From the Chartroom

Louise Yamada, CMT/Ronald F. Daino, CMT/Susan Stern, CMT

Christmas in August

"From the Chartroom" is drawn from our full *Market Interpretations*, dated August 14, 2002, order No. US08K133. The report is also available online on Salomon Smith Barney's Global Equities Online (GEO) system, SSB Direct, and FC Linx.

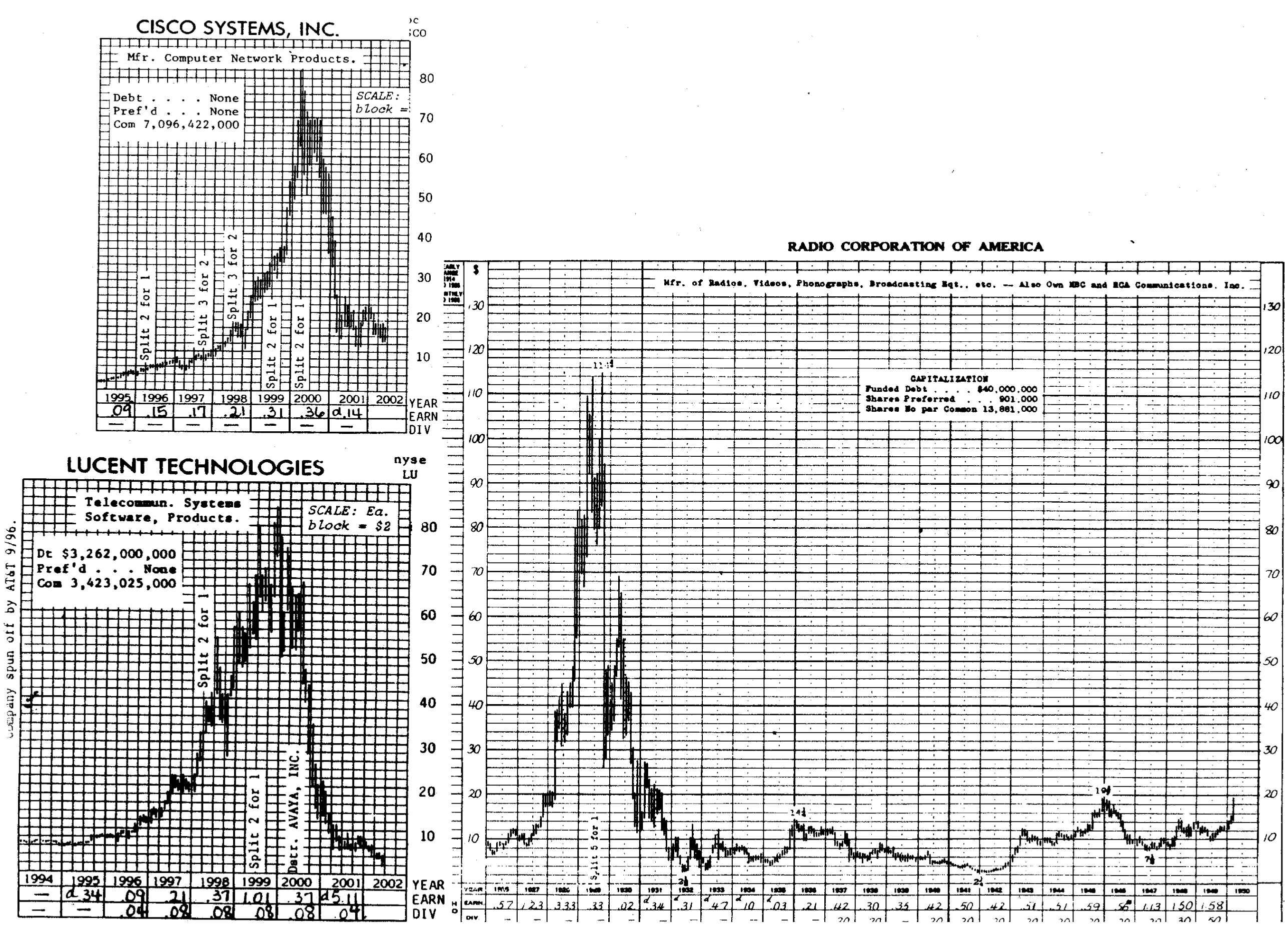
Technical analysis is well known for a lot of "exotic" patterns that develop based on the market forces of supply and demand. We talk of a "head-and-shoulders" reversal pattern, as well as "ascending" and "descending triangles," "wedges," "pennants," and "gaps."

Over the last year, we've coined and added our own "Christmas tree" pattern to the nomenclature. This pattern represents a parabolic advance and a slippery, equally dramatic, decline. Certainly, we believe the plethora of technology stocks can be attributed this designation. The psychology of investing carries a desire to be bullish and we find that even after the severe 90% declines in individual technology stocks, investors are still asking if it's "time to buy."

Our colleague Alan Shaw went back into our chart archives and pulled out a comparable graph from 1929 of Radio Corp. of America, the old familiar RCA (see Figure 1). Interestingly, the "Christmas tree" pattern that is so prevalent today across the technology front (see Figure 2) is identical to what RCA traced out, commencing in 1926.

Figure 1

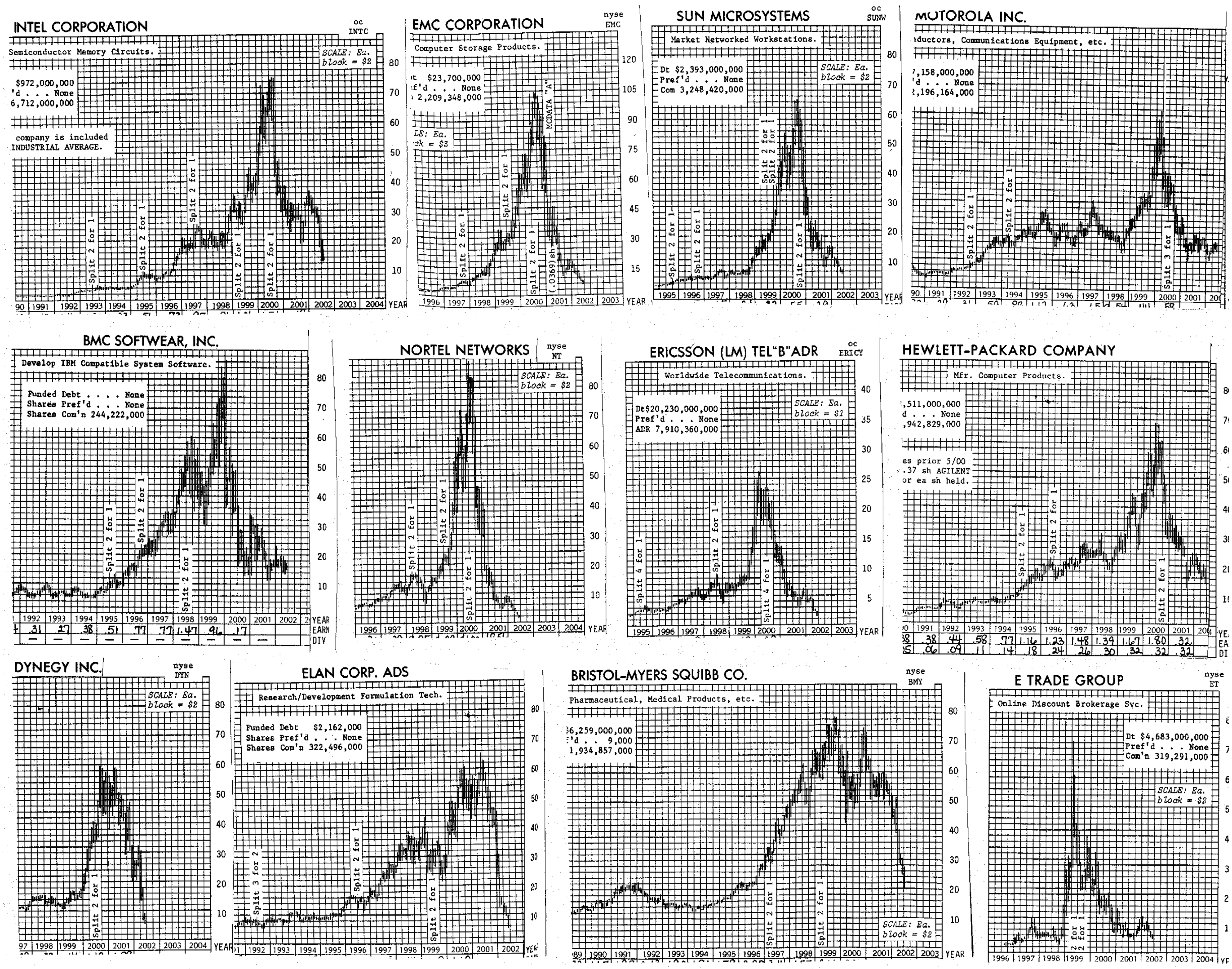
"Christmas Tree" Patterns



Source: M.C. Horsey

Figure 2

"Christmas Tree" Patterns



Source: M.C. Horsey

The purpose of the history exercise was to examine the *aftermath* of the "Christmas tree" pattern to see whether or not indeed it was "time to buy" — whether a buy program produced reward at the base of the "tree" (see Figure 1).

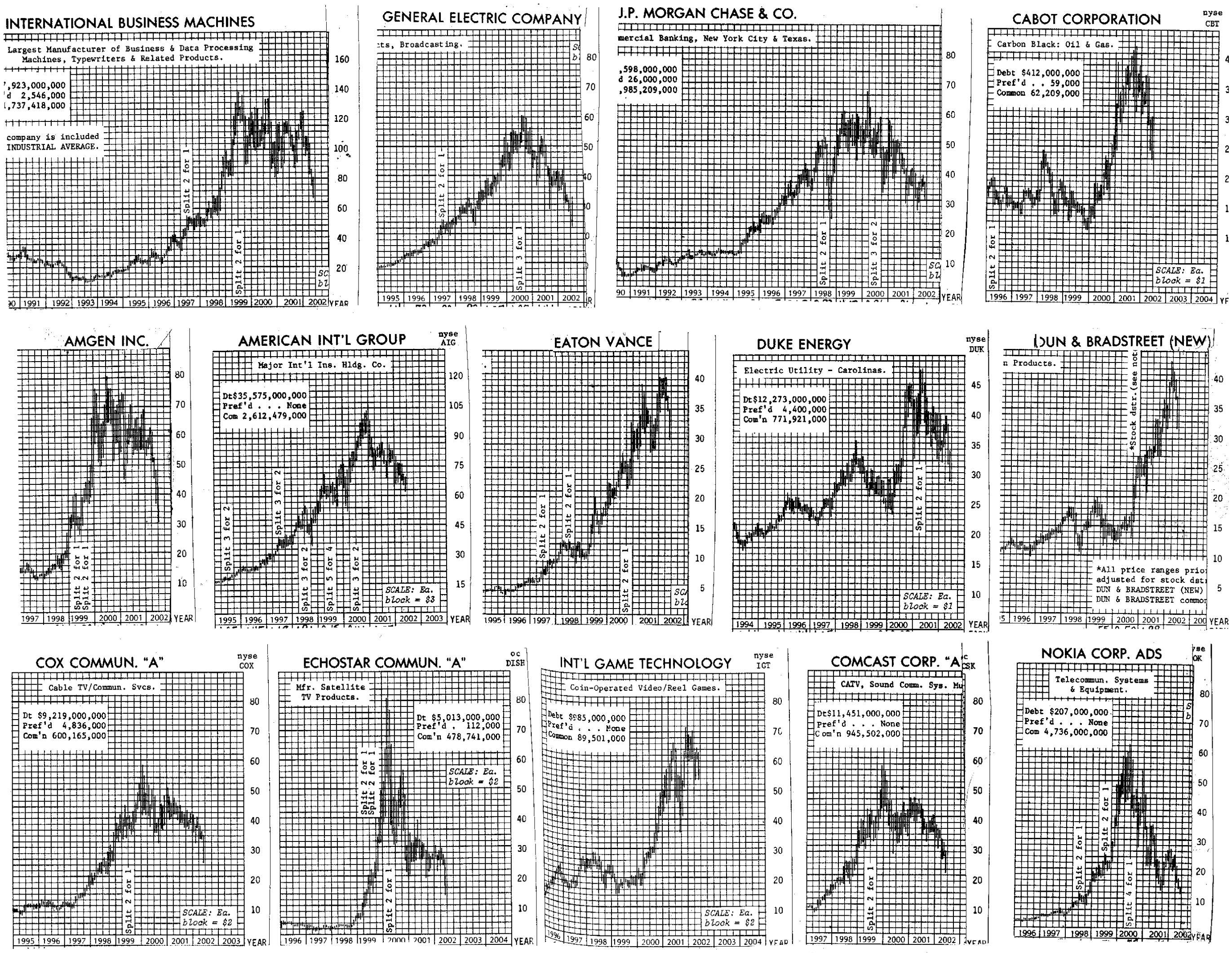
The first observation can be made that the stock price of RCA completed an entire round-trip taking six years and even overshot on the downside (slippery slope) in the 1932 decline, just as **Lucent Technologies** (LU-1.50) has done today. The next observation is that while the stock may have had a 100% trading bounce, and retreated once, even twice over the next two years, the stock remained a low-priced stock for many years to come (in this case 13–19 years).

Looking at **Cisco Systems** (CSCO-13.37), one could say that while it is *possible* the stock is trying to stabilize at current levels, *support should be monitored closely* at 12 because it not only may not have completed its decline back to the base of the "tree" (just as **Intel** [INTC-16.70] recently failed to hold support at 26), but also should require repair time.

In Figure 2, we compiled a plantation of "tree" patterns that *may* be nearing their lows, definitely a *positive* in that the worst may now be behind them (but with the caveat that price may also overshoot to the downside). In any event, technically they might be deemed, at the very least, in need of the next step after the decline, that being repair, and requiring an extended period of *time*. Figure 3 on the other hand depicts "trees" still perhaps in the making, which may carry further significant risk, interim rallies notwithstanding.

Figure 3

"Christmas Tree" Patterns



Source: M.C. Horsey

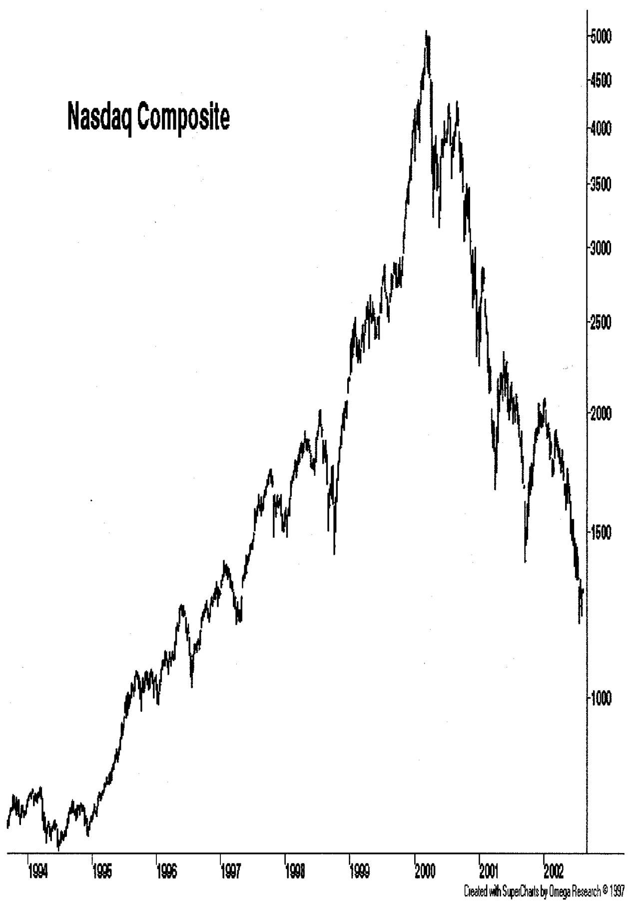
Looking at the Nasdaq itself (see Figure 4), the same conclusion may be drawn. We have published technical projections for the Nasdaq at 1000 and 800. While the index *may* stabilize around current levels, as the bulk of the decline has been experienced (75% down), a complete round-trip to the depicted 1994 low (to complete the "tree") would suggest 700 as an additional downside consideration.

Given the percentage declines already in place for most technology names from peak to recent lows, we feel that lower levels for the Nasdaq, *if they are to evolve*, may well *depend more* on the action of the larger weighted blue chip component, **Microsoft** (MSFT-47.05), which has not yet experienced a correspondingly substantial decline.

Perhaps also on a somewhat *more constructive* bent for the DJIA, and with the knowledge that price can't go up until it stops going down, our Dow component study over the past week has become less negative and more neutral (see Figure 5 in *Market Interpretations* dated August 14, 2002). Whereas several weeks ago there were 21 Dow stocks in downtrends, there are now only eight. There are still no uptrends, but we'll take one step at a time, as the profile is at least more neutral. While neutral can go in either direction, bottoms are not formed in a day. They evolve over time and with price confirmation, which is still at bay. **L.Y.**

Figure 4

Nasdaq Composite



Source: SuperCharts by Omega Research

Figure 5

Support/Risk Levels

Stock	Closing Price as of 8/13/02	Support/Risk	Resistance
Specialty Stores			
AutoZone (AZO)	66.15	60, 52	75, 84
Bed Bath & Beyond (BBY)	22.23	19, 14	30, 34
Office Depot (ODP)	13.27	11, 9	18, 21
Staples Inc. (SPLS)	15.25	14, 11	17, 21
Tiffany & Co. (TIF)	23.19	20, 14	27, 34
Toys R Us (TOY)	12.13	10, 7	14, 16
Steel			
Allegheny Tech. (ATI)	9.12	–	10, 13
Nucor Corp. (NUE)	51.38	46, 42	53, 58
Worthington Inds. (WOR)	17.11	16, 13	18, 20
US Steel (X)	15.03	13	17, 20-22

Source: Salomon Smith Barney

Sub-Industries: Highlights of the S&P 500 Sector Shifts

Specialty Chemicals was upgraded to the S&P 500 technical *Buy* list due to the improved relative strength (RS) for the sub-industry. Nevertheless, from a price perspective, a momentum *Sell* signal remains in place (hence the "S" next to the name on our RS *Buy* list). This suggests that absolute price weakness cannot be ruled out even as the group may "outperform." The group in its entirety looks buoyant, to at least stable, for the time being. A reversal of the momentum *Sell* would eliminate the "S" for the sub-industry. **Ecolab Inc.** (ECL-47.01) looks the most technically appealing, having recently attained a new price high. Follow-through into the low to mid-50s looks possible and support for ECL lies at 45–46. **Sigma Aldrich** (SIAL-48.82) is struggling a bit in the vicinity of its all-time high at 51. As long as support that lies at 46–47 holds, risk would appear limited. Should support fail to hold, however, risk toward secondary support at 39 would be possible. **International Flavors & Fragrances** (IFF-30.50) and **Rohm & Haas** (ROH-37.49) appear neutral/stable. IFF may need to consolidate further for a sustainable upside move. As long as support at 27 holds, intermediate-term risk would appear limited. ROH looks a bit more consistent in its pattern of a trading range between 35 and 39. A breakout through either parameter would determine the next direction for the stock. **Great Lakes Chemical** (GLK-26.70) recently penetrated a downtrend off its December 2000 peak and is currently challenging resistance of a short nine-month consolidation. A breakout would offer readable objectives toward a first level of resistance at 34. Support lies at 23–24.

Tobacco was upgraded to our technical *Hold* list once again, with **Philip Morris** (MO-49.35) seemingly the component with the most potential. MO is poised to move toward resistance near the all-time high range of 55–57 and important support lies at 45–46. **UST Inc.** (UST-32.25) remains in a downtrend off its April 2001 peak and would need to hold above support at 27–28 and penetrate resistance at 33–34 to neutralize the trend.

Biotechnology was merely upgraded to the *Avoid* list due to a minor improvement in RS. Interestingly enough, however, an intermediate-term momentum *Buy* signal was triggered for the sub-industry suggesting a rally at least into major resistance levels. Additionally, each of its components shows short-term bullish momentum readings. So, while *major* tops and downtrends remain intact for the individual components in the area, perhaps some short-term trading rallies within their intermediate-term downtrends can take place. Following are resistance areas that may possibly be probed: **Amgen** (AMGN-45.64) 52, support at 42; **Biogen Inc.** (BGEN-35.19) 38 and 44, support at 34; **Chiron Corp.** (CHIR-37.18) 42, support at 36;

Genzyme Corp. (GENZ-21.59) 27 upon a breakout at 24, support at 19; and **Medimmune** (MEDI-27.88) 34 upon a breakout at 31, support at 27.

Specialty Stores and Steel were downgraded to the *Avoid* list due to underperformance. Herein, in table format, are support/risk levels for these sub-industries.

S.S.

U.S. Interest Rates: Technical Models for the 10-Year Register a Long-Term *Buy* Signal

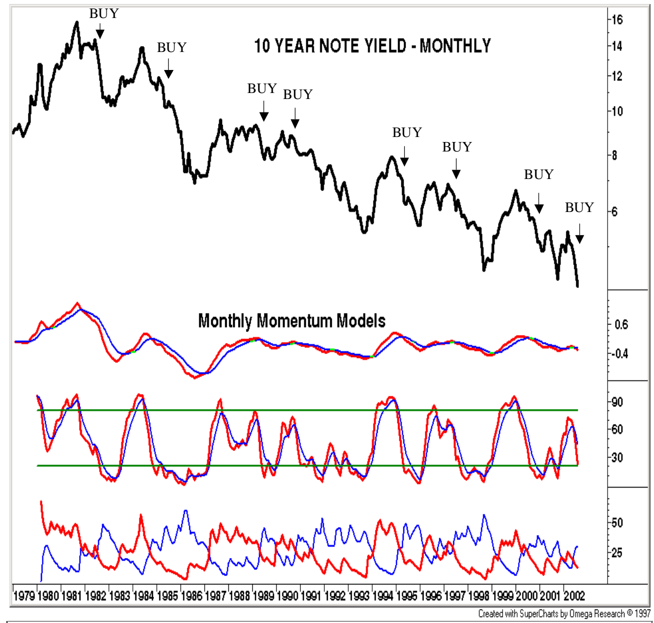
On Tuesday, August 13, technical models for the 10-year yield registered a long-term *Buy* signal. This latest *Buy* signal follows similar long-term *Buy* signals on the 5- and 2-year yields established on August 6. Below is a chart and table showing the previous long-term *Buy* signals since 1981 on the 10-year and when they transpired. As you can see, since 1981, there have been seven long-term *Buys*, lasting an average of 16.33 months and which saw rates drop an average of 26.86%. We use percentage moves versus basis point moves because rates in the early 1980s were so much higher.

Applying the average percentage of 26.86% to the current situation, we are able to project a target for the 10-year yield to 3.07%. In terms of time, the average duration for the previous signals was 16.33 months, so we can project a potential low point for rates toward the end of 2003. Another method in projecting targets is to take the recent range of trading activity and project the range forward. Currently, we can project two downside targets: the first target, which encompassed the trading range for the 10-year since the end of July, allows us to project a target to 3.86%; the second target, which encompassed the trading range since the beginning of November 2001, allows us to project a target of 3.00% to 3.20% (see Figure 6). This latest long-term *Buy* signal reversed the long-term *Sell* signal put in place on March 28, 2002, when the 10-year yield was at 5.41%.

The following is an excerpt from *Market Interpretations* dated August 7, 2002, order No. US08K063, at the time of our long-term *Buy* signals for the 5- and 2-year parts of the curve. Now that we have received a long-term buy signal on the 10-year, we believe the following thoughts are equally applicable for the 10-year yield.

Figure 6

10-Year Note Yield — Monthly



MONTHLY TECHNICAL MODEL SIGNALS FOR 10-YEAR YIELD

Signal Registered			Lowest Yield Level Reached		Duration in Months	Basis Point Move	Percentage Move
Type	Date	Level	Date	Level			
BUY	12/31/1981	13.96	5/31/1983	10.16	17	380	27.22%
BUY	12/31/1984	11.52	8/29/1986	6.93	20	459	39.84%
BUY	4/30/1989	9.03	8/31/1989	7.74	4	130	14.35%
BUY	12/31/1990	8.07	10/29/1993	5.17	34	291	36.02%
BUY	5/31/1995	6.33	1/31/1996	5.52	8	81	12.75%
BUY	7/31/1997	6.01	10/30/1998	4.15	15	186	30.93%
BUY	8/31/2000	5.73	11/30/2001	4.19	15	154	26.88%
BUY	8/31/2002	4.20					
				AVERAGE:	**16.33**		**26.86%**

Source: Salomon Smith Barney

"Previous long-term *Buy* signals have been supportive for equities; however, *Buy* signals that developed from 1989 to 1997 occurred during a structural bull market in equities. The *Buy* signals for the 5-year and the 2-year developed in what we define as a structural bear market. The question arises as to whether the latest long-term *Buy* signals may not be as supportive to equities as they were in a bull phase. Actually, these structural *Buy* signals could be pointing to more equity market weakness as investors continue to shift funds from the equity market into the perceived safe haven of treasuries."

Structural drops in interest rates are not only a U.S. occurrence, as we are seeing the same technical patterns and signals developing in many of the world's major bond markets.

R.F.D.

The technical research group also produces electronically *Global Technical Market Overview* and *Global Technical Industry Overview* for international investors. These reports are available online only over the following Salomon Smith Barney websites: GEO, FC Linx, and SSB Direct.

Within the past three years, Salomon Smith Barney, including its parent, subsidiaries, and/or affiliates, has acted as manager or co-manager of a public offering of the securities of this company.

Salomon Smith Barney ("SSB"), including its parent, subsidiaries, and/or affiliates ("the Firm"), usually makes a market in the U.S.-traded over the counter securities recommended in this report and may sell to or buy from customers, as principal, securities recommended in this report. The Firm or employees preparing this report may have a position in securities or options of any company recommended in this report. An employee of the Firm may be a director of a company recommended in this report. The Firm may perform or solicit investment banking or other services from any company recommended in this report.

Securities recommended, offered, or sold by SSB: (i) are not insured by the Federal Deposit Insurance Corporation; (ii) are not deposits or other obligations of any insured depository institution (including Citibank); and (iii) are subject to investment risks, including the possible loss of the principal amount invested. Although information has been obtained from and is based upon sources SSB believes to be reliable, we do not guarantee its accuracy and it may be incomplete or condensed. All opinions and estimates constitute SSB's judgment as of the date of the report and are subject to change without notice. This report is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security. This report has been approved for distribution in the United Kingdom by Salomon Brothers International Limited, which is regulated by the Securities and Futures Authority. The investments and services contained herein are not available to private customers in the UK and South Africa.

This report was prepared by the Firm and, if distributed in Japan by Nikko Salomon Smith Barney Limited, is being so distributed under license. This report is made available in Australia through Salomon Smith Barney Australia Securities Pty Ltd (ABN 64 003 114 832), a Licensed Securities Dealer, and in New Zealand through Salomon Smith Barney New Zealand Limited, a member firm of the New Zealand Stock Exchange. Salomon Smith Barney Securities (Proprietary) Limited is incorporated in the Republic of South Africa (company registration number 2000/025866/07) and its registered office is at Grosvenor Corner, 195 Jan Smuts Avenue, Rosebank, 2198, Republic of South Africa. This report does not take into account the investment objectives or financial situation of any particular person. Investors should obtain advice based on their own individual circumstances before making an investment decision.

Guide to investment ratings: *RANK* is a guide to the expected total return over the next 12-18 months. The total return required for a given rank depends on the degree of risk (see below) in a stock. The higher the risk, the higher the required return. For example, a 1 (Buy) rating indicates a total return ranging from 15% or greater for a low-risk stock to 30% or greater for speculative stocks. Estimated returns for other risk categories are scaled accordingly. *RISK* takes into account predictability of earnings and dividends, financial leverage, and stock price volatility. *L (Low Risk):* predictable earnings and dividends, suitable for conservative investors. *M (Medium Risk):* moderately predictable earnings and dividends, suitable for average equity investors. *H (High Risk):* earnings and dividends are less predictable, suitable for aggressive investors. *S (Speculative):* very low predictability of fundamentals and a high degree of volatility, suitable only for investors/traders with diversified portfolios that can withstand material losses. *V (Venture):* indicates a stock with venture capital characteristics that is suitable for sophisticated investors with a high tolerance for risk and broadly diversified investment portfolios. A thorough explanation of the ratings system is available upon request.

Investing in non-U.S. securities, including ADRs, by U.S. persons may entail certain risks. The securities of non-U.S. issuers may not be registered with, or be subject to, the reporting requirements of, the U.S. Securities and Exchange Commission. There may be limited information available on foreign securities. Foreign companies are generally not subject to uniform audit and reporting standards, practices and requirements comparable to those in the U.S. Securities of some foreign companies may be less liquid and their prices more volatile than securities of comparable U.S. companies. In addition, exchange rate movements may have an adverse effect on the value of an investment in a foreign stock and its corresponding dividend payment for U.S. investors. Investors who have received this report from the Firm may be prohibited in certain U.S. states from purchasing securities mentioned in this report from Salomon Smith Barney. Please ask your Financial Consultant for additional details.