Bear-market rallies

Too far, too fast, or a perfectly natural reaction to a crash? Placing the stock market's rebound in historical context.

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KC *For more information about the following concepts, go to "Key concepts" on p. 78.*

- *Average and median*
- *Standard deviation*

Bear-market stock rallies are sharp up moves within steeper, longer-term market declines. Like dips within broader bull markets, bear market rallies can be surprisingly powerful.

In March 2009, the Dow Jones Industrial Average (DJIA) gained 20.3 percent in 11 days as it began to rebound from a 12-year low. The Dow rose that fast only three other times since its October 1987 crash. And the market didn't stop there, climbing another 35 percent by Dec. 2.

The magnitude of this advance clearly has been unusual, and the behavior of many stocks has defied expectations. Financial stocks pummeled during the credit crisis, such as American International Group (AIG), Citigroup (C), and Bank of America (BAC), jumped 500, 300, and 168 percent in March, causing many professional investors to throw out their playbooks.

Is the market's recent advance just an extended rally within a broader bear market or is a new bull market now underway? History shows the current rally is unique, but not unprecedented. This analysis measures the Dow's behavior after other bear market rallies since 1928.

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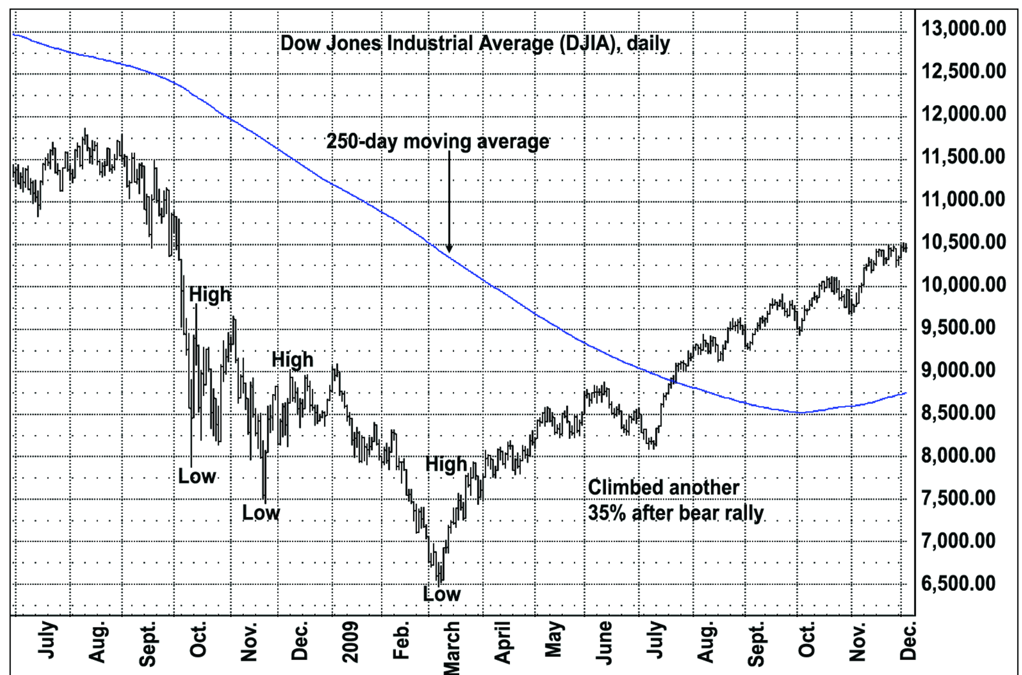
FIGURE 1: A HIBERNATING BEAR?



Bear rallies usually don't heal markets. The market's 62-percent increase since March is unusual.

Source: eSignal

Defining bear-market rallies

Like most chart patterns, a bear market rally can be defined countless ways. First, what constitutes a bear market? Stocks enter a bear market after price drops at least 20 percent, according to some market technicians. For simplicity, this study defines bear markets as periods in which price trades below its 250-day moving average (MA).

Next, how far must the market jump and over what time period? Again, there is little consensus among traders, but this analysis examined rallies of at least 20 percent within 20 trading days. In

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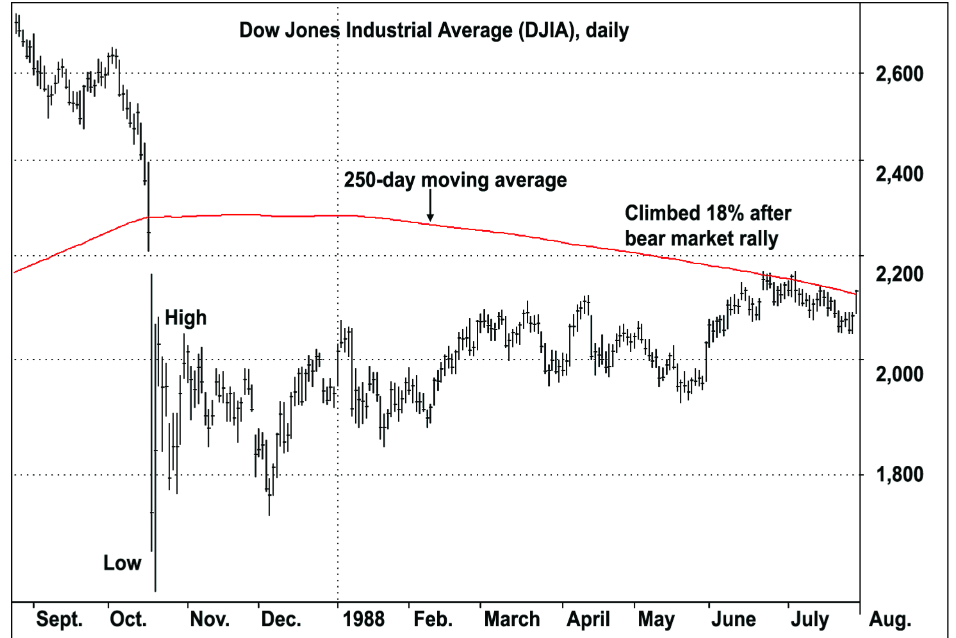
FIGURE 2: THE OCTOBER 1987 CRASH



The Dow rebounded 20 percent the day after the Oct. 19, 1987 market crash. But that gain was fleeting as the market traded sideways for months afterward.
Source: AmiBroker

FIGURE 3: FALSE STARTS AFTER 1929 CRASH

Dow Jones Industrial Average (DJIA), daily
October 1929 crash
250-day moving average
Climbed another 64% after bear rally

After the October 1929 crash, the Dow finally bottomed out in July 1932 and doubled within two months. This rally is one of the few since 1928 that bears comparison to the current rebound.
Source: AmiBroker

short, the market can jump 20 percent in just one day, or this move can take 20 days to develop. The rules are:

1. Today's high is at least 20 percent higher than any low over the prior 20 days.
2. Price is below its 250-day MA during the rally.

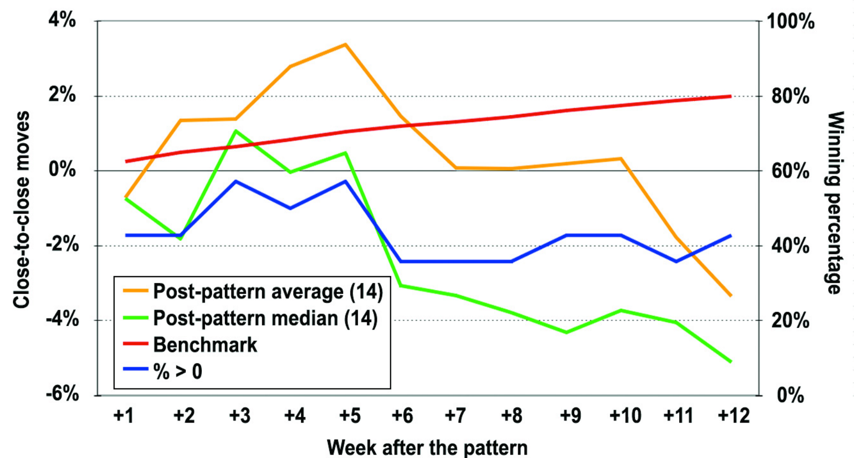
This definition is admittedly crude, especially because it imposes a time limit on these rallies, which vary in intensity and length. However, the pattern is a good starting point as it has managed to identify several major market lows in the Dow since Oct. 1, 1928. The pattern pinpointed just 14 bear market rallies in the past 81 years.

TABLE 1: BEAR MARKET RALLIES, 1928-2009

Low date	Low price	High date	High price	No. of days to rally 20%	8 months later (close-to-close moves)
10/29/29	212.33	10/30/29	260.93	1	-9.39%
10/19/87	1677.55	10/20/87	2067.47	1	14.53%
10/5/31	85.51	10/7/31	103.84	2	-51.13%
10/10/08	7882.51	10/14/08	9794.37	2	-10.86%
1/5/32	69.85	1/13/32	84.67	6	-20.00%
10/4/74	573.22	10/14/74	689.30	6	27.01%
10/19/37	115.84	10/29/37	141.22	8	-2.04%
7/11/32	40.92	7/25/32	50.23	10	25.93%
3/31/38	97.46	4/14/38	117.57	10	29.59%
11/21/08	7449.38	12/8/08	9026.41	10	3.18%
3/6/09	6469.95	3/23/09	7780.72	11	32.59%
6/3/31	120.79	6/22/31	147.97	13	-43.86%
5/31/38	106.94	6/23/38	128.49	17	17.24%
10/10/02	7197.49	11/4/02	8730.64	17	6.50%

Rallies in bear markets can be explosive. Most of these 20-percent jumps occurred in two weeks or less. The Dow extended those gains roughly half the time.

FIGURE 4: AFTER BEAR MARKET RALLIES, 1928-2009



Overall, the Dow has tended to drop after bear market rallies since 1928. The market fell a median 5.1 percent by week 12.

After the great crashes: 2008, 1987, and 1929

Figure 1 (p. 12) shows a daily chart of the Dow from June 30, 2008 to Dec. 3, 2009. The blue-chip index first dropped below its 250-day MA in January 2008 and traded below this threshold until the market finally closed above it in late July 2009. Meanwhile, the Dow rallied at least 20 percent three times — October 2008, November 2008, and March 2009.

Of course, the first two rallies were false starts as the Dow fell dramatically within days of those patterns. By contrast, the Dow climbed another 35 percent and crossed its 250-day MA after the third pattern. The market's decline after its October 2008 jump — 20 percent in two days — isn't surprising. However, the distinction between the November 2008 and March 2009 bear market rallies is less obvious. Why did the market sputter after its November advance, but continue cruising in March?

Figure 2 (p. 14) shows the Dow's recovery from the October 1987 crash. After dropping 25 percent and breaching its 250-day MA on Oct. 19, 1987, the Dow bounced 28.8 percent within two days. But that gain faded and the market traded sideways for months. Unlike its recent success, the market in 1987 rose moderately over the next eight months, gaining only 18 percent.

Figure 3 (p. 14) shows the Dow's 84-percent plunge from Oct. 28, 1929 to July 8, 1932. Five bear market rallies formed as stocks tumbled during this period. The first one occurred within days of the initial plunge on Oct. 29, and it preceded

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steep losses. The next three rallies in 1931 and 1932 also fizzled, although the market managed to climb another 22 percent after the October 1931 pattern before dropping off a cliff again.

The stock market finally bottomed out in July 1932 and doubled its value by September. After that final rally, the Dow climbed another 64 percent and crossed above its 250-day moving average within two months.

This pattern is of one of the few that compares to 2009's rebound. Comparing the Dow in 2009 to its behavior in 1932 is tempting, especially if you believe, as Fed Chairman Ben Bernanke testified in Congress, the U.S. narrowly avoided a second Great Depression. If you take this comparison literally, you could assume the current bear market rally isn't over yet.

On the other hand, there are more differences than similarities between 2009 and 1932. First, the Dow fell harder and faster in the early 1930s than it did in 2008 and 2009. And the market rebounded within two months in 1932 as opposed to eight months (so far) in 2009. Thus, if the market had a chance

Understanding Table 2

Table 2 summarizes price behavior for different scenarios. It shows the average, median, minimum, and maximum price changes from:

1. The pattern's closing price to each weekly closing price over the next 12 weeks.
2. The pattern's closing price to the highest high in the next 12 weeks (largest up move, or "LUM").
3. The pattern's closing price to the lowest low in the next 12 weeks (largest down move, or "LDM").

The standard deviations (StDev) for the close-to-close changes are included, as well as the percentage of times the price move was positive ("% > 0").

TABLE 2: POST-PATTERN STATISTICS

14 instances	Week 1	LUM	LDM	Week 2	LUM	LDM	Week 3	LUM	LDM	Week 4	LUM	LDM
Avg.	-0.71%	5.55%	-5.62%	1.36%	7.97%	-6.95%	1.38%	8.44%	-7.74%	2.80%	9.29%	-8.29%
Med.	-0.74%	4.05%	-4.04%	-1.82%	4.05%	-5.17%	1.07%	4.20%	-5.35%	-0.04%	5.42%	-6.46%
Max.	10.37%	14.34%	0.00%	36.02%	43.61%	0.00%	33.61%	43.87%	0.00%	42.37%	43.87%	0.00%
Min.	-10.47%	0.00%	-15.72%	-11.51%	0.00%	-24.42%	-16.39%	0.00%	-24.42%	-14.89%	0.00%	-24.42%
StDev.	5.39%	5.10%	4.54%	11.71%	11.21%	6.26%	10.99%	11.03%	6.93%	13.93%	11.02%	7.13%
% > 0	42.86%			42.86%			57.14%			50.00%		

	Week 5	LUM	LDM	Week 6	LUM	LDM	Week 7	LUM	LDM	Week 8	LUM	LDM
Avg.	3.38%	10.62%	-8.62%	1.47%	11.52%	-9.63%	0.09%	11.78%	-10.42%	0.07%	11.79%	-11.00%
Med.	0.47%	5.42%	-7.02%	-3.07%	6.99%	-8.60%	-3.33%	6.99%	-8.99%	-3.78%	7.01%	-10.49%
Max.	51.10%	54.70%	0.00%	55.24%	61.43%	0.00%	40.32%	63.50%	0.00%	35.58%	63.50%	0.00%
Min.	-9.52%	0.00%	-24.42%	-10.32%	0.00%	-24.42%	-11.42%	0.00%	-24.42%	-13.24%	0.00%	-24.42%
StDev.	15.19%	14.03%	7.22%	16.94%	15.53%	7.66%	13.20%	16.03%	7.21%	12.63%	16.03%	7.24%
% > 0	57.14%			35.71%			35.71%			35.71%		

	Week 9	LUM	LDM	Week 10	LUM	LDM	Week 11	LUM	LDM	Week 12	LUM	LDM
Avg.	0.20%	11.79%	-11.83%	0.33%	12.67%	-12.50%	-1.78%	13.09%	-13.21%	-3.35%	13.19%	-15.06%
Med.	-4.31%	7.01%	-11.49%	-3.73%	8.21%	-12.23%	-4.05%	8.21%	-13.82%	-5.12%	8.21%	-16.98%
Max.	43.61%	63.50%	0.00%	42.95%	63.50%	0.00%	23.87%	63.50%	0.00%	32.06%	63.50%	0.00%
Min.	-20.65%	0.00%	-24.42%	-19.77%	0.00%	-26.23%	-22.07%	0.00%	-26.23%	-26.46%	0.00%	-28.23%
StDev.	15.43%	16.03%	7.82%	16.08%	15.87%	8.51%	13.87%	15.95%	8.61%	16.92%	15.98%	9.98%
% > 0	42.86%			42.86%			35.71%			42.86%		

Volatility persisted in the wake of bear-market rallies.

of doubling from its March 2009 low, it would have happened by now.

But instead of speculating about where the market is headed, let's measure how the Dow performed after each bear market rally since 1928.

Is the bear hibernating or just asleep?

Table 1 (p. 16) lists the details of 14 patterns identified by this study. The rallies are ranked by length and each pattern's low and high values are shown along with the Dow's subsequent performance. Half the patterns formed within two weeks; not surprisingly, the fastest rallies appeared after the biggest one-day crashes (1929 and 1987). Unlike most bull market rallies, these up moves can be short and explosive.

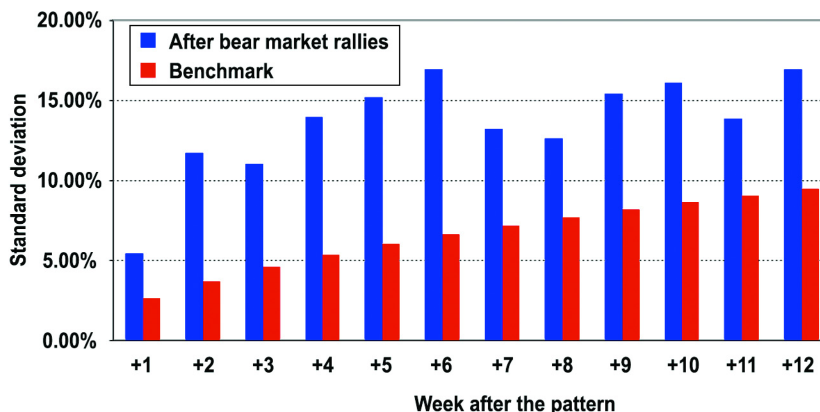
However, the pattern led to further gains only about half the time. Again, the shorter the rally, the more likely the Dow reversed direction afterward. The market continued higher after only two of seven patterns that formed within 10 days. By contrast, the blue-chip index gained ground after all seven patterns that took at least 10 days to form.

Figure 4 (p. 16) shows the Dow's average and median moves from the pattern's close — the day in which the market rallied 20 percent — to the close on each of the following 12 weeks. It also shows the median for all same-length moves since October 1928 (the "benchmark") and the percentage of gains for each period.

Despite some initial bullishness, the Dow tended to decline after bear market rallies since the October 1929 market crash. The index fell a median 0.74 percent by week 1, climbed briefly to beat its benchmark move of 0.66 percent by week 3, and then sank sharply over the next nine weeks. By the end of the analysis window, the Dow slipped 3.35 percent overall and posed losses 57 percent of the time. This uninspiring picture suggests the current bear market rally is an exception to the rule.

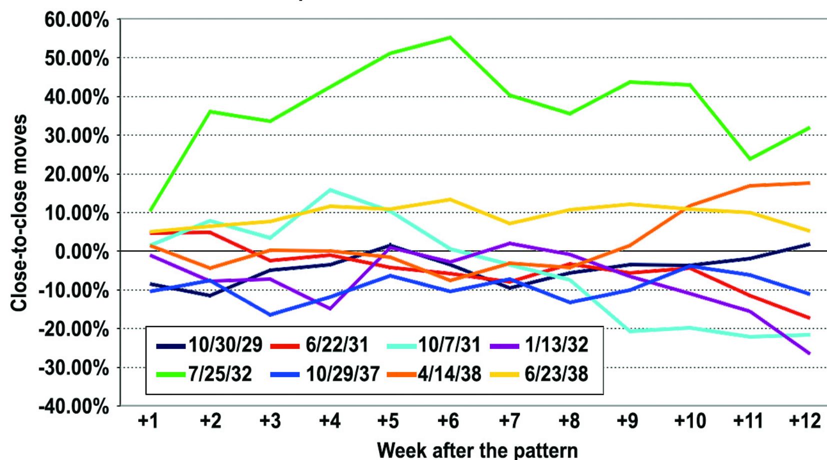
Table 2 lists the statistics behind Figure 4's moves (see "Understanding Table 2"). The numbers say more about post-pattern volatility than direction. Average and median values point in opposite directions half the time, indicating choppy markets. By week 12, the Dow's standard deviation is 16.9 percent, nearly twice its normal value since 1928.

FIGURE 5: MARKET VOLATILITY



Market volatility surged in the 12 weeks after bear market rallies. The Dow was at least 50 percent more volatile than usual during these periods.

FIGURE 6: POST-PATTERN MOVES, 1928-1938



With the exception of a few outliers, the Dow tended to drop after bear market rallies from 1928 to 1938.

Figure 5 examines post-pattern volatility by comparing the Dow's standard deviation in each of the 12 periods to its benchmarks. In the first six weeks, market volatility was at least twice as high as normal. Although volatility was less extreme from weeks 7 to 12, it remained inflated. Bear markets seem to spark more volatility even after the Dow bounced off its lows.

The 2009 rally in historical context

Figure 4 suggests the Dow has tended to sink after bear market rallies, but the market's increased volatility after these patterns means its direction is hard to gauge. Let's dig deeper and examine the Dow's reaction to each rally.

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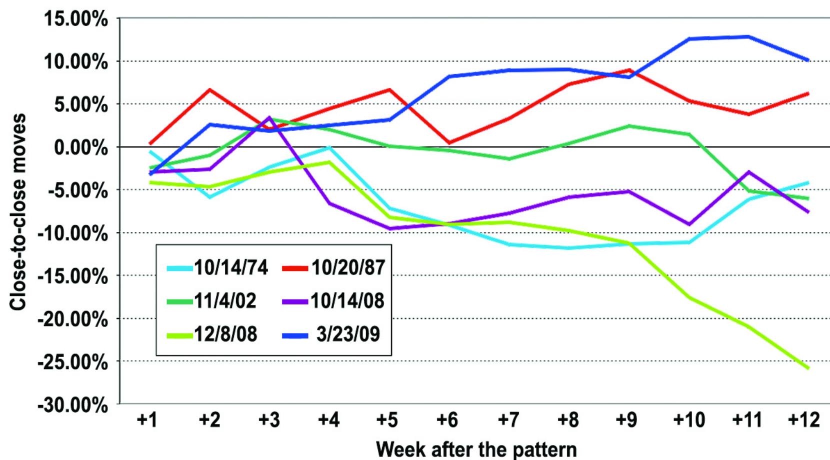


Since 1974, the Dow has tended to stall after bear market rallies. The market's most recent performance (dark blue line) stands out.

Figure 6 (p. 19) shows the market's close-to-close performance after eight bear market rallies from October 1928 to June 1938. The Dow stayed in positive territory after only two rallies: July 1932 and June 1938 (green and yellow lines, respectively).

The July 1932 move stands out, climbing 55 percent by week 6, while the market struggled to gain more than 18 percent in the seven other cases.

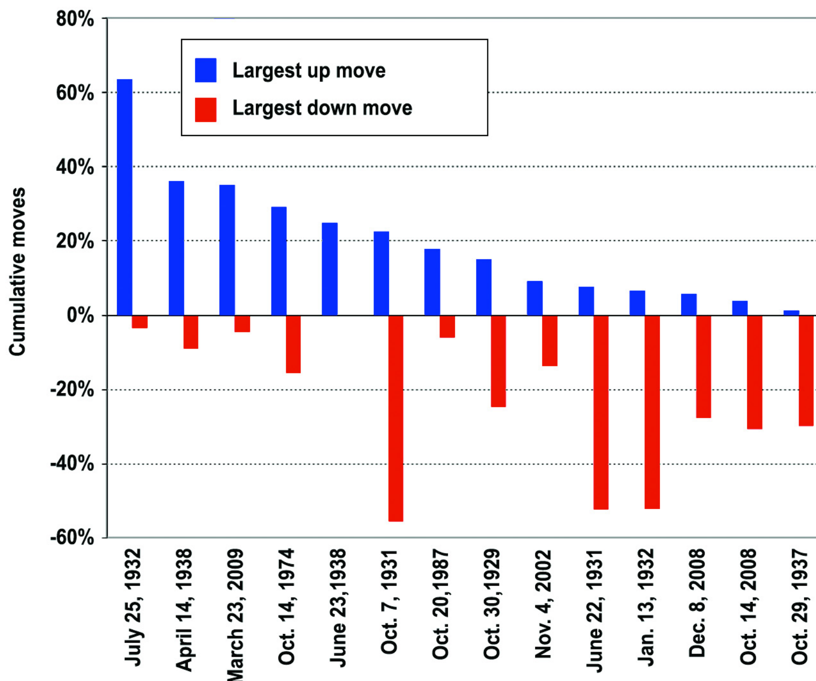
Figure 7 tracks the blue-chip index's moves after six bear market rallies from October 1974 to March 2009. The Dow followed a similar trajectory after recent patterns, sinking into negative territory most of the time. However, the index's advance in October 1987 and March 2009 are the exceptions to this rule.

After falling 3.3 percent in week 1 in 2009, the Dow climbed 5.8 percent in week 2, rose another 5.6 percent by week 6, and gained an additional 4.6 percent by week 11 (dark blue line). By the end of the 12-week period, the market increased 10 percent — five times more than its benchmark move. In the wake of the 1987 crash, the index also gained ground, but at a slower pace. By week 12, the Dow climbed only 6.3 percent overall.

The current bear market rally is the strongest since 1932, according to Figures 6 and 7. To confirm this point, let's examine each pattern's largest up and down moves, which include daily lows and highs, in the following eight months.

Figure 8 ranks each pattern by its largest up move (LUM) from the pattern's close to the highest high during this period. The Dow's current rebound is actually ranked third behind its July 1932 surge and April 1938 bounce (35 percent, 64 percent, and 36 percent, respectively). Less than half of the post-pattern moves exceeded 20 percent, highlighting the unusual nature of 2009's recovery.

Table 3 lists each of the 14 bear market rallies and their beginning and ending dates. It also shows whether the Dow closed above its 250-day MA within eight months. The market crossed above this



After rallying 20 percent in March 2009, the Dow climbed another 35 percent by Nov. 27.

TABLE 3: RALLY OR RECOVERY?

Bear market rally of 20%		
Low date	High date	Close above 250-day MA within 8 months?
10/29/29	10/30/29	No
6/3/31	6/22/31	No
10/5/31	10/7/31	No
1/5/32	1/13/32	No
7/11/32	7/25/32	Yes
10/19/37	10/29/37	Yes
3/31/38	4/14/38	Yes
5/31/38	6/23/38	Yes
10/4/74	10/14/74	Yes
10/19/87	10/20/87	No
10/10/02	11/4/02	Yes
10/10/08	**10/14/08**	**No**
11/21/08	**12/8/08**	**Yes**
3/6/09	**3/23/09**	**Yes**
	% of patterns:	57

The Dow climbed above its 250-day MA after two of the three most recent bear market rallies (highlighted in blue). But the market didn't reach this goal after quick reactions to the large market crashes of 1929 and 1987.

threshold following two of the three most recent patterns in 2008 and 2009 (Figure 1).

But the market didn't reach this goal after it surged 20 percent immediately following its biggest crashes in 1929 and 1987. In short, bear market rallies were more reliable when they took at least two weeks to form. Shorter patterns tended to form during periods of extreme volatility, which led to further losses.

Figure 9 shows the Dow's 10 largest yearly low-to-close moves (on a closing basis) from 1929 to 2009. The current rally is ranked second. That performance leaves its advances in 1982 and 2003 — years in which stocks entered multi-year bull markets — in the dust.

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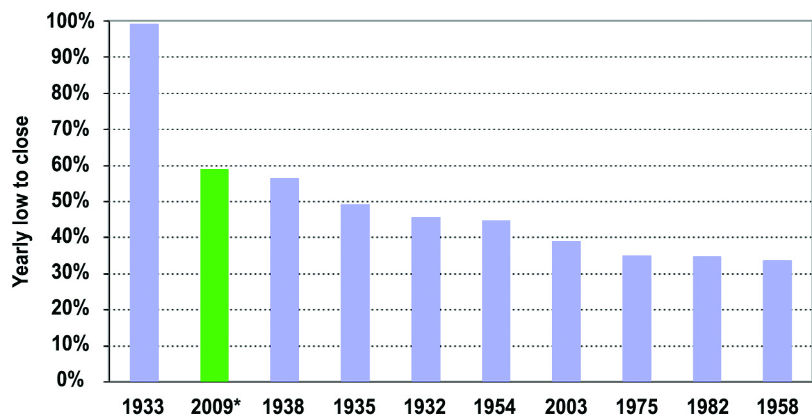
FIGURE 9: LOW-TO-CLOSE MOVES



This year's bounce in the Dow ranked second among all yearly low-to-close moves since the Great Depression.

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