Trading Seasonality: Tracking Market Tendencies

There's more to seasonality than droughts and harvests. Find out how to make seasonality work in your technical toolbox.

Trading Seasonality: Tracking Market Tendencies
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Wall Street research is fraught with techniques to aid traders and investors in the pursuit of the Holy Grail – a set of indicators that will guarantee a steady return. Some of these techniques truly add value, some don't. The problem is that the stock market is a non-linear environment; the factors that influence price action are complex. No single combination of factors exists that perfectly repeats over time. Like life, the factors that influence stocks have infinite possibilities. It is up to each trader to determine which factor to value in the decision-making process (a fact that in and of itself adds to the non-linearity of price action).

Most of Wall Street research indicators are linear attempts to solve a non-linear problem. Some try to turn one factor into a science. Others look at so many factors that any value is lost as the degree of freedom diminishes. The trader must therefore decide which factors are of most value. We value those factors that are independent of other factors, have a reasonable degree of correlation to price action, and that successfully repeat over time. Perhaps the most misunderstood and least used of these factors is seasonality. Over the years the more we have used seasonality the more we have come to value it as a primary factor in our decision-making. Here's why.

What Is Seasonality?
In general, seasonality is a repeatable tendency of a financial instrument to move in relation to a particular influencing factor. That factor could be the time of year, the year of a decade, changes in interest rates, inflation, energy prices, etc. We focus on stock price action and seasonal cycles derived from the time of the calendar year. Seasonal cycles do not cause prices to move a certain way. They simply reflect a measure of tendency. Ongoing price action is influenced by many factors, only some of which occur on a regular, repeated basis. Those factors that regularly cause a stock price to move a certain way at a particular time of the year may or may not be known, but their seasonal influence will show up in the seasonal indicators and can be qualified by several techniques to measure the breadth and consistency of a stock's seasonal pattern.
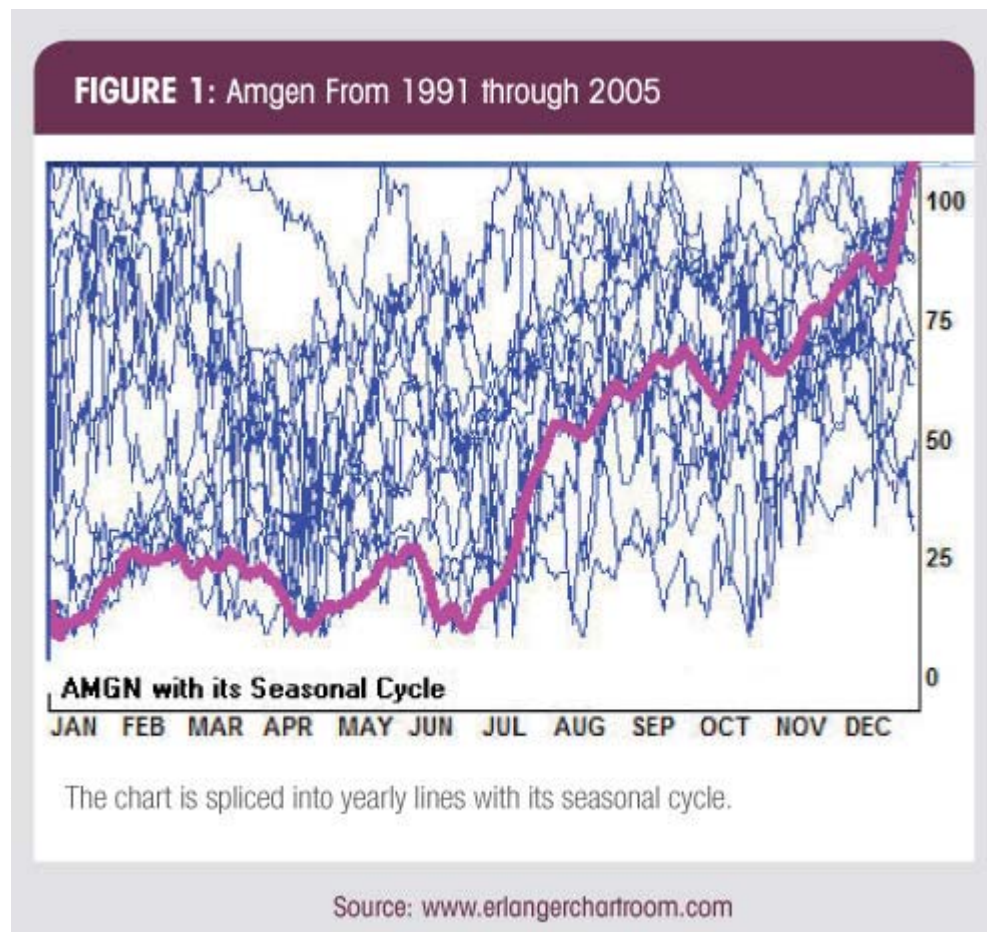
The trading process typically begins with the prelude of one or more signals from setup criteria, and then the trade is made when the market moves sufficiently in the anticipated direction to set off a trigger indicator. After the entry trade, "monitoring" indicators are used to exit the trade. Stock price changes are what a trader tries to exploit. At the end of the day the successful trader either buys at a lower price than sold, or sells short at a higher price than covered (buying to close out a short position). Setup and trigger indicators therefore generate information

for either direction of an opening trade (long or short). Seasonality uncovers those moments when the market or stock tends to rise, a setup for long trades, or fall, a setup for short trades. The beauty and marvel of seasonality is that it is known so far in advance, and yet still has value as a timing mechanism. We know of no other stock market factor that has this feature. Let's step through the process of developing seasonal statistics for stocks, and examine how effective they can be for trading.

The Yearly Seasonal Cycle
There are many time periods one could use to create seasonal cycles. In fact, all cycle analysis is in reality an effort to measure seasonality. We could look at 10-year, 20-year, monthly, weekly, daily, even hourly periods in an effort to uncover repeating patterns. For the purposes of this exercise, we will focus on uncovering seasonal patterns associated with daily closing price action over the calendar year.

The first step in preparing a seasonal cycle is to chop up the 15-year history of a stock and plot each year starting January 1 through to the end of December. See Figure 1 for a chart of these lines of Amgen (AMGN.) At first blush it looks like spaghetti, or for the more imaginative it might serve as some sort of Rorschach inkblot test. However, by combining these years into one linear curve (the thick line in Figure 1,) a seasonal cycle is born.

FIGURE 1: Amgen From 1991 through 2005

AMGN with its Seasonal Cycle

The chart is spliced into yearly lines with its seasonal cycle.

Source: www.erlangerchartroom.com

we are putting our computer to work, let's have it highlight those 14-day (or longer) periods in the seasonal cycle that are the strongest zones and also highlight those 14-day (or longer) periods in the seasonal cycle that are the weakest zones.

These zones are plotted in Figure 2 for Disney (DIS). In this chart, the seasonal cycle uses a 14-year sample from 1991 to 2004. This particular cycle was created on January 1, 2005 and was not changed in any way as 2005 actually transpired. In other words, the seasonal cycle you see below Disney's 2005 price action was created using data prior to 2005, and it was up to the price of Disney to follow it or not to follow it. The computer program has added shading to highlight the seasonality zones. Shadings above the seasonal cycle (colored blue) represent the strongest seasonal periods of 14-days or longer. Shadings below the seasonal cycle (colored orange) represent the weakest seasonal periods of 14-days or longer. Note how the price of Disney moved during 2005 relative to these zones.

FIGURE 2: Disney (DIS) Seasonal Cycle With Seasonality Zones

Source: www.erlangerchartroom.com
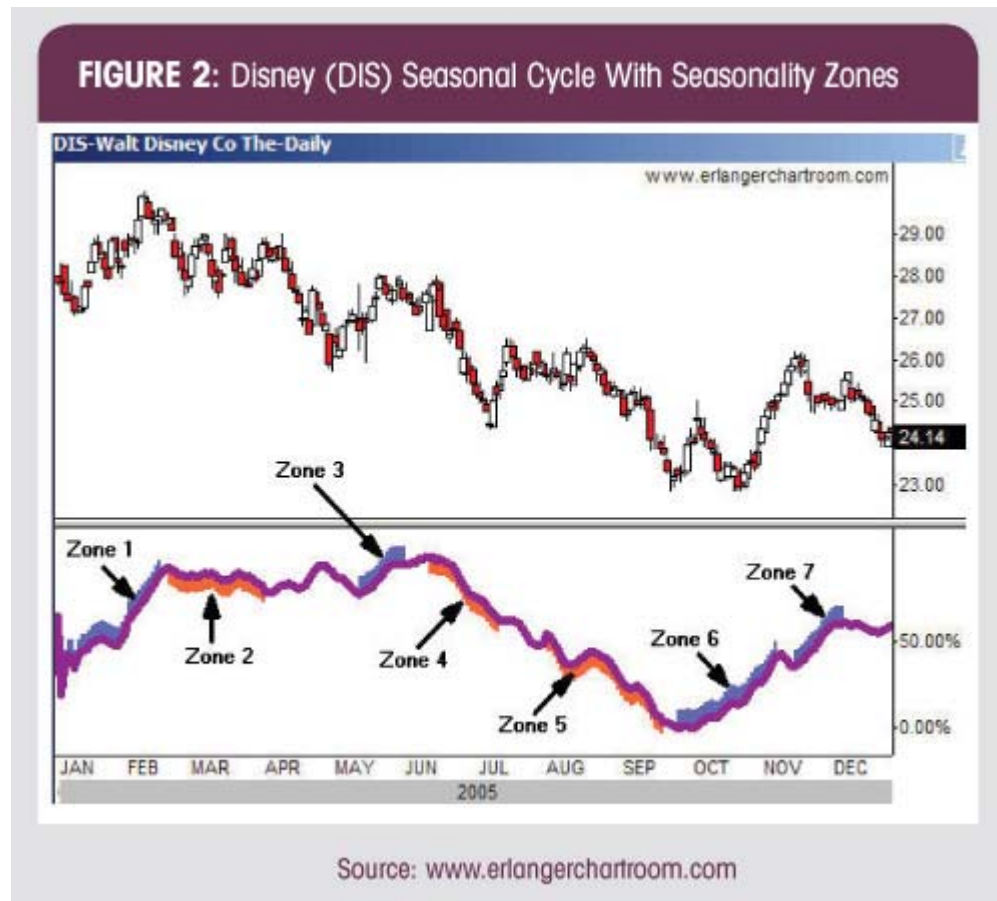
Now take a look at Table 1, which contains the data for all the seasonality zones for Disney in 2005. There were seven zones in 2005, four strong zones and three weak zones. Remember that these zones were identified with data ending in 2004. The price action of Disney in 2005 remarkably followed the paths of these zones in six out of the seven instances. Not including commissions, the cumulative return in Disney's stock price in these zones was 36.51 percent. For 2005 as a whole, Disney's stock price fell 3.83 points, or -13.78 percent. For Disney in 2005, trading the seasonality zones outperformed a buy-and-hold strategy by 50.29 percent [36.51 percent - (-13.78 percent)].

TABLE 1: Disney Corp (DIS) Seasonality Zone Trades in 2005

| Year 2005											
Company Disney (DIS)	Zone Trades	Type of Zone	Opening Date	Closing Date	Opening Price	Closing Price	Net	Net %	P/L	Winner/ Loser	Cumulative Return (a)
	1	Strong	01/05/05	02/14/05	$27.40	$29.39	1.99	7.26%	7.26%	Winner	7.26%
	2	Weak	02/17/05	03/31/05	$29.35	$28.73	-0.62	-2.11%	2.11%	Winner	9.38%
	3	Strong	05/11/05	06/01/05	$26.67	$27.58	0.91	3.41%	3.41%	Winner	12.79%
	4	Weak	06/10/05	07/11/05	$27.53	$25.18	-2.35	-8.54%	8.54%	Winner	21.32%
	5	Weak	08/01/05	09/21/05	$25.61	$23.33	-2.28	-8.90%	8.90%	Winner	30.23%
	6	Strong	09/26/05	11/07/05	$23.26	$25.16	1.90	8.17%	8.17%	Winner	38.39%
	7	Strong	11/14/05	12/06/05	$26.01	$25.52	-0.49	-1.88%	-1.88%	Loser	36.51%
	Wins: 6	Losses: 1	Win/Loss Ratio: 6		Avg. Win: 6.40%		Avg. Loss: -1.88%		Avg. Win/Avg. Loss Ratio: 3.40		

(a) Brokerage charges not taken into account

Seasonal Heat
We have discussed seasonal cycles, but the fact of the matter is that they are simple guidelines to past behavior during specific periods. Seasonal cycles are composites of past price action, and as such they "hide" measures of seasonal consistency throughout the price action's history. Our "seasonal heat" process is designed to address the need to measure seasonal consistency.

At the beginning of each New Year the seasonal cycle is updated with new seasonality zones, incorporating information from the just completed prior year's data. While these seasonality zones do not appear precisely at the same time intervals each year, they typically do not deviate greatly from past years. This is at least the case for stocks that have strong seasonal tendencies. The key is to identify those moments in time when seasonality zones of prior years most often occur. For any given day of the year, the more frequently seasonality zones have occurred in past years, the greater is the "seasonal heat." (In our charts seasonal heat is greatest when the background coloring is brightest.) Seasonal heat can be either positive or negative. Positive seasonal heat is a greater number (brighter green background color above the 50-percent line in the charts.) Negative seasonal heat is a greater negative number (brighter red background color below the 50-percent line in the charts.) Figure 3 shows the Disney chart with the seasonal heat map added. Positive seasonal heat is shown above the 50-percent line; negative seasonal heat is shown below the 50-percent line. Looking at the heat map above the 50-percent line, the brightest green sections correspond to those periods most frequented by strong seasonal zones in prior years. This illustrates the consistency of seasonality. The more a seasonal pattern repeats, the more likely it is to occur in the future. This is true for strong and weak seasonal patterns. Moreover, those periods in a seasonal map during which the positive seasonal heat is absent (darkest) are potentially riskier moments for Disney than other times of the year. This was certainly true in 2005, as Figure 3 demonstrates.

FIGURE 3: Disney with Seasonal Heat Map
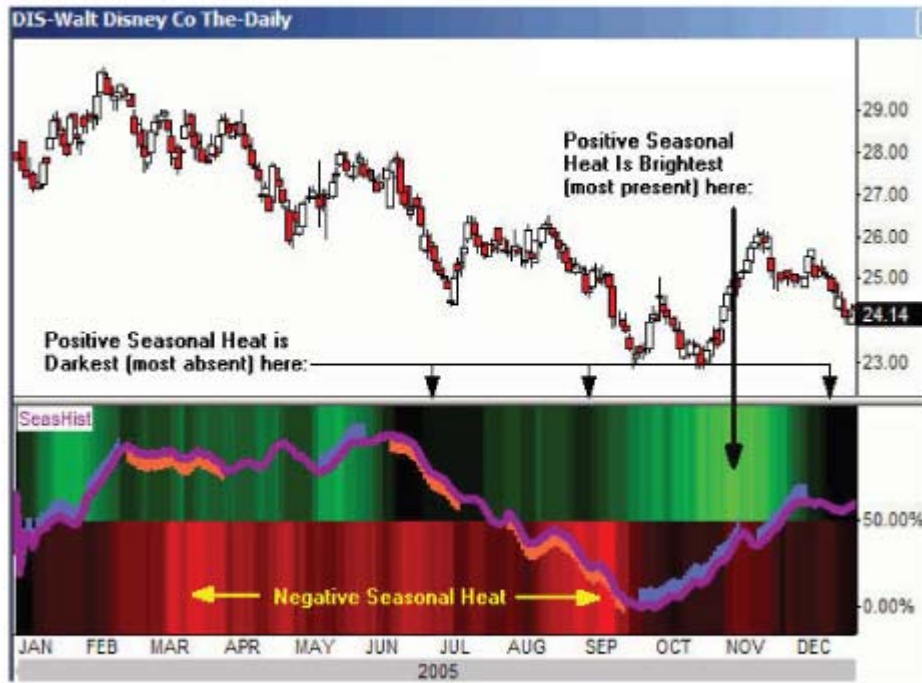
Source: www.erlangerchartroom.com

Let's take the concept of seasonal heat a bit further, and examine all the Dow Jones Industrial Average 30 component issues during 2005. We will confine our strategy to buying the Dow 30 issues only during the strongest seasonal zones that have the most positive seasonal heat. In a case where there are two strong seasonal zones with similar extremes in seasonal heat, we will count both as trades. The same goes for short sales. We will confine our short selling strategy to shorting issues only during weak seasonal zones that have the most negative seasonal heat. In the case where there are two weak seasonal zones with similar peaks in seasonal heat, we will count both as trades. Please see Table 2, which shows the results.

TABLE 2: Dow Jones 30 Issues Seasonality Zone Trades in 2005

Year 2005 Company	Zone Trades	Type of Zone	Opening Date	Closing Date	Opening Price	Closing Price	Net	Net %	P/L	Winner/ Loser	Cumulative Return (a)
Alcoa (AA)	1	Weak	08/02/05	09/28/05	$28.76	$24.07	-4.69	-16.31%	16.31%	Winner	16.31%
	2	Strong	09/28/05	12/07/05	$24.07	$28.59	4.52	18.78%	18.78%	Winner	35.09%
Amer Intl Grp (AIG)	1	Weak	02/15/05	03/14/05	$71.85	$63.85	-8.00	-11.13%	11.13%	Winner	11.13%
	2	Weak	08/02/05	09/02/05	$60.75	$59.33	-1.42	-2.34%	2.34%	Winner	13.47%
	3	Strong	10/11/05	11/02/05	$61.71	$66.22	4.51	7.31%	7.31%	Winner	20.78%
Amer Express (AXP)	1	Weak	08/02/05	09/14/05	$48.63	$50.01	1.38	2.84%	-2.84%	Loser	-2.84%
	2	Strong	10/14/05	11/15/05	$47.95	$50.93	2.98	6.21%	6.21%	Winner	3.38%
Boeing (BA)	1	Strong	03/16/05	06/15/05	$56.77	$64.41	7.64	13.46%	13.46%	Winner	13.46%
	2	Weak	06/17/05	10/13/05	$64.62	$66.49	1.87	2.89%	-2.89%	Loser	10.56%
Citigroup (C)	1	Strong	09/26/05	11/09/05	$45.09	$46.82	1.73	3.84%	3.84%	Winner	3.84%
	2	Weak	04/18/05	05/10/05	$46.21	$46.38	0.17	0.37%	-0.37%	Loser	3.47%
Caterpillar (CAT)	1	Weak	01/04/05	01/26/05	$47.01	$45.56	-1.45	-3.08%	3.08%	Winner	3.08%
	2	Strong	01/26/05	03/08/05	$45.56	$49.50	3.94	8.65%	8.65%	Winner	11.73%
DuPont (DD)	1	Weak	06/10/05	09/27/05	$47.25	$38.43	-8.82	-18.67%	18.67%	Winner	18.67%
	2	Strong	11/16/05	12/06/05	$41.89	$43.48	1.59	3.80%	3.80%	Winner	22.46%
Disney (DIS)	1	Weak	08/01/05	09/20/05	$25.61	$23.75	-1.86	-7.26%	7.26%	Winner	7.26%
	2	Strong	09/26/05	11/07/05	$23.26	$25.16	1.90	8.17%	8.17%	Winner	15.43%
General Electric (GE)	1	Strong	10/13/05	12/29/05	$34.02	$35.19	1.17	3.44%	3.44%	Winner	3.44%
	2	Weak	07/20/05	08/08/05	$35.30	$33.76	-1.54	-4.36%	4.36%	Winner	7.80%
General Motors (GM)	1	Weak	08/30/05	10/12/05	$34.45	$26.70	-7.75	-22.50%	22.50%	Winner	22.50%
	2	Strong	01/31/05	03/10/05	$36.81	$34.61	-2.20	-5.98%	-5.98%	Loser	16.52%
Hewlett-Packard (HPQ)	1	Weak	07/18/05	10/10/05	$24.92	$26.67	1.75	7.02%	-7.02%	Loser	-7.02%
	2	Strong	10/12/05	11/07/05	$27.30	$28.73	1.43	5.24%	5.24%	Winner	-1.78%
Home Depot (HD)	1	Weak	08/26/05	10/13/05	$39.81	$37.95	-1.86	-4.67%	4.67%	Winner	4.67%
	2	Strong	10/13/05	11/17/05	$37.95	$42.51	4.56	12.02%	12.02%	Winner	16.69%
Honeywell (HON)	1	Strong	10/04/05	11/07/05	$36.78	$35.90	-0.88	-2.39%	-2.39%	Loser	-2.39%
	2	Weak	08/02/05	09/30/05	$39.26	$37.50	-1.76	-4.48%	4.48%	Winner	2.09%
Intl Bus Mach (IBM)	1	Weak	09/14/05	10/04/05	$80.48	$80.11	-0.37	-0.46%	0.46%	Winner	0.46%
	2	Strong	04/18/05	05/19/05	$76.65	$77.16	0.51	0.67%	0.67%	Winner	1.13%
	3	Weak	02/16/05	04/18/05	$94.62	$76.65	-17.97	-18.99%	18.99%	Winner	20.12%
	4	Strong	10/27/05	11/29/05	$82.31	$89.10	6.79	8.25%	8.25%	Winner	28.37%
Intel (INTC)	1	Weak	03/21/05	04/15/05	$23.50	$22.12	-1.38	-5.87%	5.87%	Winner	5.87%
	2	Weak	08/18/05	10/06/05	$25.88	$23.76	-2.12	-8.19%	8.19%	Winner	14.06%
	3	Strong	06/24/05	07/18/05	$26.10	$28.23	2.13	8.16%	8.16%	Winner	22.22%
	4	Strong	10/12/05	11/08/05	$23.24	$24.55	1.31	5.64%	5.64%	Winner	27.86%

TABLE 2: Dow Jones 30 Issues Seasonality Zone Trades in 2005 cont.

Year 2005 Company	Zone Trades	Type of Zone	Opening Date	Closing Date	Opening Price	Closing Price	Net	Net %	P/L	Winner/ Loser	Cumulative Return (a)
Johnson & Johnson (JNJ)	1	Strong	04/01/05	04/22/05	$66.85	$68.49	1.64	2.45%	2.45%	Winner	2.45%
	2	Weak	01/03/05	01/24/05	$62.90	$61.49	-1.41	-2.24%	2.24%	Winner	4.69%
JP Morgan (JPM)	1	Strong	01/04/05	02/11/05	$38.41	$37.48	-0.93	-2.42%	-2.42%	Loser	-2.42%
	2	Weak	06/08/05	10/13/05	$35.67	$33.75	-1.92	-5.38%	5.38%	Winner	2.96%
Coca-Cola (KO)	1	Strong	04/13/05	06/01/05	$42.10	$44.59	2.49	5.91%	5.91%	Winner	5.91%
	2	Weak	08/18/05	09/23/05	$43.53	$42.35	-1.18	-2.71%	2.71%	Winner	8.63%
McDonald's (MCD)	1	Strong	09/23/05	11/17/05	$32.64	$33.19	0.55	1.69%	1.69%	Winner	1.69%
	2	Weak	06/13/05	09/21/05	$29.11	$31.42	2.31	7.94%	-7.94%	Loser	-6.25%
3M (MMM)	1	Strong	01/31/05	02/16/05	$84.36	$86.80	2.44	2.89%	2.89%	Winner	2.89%
	2	Weak	08/16/05	09/02/05	$71.66	$71.50	-0.16	-0.22%	0.22%	Winner	3.12%
	3	Strong	09/26/05	11/21/05	$73.13	$79.23	6.10	8.34%	8.34%	Winner	11.46%
Altria (MO)	1	Weak	03/07/05	04/12/05	$65.65	$65.19	-0.46	-0.70%	0.70%	Winner	0.70%
	2	Strong	09/30/05	11/18/05	$73.71	$71.25	-2.46	-3.34%	-3.34%	Loser	-2.64%
Merck (MRK)	1	Weak	01/03/05	01/25/05	$31.26	$30.95	-0.31	-0.99%	0.99%	Winner	0.99%
	2	Strong	10/12/05	11/25/05	$26.78	$30.98	4.20	15.68%	15.68%	Winner	16.68%
Microsoft (MSFT)	1	Strong	05/02/05	05/27/05	$25.23	$26.07	0.84	3.33%	3.33%	Winner	3.33%
	2	Weak	07/18/05	08/03/05	$26.16	$27.25	1.09	4.17%	-4.17%	Loser	-0.84%
	3	Strong	10/11/05	11/15/05	$24.41	$27.50	3.09	12.66%	12.66%	Winner	11.82%
Pfizer (PFE)	1	Strong	01/21/05	06/21/05	$24.48	$28.61	4.13	16.87%	16.87%	Winner	16.87%
	2	Weak	07/14/05	09/15/05	$27.60	$25.70	-1.90	-6.88%	6.88%	Winner	23.75%
Procter & Gamble (PG)	1	Strong	08/10/05	11/18/05	$53.71	$57.45	3.74	6.96%	6.96%	Winner	6.96%
	2	Weak	06/07/05	06/27/05	$55.45	$52.67	-2.78	-5.01%	5.01%	Winner	11.98%
AT&T (T)	1	Strong	05/26/05	06/15/05	$23.65	$24.01	0.36	1.52%	1.52%	Winner	1.52%
	2	Weak	01/03/05	01/28/05	$25.59	$23.62	-1.97	-7.70%	7.70%	Winner	9.22%
United Technologies (UTX)	1	Strong	01/18/05	02/02/05	$51.10	$49.81	-1.29	-2.52%	-2.52%	Loser	-2.52%
	2	Strong	11/15/05	12/06/05	$53.41	$54.97	1.56	2.92%	2.92%	Winner	0.40%
	3	Weak	08/01/05	09/26/05	$50.02	$51.79	1.77	3.54%	-3.54%	Loser	-3.14%
Verizon (VZ)	1	Weak	06/22/05	07/26/05	$35.03	$34.13	-0.90	-2.57%	2.57%	Winner	2.57%
	2	Strong	05/27/05	06/16/05	$35.46	$34.94	-0.52	-1.47%	-1.47%	Loser	1.10%
Wal-Mart (WMT)	1	Strong	11/01/05	11/18/05	$46.99	$49.50	2.51	5.34%	5.34%	Winner	5.34%
	2	Weak	08/18/05	09/29/05	$47.24	$43.54	-3.70	-7.83%	7.83%	Winner	13.17%
Exxon-Mobil (XOM)	1	Strong	01/31/05	04/25/05	$51.60	$59.96	8.36	16.20%	16.20%	Winner	16.20%
	2	Strong	11/11/05	12/23/05	$56.52	$57.10	0.58	1.03%	1.03%	Winner	17.23%
	3	Weak	10/21/05	11/07/05	$55.37	$57.10	1.73	3.12%	-3.12%	Loser	14.10%

Wins: 55   Losses: 14   Win/Loss Ratio: 4   Avg. P/L: 4.90%   Max Win: 22.50%   Max Loss: -3.57%   Avg. Win/Avg. Loss Ratio: 1.97

(a)   Brokerage charges not taken into account

The results for 2005 are striking. Out of 69 trades, 55 were profitable, resulting in a win/loss ratio of 4:1, an average win-to-average-loss-ratio of 1.97:1, with average wins equal to 7.05 percent and average loss equal to -3.57 percent. The average trade yielded a 4.90-percent gain. The maximum gain was 22.50 percent, and the maximum loss was -7.94 percent. For the year of 2005 as a whole, the Dow Jones Industrial Average itself lost -0.61 percent.

Deploying Seasonality as Part of an Overall Strategy
Seasonality is a powerful technique that portfolio managers should employ. However, no one factor ought to dictate strategy. A sound strategy uses setup indicators, trigger indicators and follows up with a reliable monitoring mechanism to aid in exiting trades. Seasonality is primarily a setup mechanism. Other setup mechanisms include, but certainly are not confined to, measures of sentiment. For instance, the observation of short sellers can uncover moments in time when either the bulls or the bears are particularly at risk from contrary moves – hence the setup. Let's return to our example of Amgen to illustrate the point.

Figure 4 highlights two factors that show Amgen may be set up for a third quarter 2005 buying opportunity. The seasonal curve turns up on June 24, initiating a positive seasonal zone. Seasonal heat is also very positive. In addition, the short interest ratio has swelled significantly during 2005 heading into this positive seasonal period. Clearly these short sellers are either unaware of or are ignoring the seasonal tendencies of Amgen. A few days after the strong seasonal zone that started on June 24, 2005, Amgen took off, activating any short-term trigger indicators one might employ. The ensuing short squeeze included a huge gap to the upside and peaked 87 days later on September 19, 2005, just days after the completion of the second strong seasonal zone. This action handed the bulls a 40.53-percent gain.

FIGURE 4: Amgen (AMGN) with Short Ratio and Seasonal Patterns
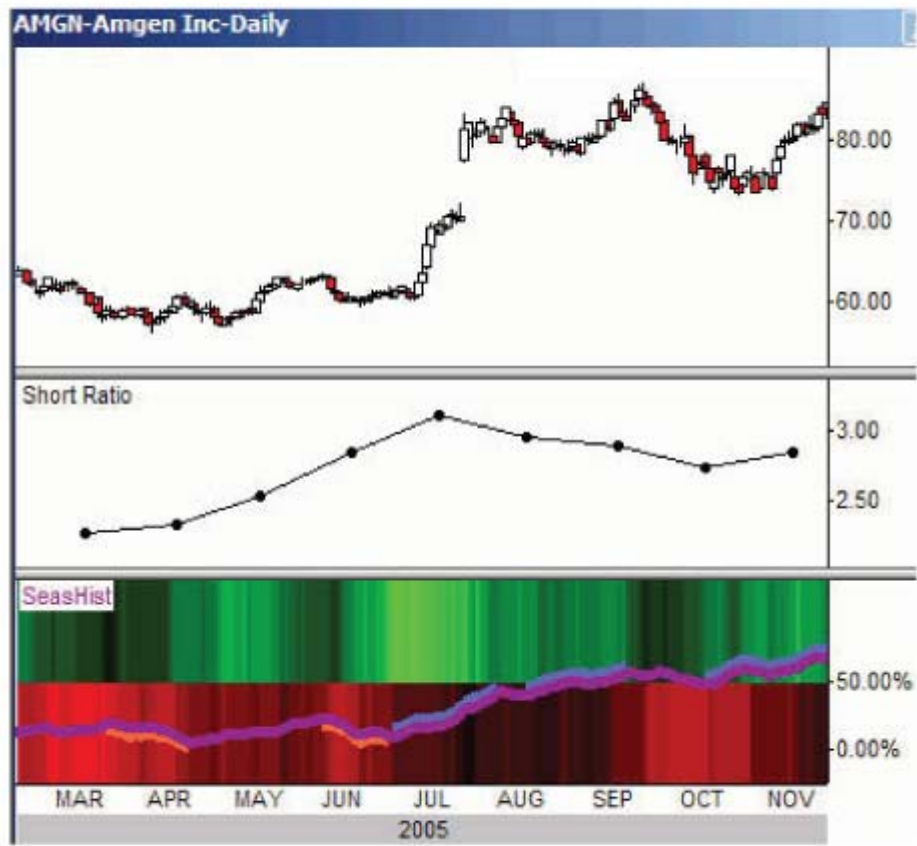
Source: www.erlangerchartroom.com

The Bottom Line

Seasonality is a measurable phenomenon, but it is not a causal factor. Seasonal cycles do not cause markets to move. Rather, they are a function of other factors, known or unknown, which over and over again influence the direction of stock prices. We believe that if traders limit their trading to those periods where seasonal tendencies are consistent, the chances of "post-trigger" success are better than otherwise.

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