

# Fixed Income Strategies: An Overview

---

By: Ernesto Prado | Harcourt AG

---

## Executive Summary

- › Fixed Income markets continue to develop while offering tremendous profit opportunities for experienced managers.
- › Fixed Income investment strategies are diverse and vary in complexity from simple, long-only or long-short themes to the more complex relative-value, cross-product, mean reverting, multi-legged structures.
- › Paradoxically, as the complexity of the strategy's investment themes and their exposure to fat tail effects increases, we observe an increase in the leverage required to achieve target investment returns.
- › We focus on the issue of leverage, which is of particular concern to investors, by providing simplified guidelines to apply in the selection of Fixed Income managers.

## Market Evolution

The events of 1998 are key to understand the evolution of the factors which generated the seeds of some of the salient features of the Fixed Income Hedge Fund industry today. In the midst of booming equity markets, the LTCM debacle inspired top Investment Banks to spin-off their profitable but volatile proprietary operations to the benefit of stable, fee-based and cash generating businesses. This contributed to the decrease in the number of players with large balance sheets exploiting market inefficiencies, and contributed to the re-generation of pricing anomalies which Hedge Fund managers aim to exploit. The downsizing also contributed to the relative increase of in the number of hedge funds in the Fixed Income space. A less known side-effect of this period is that the crisis helped some hedge fund managers improve their knowledge of the risks inherent in the moderate to high leverage areas of their strategies, at the expense of the balance sheets of their investment bank parents.

In addition, the bad performance of financial markets, along with the reduced contribution of long-only customer business for investment banks, has helped to increase the availability of financing sources for hedge funds. Investment Banks have identified hedge funds as a very important source of trading- and fee generating income in current markets. This has brought about an explosion in the amount of «counterparty agreements» and credit facilities made available to Fixed Income hedge funds. Furthermore, the historically low levels of interest rates have generated a landslide of mortgage refinancings, bringing large amounts of new paper to the markets that experienced MBS managers have very successfully exploited in 2002.

Fixed Income markets have continued to substantially mature through the development of credit models as well as

the establishment of a legal framework<sup>1</sup> for credit derivatives. This has resulted in a huge increase in the liquidity and efficiency of both cash and derivative credit markets, in a better understanding of the term structure of credit curves, and ultimately in more opportunities within all fixed income – and equity – strategies.

Finally, the growth in this investment style has been further fuelled by an unstable market in 2002 which saw further declines in the levels of equity indices and very interesting average returns from Fixed Income hedge fund managers. We anticipate this trend to continue since there is no indication that equity markets will recover anytime soon, much less into anything like the bull market of the late 1990's. Furthermore, the unsettled state of the financial markets as well as the lack of clarity in the resolution of the current economic crisis is an additional element which provides fixed income managers with an abundance of price dislocations from which to extract substantial returns.

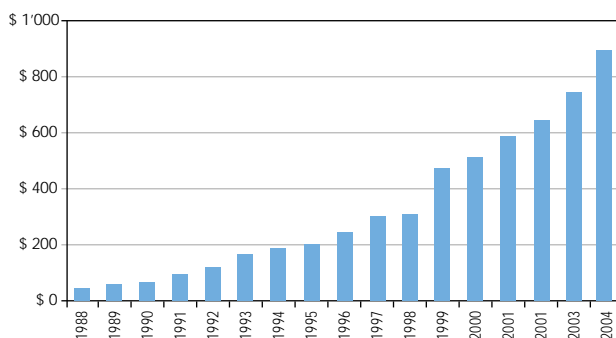
## Industry Growth and Future Perspective

Since the bursting of the equity bubble and the start of a bear equity market, Fixed Income hedge funds have gained increased attention due to their good and uncorrelated returns. Because of this impetus, the amount of funds invested within fixed income strategies has continued to surge and is forecasted to continue to grow in line with the hedge fund industry. In the 3<sup>rd</sup> quarter of 2002 Fixed Income Arbitrage and Event-Driven strategies attracted the 2<sup>nd</sup> and 3<sup>rd</sup> most important amount of fund inflows<sup>2</sup> at USD 2.1 billion and USD1.1 billion, respectively.

<sup>1</sup> Basle 2 Agreement and standardized ISDA agreements for credit derivatives contracts.

<sup>2</sup> «Behind the money», Tass Research, Susan L. Barreto, 19/11/2002

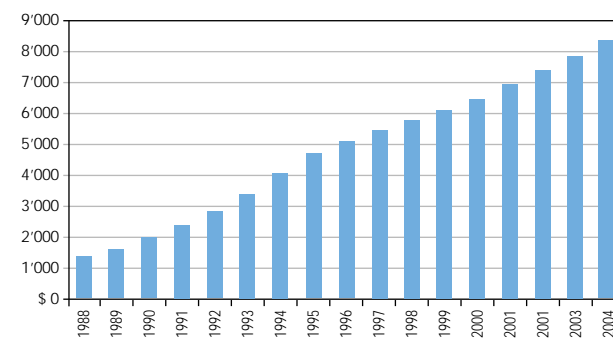
Estimated Global Hedge Fund Assets Under Management (in \$ billions)



Estimates for 2002-2004 are projections based on current data and may be revised in the future.

Source: Van Hedge Fund Advisors International, Inc. and/or its affiliates, Nashville, TN 2002

Estimated Number of Global Hedge Funds



Estimates for 2002-2004 are projections based on current data and may be revised in the future.

Source: Van Hedge Fund Advisors International, Inc. and/or its affiliates, Nashville, TN 2002



## Overview of Fixed Income strategies and the effects of leverage

Among the existing alternative investing strategies, fixed income provides some of the most interesting, diverse, and often complex modes of investing. Given that the inherent characteristics of fixed income securities cover the full spectrum of systemic price drivers<sup>3</sup> found in today's financial markets, the multiplicity of parameters involved in any one investment strategy, the sheer range of trading styles, and their possible permutations, can sometimes be daunting to understand and manage. It would therefore be overly ambitious to provide a deep, comprehensive overview of all strategies within this article. In order to provide the hedge fund investor with valuable insight, we decided to narrow the focus of our analysis by attempting to shed some light onto one of the most delicate issues concerning investors within fixed income strategies: Leverage.

Leverage itself can be an elusive variable to gauge, particularly when comparing different managers, since depending on the investing style, there are many standards by which it is measured<sup>4</sup>. This paragraph will therefore provide a summary introduction to the strategies and will then set the frame for analysing the effect of leverage on inherent investment risk, which should be of particular interest to

the investment professional, as well to those selecting hedge funds in this strategy. Note that our objective is to provide the reader with a simplified, non-technical overview in order to help him or her develop an intuitive view, without delving into mathematical technicalities which could very quickly distract us from our stated goal.

To begin with our analysis, the table below introduces a quick overview of the strategy's main components and provides a framework introducing some of their notable characteristics:

Style	Fixed Income Strategy	Leverage
Relative Value	Fixed Income Arbitrage	<b>High</b> (8.0 - 20.0 : 1)
	Mortgage Backed Securities Arbitrage	<b>Moderate</b> (2.0 - 7.0 : 1)
	Capital Structure Arbitrage	<b>None</b> (0 - 1.0 : 1)
Directional	HY Bonds	
	Distressed Securities	
	EM Debt	

<sup>3</sup> Interest Rate, Credit, FX, Volatility, Prepayments speed, Convexity, and in some cases, Equity.

<sup>4</sup> Sample methods include: Notional long book divided by capital, gross longs on the book + off balance sheet positions over capital or normalized 10yr bond divided by capital.

This table segments existing strategies along the lines of the universe of the underlying securities<sup>5</sup> in which they are invested in. Analysing the table further from bottom to top, we find that this strategy is divided between Directional and Relative Value styles. This division underlines a distinction which starts from the relatively simple to understand directional styles, whether long or short investing in High Yield, Distressed or Emerging Market securities. High Yield and Emerging Markets strategies tend to invest by taking views on the directional evolution of spreads – therefore the price of bonds – due to general market forces. Distressed securities on the other hand tend to be event-driven and focus on the evolution of spreads due to specific outcomes<sup>6</sup> in the restructuring of companies in difficulties. The strategies then progress all the way through to Relative Value, long-short strategies such as Capital Structure, Mortgage Backed Securities and Fixed Income Arbitrage, which can very quickly become complex.

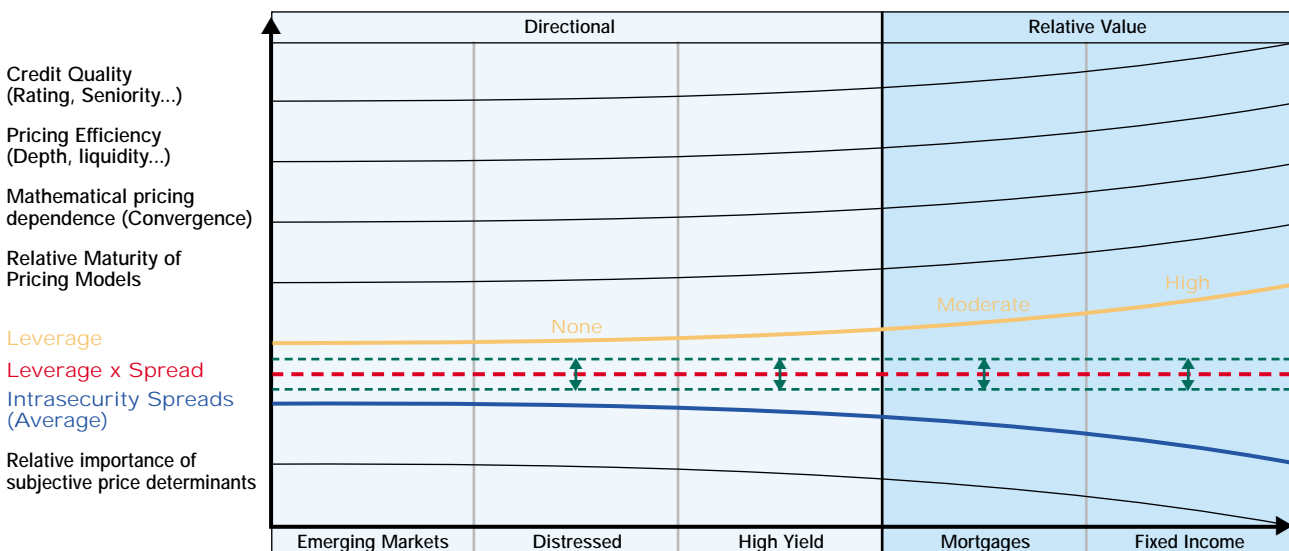
At this point it is important to note, for the sake of discipline and coherence in our simplified framework, that most relative value strategies focus on the extraction of value from the spread between the prices of pairs<sup>7</sup> of comparable securities. In this case, the relative value investor usually bets on the convergence of this spread to a theoretical mean reverting value, based on the mathematical fair value of the securities within the pair. In order to capture this spread, the fund manager usually ends up with a long position in a risky and relatively illiquid security with a

wide spread value (i.e. cheap asset) which is in turn hedged with a short position in a relatively less risky and more liquid security, correspondingly with a relatively lower spread value (i.e. expensive asset). This results in an end position with inherent illiquidity risk bias from which the manager expects to derive excess returns, which are not risk-less and therefore not technically an arbitrage. In essence, the manager expects to be compensated for providing liquidity to the markets.

As we progress from bottom to top in the previous table, the complexity of relative value strategies increases. We start with Capital Structure Arbitrage, a long-short strategy which attempts to generate profits by capturing a temporary dislocation in the prices of related securities of different seniorities within the same company. We then move up to the more technically complex, convergence based, mean-reverting, often multi-legged strategies like Mortgage Backed Securities Arbitrage and Fixed Income Arbitrage, which hedge fund managers exploit by extracting «arbitrage» profits with increasing degrees of leverage. Please note that irrespective of their level of technical complexity, these strategies can also be summarized into the trading of the convergence of a spread as explained in the previous paragraph.

We will now attempt to make abstraction of the above mentioned complexity of these underlying strategies by expanding the structure of our table according to the following diagram:

Ranking of Fixed Income Strategies



Source: Harcourt Research

As it turns out, the ordering of the original table is not random: the overlay of a generic «seniority» or credit ranking graph over the table structure reveals generally increasing levels of quality. Furthermore, a general reflection on the comparative qualities of those underlying securities reveals both an increasing level of depth and liquidity in underlying markets, as well as an increased reliance on purely mathematically driven pricing models with progressively fewer subjective inputs<sup>8</sup>. In other words, as the pricing and liquidity efficiency of the markets of the underlying securities increases, from credit sensitive products into sovereign ones, we observe that:

1. The general level of intra-security spreads decreases (blue curve)
2. The style used by Fixed Income hedge fund managers tends<sup>9</sup> to evolve from a directional biased one into a more relative value biased one, and finally
3. The leverage employed by the hedge fund manager tends to increase (orange curve).

This last observation is intuitively easy to understand, given that in order to achieve target returns, managers must leverage-up the smaller spread levels observed in the relative value pairs in the market.

#### Sources of returns and risks

Opportunities for Fixed Income hedge funds depend on the generic type of strategy pursued by the manager: directional players will benefit from the anticipation of significant trending moves in the markets, while relative value players will focus on the exploitation of pricing inefficiencies expressed by the spreads between securities. Aside from distressed investors, the majority of fixed income hedge fund managers invest in some form or another of relative value strategies. To illustrate the rationale for the use of leverage, we will proceed analyse the characteristics of the underlying securities per strategy and the average size of intra-security spreads as illustrated in the previous graph. According to this classification, the directional group of investors will generally use no to very low leverage in order to achieve their investment objectives: The relatively large moves observed on the underlying price of Emerging Market, Distressed or High Yield<sup>10</sup> securities, provides large enough movements to generate target returns without requiring additional leverage. Most directional strategies will present the investor with risks similar to the risk undertaken when investing in equity strategies. In this context, it is interesting to note that in credit derivative trading circles,

equity is considered as the least senior piece in the credit sensitive spectrum. More specifically, sophisticated credit trading desks and hedge funds use equities as a pro-forma type of credit for credit hedging purposes under the limits imposed by Merton's model for the valuation of a corporation's as an option struck at the level of its debt. This model is increasingly being used to implement relative value strategies overlapping between credit sensitive fixed income securities and equities.

Relative value investors on the other hand will tend to rely on price differential opportunities – i.e. spreads – between related securities. As seen in the previous section, such spreads will generally tend to decrease in absolute size as we move up the scale in the credit quality ranking of the underlying, as well as with the increased efficiency of the underlying market's pricing, etc. As the average relative spreads decrease (blue line), managers need to apply increasing leverage (orange line) to magnify the effect of relatively small, converging spread differentials in order to generate their target returns within a certain range of tolerable risk (green band). By analysing this very rudimentary measure of risk, resulting from multiplying the spread times the leverage applied and represented by the red dotted line, we see that the use of leverage does not necessarily mean that the leveraged trader is trading in a significantly riskier manner to generate similar levels of target returns than the unleveraged, directional trader.

By extension, we conclude that the most appropriate measure of the actual risk inherent in an investment portfolio of Fixed Income strategies should therefore be the value at risk calculated according to the same norm for all managers. Furthermore, the management of the risk by the investor in multiple fixed income strategies should focus on the establishment of guidelines determining the tolerance margins within which the value at risk can vary per strategy and manager (green dotted lines).

Invariably, along with potential sources of returns come the risks particular to fixed income strategies. Relative value fixed income managers are very sensitive to the level of liquidity of the underlying securities in which they invest, as previously explained when deriving the inherent illiquidity risk bias in these styles. When markets dry out as in 1998 and either their credit lines are suspended or if managers are not able to exert a disciplined stop-loss policy when their targets are met, the combination of leverage with the widening of spreads can prove very harmful to their returns. This exposes managers to so called «fat tail» risks during periods of illiquidity.

An additional and non-negligible risk factor in the strategy is manager mistake. A good example of such a mistake is well represented by the apparent reason for the collapse of the mortgage fund of Beacon Hill<sup>11</sup>. In cases when the hedge fund manager executes an inappropriate hedge resulting in substantial losses, there is very little analysis which can protect the investor from a drawdown in NAV.

Finally, and as an interesting observation to the continual evolution of the analysis of risk and the benchmarking of performance of Fixed Income strategies, it is interesting to note that there are currently no really appropriate benchmark indices for these strategies: Traditional long-only indices are a very poor comparable to relative value, long-short strategies. However, innovative techniques which include the introduction of lookback option strategies<sup>12</sup> applied to relative value spreads promise to shed additional light into the accurate benchmarking of this segment.

#### Criteria to select and manage leveraged Hedge Funds

In order to efficiently manage their exposure, good managers must implement and exert an extremely disciplined stop-loss policy as well as a reasonably moderate tolerance to volatility of NAV in order to mitigate their exposure to leveraged blow-up losses. This stop-loss policy should be clearly specified in terms of basis points of NAV loss per unit of standard deviation move in prices. When hedge fund managers used to work as traders in large investment banks with big tolerance for profit and loss volatility, they could afford to trade in a more risk tolerant fashion. However, in the world of hedge funds, the fund manager must display a very rigorous discipline in the art of right-sizing his trades to balance limited capital at risk availability with a more risk-averse investor base.

When possible, attempt to select managers who have already lived, survived and learnt from multiple sigma events while being invested in the markets. While it is not a guarantee of disciplined performance, it represents a good learning experience for the manager.

Finally, and to recognize that there is no real method to protect oneself against cases of manager mistake, we recommend the use of diversification via the application of a strict compartmentalization method. Under this technique, the sizing of the maximum amount invested in any single manager is strictly controlled such that in case of manager error, the maximum drawdown is adapted to your particular risk appetite. Furthermore, within each investment

strategy, the managers selected should display a very low correlation, especially in periods of observed fat tails<sup>13</sup>. Finally, the reasons for the low correlation should be clearly understood at the investment style level<sup>14</sup>.

<sup>5</sup> We purposely make the simplifying assumption to focus on the «plain vanilla» securities per category, which cover the large majority of securities per segment and excludes derivative or hybrid characteristics which would be detrimental to the development of our simplified intuitive framework. Once this simplified framework is understood, the novice reader can venture into the more complex world of overlapping hybrids characteristics among securities and trading strategies to understand inter-market trading styles such as Mortgage vs. Fixed income arbitrage or Convertible Arbitrage.

<sup>6</sup> Example: a positive verdict in a legal argument

<sup>7</sup> More complex strategies could include more than two securities depending on the number of systemic dimensions to hedge. In any case the rationale of the analysis remains the same.

<sup>8</sup> Think for instance of sovereign or corporate credit spread or prepayment levels.

<sup>9</sup> Please note that HY bonds can also be used increasingly in relative value strategies, especially with the recent explosion in the development of the credit derivatives markets.

<sup>10</sup> Please note that with the development of credit derivative markets, High Yield instruments are increasingly being used in relative value strategies.

<sup>11</sup> Street MBS Pros Laugh At Beacon Hill MBS Primer, BondWeek, 11/08/02

<sup>12</sup> The Risk in Fixed-Income Hedge Fund Styles, William Fung, David A. Hsieh, August 2002

<sup>13</sup> August- September 1998 for instance.

<sup>14</sup> In Mortgage Backed Securities arbitrage for instance, focus on balancing between managers using leverage and ones which don't.

