FRIEDBERG'S

COMMODITY & CURRENCY COMMENTS

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What is Chrysler's stock saying?

It is rare indeed that we devote our opening comments to the stock market. For one thing, the logic of the Great Bull Market eluded us month after month, for the better part of the last 10 years. For another, it was never great fun to recite time and again a litany of facts — almost always the same ones — that described a fundamentally overvalued market. Especially, when the market ignored them.

Happening to notice Chrysler's recent ticker tape behavior, however, we relented to the insane obsession of sharing (in writing) our concerns, nay fears, regarding the future course of stock prices — but not before, of course, breaking into a prolonged cold sweat.

And, if truth be told, the evidence is compelling. This evidence is not strictly fundamental (thank goodness!) nor strictly technical (of which we know precious little). It is, for lack of a better term, behavioral.

First, a *very* brief story. Being a most typical cyclical animal, Chrysler recovered rather late from the post-'87 blues. From a $48 high, the stock had fallen, by late 1991, to a mere $10/share, having posted for the year a depressing *deficit* of $2.22 per share. Clearly, the 1990 recession had hit C with a vengeance.

But C lost no time catching up: its subsequent recovery was as spectacular as it was soundly based. In the short span of two years, (see Chart 1) the stock sextupled, while earnings skyrocketed to $6.67 per share, posting all-time highs. The market's prescience and clairvoyance were remarkable.

At its August 1987 high, Chrysler traded at a 7.86 multiple to its earnings, considerably lower then the 20+ times earnings accorded then to the general market. Clearly, the market was not willing to take too much of a chance on this highly leveraged, cyclical manufacturer. The subsequent (1988-91) collapse in earnings more than vindicated this "conservatism."

At its 1994 high of $63, C was again trading at a modest 9.4 multiple, again a substantial discount from the market's 20-plus P/E ratio. What is more, first quarter 1994 earnings just announced this past week were positively sensational: At $2.55 per share, they exceeded the IBES mean estimate of $2.27/share and were 53% higher than a year earlier. These results were achieved with an increase in vehicle sales of only 15% over the same period last year. With the first-quarter results in, 12-month trailing earnings stand at $7.65 per share.

What has been the market's reaction to the embarrassment of riches? Downright pessimistic. A look at Chart 2 tells the story.

Not only has the stock broken the steep 1991-93 uptrend but it is now trading well below its falling 200-day moving average. At $48.75, C trades at 6.45 times trailing 12-month earnings, less than one third of the general market's multiple.

Theoretically, Chrysler should be a much better bellwether of the economy/market than GM, precisely because Chrysler's operating leverage is so much greater. Recent price comparisons tend to confirm this view: As late as December '92, GM was still trading within range of its 1991 lows, at a time that C was already recording four-year highs.

If so, what is C's recent stock behavior telling us? *Earnings are peaking*, or at the very least, that the rate of improvement in earnings is flattening. This need not mean that a recession is around the corner. Chrysler's earnings began to deteriorate in 1987, well before the peak in industrial production (first quarter 1989) or the onset of the 1990 recession (mid-1990). Profit-margin deterioration can lead peaks in economic activity by a wide margin.

If earnings are peaking, can a bear market be far behind? Still in cold sweat, we say no.

In this issue

Contributions by Albert D. Friedberg, Edison Lee and David B. Rothberg.

Futures and options trading is speculative and involves risk of loss. Past trading results are not indicative of future profits.

Gatherering courage, we say that reports of the Great Bull Market's demise have *not* been exaggerated. In fact, we affirm that February 1994 marks the beginning of a bear market of indeterminate duration and magnitude. What is fairly assured is that volatility will at times become extreme during the decline, a product of the proliferation of derivatives, plain old leverage, and the prosaic observation that volatility tends to return to the historical means, following three unusually quiet years.

While a number of other indicators are supportive of our bearish view (disastrous breadth figures for the AMEX and NASDAQ, the number of new lows, specialist short sales, and so on), only the the market behavior of Chrysler, a fortuitous happenstance, has given us the confidence to declare that this time, it's the real McCoy.

STRATEGY: *Sell June 1994 S&P at the market. Place initial stops at 455, good anytime. Put options are extremely reasonable; we recommend buying September 440s. Alternatively, one could buy June '94 440 puts and sell June '94 430 puts for net debit of 205 points and a maximum profit potential of 1000 points.*

Chart 1

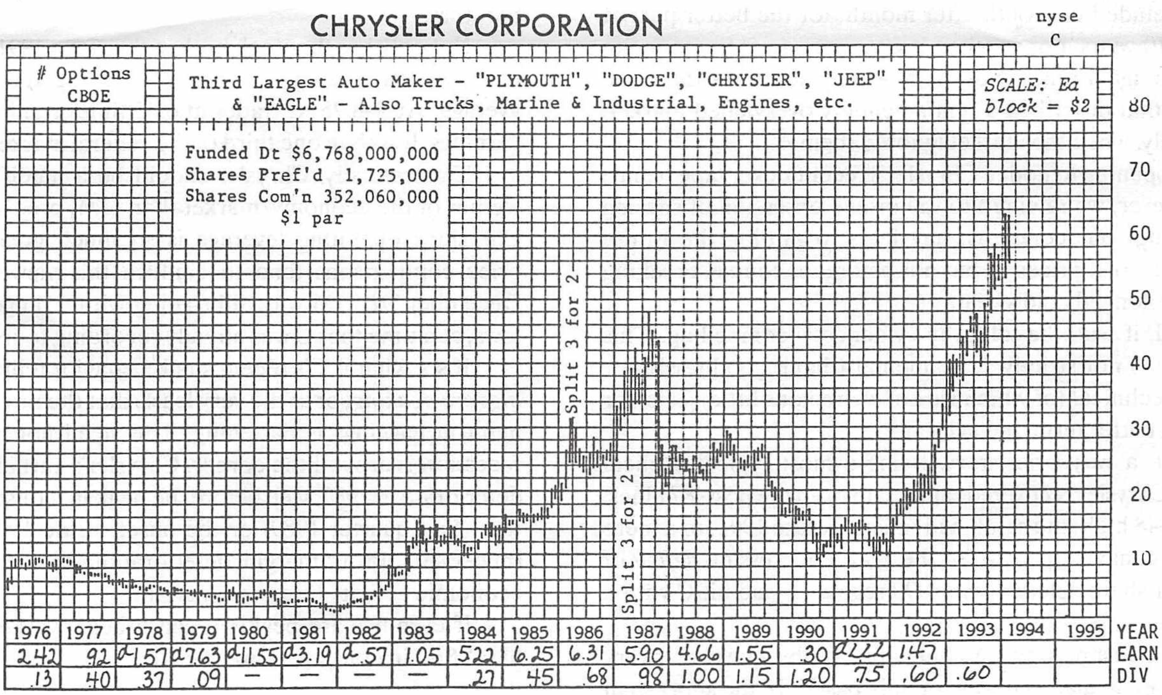


Chart 2

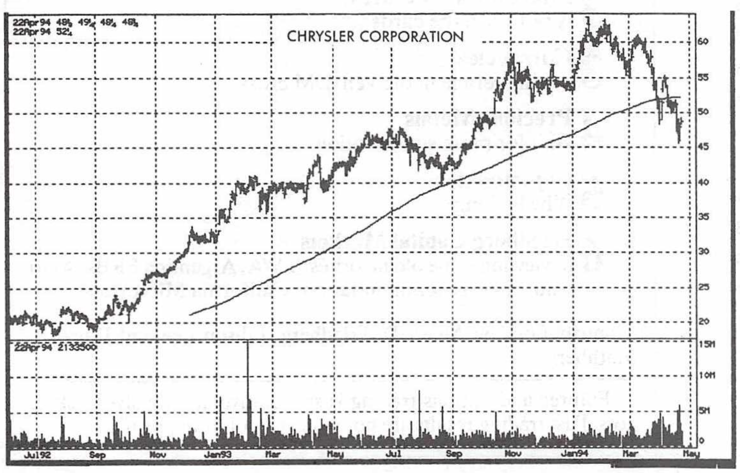
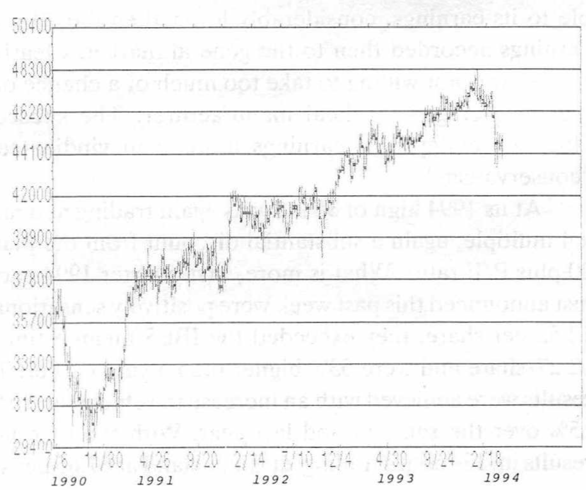


Chart 3 – CME S&P 500 INDEX



INTEREST RATE FUTURES

A rally is in the cards

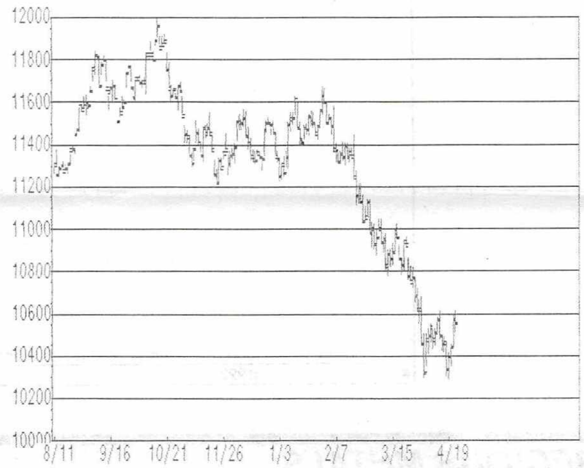
The shock effect of the Fed's about-turn in interest rates is beginning to wear a bit thinner. The third increase in Fed funds, to 3.75%, no longer came as an absolute surprise, as the Powers That Be have well advertised their intention to move to a "neutral" rate, estimated at around 4.5%.

It appears, thus, that December '94 Eurodollar futures trading around 5.8% yield seem a bit overdone for this stage of the game. Probably the same can be said about the 30-year bond. Neither visible consumer price inflation, nor the CRB index — which of late has backed away 5% from its highs — nor even loan demand — still growing at a mere 3.2% per annum for the past six months — can justify the 7.5% yields reached last week.

The enormous increase in the T-bond open interest at its recent lows bespeaks of panic. Yes, rates will go higher but not just yet: A four-week to eight-week bond rally should be in the cards.

STRATEGY: *We advised covering our T-bond short position, then trading around 103 (see Hotline Update of April 19). We realized a very significant profit, having first sold these bonds above the equivalent of 112 (see our Nov. 21, 1993, issue). Although it it tempting to go long, it has never been good policy to trade against the main trend. Stand aside.*

Chart 4 – CBT T-BOND (DAY) JUN '94



CURRENCIES

Taking refuge in the yen/DM cross

The US dollar "acts" poorly. Despite a booming economy, rising interest rates, and falling short-term interest rates in Europe, it has not managed to successfully bridge the DM1.725 level. A worsening trade deficit and an increased desire on the part US residents to diversify their portfolios globally are to blame.

We remain wedded to the idea that the Japanese yen is much too high for their economic comfort. Recent statistics confirm the gloomy outlook. Moreover, even the recently announced tax cut is being totally offset by new user fees and property taxes with a neutral effect on consumer disposable income.

In one respect the Americans are right: A truly stimulative fiscal package will lift them out of their three-year recession and will sharply reduce their monstrous trade surplus. In turn, this will cause the value of the yen to depreciate, because the currency normally follows the direction of the trade balance.

Alternatively, but politically less feasible, a sharp devaluation could reinvigorate the economy via a more profitable external sector. Because reason must prevail in the end, we are betting on a lower yen. But since the US dollar is so fragile, we are avoiding a direct, outright trade, i.e., short yen against a long US dollar position. Instead, we take refuge in the cross. Thus, we are long DM and short yen.

STRATEGY: *Long DM versus short yen is the most reasonable way to play for the inevitable: a depreciation of the mighty (and overvalued) yen.*

Raise stops to 59.9, basis the cash currency cross, New York close.

Chart 5 – 3 MTH. EURODOLLAR DEC '94

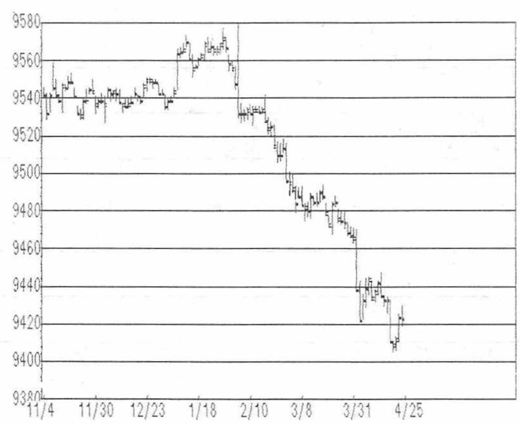


Chart 6

PRECIOUS METALS

Wait for more solid footing

Heavy fund activity and the South African "situation" are causing discontinuous and erratic movements within a generally easier trend. The stubbornly high bullish consensus has receded somewhat in recent weeks, although we suspect that more needs to happen before these markets find a solid footing.

STRATEGY: *We sold May silver around 5.46 as per our flash update April 6. We sold July platinum at 4.02 on April 11, as per our flash update of April 7. Both of these positions brought a profit. Also, we were stopped out, at a loss, of our June gold at around 373.30, as per the Hotline Update on April 19.*

Stand aside.

Chart 7 – COMEX GOLD JUN '94

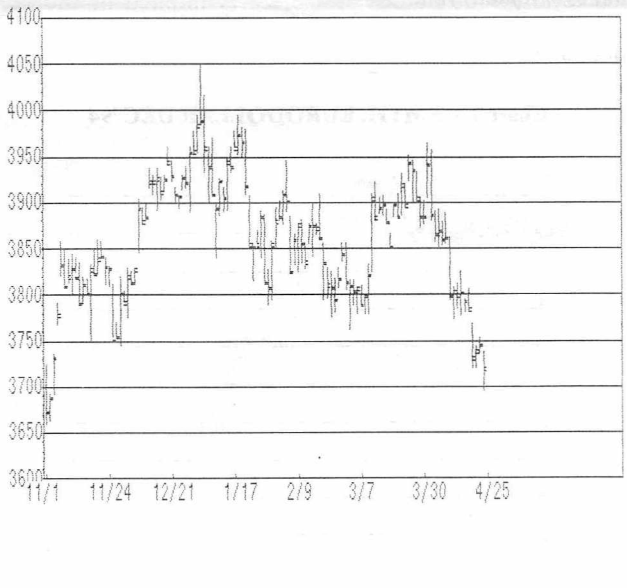
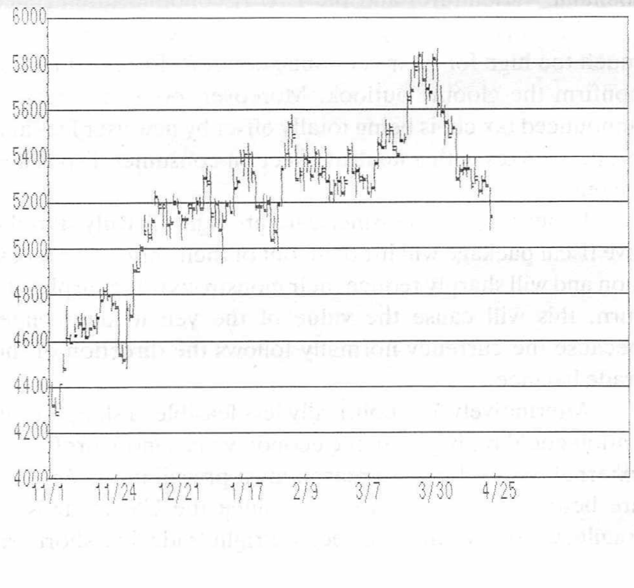


Chart 8 – COMEX SILVER JLY '94



COMMODITIES

Why be long?

For the past 12 months or so, a gaggle of normally savvy analysts and managers has predicted that the stock market would fall, portfolios would diversify into hard assets, and commodities markets would benefit.

I for one thought the fall in equities would be the catalyst that would launch commodities out of the embryonic bull-market phase they have been in since last summer.

Fundamental to these predictions was the basic assumption that investors would move their money to another asset class that offered them the chance of earning a double digit return. It has been nearly 15 years since sophisticated investors have aimed for anything less.

However, when the bear finally bit into Wall Street, investors sold not just stocks but commodities as well. Open interest of virtually every market shrank. The CRB benchmark fell nearly 5%.

The dominant issue, quite clearly, became, to paraphrase Will Rogers, the return *of* investment rather than the return *on* investment. Coupled with the lulling effect of persistently small increases in wholesale and consumer prices, cash became, if not king, then at least prince.

Is this to say we now reject the thesis we have maintained for the past 12 months that a major bull market in commodities is forthcoming? In a word: No. That thesis is based upon two solid facts: 1) That the Fed has provided a surfeit of highly combustible monetary fuel; 2) Commodity prices are too cheap relative to their own production costs.

The strategy at this point is based upon patience. The longer the delay, the longer these forces (especially the latter) will build and the greater will be the ultimate explosion.

Cocoa

A host of bearish news augmented the speculative liquidation during the past month. Statisticians in the USDA (US Department of Agriculture) and the EIU (Economic Intelligence Unit) have both reduced estimates of the deficit in the current (1993-94) crop year, which ends in September. The former now puts the deficit at a mere 52,000 tonnes, the latter puts it at 150,000 tonnes. At the beginning of the season, estimates of the deficit were as high as 200,000 tonnes.

The smaller-than-expected deficit forecasts have come about largely because of near-ideal growing conditions in Ivory Coast, Malaysia, and Indonesia. Contributing also, but to a somewhat lesser extent, is lower-than-expected consumption.

The Ivory Coast, the world's largest producer, is now expected to harvest a crop of 820,000 tonnes, nearly 20% more than it did last year and 10% more than was expected at the start of the season. In Malaysia, crops planted in the mid-'80s are just now reaching full maturity and local prices are the highest they have been since the first half of 1990. The crop there is expected to achieve 230,000 tonnes. Cocoa production in Indonesia grew by 10% a year in line with that country's plan to produce 400,000 tonnes and become the world's second largest producer by the turn of the century. This year's Indonesian crop is put at 250,000 tonnes.

Despite ample and inexpensive inventory, consumption this year is expected to grow by no more than 2% – to around 2,500 tonnes.

This is the third consecutive year statisticians have whittled down initial estimates of the size of the deficit. All told, we can reliably predict the stocks-to-consumption ratio will stand at no less than six months usage at the start of the 1994-1995 season. This obviously is an ample amount; the one-year contango, which at nearly 12% is so wide as to indicate a premium on warehouse space.

What then is the bullish case?

This year's production reflects increases that are generally above trend. Only Indonesia, 90% of whose production is classified as "bulk" rather than "fine" cocoa, has any significant new production coming on stream. We reasonably expect that next year's world crop will be no higher than this year's.

Consumption on the other hand has been generally lower than trend this year as a result of ongoing economic sluggishness in the world economy, especially in consumer spending, and because of still-soft demand from the troubled former Soviet states. We expect next year's consumption will be around 150,000 tonnes greater than production. Stocks will then stand at 5.17 months of consumption. We can project the 1995-96 stock to consumption level to stand around 4.2 months.

The next obvious question is why be long now? The bullish numbers calculated above should not make any significant impact upon the cash market until the 1995-96 crop year. The trade is not likely to develop even the perception of a risk of shortage until the 1994-95 crop, which doesn't begin for another five months. Finally, even if the cash market does not fall lower than current levels, the speculator is guaranteed to lose the onerous cost of carry implied by the 12% contango, i.e., $1,300 per year.

The reasons for being long are these:

1. The price is right. In real terms cocoa is trading at lower levels than prevailed at any time since the second world war, including the years 1958-59 through 1964-65, a period during which surpluses occurred for seven consecutive years and stocks increased to 5.1 months' worth of usage, nearly exactly the same levels they should be at the end of next year. Subsequently there occurred four consecutive years of production deficits, stocks fell to 3.8 months of usage and by 1968-69, prices averaged 155% more than they did in 1964-65 ($994/tonne versus $406/tonne). We are in the third year of a sequence of production deficits, which shows no end and coming off a low of $979/tonne (the average price of cocoa in New York during 1992-93).

2. Technically the market is not vulnerable. Open interest declined by 11.5% during April to levels lower than have

been seen in many months thus indicating a major selling liquidation has taken place. And prices are near major support levels which we believe will hold any onslaught of fresh speculative shorts.

We advise being resolute, patient, and still long.

Commodity briefs

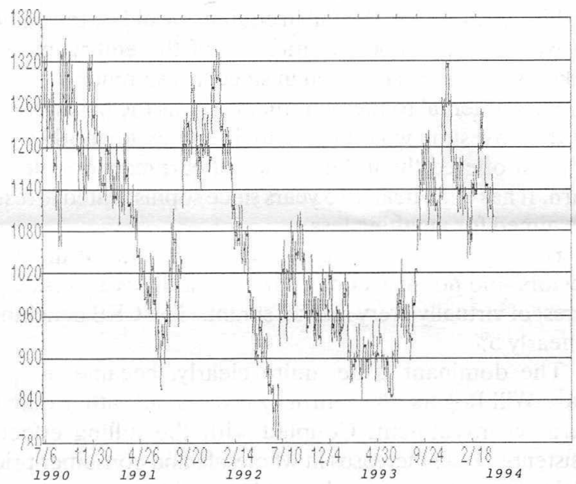
Coffee prices have defied the weakness in the commodities sector. The strength originates in London, which accepts delivery of Robustas (the contract traded on Coffee Sugar and Cocoa exchange in New York calls for delivery of milder Arabica coffees). Harvests are smaller in the Robustas producing regions of Asia. More importantly, harvests are also late, because of wet weather. While this market may be getting a bit ahead of itself, we will retain our now substantially profitable long positions. Place stops at 80.00, basis the nearest futures contract in New York.

Sugar took out the long position in typically vicious fashion, dropping a cent and a half in a scant week of trading. Adding insult to injury the market turned two days later when India made its long-awaited visit to market (the country to which cane sugar is native bought five cargoes of whites April 22). We would reinstate long positions with stops at reaction lows.

Soybean meal remains attractive to us. Despite average to above-average yields in both North and South America the past two years, stock-to-use levels of beans are the lowest they've been since the 1970s. Continued growth in demand from the developing-world puts pressure on this summer's flows from North America to alleviate the strain. At the very least an insurance premium must be paid by elevator-operators and consumers for the protein. At best a trend of declining yields in the face of burgeoning demand is in place. Be long.

– David B. Rothberg

Chart 9 – N.Y. COCOA



FRIEDBERG CAPITAL MARKETS

Reviewing some old favorites

Trans World Airline, Inc.

Security: 10% senior secured notes due 11/3/1998
Recent price: $70.25
Yield: 20.4%

While we have sold the 17.25%/16% senior unsecured notes, we continue to retain the 10% senior secured notes for our model account.

Trans World Airline (TWA) incurred an operating loss of $281 million in 1993, compared with a $404 million loss in 1992. The operating loss in the fourth quarter of 1993 was $122 million, on revenue of $791 million. The disappointing fourth-quarter performance was in line with the industry, which was due to December's cold weather in the east coast. Among the seven major US airlines (USAir, American, Delta, United, Southwest, Alaska, and Continental), five suffered a loss in the fourth quarter of 1993.

The winter storms in January and February of 1994 further delayed the recovery of the industry. TWA already stated that actual revenues in January and February were below expectations, and hopefully March would be a break-even month. Most airlines were expected to post losses for the first quarter of 1994.

Since our last update on TWA in January, the risk of holding TWA's equity and junior debt has increased for several reasons. First, three consecutive bad quarters (Midwest flood for the third quarter of '93 and bad weather for the following two quarters) have further impaired the liquidity position of TWA. With $170 million in cash at the end of 1993 and $50 million expected to be raised in 1994 by sale/leaseback arrangements and sales of nonstrategic assets, TWA can just cover the fixed charges (debt repayment, interest on debt, and interest on capital leases) in 1994, which were projected at between $175 million and $197 million. TWA certainly has to renegotiate some debts and/or seek capital infusion in the next few months to cope with cash needs in 1995. In other words, any unexpected revenue shortfall in the next two quarters may leave the company insolvent again.

Second, as of February this year, our analysis indicated that the price of crude oil would remain firm for another few months before it resumes the downtrend. Although we remain long-term bearish on crude oil, TWA's prospects may be adversely affected if oil's firmness continues beyond June. The impact of oil price on TWA's bottom line is significant. In 1993, TWA saved $35.8 million, because of a 6.1% decline in average fuel price. If the fuel price does not come down in time, TWA may not be able to break even on an operating basis for 1994. That in turn will result in a larger cash drain.

Third, fare discounting is still prevalent in the industry. One reason is that small short-haul airlines such as Southwest have created heavy competitive pressure for large airlines, which generally have higher operating costs. If fare discounting continues into the high season, it will considerably hurt TWA's chance of turning around.

As a result, we decided to take a profit on the 17.25%/16% senior unsecured notes of TWA for our managed accounts. For each $1,000 face value of old notes, we sold the common stock (22.635 shares), preferred stock (13.628 shares), and 8% notes ($622.9 face value) obtained from the debt exchange for a total of $373. This represents an average profit of 20% over six months.

On the other hand, we are keeping the 10% senior secured notes for the model account. Although we have become more concerned about TWA's viability, the strong collateral underlying the 10% notes makes it a relatively safe play on TWA's turnaround. Owing to flight to quality induced by the bond market's shakeout, the TWA 10% notes have recently come down to $70. At a 20% yield to maturity, we believe the notes are substantially undervalued.

According to documents from Shawmut Bank, the 10% notes are secured by the following collateral:

1) Spare parts inventory and related materials and supplies.

2) Beneficial interest in 32 landing slots at Washington National Airport, 52 landing slots at LaGuardia and 75 landing slots at JFK.

3) Ground equipment at all but 10 domestic locations.

4) all outstanding stock of LAX Holding Co., a TWA subsidiary formed to hold rights to a hangar at Los Angeles Airport.

5) Second lien on four Boeing 767 aircraft and four Lockheed L-1011 aircraft (subordinated to senior secured financing).

The first two collateral items carry the most weight, and there is a reasonable basis on which we can estimate their value.

The spare parts inventory is carried on TWA's balance sheet as a current asset. Its Dec. 31, 1993, balance sheet indicates a book value of $180.6 million. Because of fresh start accounting for post-Chapter-11 companies, this figure should reflect the fair market value of the spare parts. However, to be conservative, we assumed a 30% discount on the book value in case of a liquidation sale, which reduces the value to $126.4 million.

Furthermore, the landing slots are among TWA's most valuable assets. An appraisal conducted by Avmark, Inc. in 1990 estimated the average value of each landing slot at the three airports as follows:

Airport	Average Price per Slot ($'000)
Washington National	$1,410
LaGuardia	783
JFK	225

According to the above valuation, the landing slots should be worth $102.7 million in 1990. We believe that their value has, in addition to an annual 5% inflation, gone up by at least 10% over the past three years owing to increasing demand and zero growth in these airports' capacity. Therefore, we estimated the value of these landing slots to be approximately $130.8 million today.

Consequently, just the spare parts inventory and the landing slots combined should be worth approximately $257 million. With $225.3 million of 10% notes outstanding, this represents a 114% coverage. Adding the other three collateral items, we believe the collateralization is at least 120%.

These 10% notes are definitely a strong hold!

Argentina's floating-rate bonds

Maturity: March 31, 2005
Coupon: 6-month LIBOR plus 13/16%
Recent price: $72.75
Yield: 11%

Since our update on Argentina's floating-rate bonds (FRBs) last month, their price continued to decline to $68 from $80, and then rebounded to $72.75 recently. We believe the correction in all emerging market debts is due to 1) hedge funds and other institutional investors unwinding their highly leveraged positions, 2) continued rise in US Treasury bond yield (from 7% in March to 7.4% in April), and 3) weakening of the Mexican peso and rising interest rates in Mexico, whose bonds are regarded as the benchmarks for emerging market debts.

Most emerging market debts, the FRBs in particular, have been oversold because of the liquidation of hedge funds. Many of these hedge funds held large and highly leveraged positions in US and European long-term government bonds. When the US and European bond markets collapsed, they were forced to liquidate other bonds in their portfolios to raise money to cover margin calls. Since many hedge funds are also active players in emerging market bonds, their panic selling has caused the prices of these securities to nosedive.

We expect the US bond market to stabilize in the next few months, and the impact of these hedge funds on emerging market bonds to quickly fade. By then, investors will refocus on the fundamentals of each emerging economy. When it comes to economic fundamentals, we believe Argentina offers one of the best stories among developing markets.

Under Carlos Menem's administration, Argentina's economy has undergone a substantial restructuring. Its inflation rate declined to 5.1%, year-on-year, in March 1994. The smaller inflation differential between Argentina and the US has alleviated some investors' concern about the sustainability of the peso's peg to the US dollar. Economic growth for 1994 is estimated at 5%. Industrial output has increased over 40% since the start of economic reform in 1991. Argentina also has made significant progress in privatization and deregulation. The strong capital inflow has provided Argentinean companies with low-cost financing to improve their productivity.

As discussed in our last update, Argentina's fiscal situation is much better than Canada's and Malaysia's. A recent report from Merrill Lynch's International Economics Department pointed out that the budget deficit and public debt positions of Argentina, Mexico, and Brazil are better than those of many OECD countries, with Argentina having the best ratios. For example, Argentina's external debt to GDP ratio has declined to 26% in 1993 from 61% in 1985, while Canada's ratio increased to 42% from 27% in the same period. Therefore, Argentina's debt should trade at a much smaller spread over US Treasuries than do some OECD countries' debt.

Trading currently at a discount margin of 535 basis points above six-month LIBOR, the FRBs are substantially undervalued. One popular misconception about the FRBs' valuation is that they are similar to other fixed-rate emerging market debts and should trade against 10-year US Treasuries. Since the FRBs' coupon rate is reset every six months according to six-month LIBOR, their price should not be affected by changes in US long-term rates. In fact, even big changes in the only relevant interest rate — six-month LIBOR — will hardly affect the price of FRBs, because within six months, the coupon rate will be adjusted to the market level again.

Since the economic fundamentals of Argentina are steadily improving, the FRBs' discount margin over LIBOR, which mainly reflects the issuer's credit risk, should continue to narrow. The recent sudden widening of the discount margin, therefore, provides an excellent buying opportunity. We maintain our fair value estimate of $94 based on a discount margin of 150 basis points, and recommend adding positions in the FRBs with a price limit of $85.

Atari Corp.

Security: 5.25% convertible debentures, due 04/29/02
Recent price: $59.75
Yield: 13.9%
Recent stock price: $5 per share

Atari Corp. announced that it incurred a net loss of $21.9 million on $8.5 million revenue in the fourth quarter of 1993, which included an inventory writedown of $12.1 million and a restructuring charge of $6 million. The losses were expected. The company is in the final stage of phasing out all of its technologically-outdated products and concentrating on its new multimedia video game, Jaguar, which was introduced in December 1993.

Atari stated that it had shipped 20,000 units of Jaguar in December 1993, which is higher than what we expected. However, the release of games has been slow. Shipment of the first four games, "Cybermorph," "Raiden," "Evolution Dino-Dudes," and "Crescent Galaxy" had not started until after last year's Christmas season. Atari started shipping another game, "Tempest 2000," in April.

Sales of Jaguar continued to be strong according to retail stores. Its superior hardware design has been increasingly recognized by the industry. Jaguar was recently named the industry's "Best New Game System," "Best New Hardware System," and "1993 Technical Achievement of the Year" by various industry publications.

This has confirmed our previous analysis that the keys to Atari's success and survival are aggressive marketing and introduction of a large number of games within the next 12 to 18 months in order to build up the installed base of Jaguar before the next 64-bit machine is available. Atari has been working hard on the game aspect. It has signed up with 48 more software developers to design games for Jaguar, increasing the total number of developers to 86.

Also Atari's marketing efforts will be boosted by a $12.8 million capital infusion by Time Warner, which bought 1.5 million shares of Atari at $8.50 per share in a patent lawsuit settlement. Following the stock subscription, Time Warner's stake in Atari rose to 27% from 25%.

Atari's stock rose to $7.50 in March on the news that Time Warner increased its investment. It retreated to $5 recently when it was known that the investment was part of the lawsuit settlement. The convertible bonds also have come down to $60 from $67. Since the convertibles are priced substantially below their estimated investment value of $69, and we are still cautiously optimistic about Atari's chance of turning around, we reinstated a 5% allocation on the convertibles at the current price level for our managed accounts.

– Edison Lee

...And a new recommendation

California Microwave, Inc.

Security: 5.25% convertible subordinated debentures
Maturity: December 15, 2003
Recent price: $90.50
Yield: 6.6%
Conversion price: $28.4375 per share
Recent stock price: $18.25 per share

Summary

California Microwave specializes in satellite earth stations, networks, equipment, and microwave radios. The company has established an excellent reputation for technical capabilities and product reliability, and has a long list of blue-chip clients. With annual EPS growth over 20%, the stock is trading at a discount to other microwave companies. The projected fair value in 1997 is approximately $47 per share based on a P/E of 20. At $47 per share, the debentures should trade at $165, which translates into an annual yield of 20.6%.

Description and analysis of business

The business of California Microwave can be divided into three principal categories: satellite communications, wireless communications and intelligence products. The revenue distribution for fiscal 1993 (ended June) was as follows:

Products	Revenue ($ mil)	%
Satellite	$157	59
Wireless	61	23
Intelligence	46	17
Other	3	1
Total	$267	100

Satellite communications has been the core business of California Microwave. However, the much faster growth of the microwave division will reduce the importance of satellite communications. Its revenue share was projected to decline to 50% in fiscal 1994 and further to 44% in fiscal 1997.

The three major product categories of satellite communications are turnkey satellite earth stations and networks for domestic or international direct voice, data and video communications (major customers include AT&T, MCI, and British Telecom), mobile and portable satellite earth stations for temporary broadcast and voice communications (customers include US government, CNN, CBS, and ABC), and equipment such as high speed modems and frequency converters for the satellites.

Domestically the turnkey stations and networks are a mature and low-margin business. However, California Microwave should be able to maintain volume growth by supplying foreign markets, which are rapidly deregulating and privatizing their telephone companies. One of its key strategies in this product group is to increase the higher-margin equipment sales in order to improve overall profitability.

As mentioned above, wireless communications will be the engine of growth for California Microwave. Products in this category include digital microwave radios for cell-to-cell interconnections in cellular and paging networks (customers include Sprint Cellular, British Telecom, Vodafone, and Mercury), microwave radio systems for land mobile radio networks (customers include Tenneco Gas, New York Police, and Indiana State Police), microwave radios linking television news vans to studios (customers include all major TV broadcasters), and microwave radios that provide interconnections in wireless computer networks.

Revenue from wireless communications doubled in fiscal 1992 and almost tripled in fiscal 1993. The rapid growth is aided by the acquisition of Microwave Radio Corporation (MRC) in April 1992, which is a major manufacturer of short-haul microwave radios for cellular networks and TV broadcasting.

Furthermore, the company acquired Telesciences Transmission Systems, Inc. (Bloomingdale, Illinois) in October 1993 for $28.7 million. Telesciences specializes in both short-haul and long-haul digital microwave radios and provides a microwave network management system. Major customers of Telesciences include Motorola, Centel Cellular, Hutchison Microtel, and E-Plus. The acquisition will add approximately $70 million revenue to California Microwave's income statement, which will almost double its wireless revenue to $120 million in fiscal 1994.

However, the acquisition may dilute the earnings of California Microwave in fiscal 1994, since Telesciences recorded a slight loss in both fiscal 1993 and the first quarter of fiscal 1994. The acquisition will very likely improve the bottom line of the combined company as of fiscal 1995 when the R&D and administrative functions of MRC and Telesciences are consolidated.

One of Telesciences' major customers is Motorola. As a result of the acquisition, Motorola extended its supply agreement with Telesciences through October 1998. In addition, Motorola bought a $5.7 million subordinated five-year note of California Microwave, which is convertible into stock at $28.5 per share. These actions have strengthened the relationship between the two companies and also showed Motorola's confidence in California Microwave.

Financial analysis

California Microwave has achieved consistent sales and earnings growth in the past five years, except in fiscal 1992 when it experienced an unexpected slow down in satellite sales. Owing to the rapid growth in wireless sales and the higher margin of wireless products, the company increased its gross margin from 23% in 1992 to 25.8% in 1993. The gross margin further increased to 29.3% and 28% in the first and second quarter of fiscal 1994, respectively. It fell back to 25.4% in the third quarter mainly because of the consolidation with Telesciences.

The operating margin also improved. It was at 9.3% and 8.4% in the first and second quarter of fiscal 1994, respectively, which were the highest since 1989. Again, the third-quarter operating margin was dragged by Telesciences. However, the projected 7.3% operating margin for the full year of fiscal 1994 already makes it the second highest among major microwave companies.

The company's balance sheet is very strong. Its current ratio at the end of March 1994 increased to 3.0 from 2.9 at the end of June 1993. The pretax interest coverage was 7.8 for fiscal 1993, and was projected to rise to 12 for fiscal 1994. The total debt to market capitalization ratio, even after the issue of convertibles, was only 0.6 at the end of March 1994.

In short, the company has healthy growth in its revenue and earnings, and only a very moderate degree of leverage. Although the acquisition of Telesciences has dragged down profit margins slightly in the beginning, the synergies between the two companies are expected to restore margins two to three quarters later.

Valuation

Since the B-rated convertible debentures are trading significantly above their estimated investment value of $70.30, it is important to assess whether the upside from equity participation can be realized. The stock of California Microwave reached an all-time high of $31 in October '93 and then pulled back to the recent level of $18. The convertible debentures also have slipped from a high of $114 to $90. We believe that at the current price level, the convertible debentures are an attractive investment as the company's continued revenue and earnings growth will eventually lift the stock price to a much higher level.

Our projections for the company's revenues, profit margins and earnings are as follows:

	1994	1995	1996	1997
Revenue ($mil)	352	404	462	520
Gross margin (%)	26.9	27.5	28.5	29.5
Operating margin (%)	7.3	7.7	8.8	9.9
EPS ($)	1.13	1.39	1.82	2.37

These projections may be conservative for two reasons. First, the company stated that its goal was to achieve a 30% gross margin in 1995, while the assumption in our model is beyond 1997. Second, if PCS gains popularity faster than expected in the US, the company's wireless revenue will grow much faster than projected.

Given annual earnings growth of over 20%, the stock should be trading at a P/E of 20 in 1997, which implies a share price of $47 and a price/sales ratio of 1.5. Based on a discount rate of 20%, the current share price should be $27, implying a P/E of 24 and price/sales of 0.98 (based on projected 1994 earnings and revenue).

At $47 a share, the convertible debentures will be valued at $165. Since the debentures are not callable until January 1, 1997, investors in the convertible debentures can fully realize the upside potential in the stock's appreciation over the next three years. According to the above valuation, the convertible debentures should provide a compounded annual return of 20.6%.

A sensitivity analysis indicates that even if the stock trades at a P/E of only 15 in 1997, the compounded annual return of the convertible debentures will still be 10.9%. However, since the company has a solid position in a high-growth market, it is highly unlikely that its stock price will come down dramatically in the long run.

A comparison with other major microwave companies in Chart 10 indicates that California Microwave's shares are trading at a discount and our valuation is not aggressive.

STRATEGY: *California Microwave is a solid and exciting technology company that will capitalize on the explosive growth of the wireless communications market. However, considering the recent volatility in the stock market, we recommend our equity-oriented clients participate in the company's growth via the convertible debentures. The debentures provide a reasonably high yield versus no yield on the stock, and limited downside risk. Since the debentures are trading significantly above their investment value, they are not on our managed bond accounts' allocation at the moment.*

– Edison Lee

Chart 10
Comparative Valuation of Microwave Companies

Company	Mkt Cap ($mil)	P/E LTM*	P/Sales LTM*	Prospective P/E	Operating Margin	Debt to Mkt Cap	Price to Book
California Microwave	214	17.8	0.71	15.0	7.3%	0.60	1.6
Scientific Atlanta	1,053	55.4	1.46	24.8	5.7%	0.18	2.9
Andrew Corp.	889	49.6	1.80	24.3	10.0%	0.13	4.0
Digital Microwave	149	Neg	1.33	13.0	1.9%	0.21	3.0
Motorola	26,119	24.0	1.45	10.2	7.2%	0.27	4.1

*LTM = Last 12 months

Chart 11

Recommended Current Portfolio Allocations

1.	Gold/yen Bond	15%
2.	Fletcher NZ$	15%
3.	Tranz Rail NZ$	5%
4.	DB Group NZ$	5%
5.	New Zealand Government	15%
6.	Bk for Eco. DM	2½%
7.	FRB/BIC	15%
7.	UK FRN	20%
8.	TWA 10%	5%
10.	European	2½%

Chart 12
FOREIGN CURRENCY BONDS

Date: April 21, 1994 — We Offer The Following Bonds Subject To Change Without Prior Notice: Minimum US $4,000 (CDN. $6,000)

ISSUER/MATURITY DATE/COUPON	BID	OFFER	YLD. TO MTY.	NEXT PAYMENT INTEREST DATE
DEUTSCHE MARK DENOMINATED				
BANK OF NOVA SCOTIA 5⅝% 07/05/96 RRSP eligible	98 3/4	99.60	5.84 %	May 07
WORLD BANK 5⅞% 4/02/97 RRSP eligible	102.15	103	4.68 %	Feb. 04
WORLD BANK 9% 13/11/00 RRSP eligible	113.30	114.15	6.28 %	Nov. 13
KINGDOM OF DENMARK 6⅛% 15/04/98	99.40	–	–	Apr. 15
ARGENTINA 8% 5/10/98	100	100.85	7.75 %	Oct. 05
BK. FOREIGN ECO. AFFAIRS 7% 29/3/96	79.60	80.45	20.25 %	Mar. 29
FINNISH MARKKA DENOMINATED BONDS				
REP. OF FINLAND 11% 15/6/95	104.45	105.30	5.98 %	Jun. 15
ITALIAN LIRA DENOMINATED BONDS				
NORDIC INV. BANK 12⅜% 19/04/96	106 ½	107.35	8.19 %	Apr. 19
GENERAL ELECTRIC 11½% 7/02/95	100.85	101.70	8.74 %	Feb. 07
SWISS FRANC DENOMINATED BONDS				
GENERAL ELECTRIC 4¾% 2/7/98	101.60	102.45	4.10 %	July 02
DANISH KRONE DENOMINATED BONDS				
KINGDOM OF DENMARK 9% 15/11/96	105.40	106 ¼	6.24 %	Nov. 15
ECU DENOMINATED BONDS				
UNITED KINGDOM 9⅛% 21/02/01	108.95	–	–	Feb. 21
BRITISH POUND DENOMINATED BONDS				
KGDM OF SWEDEN 8¾% 29/5/96	103 3/8	104 5/8	6.30 %	May 29
FRENCH FRANC DENOMINATED BONDS				
CREDIT LYONNAISE 9½% 23/12/96	106.70	107.55	6.29 %	Dec. 23
JAPANESE YEN DENOMINATED BONDS				
WORLD BANK 5¾% 7/8/96 RRSP eligible	105.05	106	2.98 %	Aug. 07
CANADIAN DOLLAR DENOMINATED BONDS				
ONTARIO HYDRO 10⅞% 08/01/96 (semi annual)	104.65	106.15	7.07 %	Jul. 08
EKSPORTFINANS 7¾% 5/11/97	98	99 ½	8.07 %	Nov. 05
ROYAL BANK OF CANADA 9⅛% 7/1/97	101 3/4	103 ¼	7.71 %	Jan. 07
SOUTH AFRICAN RAND DENOMINATED BONDS				
ESCOM 12% 1/5/96 (semi)	101.55	102.40	10.92 %	May. 01
AUSTRALIAN DOLLAR DENOMINATED BONDS				
COMMONWEALTH BANK OF AUSTRALIA 9¾% 15/05/96	103 3/4	105	7.04 %	May 15
NEW ZEALAND DOLLAR DENOMINATED BONDS				
NEW ZEALAND GOV'T 10% 15/7/97 (semi)	107.95	108.80	6.90 %	Jul. 15
FLETCHER CHALLENGE 10.75% 15/12/97 (semi)	105.30	106.15	8.73 %	Jun. 15
FLETCHER CHALLENGE 10.15% 30/11/98 (semi)	104.10	104.95	8.81 %	May 30
CORPORATE INVESTMENT LTD. 13 1/2% 19/6/95 (semi)	86.90	89.40	15.84 %	Jun. 19
TRANZ RAIL LTD. 10% 15/10/99 (semi)	101.45	102.30	9.45 %	Apr. 15
DB GROUP 7% 30/6/96 (semi) matures @ 85	87.80	88.65	6.09 %	Jun. 30
ARGENTINEAN PESO DENOMINATED BONDS				
ARGENTINA BIC V FIXED/FLOATING 1/05/2001 callable in full on every interest date	74	74.85	17.91 %	4th day of mth.
U.S. DOLLAR DENOMINATED FIXED CONV. BONDS				
DATAPOINT CORP. 8⅞% 1/6/06 CV @ $18.11 p/sh (semi)	72 ¼	74 ¼	13.62 %	Jun. 01
BURNUP & SIMS 12% 15/11/00 (semi) CV @ $16.79 p/sh	95 ½	97	13.09 %	May 15
ATARI CORP. 5¼% 29/4/02 CV @ $16.31 p/sh	58	60	13.82 %	Apr. 29
COEUR D'ALENE 6% 10/6/02 CV @ $26.00 p.sh	92	94	6.99 %	Jun. 10
GLYCOMED 7 1/2% 1/1/03 CV @ $14.06 p/sh (semi)	69 ¼	–	–	Jul. 01
T.W.A. 10% 3/11/98 (semi)	68.15	69	20.93 %	Aug. 01
U.S. DOLLAR DENOMINATED FIXED RATE BONDS				
FARM CREDIT CORP. 7¾% 10/06/96 RRSP eligible	102.15	103	6.06 %	Jun. 10
U.S. DOLLAR DENOMINATED FLOATING RATE NOTES				
KINGDOM OF DENMARK 25/3/97 (Gold call, J¥ put), (semi)	98	99	3.02 %	Sep. 25
UNITED KINGDOM 30/09/96 3 mo. LIBID-⅛ (qtly) *callable @ 100	99.61	99.91	3 5/8 %	Jun30
BOCON 1/4/01 (30 day LIBOR) starting to accrue May 1, '97	73 ½	74.35	13.63 %	May 1/97
ARGENTINA: SERIES L: FRB 31/03/05 6 mo. LIBOR +13/16 (semi)	70 3/8	71 1/8	11.39 %	Sep. 30

GOLD (in ounces, at market prices, can also be held in your bond account)

Although we monitor these issues specifically, we also can fill any order in any foreign bond.

HOTLINE UPDATE

Flash Update, Tuesday, March 22, 11.30 am:
Buy June gold at the market, presently trading at 392.30.

Tuesday, March 22:
We have one new recommendation: Liquidate long May sugar at the market, accepting handsome profits. We repeat this morning's flash update of 11:30 am: Buy June gold at the market, presently trading at 392.30.

Friday, March 25:
This is a recap of this week's recommendations.

Via flash update at 11:30 am, Tuesday, March 22, we advised you to buy June gold at market, presently trading at 392.30. One new recommendation for Tuesday March 22, as follows: Liquidate long sugar at the market, accepting handsome profits.

Tuesday, March 29:
There are no new recommendations.

Friday, April 1:
There were no flash updates this week, and no new recommendations.

Flash update, Monday, April 4, 3:40 pm:
Sell June S&P at the market, presently trading at 436.80. Place initial stops at 450.00, close only.

Tuesday, April 5:
No new recommendations.

Flash update, Wednesday, April 6, 10:15 am:
Liquidate long May and July silver at the market; May silver presently trading at 546.00.

Flash update, Thursday, April 7:
Liquidate long July platinum if the New York Mercantile July platinum future opens lower; otherwise raise stops to 402.00, basis July, good anytime

Flash update, Friday, April 8, 1:40 pm:
Reinstate short June S&P positions at the market, currently trading at 447.40. Place initial stops at 448.00, close only, for today's session and 453.05, good anytime after tomorrow's close.

Friday, April 8: This is a recap of this week's recommendations.

Monday April 4, via flash update, we advised the sale of June S&P, then trading at 436.80. Stops were placed at 450, close only.

Wednesday April 6, via flash update, we advised to liquidate May and July silver at the market. May silver was then trading at 546.00.

Thursday April 7, via flash update, we advised the sale of July platinum if it opens lower; it did not open lower. Therefore, stops should be raised to 402.00, basis July good anytime.

On Friday, April 8, via flash update, we advised you to reinstate June S&P then trading at 447.40. Stops were placed at 448.00, close only for Friday session only. We were not stopped out, as the market closed at 447.25. Nevertheless, we now advise to cover this position at the opening of Monday, April 11, at the market.

One new recommendation: Buy July sugar at the market; place stops at 10.97, close only.

Tuesday, April 12:
No new recommendations.

Friday, April 15:
No new recommendations.

Flash update, Tuesday, April 19, 11:55 am:
Liquidate long June gold positions at the market, presently trading at 373.30.

Tuesday, April 19:
We have one new recommendation: Cover short T-bond positions at the market. June bonds closed today at 104.01. I repeat this morning's flash update of 11:55 am: Liquidate long June gold positions at the market. Gold was trading at 373.30.

Friday, April 22:
This is a complete summary since our last market letter dated March 20, of all liquidations of open positions and new recommendations that remain outstanding.

1. On Tuesday, March 22, we recommended the liquidation of long May sugar at the market, accepting handsome profits. May sugar opened on March 23 at 12.16.

2. On Wednesday, April 6, via flash update we advised you to liquidate long May and July silver at the market. May silver was trading at 546.00.

3. On Thursday, April 7, via flash update we advised you to raise stops on July platinum to 402.00, good anytime. We were stopped of this position on April 11 at 402.00.

4. On Tuesday, April 19, we advised you to cover short T-bond positions at the market. June T-bond positions opened on April 20 at 103.26.

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Subscription Enquiries for
Friedberg's Commodity & Currency Comments
347 Bay Street, 2nd Floor
Toronto, Ontario, Canada
M5H 2R7
(416) 364-1171

Trading and Managed Accounts
All enquiries concerning trading accounts should be directed to:

In Canada
Friedberg Mercantile Group
347 Bay Street
Toronto, Ontario M5H 2R7
(416) 364-2700

In U.S.
Friedberg Mercantile Group Inc.
67 Wall St., Suite 1901
New York, N.Y. 10005
(212) 943-5300