

The January Sale Hits European Markets

Fears of a deteriorating macroeconomic outlook and worsening financial sector conditions sparked a sharp sell-off in European equity markets on January 21, which prompted the Fed to cut interest rates by 75 basis points in an emergency meeting. In this note we use MSCI index data and Barra model data to gain insights into the severity and breadth of the sell-off and compare the recent sell-off with previous extreme market moves.

We examined MSCI Index returns from a country, sector, size segment, and style segment perspective. Exhibit 1 shows the performance of MSCI Indices for the major European markets on recent dates of extreme market moves. The main conclusions we can draw from this data are as follows:

- The decline in European equity markets on 21/01/08 was greater than any other one-day drop during previous crises in the last 10 years.
- The decline was extremely broad, affecting all countries, sectors, size segments, and style segments, more or less to the same degree. This was in contrast with earlier crises when there was wider return dispersion across countries, sectors, and segments.
- Three European sectors, Consumer Staples, Health Care, and Utilities, exhibited defensive characteristics and outperformed the market in all previous crises. The notable exception in the recent drop was Utilities, which was the second worst performing sector on January 21.
- The sell-off on January 21 was fairly indiscriminate across stocks with more than 98% of MSCI Europe Index constituents registering losses on the day. Only 10 of the 622 index constituents experienced positive returns. There was only one previous crisis during the last 10 years when a higher percentage of index constituents fell on the same day. On 16/08/07 at the peak of the sub-prime crisis, only one index constituent registered a positive return.

We also analyzed Barra model factor returns on 21/01/08 and compared them with factor returns on dates associated with the peak of previous extreme events. To gain further insights into the breadth and severity of each crisis, we count the number of factor returns that exceeded 3 standard deviations and 5 standard deviations respectively. For example, several factor returns higher than 3 but less than 5 standard deviations would indicate a broad event of moderate severity. On the other hand, several factor returns higher than 5 standard deviations would indicate an extremely broad as well as severe event. The main conclusions we can draw from the data presented in Exhibit 2 are as follows:

- The breadth of the recent market sell-off was as high as in any previous crisis during the last 10 years. In the market plunge of 21/01/08, 37 out of the 54 factors in the UK model and 56 out of the 83 factors in the European model experienced negative returns in excess of 3 standard deviations.
- The severity of the recent market sell-off was moderate compared to some of the other crises during the last 10 years. Specifically, according to the European model, a significantly higher number of factors experienced extreme returns during the Asian crisis, the LTCM turmoil, and the 9/11 attacks.
- The nature of the recent market sell-off is similar to the sub-prime related sell-off of 16/08/07 but different from the quant meltdown of 09/08/07. Both the recent sell-off on 21/01/08 and the sub-prime sell-off on 16/08/07 were broad events of moderate severity, predominantly affecting industry factor returns. On the other hand, the quant meltdown on 09/08/07 was a relatively narrow event of relatively low severity, predominantly affecting certain style factor returns. In the European model, the two style factors that were most severely affected during the quant meltdown were value and momentum, experiencing returns equivalent to 9.2 and 5.6 standard deviations respectively.

The US market was closed on 21/01/08 due to a public holiday. Even though it opened 4% lower on 22/01/08, it recovered during the day closing only 1% down. The intra-day rally in the US turned 1-2% losses across Europe into gains of the same magnitude for the day. Closer analysis of the extreme intra day volatility on 21/1-22/1 and comparison with intra-day volatility during previous extreme events may provide additional insights.

Exhibit 1: Daily MSCI Price Index Returns (% , US Dollar)

	January Sell-off 21/1/08	Subprime Turmoil 16/8/07	Terrorist Attacks 11/9/01	LTCM Default 27/8/98	Asian Crisis 28/10/97	January Sell-off 21/1/08	Subprime Turmoil 16/8/07	Terrorist Attacks 11/9/01	LTCM Default 27/8/98	Asian Crisis 28/10/97
Standard Indices					Small Cap Indices					
Europe	-6.64	-3.97	-5.29	-3.42	-2.42	-5.66	-4.32	-2.93	-3.09	-3.96
France	-7.59	-3.85	-6.14	-4.04	-2.40	-7.72	-3.85	-5.49	-3.22	-4.98
Germany	-8.04	-3.07	-7.48	-3.29	-5.37	-7.34	-5.16	-1.84	-1.94	-3.62
Switzerland	-5.39	-2.86	-5.51	-4.49	-1.40	-5.29	-3.95	-2.16	-3.30	-3.49
United Kingdom	-5.85	-4.51	-5.12	-2.30	-0.93	-4.64	-4.25	-2.24	-2.39	-3.95
Minimum	-8.69	-6.17	-7.48	-9.04	-7.28	-7.72	-9.11	-8.23	-8.18	-7.08
Maximum	-5.27	-2.86	3.44	-1.71	1.01	-3.74	-2.58	0.13	-0.89	-0.70
Value Indices					Growth Indices					
Europe	-6.91	-3.73	-4.56	-3.90	-2.48	-6.37	-4.20	-6.13	-2.98	-2.37
France	-7.42	-3.73	-5.23	-4.34	-2.90	-7.87	-3.96	-7.44	-3.76	-1.76
Germany	-7.88	-2.44	-6.58	-3.33	-4.84	-8.17	-3.68	-8.42	-3.24	-5.83
Switzerland	-7.57	-2.64	-8.11	-5.53	-1.40	-4.65	-3.07	-3.01	-3.28	-1.40
United Kingdom	-5.83	-4.25	-3.54	-2.76	-1.02	-5.87	-4.78	-6.88	-1.89	-0.86
Minimum	-9.64	-6.76	-8.11	-11.12	-8.54	-8.23	-5.90	-9.67	-8.61	-6.92
Maximum	-5.00	-2.44	1.61	-0.26	0.84	-4.65	-3.07	4.51	-1.64	1.21
Absolute Returns					Relative Returns					
Europe	-6.64	-3.97	-5.29	-3.42	-2.42	0.00	0.00	0.00	0.00	0.00
Energy	-6.75	-4.81	3.07	-2.95	-2.60	-0.11	-0.84	8.35	0.47	-0.17
Materials	-8.33	-5.68	-3.47	-3.96	-4.60	-1.69	-1.71	1.81	-0.54	-2.18
Industrials	-6.23	-4.90	-4.23	-3.33	-3.70	0.41	-0.93	1.05	0.09	-1.28
Consumer Discretionary	-4.91	-4.22	-6.70	-3.01	-3.46	1.73	-0.26	-1.42	0.41	-1.04
Consumer Staples	-5.22	-3.26	-4.38	-2.55	-0.32	1.42	0.70	0.90	0.87	2.10
Health Care	-4.85	-2.50	-5.03	-1.46	-1.16	1.79	1.47	0.26	1.97	1.27
Financials	-7.66	-3.64	-8.62	-4.53	-2.37	-1.02	0.33	-3.34	-1.11	0.05
Information Technology	-7.21	-4.28	-5.92	-5.08	-3.64	-0.57	-0.31	-0.64	-1.66	-1.22
Telecom Services	-5.74	-3.78	-6.17	-3.80	-2.02	0.90	0.19	-0.88	-0.38	0.40
Utilities	-7.97	-2.77	-5.06	-2.04	-1.08	-1.33	1.20	0.23	1.39	1.34
Minimum	-8.33	-5.68	-8.62	-5.08	-4.60	-1.69	-1.71	-3.34	-1.66	-2.18
Maximum	-4.85	-2.50	3.07	-1.46	-0.32	1.79	1.47	8.35	1.97	2.10
Number of Index Constituents with Negative Return					Percent of Index Constituents with Negative Return					
Europe	612	582	415	526	473	98.4	99.8	79.8	89.6	85.5

Exhibit 2: Daily Barra Model Factor Returns

European Model

Date	Event	Number of negative factor returns <i>beyond 3 standard deviations</i>	Number of negative factor returns <i>beyond 5 standard deviations</i>	Breadth	Severity
28/10/1997	Asian Crisis	62	59	High	High
27/08/1998	LTCM	53	12	High	Moderate
28/08/1998	LTCM	72	64	High	High
11/09/2001	Terrorist Attacks	55	34	High	High
17/05/2006	Recession Fears	51	1	High	Low
27/02/2007	Subprime I	53	0	High	Low
09/08/2007	Quant Meltdown	12	2	Low	Low
16/08/2007	Subprime II	56	8	High	Moderate
21/01/2008	End of Bull Market?	56	12	High	Moderate

Date	Event	Number of negative STYLE factor returns <i>beyond 3 sd</i>	Number of negative STYLE factor returns <i>beyond 5 sd</i>	Number of negative INDUSTRY factor returns <i>beyond 3 sd</i>	Number of negative INDUSTRY factor returns <i>beyond 5 sd</i>
09/08/2007	Quant Meltdown	4	2	8	0
16/08/2007	Subprime II	3	0	52	8
21/01/2008	End of Bull Market?	0	0	55	12

UK Model

Date	Event	Number of negative factor returns <i>beyond 3 standard deviations</i>	Number of negative factor returns <i>beyond 5 standard deviations</i>	Breadth	Severity
28/10/1997	Asian Crisis	31	5	High	Moderate
27/08/1998	LTCM	18	0	Moderate	Low
02/10/1998	LTCM	16	2	Moderate	Low
11/09/2001	Terrorist Attacks	29	9	High	Moderate
17/05/2006	Recession Fears	18	0	Moderate	Low
27/02/2007	Subprime I	15	0	Moderate	Low
09/08/2007	Quant Meltdown	7	1	Low	Low
16/08/2007	Subprime II	38	6	High	Moderate
21/01/2008	End of Bull Market?	37	5	High	Moderate

Date	Event	Number of negative STYLE factor returns <i>beyond 3 sd</i>	Number of negative STYLE factor returns <i>beyond 5 sd</i>	Number of negative INDUSTRY factor returns <i>beyond 3 sd</i>	Number of negative INDUSTRY factor returns <i>beyond 5 sd</i>
09/08/2007	Quant Meltdown	3	1	4	0
16/08/2007	Subprime II	1	1	37	5
21/01/2008	End of Bull Market?	0	0	37	5

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