1994: THE ANATOMY OF A BOND MARKET DEBACLE

And Lessons for Bond Market Forecasters

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Introduction

1994 was a bad year for bond investors. Some analysts proclaimed the year the worst ever recorded, a bond market crash. Indeed, all major bond markets produced negative returns. One of the most striking features of 1994 was how many interest rate analysts and portfolio managers were confounded by the interest rate environment. Single factor interest rate forecasting models focusing on economic fundamentals or money supply growth, for example, which had worked in the past when applied to typical post-war economic cycles, did not work in 1994. It is my observation this is because the 1990/1991 recession was not a normal cyclical recession. It was a debt liquidation cycle. By exploring the difference between these two kinds of cycles, and the dynamics of the latest debt liquidation cycle, monetary policy and interest rate behavior in 1994 can be explained. It also helps to explain the bond rally in 1995. From a forecasting perspective, the past two years have shown the Lawton Bond Model methodology as a superior method of forecasting interest rates.

Debt Liquidation Cycles

Debt liquidation cycles are unusual, and therefore easy to mis-diagnose. The previous debt liquidation cycle in the U.S. was manifested by the stock market crash of 1929 and depression of the 1930's. Japan is now experiencing a debt liquidation cycle, which has included a stock market crash. Similarly the most recent such cycle in the U.S. was marked with the stock market crash of 1987. A normal economic cycle results from accelerating economic activity and inflation which are eventually reversed by ever tightening monetary policy. The cycle is re-started as monetary policy is eased, and economic activity responds to lower interest rates.

By contrast, a debt liquidation cycle has its roots in excessive speculation fueled by readily available debt. Debt levels rise to a point that underlying fundamentals cannot support the debt. The result is bankruptcy and "liquidation" of debt. It is more difficult to revive an economy with lower interest rates after a debt bubble as borrowers are insensitive to the cheaper money, (lower interest rates). Thus monetary policy must push rates lower and for a longer period than would normally be expected until the level of bankrupt debt is reduced and capital rebuilt.

Factors Contributing to the Cycle

The current cycle started in 1980, but events setting the stage occurred earlier. One really has to return to 1965, when Lyndon Johnson embarked on a policy which marked the end of fiscal probity. Money was printed to wage the war on poverty at home and Vietnam overseas. Interest rates started to creep up. Government expanded on all levels, and deficits grew. Inflation was awakened from its post war hibernation.

Inflation picked up speed as Nixon ended the gold standard in 1971, and was fanned by the oil shock of 1973. The increase in oil prices transferred vast sums of Dollars to oil producing countries which had to be reinvested. Banks filled this role by taking deposits from oil producing countries and lending to developing countries, many which later would default. Furthermore money supply growth accelerated through the Carter years, and inflation moved above 10% in 1979 and 1980. Negative real interest rates made it profitable to borrow.

Key Events in 1980's

A key event for the 1980's debt cycle was the passage of the 1980 Monetary Control Act. Under this piece of legislation, deposit insurance was raised to $100,000 per account from $40,000. Several years before, the level was $10,000. This rapid escalation of U.S. Government guarantee of deposits came to the attention of money brokers. These brokers took large pools of funds and split them into multi-account $100,000 increments, searching the country for the highest yields from insured banks, irrespective of credit quality. Then, under banking de-regulation almost limitless government guaranteed money became available for any number of speculative purposes, especially real estate development. Commercial banks sharply increased real estate lending from 1980 to 1990.

On the fiscal side the Reagan Administration was elected on two promises; to increase defense spending and reduce the budget deficit. Defense spending was increased but the budget deficit sky rocketed to over 5% of GDP annually. This fiscal expansion added fuel to the 1980's debt bubble. Consumers joined government in the debt binge, financing real estate and consumer items.

The era of the highly leveraged transaction, as assisted by Drexel also started around 1980. Inflation had depressed financial asset prices below private market value, thus it was economically feasible to borrow to purchase companies and sell pieces of the company for more than the price of the debt. Banks participated heavily to earn fees and interest income as a way to repair balance sheets damaged by non-performing country loans.

Finally, in a new wrinkle on leverage, the financing market for debt instruments blossomed in the '80s. It became possible to finance debt instruments for less than 5% down, and leverage debt portfolios.

This confluence of economic, political and regulatory circumstances set the stage for a rapid increase in debt. From 1980 to 1991, according to Federal Reserve flow of funds data, total credit market debt rose almost three fold from $4.7 trillion to $14.2 trillion. Federal government debt showed the largest sector increase from $1.0 trillion in 1980 to $4.3 trillion in 1991. However, Federal borrowing accounted for only $3.3 trillion of the total increase of $9.5 trillion in debt.

As can be seen from the following Federal Reserve data, all sectors of debt increased:

$Trillion	**1980**	**1991**	**Increase**
Total Credit Market Debt	$4.7	$14.2	3.0 x
U.S. Government	1.0	4.3	4.3 x
Tax-exempt	0.4	1.1	2.8 x
Corporate and Foreign	0.5	1.9	3.8 x
Mortgages	1.5	3.9	2.6 x
Consumer Credit	0.4	0.8	2.0 x
Bank Loans	0.5	0.8	1.6 x
Other Loans	0.5	1.4	2.8 x

Source: U.S. Federal Reserve

Slow Process of Debt Liquidation Starts

Paul Volcker's Federal Reserve worked to unwind the inflationary bubble of the 1970's by raising Fed Funds to 19% in 1981. This dropped to 6% by early 1987 and though M-2 was still growing at 8% by 1986, a sharp drop in oil prices kept the CPI under control through that year. Alan Greenspan, the new Fed Chairman in 1987, started tightening in that year to counteract previous high money supply growth and rising inflation. The 30 year bond responded by moving up over 300 basis points in six months from 7.10% to over 10%. Stocks reacted by falling precipitously as investors decided that 10% on the bond was better than staying in the equity market.

The role of the stock market crash on the debt liquidation cycle is hard to estimate. It does set a convenient event to mark the beginning of the liquidation process. Many expected immediate dire consequences from the crash, even a possible depression as followed the 1929 stock crash. History repeats itself, but sometimes with a twist. The twist to the 80's was that the negative economic impact of speculation was not to come so much from the equity market, but from the debt markets. The impact took two years to be fully realized.

The U.S. banks and thrifts sharply increased their debt holdings during the 1980's. By 1989 the non-economic nature of the debt was apparent in bank earnings. Non-performing loans of all kinds soared. Office buildings had a 20% vacancy factor nationally. Residential defaults increased as did personal bankruptcies to extinguish debt. Highly leveraged transactions soured as company cash flows would not support debt levels. Drexel, for example was forced into bankruptcy partly due to mark downs in its debt portfolio. And, unlike now, emerging market debt was still non-performing, trading at 10¢ to 40¢ on the dollar.

In late 1989, banks and thrifts recorded their highest level of non-performing assets. For example, Citibank's non-performing assets as a percent of equity were over 150%, Chemical and Chase recorded 120% and Bank of America 100%. Rumors were rampant in 1989 and 1990 that one major bank or another could not roll over short-term debt. The thrift industry was fully exposed to real estate overbuilding and deflation. Bank and thrift industry equity, if fully subjected to non-performing asset mark-to-market accounting or liquidation may have been negative. Or phrased another way, the U.S. banking system was bankrupt.

The Fed

The Federal Reserve was faced with an unpleasant mix of economic issues after momentarily easing following the stock market crash. Inflation had moved from a 1% YOY rate in early 1987 to over a 4% rate in late 1987 as oil prices rebounded. The then large budget deficit was also potentially inflationary. To control rising inflation the Fed was forced to tighten despite a precarious banking system. The Fed was in a tightening mode until February of 1989, when the discount rate peaked at 7% and Fed Funds at 9 3/4%. The prospects for the budget deficit improved as President Bush and congress raised taxes. The end of the cold war further enhanced the prospects for less government spending on defense. These changes allowed the Fed to desist from tightening further.

The shift in fiscal policy gave the Fed a chance to assess the condition of the banking sector. The public coffers had been opened to bail out the thrift industry, and the state of the commercial banking sector was coming into focus. It certainly had not been helped by the Fed's tight policy. The discussion at the Fed started to move from fighting inflation to rebuilding the balance sheets of banks. Debt write-offs charged against capital meant that capital had to be replenished. This became more urgent as the talk of major bank failures surfaced, and just as stringent capital guidelines were to be instituted under BIS international capital guidelines.

The way to rebuild bank capital was to stop raising interest rates, which reduces bank profitability and start to lower rates which increases bank profitability.

After moving Funds from 6 1/2% in March of 1988 to 9 3/4% in March of 1989, the Fed was about to reverse course. The Fed eased 25 basis points in June of 1989. This was the first of over twenty easings to come, until Fed Funds hit 3% on September 4 of 1992, where Funds stayed until February 4, 1994. All told, the Federal Reserves was in a stable to easing mode for almost five years, the longest such period in the post war era.

The Fed had pushed rates down lower than would normally be expected, to reliquify the banking system and left rates lower longer, creating a very steep yield curve which reduced the cost of bank funds which were invested at higher rates in longer maturity debt, creating windfall profits.

It is no coincidence that just prior to February 4, 1994 the Federal Reserve's troubled bank team vacated its permanent offices in Citicorp Center declaring Citicorp off the critical list. It is also no coincidence that two months later, Citicorp reinstated its dividend which had been eliminated 2 1/2 years before, and had its credit rating upgraded. In the credit upgrading, S&P cited improvements in several fundamental aspects of the company's conditions, including the large quantity of bad loans being worked down and, the improvement in interest rate margin. Citicorp and the U.S. banking system had been restored to profitability largely because of Federal Reserve policy.

Greenspan and company had engineered a rather remarkable turnaround. But because the Fed and others had (and still have) no desire to advertise the poor health of the banking system in the first place (and thus reduce confidence in the system), the magnitude of the achievement has received little attention. However, it is precisely these circumstances that had been driving monetary policy, and preparing the bond market for one of the biggest debacles since the last debt liquidation cycle.

The investing world was not impervious to the conundrum faced by the Fed. Investors jumped on the "Save the Banking System" trade. If borrowing short and lending long made sense for banks, it also made sense for hedge funds which took the idea to its logical conclusion by employing the 1990's version of the 1920's concept of buying stock on margin. That is, buying bonds on margin. While hedge funds were the extreme, a significant amount of yield curve leverage entered the system in the natural course of business. For example, numerous "conservative" fixed income strategies came to employ leverage from mutual funds to county tax receipt management schemes. Investors moved out on the yield curve to pick up yield, and leveraged.

Bond Investors Become Hypnotized

The unusually long five year easing cycle caused many investors to lose sight of the Fed's motivation of pushing Fed Funds down to 3% from 9 3/4%. A steep yield curve and low interest rates come to be viewed as status quo. Analogies to the low inflation and rate environment of the early 1960's were made. It was argued that money supply growth was low, the economy, while improving, still maintained a large output gap, and real interest rates, at over 3% were well above the long term average of around 2%. The long war against communism which had started the debt cycle had been won, and Government debt to GDP was falling.

By the end of 1993, institutions and retail investors were long of bonds. For example, retail bond mutual fund investors ploughed money into bond funds. Bond fund assets doubled in two years to over $750 billion by December of 1993. Many bond fund investors simply were searching for yield without understanding risk.

Greenspan entered 1994 with the banking crisis coming to an end. He tried to prepare the bond market for an imminent charge in policy in his January 1994 testimony to Congress. The Fed made a modest 25 basis point tightening on February 4, citing a desire to return policy to "neutrality".

In many quarters this move was viewed with disbelief and criticism. Some looked for a small re-adjustment upward in rates, or a "bond hiccup" as Wall Street's favorite economist forecasted. The money supply crowd saw no significant acceleration in the growth of inflation or rates. Even as rates were being raised, complacency was commonplace. Bond portfolio managers remained long their indexes, signifying lack of concern. But an explosive move up in rates was in progress.

Excessive Leverage Becomes Apparent

Many of the positions which had been established to reap extra yield or positive carry from the steep yield curve were to be reversed. The positions were not of "natural" debt investors. Each increase in interest rates by the Fed caused bond positions to decrease in value and reduced the spread at the same time. This resulted in capital losses and in negative carry.

As the Fed raised rates, more positions were sold, further pushing up interest rates, contrary to consensus forecasts.

Related circumstances outside the U.S. contributed to the debacle. Hedge funds borrowed large sums in low rate yen, investing in higher yielding European and North American bonds. As the U.S and Japan squabbled over trade, the yen appreciated while bond prices were dropping. These events forced the hedge funds to liquidate billions of dollars in bond positions both in the U.S. and Europe. This exacerbated an already negative bond market.

Economic Rebound Makes Matters Worse

A moderately expanding economy would have allowed Greenspan to push Fed Funds up to perhaps 4 1/2%. But the improvement in the banking system coincided with an improvement in the economy causing growth to accelerate from sub-pur levels which were a by-product of the debt liquidation process.

Why had growth finally picked up?

Several factors:

1. Consumers took advantage of low rates, and refinanced mortgages, giving them more funds to spend;
2. Consumer sentiment improved, leading to higher consumer debt purchasing;
3. Political changes in China, Mexico, Latin American and the former Eastern bloc helped expand U.S. exports;
4. Robust business investment;
5. Continued fiscal stimulus from the budget deficit;
6. High money supply growth since 1989;
7. And finally, the end of the drag from debt liquidation;

These powerful forces all contributed to robust economic growth.

The Fed's Motivation is Key

So, the Fed didn't have to go from accommodative to neutral, but to restrictive. By understanding that the Fed was originally responding to a debt liquidation cycle which threatened the banking system, the 1994 100% increase in short rates can be better understood as rates were being held artificially low to reliquify the banking system, and had to be raised first to get back to a neutral position, and then raised further to contend with accelerating economic conditions. And, by knowing the resulting technical condition of supply and demand conditions in the bond market due to the Fed's stance, a negative interest rate forecast would follow.

The Lawton Bond Model Approach

Many bond models and forecasting techniques proved incapable of accurately forecasting in 1994 the year of supreme test. By contrast, the Lawton Bond Model accurately forecasted the 1994 bond market debacle, not only in terms of direction, but in magnitude as well. 1994 rounded out six years for the methodology of correctly forecasting the bond market direction.

The Model includes all factors which have the potential to move interest rates as opposed to many approaches which only include one, or several factors.

The Model turned negative at the end of 1993 as it accurately picked up factors outlined in this paper, and was negative for most of 1994. The Model turned positive at the end of November, 1994. Close to the cyclical peak in rates. Factors contributing to a reversal in the model included: expectations of a slowing economy, lower inflation, an improving budget deficit, portfolios underweight bonds, a bond friendly Republican agenda, a technically oversold market, very negative sentiment (contrary indicator), and above average value. The long term indicator remained positive through all of 1995, a year when the 1994 bond debacle was entirely reversed for long maturity bonds. A copy of the model score plotted with interest for the last six years is available from Seagate upon request by calling 310-937-6270 or 310-937-6280 by fax.

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