	199.70	25-Feb	176.73	8-Jan
Nikkei China Related 50	1085.34	2.62%	0.05%	1.37%	1107.42	6-Feb	981.20	8-Jan
Nikkei 500 Average	981.25	4.13%	0.07%	0.91%	984.48	25-Feb	881.67	8-Jan
Nikkei Japan 1000	1146.12	3.79%	0.07%	1.09%	1152.70	25-Feb	1023.90	8-Jan
Nikkei JASDAQ Average	1627.36	3.19%	0.09%	0.58%	1627.36	28-Feb	1435.89	4-Jan

Note: Avg Return and Volatility are calculated on the daily return for the past 1 year.

"Change" in the Nikkei 225 Dividend Point Index (Nikkei 225 DP) indicates a comparison with the value at the end of February 2012.

Historical High and Low in the dividend index were based on the values in the same month since 1998.

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