

FRIEDBERG'S

COMMODITY & CURRENCY COMMENTS

Friedberg Commodity Management Inc.



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Backwardation revisited

The November issue of *FC&CC* prompted an editor at *The Wall Street Journal* to send us the following note: "You suggest that 'backwardation' of several commodity prices signals an inflationary run-up ahead. But awhile back, I thought you were citing backwardation of crude prices as a reason why a falloff in prices was due. Am I misreading something?"

Our reaction to this query was one of astonishment. Our friend not only had read *FC&CC* correctly, but he had stretched his memory way back to October 1985, the date when we first wrote about backwardation in the market for crude oil. And as if this weren't enough, his question addressed the subtleties of backwardation — subtleties that must be understood if we are to explain how backwardation can lead to two contrasting conclusions about price behavior. Since these subtleties motivate much of our thinking about futures markets, we revisit backwardation.

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We begin by defining two terms: backwardation and contango. "Backwardation" is of British origin. It occurs when the price of a good for later delivery is below the price of that good for earlier delivery. Americans often refer to markets that display backwardation as "inverse carrying charge" markets.

"Contango" stands in contrast to backwardation. A market displays contango (and is a carrying charge market) when the price of a good for later delivery is higher than that of the same good for earlier delivery.

Backwardation and contango, therefore, describe two types of spreads. If we are to uncover the mysteries of futures markets, we must understand the economics of these spreads.

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It has long been popular to view futures markets as markets for insurance. The stylized representation of these "insurance markets" looks something like this: Handlers of commodities are risk-averse and hold inventories of commodities. When handlers become sufficiently concerned about fluctuations in the value of their commodity inventories, they sell a like quantity of futures contracts. If the spot and futures price rise (fall) by the same amount, the handler is fully insured because the gain (loss) in the value of his inventory is exactly

offset by a loss (gain) in the futures markets. Although those with any knowledge of markets know that this stylized representation distorts reality because, among other things, spot and futures markets don't move in parallel, they continue to employ this model. For them, the essential purpose of futures markets is to provide insurance against price risks.

For us, this stylized representation of commodity handlers who demand price insurance and futures markets that supply it misrepresents the real function of futures markets. In consequence, the so-called insurance model is not of use in analyzing the behavior of futures markets.

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If futures markets are not insurance markets, then what are they? Futures markets operate as loan markets for commodities. As such, they operate in a manner that is similar to money markets. When a handler of commodities purchases a commodity and simultaneously sells a futures contract, he is temporarily borrowing a commodity. This procedure is much like borrowing money from a bank with the promise to repay the loan in the future. The sale of a futures contract, in conjunction with the purchase of a commodity in the spot market, allows a handler to borrow a commodity now and repay it later. These simultaneous buy-sell transactions are, therefore, implicit commodity loans.

The array of futures contracts, from immediate delivery to the most deferred, allows for an active loan market for any given commodity. The spreads between contracts represent the cost of borrowing a commodity. Like the term structure for interest rates on money that is borrowed for different periods, the differences in the spreads between different pairs of futures contracts represent a term structure of so-called "com-

In this issue

Metalflation in the commodity markets: copper, nickel, and aluminum are all early movers. Gold: still, yes, up, and we're long. We're long stock indexes via call options. Also: currencies and Friedberg Capital Markets. Contributions by Albert D. Friedberg, Steve H. Hanke, Daniel A. Gordon, and Michael D. Hart.

modity interest rates" for a given commodity. (Note that in addition to the commodity interest rate cost, we should add warehousing fees and the capital cost of holding inventory. However, these are only of secondary importance when analyzing futures markets, and will not be included in our discussion.)

Businesses hold stocks of commodities for much the same reason as they hold cash (working capital): they want to keep their processing plants running smoothly in face of uncertain timing of both arrivals for their input supplies and orders for their outputs, and the high cost of temporary shutdowns. Hence, businesses are willing to incur a cost for holding (borrowing) inventories because inventories generate a convenience yield. Just as the loan market for money guides funds into the hands of those who have the greatest need, the futures markets allocate (lend) commodity inventories to the dealers and handlers who have the most immediate need.

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To grasp the concept of futures markets as loan markets, consider the data in Chart 1. This chart contains calculations for copper interest rates. These calculations were made by using price data from the copper futures market on four different dates. The concept of commodity interest rates, although somewhat unusual, is not new. Professor Piero Sraffa, for example, discussed commodity interest rates in a famous book review, "Dr. Hayek on Money and Capital," which was published in a 1932 issue of the *Economic Journal*.

The information in Chart 1 contains many important insights into the economics of futures markets.

1. When markets are in contango, the cost of borrowing is negative because the borrower is buying nearby at a lower price than he is selling a more distant contract for. (Recall that we are excluding warehouse fees and capital carrying charges in this discussion.) This result occurs because there are relatively large inventories of commodities when contango exists. Hence, the supply of commodity loans is large relative to the demand for commodity loans, and the interest rates on these loans are negative.

The relatively high inventory levels associated with contango are depicted in Chart 2. This chart shows that inventory levels are related to the spread between futures and spot prices. The shape of the curve in Chart 2 was first observed by Professor Holbrook, working in the 1930s, and subsequently has been shown to be representative of commodities that trade on futures markets.

Without even so much as "counting one bean," we know that inventories increase as markets move from backwardation to contango and as the contango increases. It is important to mention that contango does have its limits. These are imposed because of arbitrage. For example, if contango (the negative commodity interest rate) exceeds the cost of carry (warehouse fees and capital carrying charges), anyone could make a riskless profit by buying the nearby contract while selling a distant contract and arranging a loan for the funds necessary to make the trade.

2. When markets are in backwardation, the cost of borrowing is positive because the borrower is buying a commodity for nearby delivery at a higher price than he is selling a more deferred futures contract. This result occurs because inventories are relatively small (see: Chart 2).

3. At any given time, there is a term structure of commodity interest rates. That is, commodity interest rates vary over the array of futures contracts that exist on any given day. This variation depends on the anticipated relative scarcity of the commodity between contract dates. For example, Chart 1 shows that, on Dec. 11, 1987, copper interest rates ranged from 11.5% per annum (for a loan from December 1988 to July 1988) to 69.4% per annum (for a loan from March 1988 to December 1987). These copper interest rates indicate that there is much more tightness of supply anticipated for the nearby months than for the more distant months.

4. As the degree of backwardation increases (as has been the case with copper since June 12, 1987 — see: Chart 1), the commodity interest rates increase. Higher rates induce lenders to supply more of a commodity from inventory to spot or nearby markets because lenders can make loans at higher interest rates. That is, they can sell a commodity to the current market and buy back simultaneously a position for future delivery at a lower price. Higher rates also affect borrowers by cutting their appetite for commodity loans. In this way, commodity interest rates, like any other prices, allocate scarce inventories to those who need them the most.

5. As the degree of backwardation increases over time, not only do nearby prices rise relative to more distant prices, but also prices over the full array of contracts increase. Recent action in the copper market illustrates this pattern (see: Chart 1). The dynamics that generate this outcome are rather straightforward. As nearby commodity interest rates increase, more inventories are lent to spot and nearby markets. To put it another way, more inventories are moved in time closer to their end use. In consequence, inventories are reduced, and with lower inventories, prices across the entire array of contracts — even the most deferred — will increase.

It is important to mention that backwardation serves a useful economic function because it prevents excessive inventory hoarding. For those who wish to hoard, the price (foregone commodity interest rates) can be very high. In consequence, inventories are economically rationed into tight spot markets.

We should mention that this process of prices spiralling upward does not continue forever because the higher price levels signal consumers to reduce demand and induce primary suppliers to increase production. As a result, backwardation is reduced, commodity interest rates fall, inventories begin to accumulate and the market becomes less dynamic. All this can take a considerable amount of time, particularly when long-run demand and supply are rather insensitive to price changes.

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Now, it is time to directly answer our friend at *The Wall Street Journal*. We have observed that in the past six months,

more and more commodity markets have moved from contango to backwardation. Moreover, backwardation, once it has occurred, has become greater. This means that commodity interest rates are increasing, inventories of commodities are becoming more scarce, commodity markets are becoming tighter, and, yes, the level of commodity prices, over the full array of contracts, is rising. So far so good.

But, our friend points to an apparent contradiction in our analysis: How, given that we conclude that in general, backwardation signals bull markets in commodities, could we conclude that backwardation would bring down the Opec cartel and crude oil prices? Well, crude oil, unlike most commodities, is a "rigged market." As a result, scarcity in the oil market can be generated artificially, when the Opec cartel reduces its output well below its capacity level. In contrast, scarcity in most other markets is created when output presses up against industry capacity constraints. *In these cases, scarcity is real.*

Oil prices, particularly back in 1985, were set well above "free market" levels. This was accomplished because members of Opec, particularly Saudi Arabia, reduced their output well below capacity. The artificial scarcity that was created resulted in a significant backwardation and high oil interest rates. These high oil interest rates induced potential suppliers to lend oil to the spot market because they could sell at high spot prices and simultaneously buy futures contracts at low prices. Thus, with backwardation in the rigged oil market, Opec members could "cheat" and lock in large risk-free profits by selling at high prices and simultaneously purchasing futures contracts at low prices. Of course, all non-Opec suppliers could do the same. In short, it paid everyone to lend oil to the spot market.

With lent oil flooding the market, to take advantage of high oil interest rates, the only way that the spot prices could be supported was for the Saudis to cut production to offset the oil that was being lent to the spot market. The Saudis were good sports and supported the market. However, we knew that by late 1985, the oil being lent to the spot market was squeezing the Saudis out of the market and would force the Kingdom to throw in the towel. This, of course, occurred and Opec collapsed.

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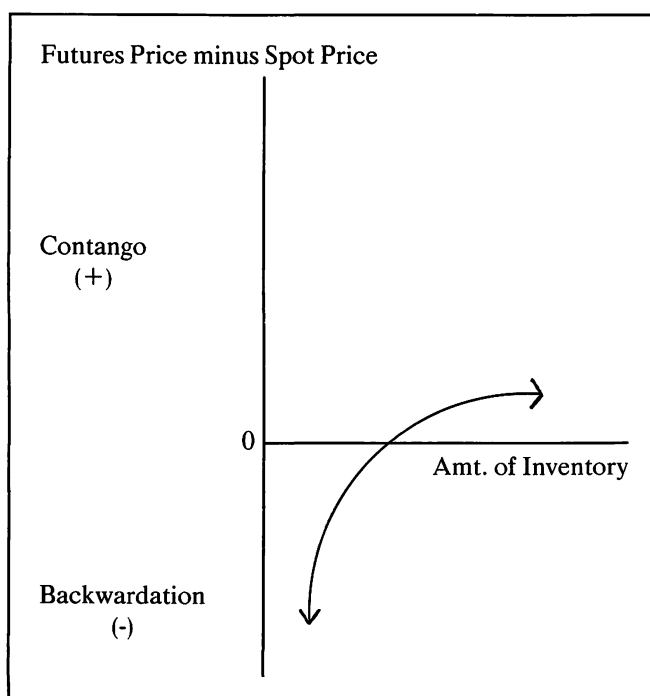
While we recognize that bull markets can be stimulated through various channels. Our view of futures markets as loan markets has led us to the strong conclusion that backwardation is the stuff that many bull markets are made of, and that the commodity markets are looking increasingly bullish as a result. However, this conclusion does not go without qualification. If a price is supported at an artificially high level because a cartel has reduced its output below capacity, then the resulting backwardation is paradoxically the stuff that bear markets can be made of.

— Steve H. Hanke

Chart 1
Copper Interest Rates

Month of Delivery	Cents/lb.	Interest Rate % per annum
Friday, December 11, 1987		
December	128.15	—
March	109.20	69.4
May	99.20	60.5
July	93.70	35.2
December '88	89.40	11.5
Friday, November 13, 1987		
December	102.60	—
March	91.60	48.03
May	86.10	38.33
July	84.80	9.20
December '88	83.80	2.86
Friday, June 12, 1987		
July	71.00	—
September	69.65	11.63
December	68.90	4.35
March	68.55	2.04
May	68.60	-0.44
Friday, December 12, 1986		
December	59.59	—
March	60.55	-6.34
May	61.10	-5.40
July	61.45	-3.42
December '87	62.25	-3.08

Chart 2
Inventory Levels



Metalflation: copper, nickel, aluminum

Commodity price cycles appear, on the surface, to be homogenous but, in fact, they are not. There are early movers, "timely" movers, and late movers. This rotational characteristic of commodity markets permits the alert trader to indulge in a number of profitable moves without being much more than a generalist.

The early movers in the 1986-1990 commodity bull markets have been the non-ferrous metals, particularly copper, nickel, and aluminum. Charts 3, 4, 5 tell a remarkable story: During the past 12 months, copper and nickel have more than doubled in price, while aluminum has risen more than 80%.

Low prices, and complacency regarding futures prices, made market participants oblivious to the dangers of unusually low levels of inventory. As an example, copper warehouse stocks declined 14% in 1986 (see Chart 7) and continued to decline in 1987, yet it was not until May of this year that copper prices bettered the 1986 highs. Backwardation (see previous article) had already set in March, evidencing a tight supply condition and presaging trouble ahead. This warning went unheeded by producers, merchants, and users, who were lulled into comfort by six long years of disinflation. The failure to readjust inventories in a timely fashion, bidding up prices in an orderly way, led to a classic scramble.

Once in motion, inventory cycles (as we have discussed on a number of previous occasions) overwhelm the slow adjustment resulting from increased production and decreased consumption. Here's how:

In the particular case of copper, year-end total inventories may not exceed 570,000 tonnes, or four and one-half weeks' consumption. If seven to eight weeks' consumption were "ideal," production would have to increase (and/or consumption decrease) by roughly 500,000 tonnes, or almost 7%. Bullish price expectations will, undoubtedly, help to rationalize an even higher inventory level: a move to 12 weeks' consumption represents a potential "absorption" of 1,160,000 tonnes

of copper — a 15% increase in worldwide production. Thus, fairly significant increases in production may have little bearing on prices — at least until desired stock levels are satisfied.

As we saw earlier, a steepening backwardation, the condition present in these three metals, represents the increasing cost for holding physical inventory. This cost is balanced against the possibility of making a gain. Eventually, this cost begins to restrain the inventory-speculator, at which point the restocking process comes to an end.

To forecast future prices, then, one cannot simply tote up anticipated production and consumption. Other dynamic factors must be taken into account, particularly the participants' desire for a particularly "comfortable" level of stocks, the time lag in generating these somewhat larger stocks, and the cost of holding them.

Anticipated increases in production of primary (and scrap) copper, aluminum (where production has already increased significantly in recent months), and nickel give us few clues in pinpointing a top. Perhaps it's more useful to analyze a) inventory levels and b) the changes in the backwardation or costs of holding stocks. Two consecutive monthly increases in Exchange-approved warehouses would clearly raise our level of concern. By then, of course, prices may have collapsed. Nevertheless, it would give us a good indication of a major change in trend. More importantly, a dramatic narrowing of the backwardation, *across all or most deferred months*, would tell us that the urge to rebuild stocks is diminishing. This may be the tip off that the bull market is expiring.

STRATEGY: *At this time, we see no reason to abandon the bull side of the "early" movers. In the case of copper, a correction may occur once spot December is liquidated. We are thus raising our stops to 99.90, basis March '88, close only. Any changes to this suggestion will be made via the Hotline Update.*

Chart 3 — Copper - Spot (LME)

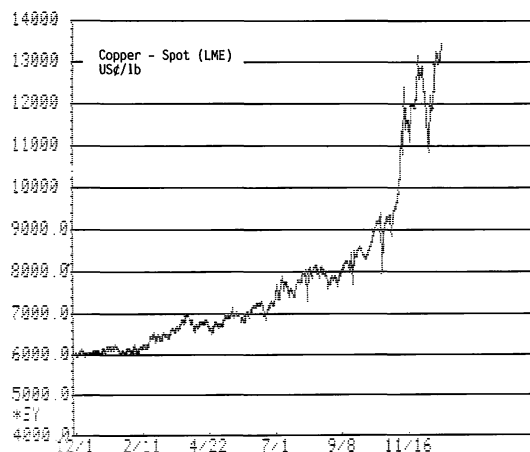


Chart 4 — Nickel - 3 Month Forward (LME)

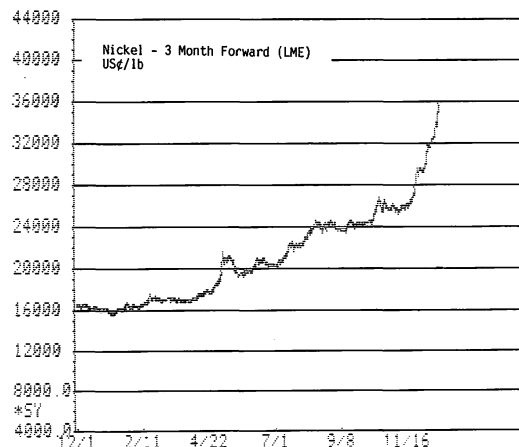


Chart 5 - Aluminum - 3 Month Forward (LME)

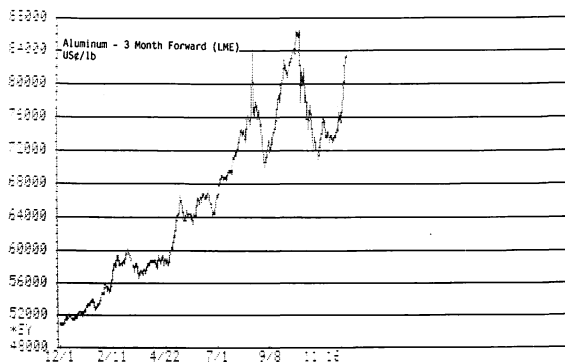


Chart 6 - COMEX COPPER JAN 88

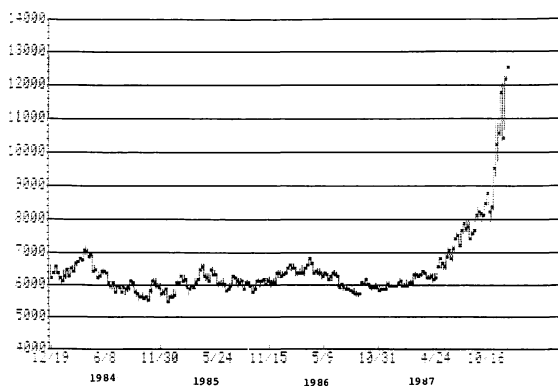
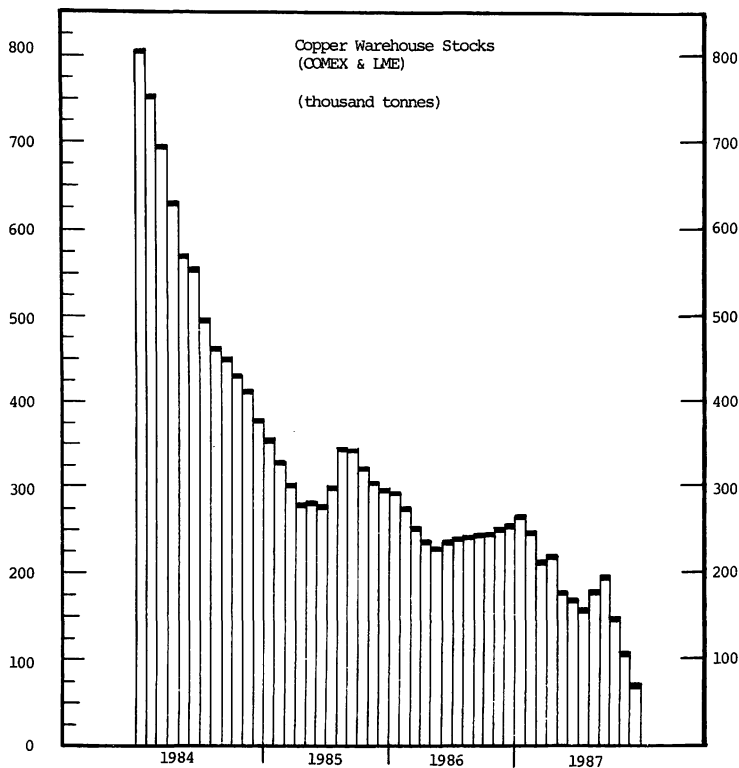


Chart 7 - Copper Warehouse Stocks



Gold: the long cycle

Some time ago (*FC&CC* Feb. 8, 1981), we discovered an interesting (and eminently logical) pattern, or "cycle", of gold absorption.

Dividing gold absorption into public and private uses, one could observe the relative attractiveness of the yellow metal. Thus, as Chart 9 shows, in the decade of the '20s, 94% of newly-mined gold went to increase central bank reserves ("public" use). Admittedly, we were on an international gold standard. Nonetheless, if private use was attractive (that is, prices were "cheap"), much more gold should have ended up in private hands. Again, one could argue that *confidence* in gold convertibility allowed private citizens to ignore gold and hold paper money, which had a positive yield. Perhaps all we can say with certainty is that, for whatever reason, the private sector did not think that gold was attractive, that is, reasonably priced.

The proportion of gold going to public use diminished sharply in the subsequent decades. During the inflationary '60s, the private sector absorbed 95% of all newly-mined gold, an indication that \$35/oz. gold had become enormously undervalued. In the very late '60s (not shown in the chart), in an attempt to maintain a \$35/oz. lid and still satisfy insatiable private demand, central banks sold gold to the private sector. During the '70s, *all* newly-mined gold and *then some* was absorbed by the private sector. What is even more significant,

this gold was absorbed at *rising* prices.

As prices overshot their long-term purchasing power ratios, gold began to flow back to public use. During 1980, central banks absorbed 17% of all newly-mined gold. Clearly, gold had become somewhat too "pricy." The average price for 1980: \$589.50/oz.

We now arrive to the decade of the '80s. Knowing that central bank holdings fell 9.5 million ounces (to September '87), one concludes that private sector absorption remains strong. Moreover, from the end of 1985 to the present, more than 5 million ounces of central bank gold went to satisfy private use... and yet prices rose almost uninterruptedly.

An analysis of the long cycle and the residual role of central banks permits us to *anticipate and measure* the potential pressure on prices.

From this perspective, one could argue that the second half of the '80s is in many respects similar to the decade of the '70s. Unless central banks are willing to supply much more than marginal quantities of gold (and see last month's comments), accelerating private usage will absorb all newly-mined gold *at rising prices*.

STRATEGY: *Remain firmly long; we continue to believe that gold prices will soar well past their historical highs.*

Chart 8 — COMEX GOLD JAN 88



Chart 9

World Gold Production and Share
Accruing to Western Official
Reserves (the IMF)

	<u>Production</u> (tonnes)	<u>Share</u>
1920-'29	5,640	94 %
1930-'39	9,200	92 %
1940-'49	9,300	71 %
1950-'59	9,480	52 %
1960-'69	13,620	5 %
1970-'79	13,100	- 8 %
1980	1,180	17 %

Sources : Financial Times of London

Stock Indexes

Finding good support at the 220 level, the S&P 500 Index turned up to challenge the post-crash recovery highs (260.00). Should this attempt prove successful — and we strongly believe it will — the market will, in all probability, retrace the October 19 drop and trade up to the 280-300 range before meeting heavy overhead resistance.

Our reasons for believing in a strong market rally are primarily technical. Why do these corrections occur? Simply because at an early stage of a bear market, there is very little unanimity and agreement about the “bad news” that will happen in the future. As some of these fears naturally do not materialize, market participants regain their confidence and become buyers. In other words, a poor (early) diagnosis leads to a faulty reaction.

Let us use an example: The market foresaw an imminent recession from the high and rising interest rates that were experienced during the summer and, then, after Labor Day. More recent economic data, however, indicate that the economy was extremely vigorous coming into October 19. Thus, those who feared a recession because of “high” interest rates, now regain confidence and begin to buy stocks again. The same can be said for those who sold *after* October 19, thinking that the crash would send us into a deflationary depression. As these fears do not materialize, bears become cautious bulls.

In truth, very few observers believe that the market collapsed because that is how credit-induced, speculative orgies end. Furthermore, almost no one believes that the *real danger* (see last month's *FC&CC*) is inflation, tight money, and depression, *in that sequence*. If the market understood that, it could never rally, because, after all, the inflation danger is ever more real. When most market observers finally realize the obvious — when the true nature of the “bad news” becomes obvious to nearly everyone — and no longer *grop*

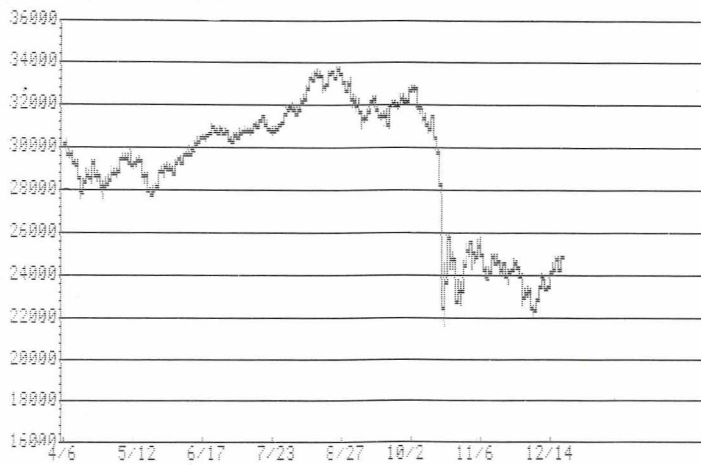
for various explanations (the budget deficit, the trade deficit, the dollar, Reagan's fall in political clout, and so on), the market will have discounted the worst. Until such time, the market will fall and then rally as one after another of the presumed “fears” will be allayed. A small but growing minority, well aware of the real danger, will keep selling, which will keep the market in a basic bear mode.

Why a rally and not a lengthy lateral consolidation? Because portfolio insurers, those poor chaps who aggravated the crash by hitting every bid, still control a short position in excess of 15,000 contracts. Modern portfolio insurance practices call for *trading with the trend*, that is, short positions are taken on and increased in falling markets and progressively covered in rising markets. A move above 260 should trigger some short-covering, which, in turn, can trigger more short-covering and thus create an upward stampede, the reverse of what occurred on October 19. By the time the rally peters out, the market (and not the SEC) will have delivered the believers in portfolio insurance a crippling blow.

If our thesis is correct, the open interest in the S&P 500 will decline to the neighborhood of 125,000 contracts as the market rallies. If by the time we reach the 280 level, the open interest has not begun to decline, we either have much further to go or our thesis is incorrect and a new bull market is underway. Time will tell.

STRATEGY: *Once again two attempts to establish a long position were stopped out due to excessive volatility (even though, in our original suggestion, we pointed to 220 as the critical level). In the third attempt, we favored buying close to at-the-money March '88 call options (see Hotline Update). Thus far, our position is profitable. Remain long via these options.*

Chart 10 – CME S&P 500 INDEX CASH



Currencies

STRATEGY: The short side of the US dollar — while extremely logical — is much too popular. We prefer, at this time, to stand aside and wait for a good entry opportunity. Keep in touch via the Hotline.

Chart 11 – CME BRITISH POUNDS DEC 87

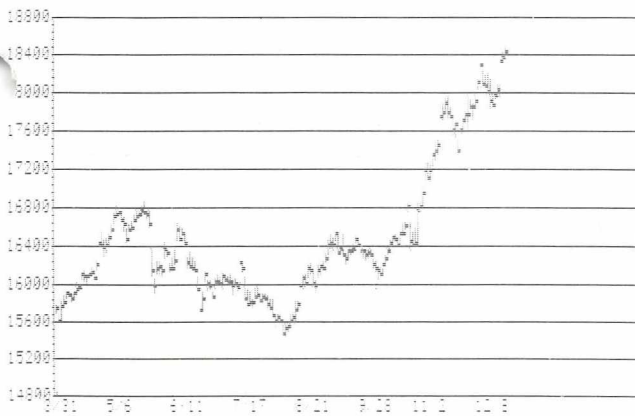


Chart 12 – CME JAPANESE YEN DEC 87

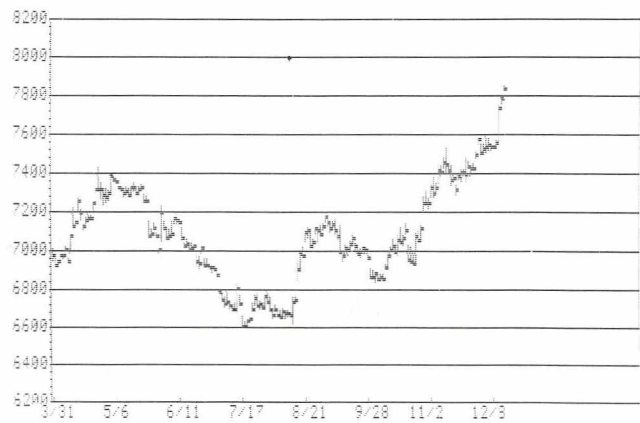


Chart 13 – CME SWISS FRANCS DEC 87

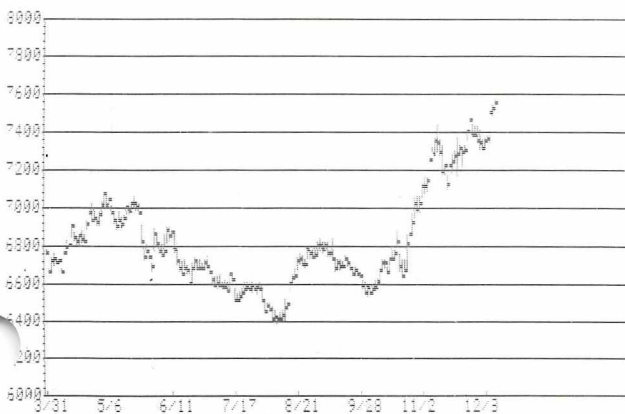
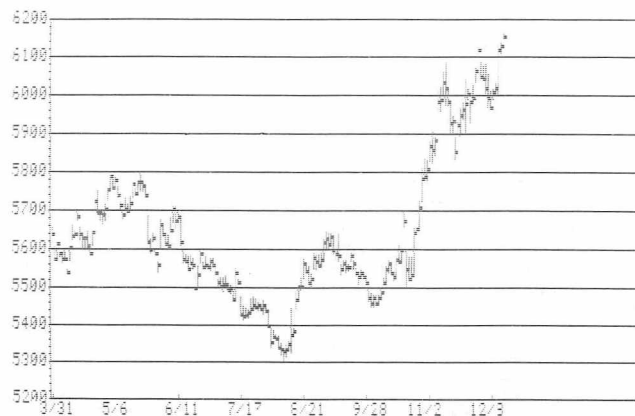


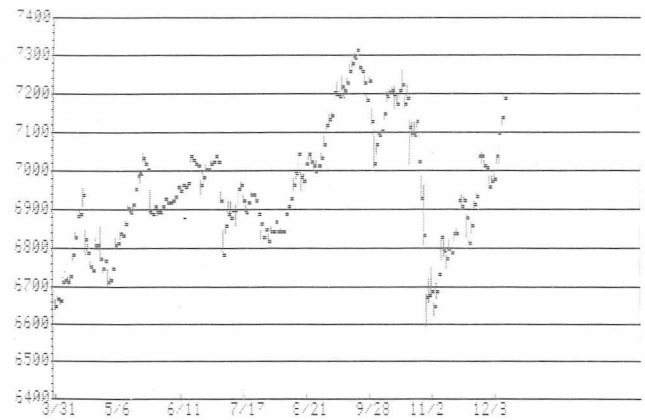
Chart 14 – CME DEUTSCHE MARK DEC 87



Australian Dollar

STRATEGY: Profitable trade. Raise stops to 70.25, basis spot London close (around midday New York).

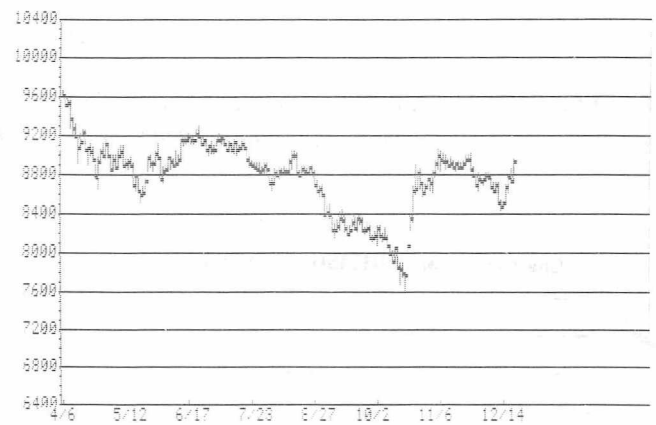
Chart 15 - CME AUSTRALIAN DLR DEC 87



Interest Rate Futures

STRATEGY: Profitably stopped out of March '88 T-Bond short position at the revised 87.16 stop (see Hotline Update). Remain sidelined.

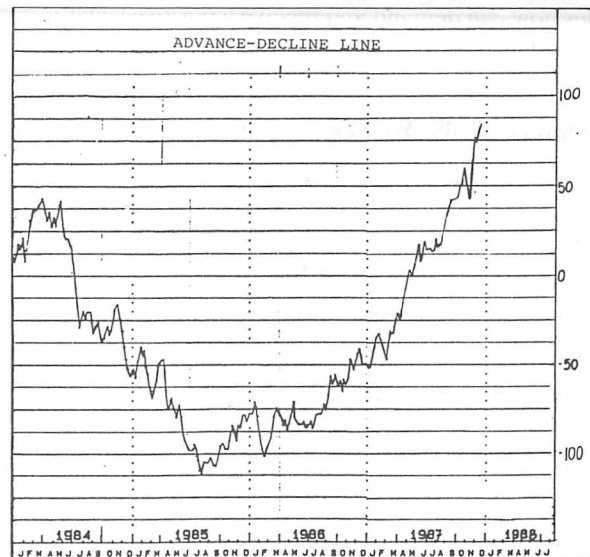
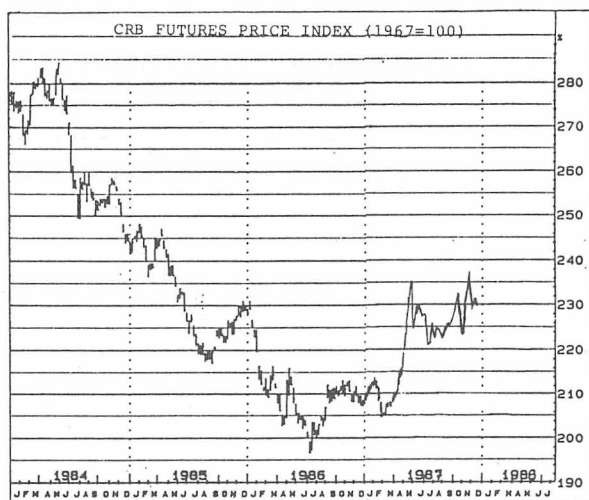
Chart 16 - T-BONDS (DAY) DEC 87



CRB Index

STRATEGY: Remain long; place stops at 219.75, basis cash index, close only.

Chart 17



Sugar's in backwardation

We became friendly to sugar back in May (see *FC&CC*, May 24, 1987). The basis for our recommendation was an analysis of supply-demand fundamentals. At that time, demand for the 1987-88 year was projected to exceed production. Hence, inventories were projected to fall, and prices were projected to rise. We thought that the March 1988 contract would average 9.5¢ per pound during the October to December 1987 period.

In late July, we received new data that suggested that production would be higher than we had earlier anticipated. We put these higher production figures into our supply-demand model, and concluded that the average closing price for the March 1988 contract during the October to December 1987 period, would be 7.5¢ (see *FC&CC*, July 26, 1987).

When we published the October 25, 1987 issue of *FC&CC* we indicated that the market was showing a bit more technical strength than we had anticipated when we completed our last formal supply-demand analysis (July 1987). The November issue of *FC&CC* also indicated continued technical strength.

At this time the market is becoming dynamic and might be ready for a breakout.

The sugar market's progression, from May to the present is captured by an analysis of contango and backwardation (See "Backwardation revisited" elsewhere in this issue for an explanation of these terms). In May, although the fundamentals looked promising, the market was in contango. Hence, sugar interest rates were negative. By July, when the fundamentals had deteriorated, prices had fallen from their May levels and the contango had increased. Then, by October and November, the contango had been dramatically reduced. On Dec. 18, 1987, the market was in backwardation, with positive sugar interest rates. This indicates that the market is becoming tight because there is a positive cost associated with borrowing sugar. Or, to put it in other words, those who hold inventories now can demand and receive a positive sugar interest rate for the sugar that they lend to the spot market or nearby contract months. All this indicates that the sugar market has tightened up, and that in the face of backwardation it could begin to enter a more dynamic phase.

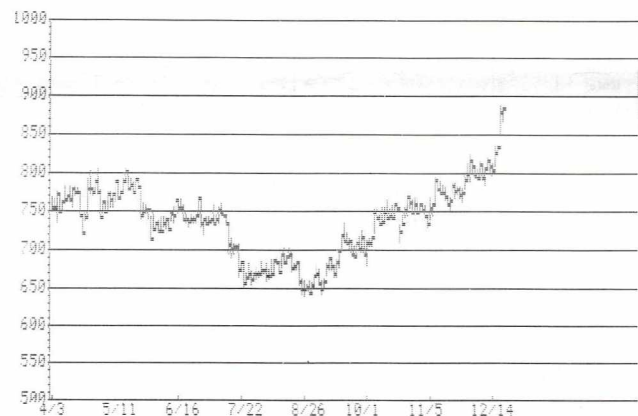
STRATEGY: Raise stops on long positions to 8.00, basis March 88, close only.

Steve H. Hanke

Chart 18
Sugar Interest Rates

Month of Delivery	Cents/lb.	Interest Rate % per annum
Friday, December 18, 1987		
March 88	8.84	—
May 88	8.81	2.04
July 88	8.80	0.68
Friday, November 20, 1987		
March 88	7.81	—
May 88	7.83	-1.53
July 88	7.83	0
Friday, October 23, 1987		
March 88	7.70	—
May 88	7.76	-4.6
July 88	7.81	-3.8
Friday, July 24, 1987		
October 87	6.03	—
March 88	6.65	-22.4
July 88	6.99	-14.6
Friday, May 22, 1986		
October 87	7.41	—
March 88	7.82	-12.6
July 88	8.10	-10.4

Chart 19 — N.Y. #11 SUGAR MAR 88



Friedberg Capital Markets

Over the last month, short-term New Zealand dollar rates have fallen dramatically, although the yield curve remains inverted. To illustrate this shift in the rate structure, a movement from three-month to three-year maturities in New Zealand dollar would entail giving up about 45 basis points, whereas just one month ago this same yield curve switch would have meant giving up 300 basis points.

On the other hand, the yield curve in Australia has returned to an upward sloping (normal) curve, and investors eventually may have an opportunity to swap into longer maturity bonds for possible yield pick-up.

New Zealand, and the larger Australia, are essentially commodity-based economies, and both of their currencies fell sharply in the wake of October 19. The much-feared deflationary scenario is not materializing, and the New Zealand dollar and Australian dollar have recovered most of their lost ground. If an investor subscribes to our view of higher inflation, then an investment down under is an essential component part in a well diversified portfolio.

Chart 20

AUSTRALIAN AND NEW ZEALAND YIELD CURVES

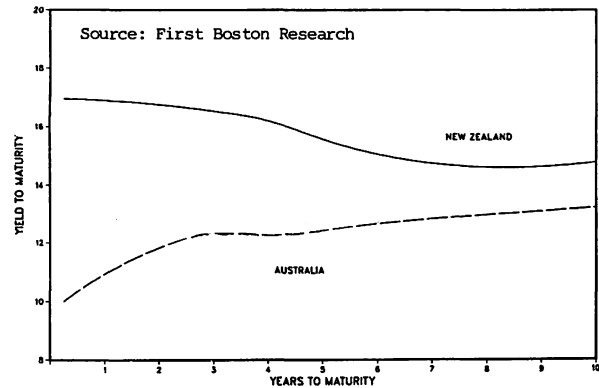


Chart 21
Breakeven exchange rates for US\$ — based investor

This analysis shows a "snapshot" of the relationship between interest rate differentials and rates of exchange. The breakeven rate measures how far the foreign currency has to devalue (for NZ\$, A\$, DKr) or revalue (for DM, SF, JY), before the interest rate advantage/disadvantage is overcome by currency depreciation/appreciation.

	U.S. \$	NEW ZEALAND \$	AUSTRALIAN \$	DEUTSCHEMARK	SWISS FRANC	JAPANESE YEN	DANISH KRONE
2 year	7.83%	Honda 16% 20/9/89 Yields 16.56% (.552 NZ/US)					
3 year	8.09%		C.I.B.C. 13% 13/3/91 yields 14.27% (.606 A\$/US)				
4 year	8.32%						Stockholm 10% 10/11/91 Yields 10.69% (6.83 US/Dkr)
5 year	8.45%						World Bank 9% 20/11/92 yields 9.87% (6.69 US/Dkr)
6 year	8.59%	Tourist Hotel Corp. 0% 4/6/93 yields 15.92% (.436 NZ/US)				Canada 5% 23/7/93 yields 4.78% (102.18 US/JY)	
9 year	8.84%			Belgium 5% 29/4/96 Yields 6.57 (1.345 US/DM)			
11 year	8.97%				Australia 5% 30/10/98 yields 4.76% (.859 US/SF)		
Spot Exchange Rate	N/A	.6452	.7167	1.6262	1.3224	126.6	6.267

**For example, in parentheses, since a US\$ based investor would receive 873 basis points (1656-783) by holding the Honda 16% bond, the NZ\$ can depreciate to .552 NZ/US from the present spot

exchange rate of .6452 NZ/US\$ over the next two years for the NZ\$ investment to break even with current US\$ rates of interest. Assumes that bonds are held to maturity, and coupons are reinvested.

Chart 22
Foreign Currency Bonds

DATE: December 17, 1987

We offer the following Bonds subject to change without prior notice:
Minimum amount US\$5,000 (CDN\$7,000).

ISSUER MTY. DATE/COUPON	BID	OFFER	CURRENT ANNUAL YIELD TO MTY.	LAST PAY DATE	NEXT PAY DATE
NEW ZEALAND DOLLAR DENOMINATED BONDS					
COCA COLA 16/6/89 18%	101	- 102	16.10	16/6/87-16/6/88	
HONDA INT'L 20/9/89 16 3/8%	98 1/2	- 99 1/2	16.56	20/9/87-20/9/88	
HONDA INT'L 28/5/90 16%	96 1/2	- 97 1/2	16.98	28/11/86-28/5/88	
TOURIST HOTEL CORP. (N.Z.) 4/6/93 zero coupon	43 3/4	- 44 3/4	15.92	matures 4/6/93	
BANK OF NOVA SCOTIA 15/9/89 18 1/2 RRSF eligible	101 1/2	- 102 1/2	16.52	15/9/87-15/9/88	
WELLS FARGO (semi-ann.) 12/5/89 16 1/8%	98 1/2	- 99 1/2	17.18	12/11/87-12/5/88	
KODAK (semi-ann.) 15/2/89 17%	100 1/4	- 101 1/4	16.31	15/8/87-15/2/88	
TORONTO DOMINION 2/4/90 18% RRSF eligible	101 1/4	- 102 1/4	16.58	2/4/87- 2/4/88	
AUSTRALIAN DOLLAR DENOMINATED BONDS					
CAN. TRP. BANK OF COMMERCE 13/3/91 13% RRSF eligible	95 3/4	- 96 3/4	14.27	13/3/87-13/3/88	

ISSUER MTY. DATE/COUPON	BID	OFFER	CURRENT ANNUAL YIELD TO MTY.	LAST PAY DATE	NEXT PAY DATE
DANISH KRONE DENOMINATED BONDS					
WORLD BANK 20/11/92 9 3/4% RRSF eligible	98 3/4	- 99 1/2	9.87	20/11/87-20/11/88	
STOCKHOLM 10/11/91 10 5/8%	99	- 99 3/4	10.69	10/11/87-10/11/88	
DEUTSCHE MARK DENOMINATED BONDS					
GOVT. OF BELGIUM 29/4/96 5 1/2%	92	- 93 1/4	6.57	29/4/87-29/4/88	
QUEBEC HYDRO 1/5/96 5 1/2% RRSF eligible	95	- 95 3/4	6.16	1/5/87- 1/5/88	
SWISS FRANC DENOMINATED BONDS					
GOVT. OF AUSTRALIA 30/10/98 5%	101 1/4	- 102	4.76	30/10/87-30/10/88	
JAPANESE YEN DENOMINATED BONDS					
GOVT. OF CANADA 23/7/93 5 5/8% RRSF eligible	103 1/4	- 104	4.78	23/7/87-23/7/88	
U.S. DOLLAR DENOMINATED FLOATING RATE NOTES					
ISSUER	MAT. DATE	BID	OFFER	CURRENT COUPON	NEXT COUPON DATE
UNITED KINGDOM	7/10/92 3 month LIBID	103.04-100.34	8 3/16%	7/1/88	
(quarterly)					

For further information and current prices please call: FRIEDBERG CAPITAL MARKETS (416) 364-2700

The Exotics

Singapore dollar

Singapore managed to record in 1986 its first current account surplus in recent memory, mostly a result of the sharp economic contraction that occurred in the first half of the year. Subsequently, strong reflationary measures, mostly in the form of tax cuts and a cut for employee contributions to the central provident fund, produced a sharp turnaround in the economy. As a result Singapore's trade deficit for the first half of 1987 widened by \$800 million over the corresponding period of 1986.

In the October 1986 issue of *FC&CC*, we wrote, "From our vantage point, it would appear that the government ought to dramatically slash spending and allow the Singapore dollar to float downward to regain international competitiveness and cause a genuine recovery in the economy via the external

sector. The trade deficit has been narrowing for the past four years, moving from minus US\$6.7 billion to an expected minus US\$2.9 billion. However, it would be logical to see a 'leaner' Singapore experience a trade surplus. But that result seems to be still a long way off."

While the Singapore monetary authorities have allowed the trade weighted local dollar to decline somewhat (a drop of 25% against the Japanese yen and a rise of 9.6% against the US\$), spending cuts as we suggested have not as yet materialized. This failure to adjust spending can create at some future time a foreign exchange problem.

For the moment, the country's level of international reserves is rather formidable and the monetary authorities are likely to maintain good control over the value of the currency.

STRATEGY: *Remain neutral vis à vis US\$ and DM.*

Chart 23

YEAR	SINGAPORE DOLLAR PER U.S. DOLLAR (PERIOD END)	U.S. 1970=1.00	U.S. 1977=1.00	BASKET	
				U.S. 40% Japan 31%	Malaysia 29%
1967	3.0804	0.8623	1.1078	0.8911	1.0899
1968	3.0796	0.8933	1.1477	0.9138	1.1177
1969	3.0788	0.9429	1.2113	0.9523	1.1647
1970	3.0946	1.0000	1.2847	1.0000	1.2231
1971	3.0342	1.0058	1.2922	1.0043	1.2284
1972	2.8125	0.9414	1.2094	0.9559	1.1691
1973	2.4574	0.7311	0.9393	0.7760	0.9491
1974	2.4369	0.6571	0.8442	0.7110	0.8696
1975	2.3713	0.6799	0.8735	0.7281	0.8905
1976	2.4708	0.7637	0.9812	0.7987	0.9769
1977	2.4394	0.7784	1.0000	0.8176	1.0000
1978	2.2740	0.7449	0.9570	0.7901	0.9664
1979	2.1746	0.7628	0.9801	0.8058	0.9856
1980	2.1412	0.7857	1.0095	0.8179	1.0004
1981	2.1127	0.7902	1.0152	0.8101	0.9908
1982	2.1400	0.8182	1.0512	0.8351	1.0215
1983	2.1131	0.8237	1.0582	0.8429	1.0310
1984	2.1331	0.8451	1.0857	0.8622	1.0545
1985	2.2002	0.8982	1.1539	0.8980	1.0983
1986	2.1774	0.9186	1.1801	0.9093	1.1121
1987 (1Q)	2.1453	0.9228	1.1855	0.9138	1.1177
1987 (2Q)	2.1236	0.9224	1.1850	0.9161	1.1205
1987 (3Q)	2.1064	0.9193	1.1811	0.9079	1.1105

Above 1.00 = undervalued
Below 1.00 = overvalued

Chart 24

Year	Foreign Assets (Min US\$)	CURRENT ACCOUNT As % of GNP	CUMULATIVE 12 QTR. Current Account (Min US\$)
1970	1050	-30.2	- 896
1971	1320	-32.2	-1487
1972	1525	-17.1	-1791
1973	1841	-12.7	-1738
1974	2466	-20.3	-2035
1975	2770	-10.3	-2124
1976	2983	- 9.7	-2172
1977	3351	- 4.5	-1446
1978	3511	- 5.8	-1315
1979	5177	- 7.8	-1484
1980	5684	-13.3	-2696
1981	6197	-10.5	-3621
1982	6843	- 8.3	-4091
1983	6118	- 3.3	-3164
1984	6810	- 1.9	-2152
1985	9468	- 0.0	- 961
1986	11,482	+ 2.6	+ 98

Chart 25

HARD CURRENCY COVER (In millions of U.S. Dollars)

Reserves * + Previous 12-months current Account *** = 13733
(Reserves + 12-months C/A) / M1 ** = 13733/5965 = 230%
(Reserves + 12-months C/A) / Broad Money ** = 13733/16169

*As at March '87 ** May 1987 *** 1986

Figures in millions of U.S. Dollars

	M1 (Converted to U.S. Dollars)	Broad Money (Converted to U.S. Dollars)
1977	1886	4193
1987	5965	16169

% Increase (decrease) 216.2 285.5%

Corresponding % increase in the United States 116.7 113.2

(a) 1986 Imports as percentage of GNP=131.3%
(b) 1977 - 1986 Imports as percentage of GNP 157.8%
1986 /1977 - 1986 average) = (a)/(b) = 83.2%

Source: IFS

Rates

Chart 26

Spot	1 Month	3 Month	6 Month	12 Month
2.0005-	1.9925-	1.9800-	1.9625-	1.9455-
2.0015	1.9940	1.9820	1.9645	1.9510

Forex Rates & Update

Currency	Spot	3-Month	12-Month	Comments vis à vis US\$	Comments vis à vis DM (Spot DM: 1.6350)
Belgian franc	34.00-34.05	33.88-33.98	33.50-33.85	Neutral	Neutral
*Danish krone	6.2950-6.3000	6.3155-6.3275	6.3890-6.4160	Neutral	Liquidate
Dutch guilder	1.8320-1.8333	1.8169-1.8180	1.7735-1.7700	Neutral	Remain short
Greek drachma	129.42-129.52	126.02-127.92	143.22-150.77	Remain short	Remain short
*Hong Kong dollar	7.7800-7.7900	7.6800-7.7000	7.5500-7.6300	Sold at 7.65	Remain neutral
12 months forward					
Italian lira	1197-1202	1207-1215	1236-1246	Neutral	Remain short
Malaysian ringgit	2.4880-2.4900	2.4620-2.4670	2.4080-2.4500	Neutral	Neutral
New Zealand dollar	.6460-.6480	.6325-.6355	.5960-.6030	Remain long	Neutral
Norwegian krone	6.3925-6.3975	6.5085-6.5175	6.8100-6.8275	Neutral	Neutral
Portugese escudo	133.10-133.60	135.35-136.85	138.10-143.60	Neutral	Neutral
Saudi Arabian riyal	3.7500-3.7505	3.7220-3.7250	3.6965-3.7015	Remain short	Remain short
Spanish peseta	111.00-111.10	111.90-112.30	115.00-116.20	Neutral	Neutral
Swedish krona	5.9375-5.9425	5.9555-5.9645	6.0310-6.0465	Neutral	Neutral
Venezuelan bolivar	29.05-29.19	Not available	Not available	Commercial hedgers remain short	

Explanatory Notes

- *Indicates change in recommendation from last issue
- Currency expected to firm against both currencies.
- Currency expected to strengthen against US \$ and weaken against DM.
- Currency expected to weaken against both major currencies.
- Currency expected to weaken against US \$, but strengthen against DM.
- Term used to liquidate short position but does not imply a new buy recommendation
- Term used to indicate sale advice of previous long position, but does not imply a new short sale recommendation.

Buy	Buy
Buy	Sell
Sell	Sell
Sell	Buy
	Cover
	Liquidate

Hotline Update

Tuesday, November 24: No changes or new recommendations.

Friday, November 27: Raise stops in December S&P to 230.00, good anytime. No other changes or new recommendations.

Tuesday, December 1: No changes or new recommendations.

Flash update, Thursday, December 3: Reinstate long Dec. S&P positions at market. Place sell stops at 224.90, good anytime.

Friday, December 4: Lower stops on short March positions T-bond to 8716 with a limit of 8730, good anytime. Also, as of Thursday's flash update, we are once again long December S&P at approximately 234.75, with stops of 224.90, good anytime.

Tuesday, December 8:

1. Raise stops in long March copper positions to 9560, good anytime.
2. Despite repeated whipsaws, we remain very friendly to the stock markets of the world, at least for the medium term. Future volatility,

however, militates against taking too strong a position. We, however, suggest you buy March 240 S&P calls, now trading at around 1280 to 1380 points. At this time, we advise you risk the full amount of the premium.

Friday, December 11: One new recommendation. Raise stops in long March copper positions to 9990, close only. Also a repeat of Tuesday's stock market recommendation: Despite repeated whipsaws, we remain very friendly to the stock markets of the world, at least for the medium term. Future volatility, however, militates against taking too strong a position. We, however, suggest you buy March 240 S&P calls, now trading at around 1280 to 1380 points. At this time, we advise you risk the full amount of the premium.

Tuesday, December 15: No changes or new recommendations.

Friday, December 18: No changes or new recommendations.

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