

The Dow diagnosis

The number of Dow stocks trading above or below their 50- and 200-day moving averages can signal trend moves.

KC For more information about the following concept, go to “Key concepts” on 76.

- Simple moving average

BY DAVID BUKEY

Beyond analyzing price, one way to gauge the strength of a stock index trend is to study its internal dynamics, or “breadth.” Typically, this involves comparing the number of stocks that are rising vs. those that are falling, the volume in these stocks, or the number of stocks making new highs or lows. Well-known breadth indicators include the advance-decline line and 52-week new highs/lows.

The premise of such tools is that they can reveal strength or weakness not reflected in price itself. For example, if an index is pushing to new highs but is doing so when the majority of stocks are declining (or when there is less volume in advancing stocks than declining stocks), it could suggest a potential reversal because only a handful of stocks are driving the index higher. Whether or not this is a reliable signal is a matter that can best be determined by testing specific indicators over time.

Many traders define uptrends or downtrends in terms of a stock’s relation to a moving average — that is, whether it is above or below a certain moving average. To find out whether such information can provide insight into an index’s future direction, the following study analyzes the behavior of the Dow Jones Industrial Average ETF Trust (DIA) after the number of Dow stocks trading above or below their 50- or 200-day moving averages hit certain thresholds.

The Dow crowd

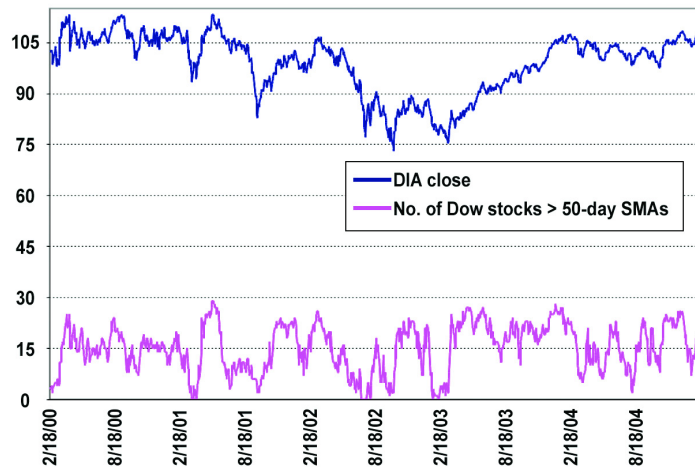
The first part of the analysis used an indicator that reflects the number of Dow stocks closing above their 50-day simple moving averages (SMAs). For example, if Cisco Systems (CSCO) closed above its 50-day SMA today, we added one to the indicator’s value; if not, it remained zero. We repeated this step in all 30 Dow stocks, so the indicator’s daily value ranged from zero (no stocks closing

above their 50-day SMAs) to 30 (all stocks closing above the average).

A second study created a similar indicator using the 30 Dow

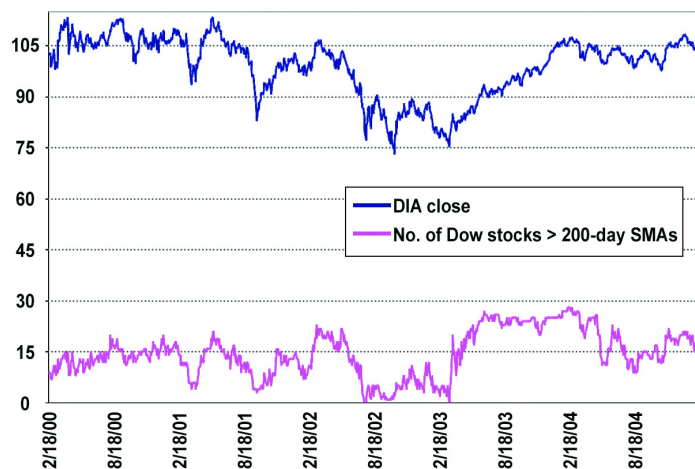
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FIGURE 1: DIA VS. DOW STOCKS > 50-DAY MA, 2000-2005



When the stock market bottomed out, the number of individual Dow stocks trading above their 50-day moving averages dropped to zero.

FIGURE 2: DIA VS. DOW STOCKS > 200-DAY MA, 2000-2005



Counting the number of Dow stocks trading above their 200-day moving averages helps identify larger market trends. As DIA fell to a new low in July 2002, the indicator hit zero. But it jumped above 25 as the market surged in June 2003.

stocks and their 200-day SMAs. Again, daily values ranged from zero (no stocks closing above their 200-day SMAs) to 30 (all stocks closing above the average). The analysis tracked both 50-day and 200-day MA totals each day over 10 years from Feb. 18, 2000 to Feb. 19, 2010.

All 30 Dow stocks were included in the study, but there was a small hole in the data because of the name changes associated with the merger of AT&T (T) and SBC Communications in November 2005. However, several companies were added to or deleted from the Dow during the 10-year span, and those changes are included.

Dissecting the Dow

Figure 1 (p. 14) compares the daily DIA closing prices to the number of Dow stocks closing above their 50-day SMAs (blue and pink lines, respectively) from Feb. 19, 2000 to Feb. 17, 2005.

The indicator was volatile, but its peaks and valleys correspond with many of DIA's highs and lows, especially major turning points. For example, its value plunged to zero on March 21, 2001 — the day before DIA bottomed and subsequently jumped 5 percent within four days, and more than 20 percent over the next two months. The indicator climbed to 29 on May 21, 2001, just two days after DIA rallied to an eight-month high. And the market fell 4.6 percent within eight days.

In July 2002 and January 2003, the number of Dow stocks trading above their 50-day averages again slipped to zero. After a prolonged slide in early 2002, DIA bounced back after the indicator flatlined in July 2002. However, when the indicator hit zero in January 2003, DIA was in a freefall and dropped another 7.3 percent before finally rebounding in March 2003.

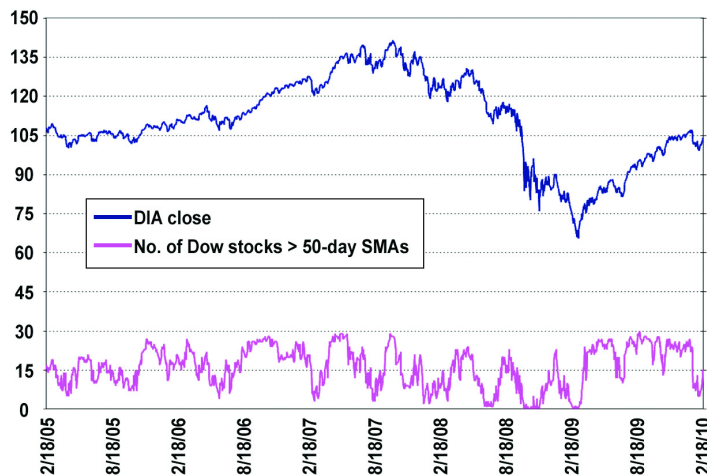
Figure 2 (p. 14) compares DIA to the number of Dow stocks closing above their 200-day moving averages from 2000 to 2005. By increasing the moving average's look-back period to 200 days from 50 days, it is easier to spot larger market trends. As DIA fell to a new low in July 2002, the indicator, like its 50-day counterpart, hit zero. It then also held below its midpoint (15) until late March 2003.

At that point, stocks jumped, and the indicator's value rose slowly, reaching 20 in May. However, the indicator held above that level for 10 months and exceeded prior highs, a sign of a strong bull market. DIA rallied 16.8 percent during that period.

Figure 3 switches back to the short-term indicator, comparing the Dow index to the number of its stocks closing above their 50-day SMAs over the next five years — Feb. 18, 2005 to Feb. 19, 2010.

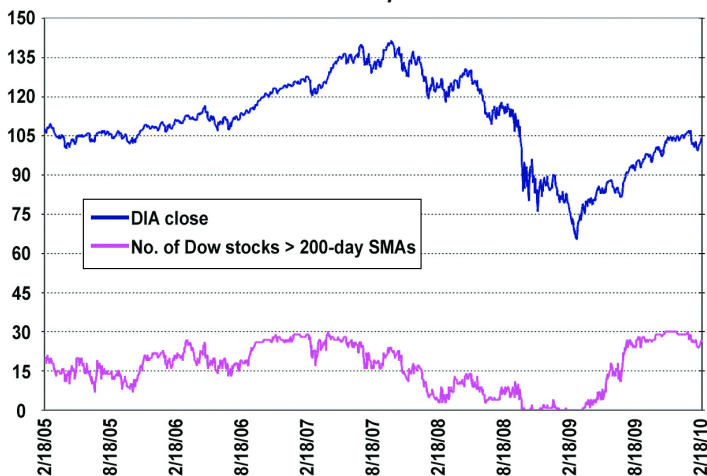
As in Figure 1, broader market trends are somewhat obscured by the indicator's choppy moves. However, extremely high and

FIGURE 3: DIA VS. DOW STOCKS > 50-DAY MA, 2005-2010



After DIA increased dramatically in mid-2007, the number of Dow stocks trading above their 50-day moving averages hit 29. But the indicator reached zero several times during the financial crisis in 2008.

FIGURE 4: DIA VS. DOW STOCKS > 200-DAY MA, 2005-2010



The 200-day moving average indicator highlights bigger trends in DIA. It peaked in January 2007 — just before market volatility rose, and it bottomed out in October 2008, holding near zero until late March 2009 when the stock market rebounded.

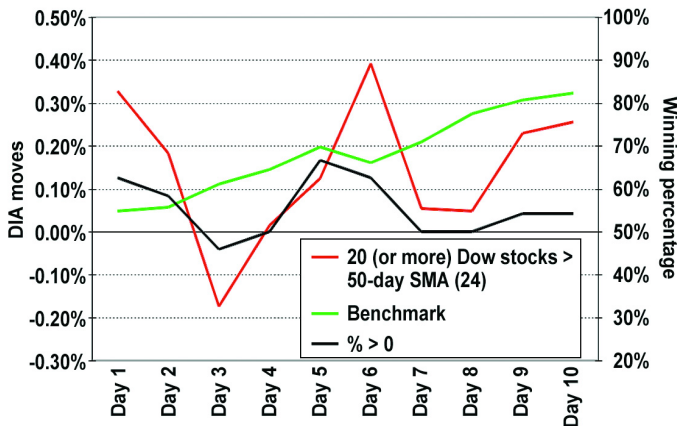
low values seem well timed. For example, after DIA rallied sharply in mid-2007, the number of Dow stocks trading above their 50-day MAs hit 29 (of 30). And the indicator declined to zero several times in 2008 as Dow stocks plunged amid panic from the financial crisis.

Figure 4 compares DIA to the number of Dow stocks closing above their 200-day SMAs from 2005 to 2010, which, like Figure 2, offers a smoother picture of market trends. The indicator's value peaked at 29 in January 2007 — just before market volatility climbed. On the other hand, it slid to zero in October 2008 as DIA plunged, holding near its nadir until late March 2009 when stocks bounced back.

Overall, the 200-day indicator spotted longer-term market trends, hitting (and holding) highs in bull markets, and reaching

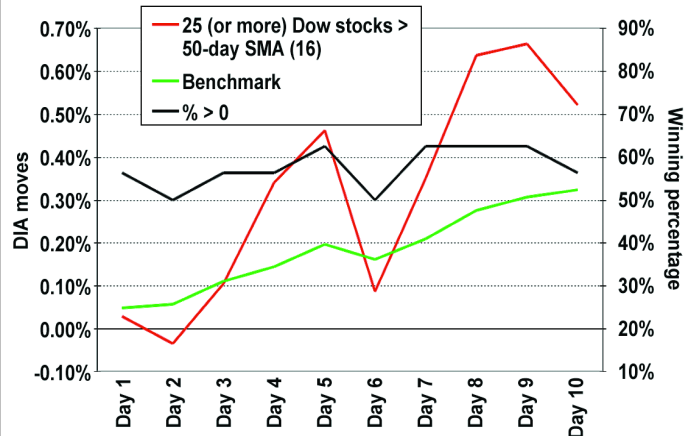
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FIGURE 5: AFTER HIGHS – 50-DAY MA



DIA jumped 0.33 percent on the first day after 20 or more Dow stocks closed above their 50-day moving averages. However, the market lacked a clear pattern the remaining nine days.

FIGURE 6: AFTER PEAKS – 50-DAY MA



DIA was mixed after 25 or more Dow stocks closed above their 50-day moving averages. However, DIA rallied 0.46 percent by day 5 and, despite weakness on day 6, beat its benchmark by day 10.

(and holding) lows in bear markets.

By contrast, the 50-day indicator is harder to interpret, but it reached those extreme levels faster than its 200-day counterpart. This implies the 50-day indicator might be a reversal signal, triggering long trades when its value drops near zero and generating short trades (or long exits) when its value climbs near 30.

The next step is to measure DIA price moves up to 10 days after both indicators reached extreme highs and lows.

Most stocks closing above SMAs

How many Dow stocks should close above their moving averages to signal a “high” indicator reading? There are countless ways to answer this question, but for simplicity, the study starts

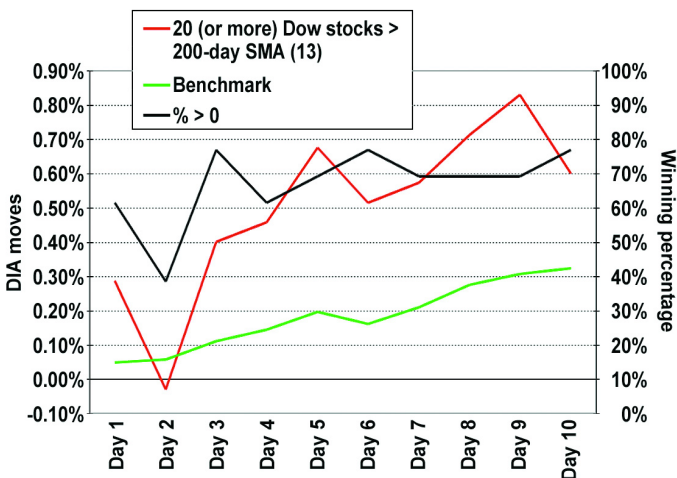
with 20 — in other words, days in which 20 (of 30) Dow stocks closed above their 50- or 200-day SMAs. This number was not optimized and simply represents two-thirds of stocks with a bullish bias.

Figure 5 shows DIA’s median performance one to 10 days after 20 or more Dow stocks closed above their 50-day SMAs. It also shows median performance for all one- to 10-day DIA moves since February 2000 (the “benchmark” move) and the percentage of gains for each period. To avoid overlapping signals, only the first values that hit (or exceeded) 20 within a month were chosen.

DIA climbed 0.33 percent on day 1, but the market was

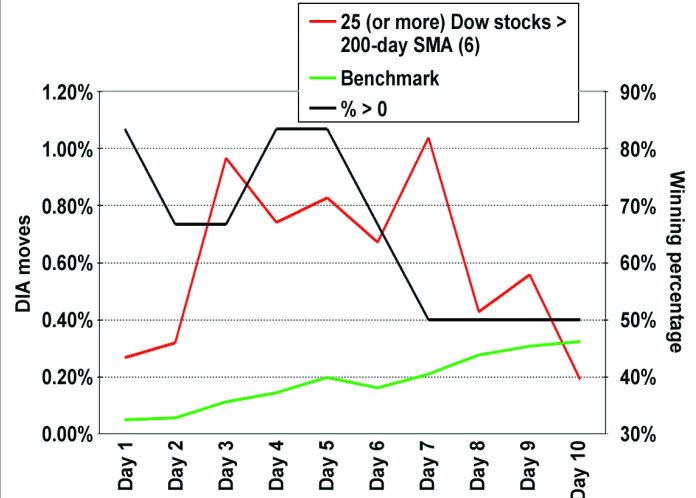
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FIGURE 7: AFTER HIGHS – 200-DAY MA



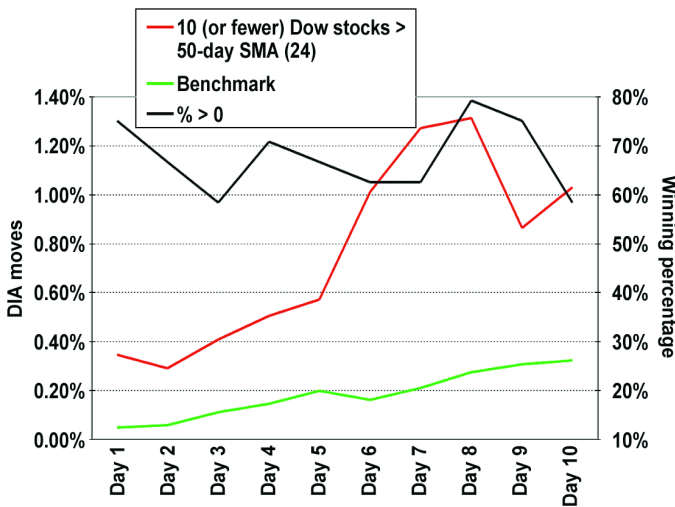
DIA gained ground after 20 or more Dow stocks closed above their 200-day moving averages, although it dipped roughly 0.3 percent on day 2. The market climbed 0.60 percent by day 10, posting gains 77 percent of the time.

FIGURE 8: AFTER PEAKS – 200-DAY MA



DIA was initially even more bullish after 25 or more Dow stocks closed above their 200-day moving averages. The market jumped 0.96 percent by day 3 before giving up that gain in the second week.

FIGURE 9: AFTER LOWS – 50-DAY MA



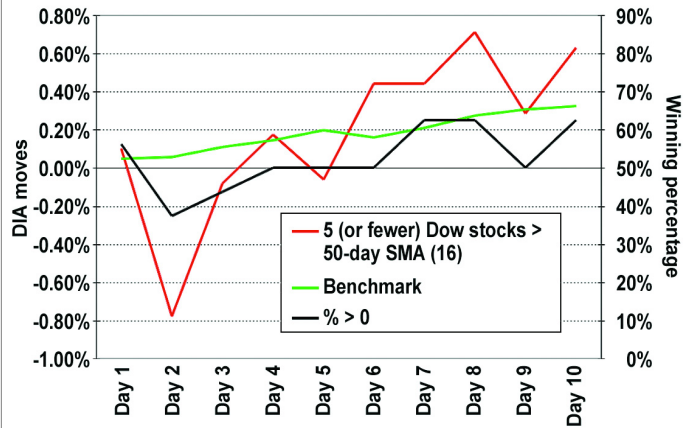
DIA was consistently bullish after the number of Dow stocks trading above their 50-day moving averages dropped. It gained 0.35 percent on day 1, jumped another 1 percent by day 8, and held much of that gain by day 10.

mixed in the remaining nine days. Indeed, the market lagged its benchmark on all but three days during this period, although it posted gains more than half the time (except day 3).

Figure 6 (p. 18) shows DIA's median gains and losses up to 10 days after at least 25 Dow stocks closed above their 50-day SMAs — five more than in Figure 5, representing 83 percent of Dow component stocks. It shows a brighter picture as DIA gained 0.46 percent by day 5 and, despite weakness on day 6, held that gain and beat its benchmark by day 10.

Figure 7 (p. 18) focuses on 200-day SMAs, showing DIA's median performance after 20 or more symbols closed above that

FIGURE 10: AFTER TROUGHS – 50-DAY MA



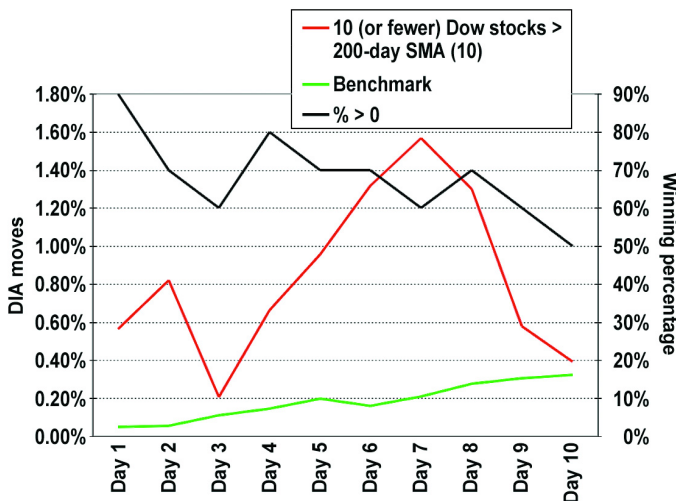
The market underperformed in the week after the number of Dow stocks trading above their 50-day moving averages plummeted. However, DIA bounced back in the second week, beating its benchmark and posting gains 63 percent of the time by day 10.

threshold. The market gained more ground after these patterns than their 50-day counterparts. DIA increased 0.29 percent on day 1, gave back that gain on day 2, and then rose 0.67 percent overall by day 5.

In the second week, the market held that gain, ending the test period up 0.6 percent. Moreover, DIA beat its benchmarks on nine of 10 days and posted gains at least 62 percent of the time (except day 2).

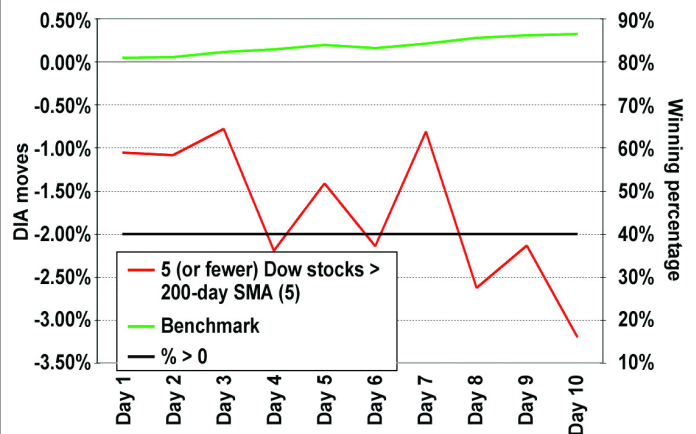
Figure 8 (p. 18) tracks the market's behavior after at least 25 Dow stocks closed above their 200-day SMAs. DIA climbed higher after more individual stocks exceeded that threshold, but that strength didn't last as long. For example, the market gained 0.27 percent on day 1, advanced another 0.7 percent by day 3, but weakened over the next three days. Although DIA spiked again on day 7, it slipped from days 8 to 10.

FIGURE 11: AFTER LOWS – 200-DAY MA

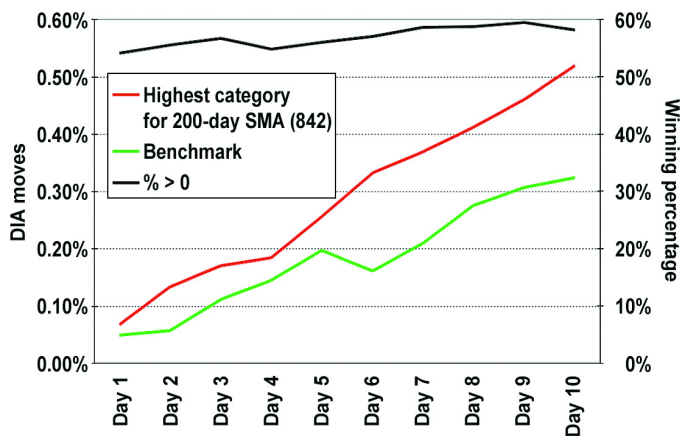


DIA gained ground after the number of Dow stocks trading above their 200-day moving averages fell, rising 1.57 percent by day 7. But that gain disappeared within three days.

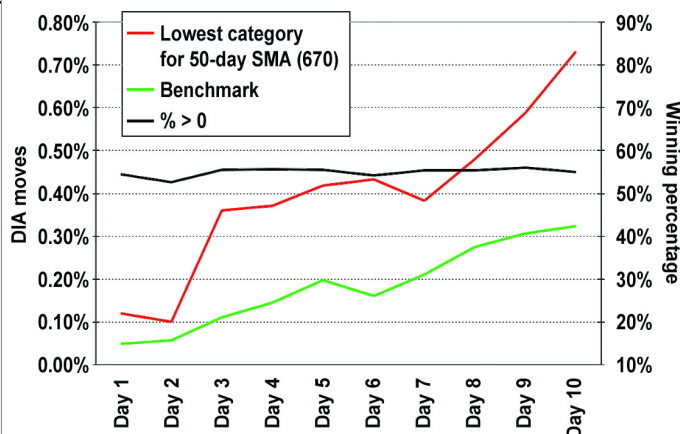
FIGURE 12: AFTER TROUGHS – 200-DAY MA



DIA tanked when the number of Dow stocks trading above their 200-day moving averages dropped to an extremely low level (5 of 30). This pattern formed only five times since February 2000.

FIGURE 13: MOST DOW STOCKS ABOVE 200-DAY MA

The market headed higher as most Dow stocks traded above their 200-day moving averages, confirming patterns from Figures 7 and 8.

FIGURE 14: MOST DOW STOCKS BELOW 50-DAY MA

DIA also rallied after most Dow stocks closed below their 50-day moving averages, supporting Figure 9's pattern.

Most stocks closing below SMAs

To define "low" indicator readings, we simply reversed the rules for "high" ones. To pinpoint these opposite signals, we identified days in which only 10 or fewer Dow stocks closed above their 50- or 200-day moving averages (i.e., indicator values ≤ 10). In short, this definition implies most (20 of 30) Dow stocks closed *below* those boundaries.

Figure 9 shows DIA's median gains and losses after 10 or fewer Dow stocks closed above their 50-day SMAs. The market was clearly bullish following these patterns: DIA gained a median 0.35 percent on day 1 and climbed another 1 percent by day 8. Although the market dipped on day 9, it still posted a 1-percent gain by day 10.

Figure 10 shows DIA's median performance after only *five* or fewer symbols closed above their 50-day SMAs. At first, the market was mixed as it fell 0.78 percent by day 2 and trailed its benchmarks in the first week. However, DIA rebounded in the second week, climbing 0.63 percent by day 10, beating its benchmarks, and posting gains more often than not.

Figure 11 focuses on 200-day SMAs, highlighting the market's behavior after 10 or fewer Dow symbols closed above those averages. DIA rallied following the patterns, although those gains quickly disappeared. For example, the market jumped 0.82 percent by day 2 before slipping the next day. And DIA increased 1.36 percent from days 3 to 7, but relinquished much of that gain by day 10.

Figure 12 shows the market's up and down moves after five or fewer Dow stocks closed above their 200-day SMAs. Clearly, DIA fell apart after most of its component stocks fell below this threshold. The market dropped 1.06 percent on day 1 and headed lower in the remaining nine days. By day 10, DIA fell a combined 3.2 percent.

Shaky patterns need confirmation

Figure 12's moves are dramatic, but they are also based on only five examples over the past 10 years — too few to interpret. Moreover, the study's other patterns — DIA rallying after most stocks close either *above* their 200-day SMAs or *below* their 50-day SMAs — are compelling, yet unreliable, for the same rea-

sons. Figures 4-12 are each based on fewer than 25 examples.

To check the reliability of these patterns, we sorted all daily 50- and 200-day indicator values and then divided them into two groups. The top category included values of 20 (or more), while the bottom category included values of 10 (or fewer). Finally, we measured DIA's performance in the 10 days after the indicators moved into top and bottom groups.

Figure 13 shows DIA's median gains and losses after all (842) days in which most Dow stocks closed above their 200-day SMAs. It reinforces DIA's tendency to then rally and beat its benchmarks (Figures 7 and 8).

Figure 14 shows DIA's performance after all (670) days in which most Dow stocks closed *below* their 50-day SMAs. It also supports the market's bullish bias following declines in this shorter-term indicator. [📌](#)

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