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Moving Into the Mainstream: Liquid CTA/Macro Strategies & Their Role in Providing Portfolio Diversification

A Prime Finance Business Advisory Services Publication



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Key Findings

Investors' interest in Liquid Commodity Trading Advisor (CTA)/Macro strategies accelerated sharply after the 2008 Global Financial Crisis, as these managers' outperformed long-only and hedge fund strategies and provided a ready source of liquidity to cash-strapped investors. This was broadly cited as the "2008 Effect".

- Managed Futures assets under management (AUM) grew 52% between the end of 2007 and 2011 . Hedge fund industry AUM grew only 5% in that corresponding period.¹
- Managed Futures increased market share as a result, rising from 10% of combined industry AUM in 2007 to 14% by the end of 2011.
- The inclusion of Liquid CTA/Macro managers in investor portfolios reflects rising conviction that these managers offer important diversification benefits by being uncorrelated to other asset classes and by being well positioned to generate returns during unusually volatile periods.
- Interest from institutional investors has been particularly notable, and increased allocations from these participants are driving many of the largest Liquid CTA/Macro managers to reduce their volatility and target more modest returns—a dramatic change from the early years of the managed futures industry when these strategies were seen as "high octane".

Liquid CTA/Macro strategies are seen as a distinct category from both traditional long-only portfolio managers and from Global Macro hedge fund managers because of differences in their investment approach and the products they trade.

- Trading styles in the Liquid CTA/Macro space span both discretionary and systematic approaches, in contrast to long-only funds that trade on a value-based approach and Global Macro hedge funds that adopt a more thematic investment principle.
- Liquid CTA/Macro strategies focus their investment capital solely in exchange-traded futures and options markets or in OTC currency markets. They do not trade securities, nor do they include OTC swap products in their portfolios.
- The number of markets included in the investment portfolio of Liquid CTA/Macro managers is also much broader than either long-only or Global Macro traders. Oftentimes, Liquid CTA/Macro participants may be actively engaged in 100 or more markets as they seek out the necessary depth and diversity to support their investment approach.

There has been a decisive shift within the Liquid CTA/Macro manager landscape toward systematic as opposed to discretionary trading. Whereas AUM was fairly evenly split between these two approaches in 2000 (55% systematic and 45% discretionary), that ratio changed dramatically to 83% systematic and 17% discretionary by the end of 2011.²

- Most of the exchange trading pits have become electronic in the past decade, and the number of floor traders has dwindled significantly. This removed a ready talent pool from which many of the industry's leading discretionary traders originated. Most emerging managers do not have any specific sector affiliations.
- Improved technologies have resulted in widespread availability of modeling tools and readier access to exchange price data. This has allowed a broader set of participants to develop systems, whereas in the industry's early history those traders needed to be affiliated with a major firm that had mainframes for evaluating data and programmers to write query routines.
- The rise of electronic trading not only facilitated more readily available price data, it also allowed for an explosion in the number of futures contracts. According to the Futures Industry Association (FIA), between 1994 and 2011, the number of distinct futures contracts (excluding single stock futures) rose from 273 to 1,262. This created a larger opportunity pool for systematic traders to test models and made it easier for them to get orders to those markets.

The types of systems being deployed within the Liquid CTA/Macro space have also changed dramatically. There has been significant expansion in the number of models being used to evaluate opportunities, a dramatic shortening of the time frame under consideration, and broad growth in the number of markets being tracked. This has resulted in distinct "generations" of systematic approaches.

- Generation One systems were primarily long-term trend-following systems that used breakouts as a position generation signal. These systems were originally focused in the traditional commodity markets.
- Generation Two systems moved the focus from "the" model to a set of models—some used for pattern recognition and some for signal generation. The types of signals also expanded from breakouts only to a broader set of measures that included mean reversion, momentum, volatility, and others. These more mathematical calculations allowed participants to look at ever shorter time frames and supported a shift from long-term to medium-term and short-term systems. This shift also coincided with a move from commodity-focused markets to a broader set of financial and currency contracts.
- Generation Three systems expanded the sets of models even further, adding transition evaluation models that kick in after pattern recognition and signal generation models. This latest generation of systems also experiment with new types of models that translate prices in one market into alternative measures or use signals in one market to establish positions in equivalent markets. The other key characteristic is that there will often be multiple models running in the same market which may be prompting conflicting signals that need to be netted or managed.

Distribution models used to raise capital for Liquid / CTA Macro managers have become highly diversified, with different approaches for retail participants as opposed to high net worth and institutional participants.

- The roots of the Liquid CTA/Macro landscape originated with the wire or brokerage houses that offered managed futures product to retail market participants. This model continues to the present and is slowly being augmented by expanded opportunities in the regulated fund space via ETFs, 40 Act alternative funds, and UCITS funds.
- Capital-raising platforms emerged in the mid-2000s to target the high net worth and emerging institutional investor. These platforms provided an opportunity for investors to direct money toward specific managers either directly or via swap. In recent years, the original "shopping mall" model for these platforms has converted to expert-driven platforms where either fund of funds or third parties take on more responsibility for portfolio construction.
- Many of the largest managers are also building out their ability to directly market to high net worth and institutional investors either via comingled funds or through separately managed accounts that sit on different, operational platforms.

Methodology

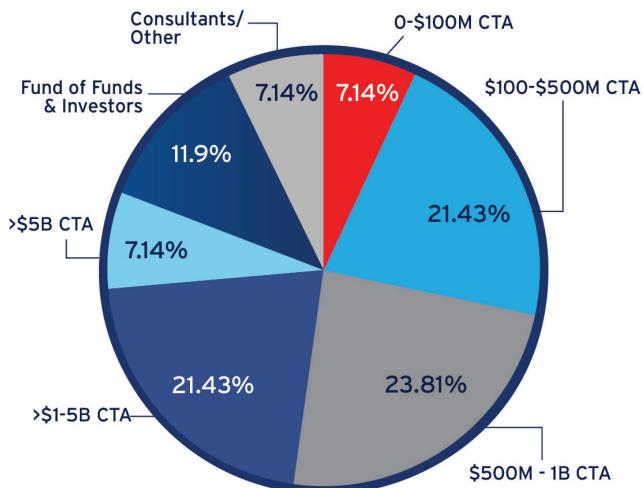
This paper is the result of a series of qualitative interviews conducted with an audience of CTAs and hedge fund managers focused on highly liquid macro strategies as well as investors and other participants involved with allocating to these strategies. These participants, drawn broadly across the CTA / Managed Futures and investor landscape, were surveyed to discuss the history and evolution of their organizations, determine key trends that have emerged since 2008, and gain insight into factors shaping the industry's future.

Our Futures Research and Business Advisory teams interviewed 42 CTAs and hedge fund managers focused on liquid strategies, marketers, pension plans, fund of funds, and consultants globally. In total, the participants represented AUM of \$86.5 billion USD, just over 25% of the industry's total allocations.

These interviews were not scripted, nor did they entail having participants fill out multiple choice questionnaires; instead, they were free-flowing interviews focused on understanding the perspectives and current trends observed by the participants. In total, we have drawn the conclusions in this report from more than 40 hours of dialog.

We have selected key quotes from these interviews to highlight important themes mentioned by CTAs and investors in order to capture the "voice of the client." These quotes have been included on an unattributed basis, as participation in this survey was done confidentially and we have determined not to reveal either the firms or individuals who contributed to the report. The breakdown of participant by type, however, is highlighted below.

PROFILE OF SURVEY RESPONDENTS



Source: Citi Prime Finance & Futures

Introduction

A significant shift in approach has taken place since the 2008 Global Financial Crisis and investors, particularly institutional investors, have been actively looking to diversify their portfolios to better weather periods of unusual market stress. Liquid CTA/Macro managers have been the beneficiary of this trend as demonstrated by rising AUM and market share. Citi Futures & Prime Finance is committed to this space and is actively working to support our portfolio of managers and facilitate increased understanding of these strategies for our investor base.

One goal of this report is to help investors understand the nature of these managers and why their portfolios provide diversified returns relative to other investment options. In particular, it will be important to understand why Liquid CTA/Macro managers differ from hedge funds, particularly Global Macro hedge funds, since investors often look at these investments side by side for allocations from their alternatives buckets.

Another goal of the report is to understand how the Liquid CTA/Macro industry itself has evolved. There are divergent styles of trading in this space—discretionary and systematic. Although there was a fairly even split between these two approaches during the first 20 years of the industry's history, the focus has shifted decisively toward systematic trading over the past decade.

It is important to understand how enhancements in technology and the decline of floor-based in favor of electronic execution at the major exchanges have driven this change in approach. These forces represent foundational changes in the industry that are likely to shape how Liquid CTA/Macro participants approach investing for the foreseeable future.

These trends are not only driving the industry to be more systematic, but they are also changing the nature of the systems being deployed by participants and allowing for increasingly dynamic and innovative trading models. Tracking this evolution will help investors understand the range of systematic programs available in the Liquid CTA/Macro space, and determine how different generations of these systems may be positioned in their portfolios.

Finally, the report will examine the unusual nature of the Liquid CTA/Macro client base and how this has resulted in a multichannel distribution model. Unlike many other investment products that are designed either for retail or for high net worth/ institutional audiences, Liquid CTA/Macro funds offer a regulated product that appeals to both audience sets.

As a result, the industry has seen several new distribution models emerge to augment the original wire house managed fund product. New distribution platforms and direct marketing from the larger firms are broadening the investor base. Even more change could be pending as market participants look toward the potential of new structures like commodity ETFs, 40 Act alternative funds, and UCITS funds.

Section One: CTA/Macro Strategies Emerge as a Key Portfolio Diversifier

Investors' focus on Commodity Trading Advisors (CTAs) and on currency focused Macro hedge funds has accelerated in recent years, particularly after the 2008 Global Financial Crisis when these managers outperformed many traditional and hedge fund manager portfolios. Assets under management in the space are growing quickly and represent a rising share of total alternative allocations. Institutional investors in particular are beginning to focus on these investments as important diversifiers for their overall portfolios.

What is a CTA?

Formally, a CTA is defined as an individual or a firm registered with the Commodity Futures Trading Commission (CFTC) that receives compensation for giving "advice" on futures, options, and the actual trading of managed futures.

Registration for CTAs is done through the National Futures Association (NFA) and is required for any individual or firm profiting from the advice they provide, unless they have not provided more than 15 persons with such advice over the last year and they do not advertise themselves as a CTA. They must be registered before presenting themselves to the public as money managers. However, there is no required registration if the individual or firm is a registered investment advisor with the U.S. Securities and Exchange Commission (SEC) and only provides futures and options advice incidentally.

The registration process is complicated, with advisors having to go through a deep Federal Bureau of Investigation background check and provide significant disclosure documentation when first registering and then being required to provide updated information on a regular basis (currently every 9 nine months) to the NFA for review.

Firms outside the U.S. do not need to register as a CTA if they both fall under the jurisdiction of a comparable regulatory body and they have an appointed "agent" in the U.S. to market on their behalf. While not an official term for such managers, many of those we interviewed for our report that reside outside the U.S. and are not registered continue to use the term CTA more broadly to discuss a category of managers that employ similar techniques in similar markets whether or not officially registered as a CTA.

CTAs Offer Distinct Portfolio Characteristics

One of the primary distinguishing factors of CTAs is the products in which they trade. It is difficult to overemphasize the futures-centricity of CTAs. They trade almost exclusively in highly liquid, regulated, exchange-traded instruments found on futures and options exchanges or in deep over-the-counter (OTC) currency markets. The futures markets encompass commodity, interest rate, currency, and equity index futures and other products - housing prices, weather, etc.

This means that CTAs operate primarily in the regulated domain. Along with the regulatory oversight demanded by the country in which the CTA intends to distribute its fund, its primary holdings - futures contracts - are subject to the regulatory regimen of the exchanges on which they trade.

This means that there is complete transparency into the markets where CTAs operate. All futures contracts are settled daily, and the CTAs' holdings are marked-to-market. This enables CTAs to report their funds' value to investors daily and based on recent technology enhancements, even allowing managers or the exchanges to assess portfolios intraday when market conditions warrant.

Along with marking-to-market, futures positions are, for the most part, readily reversed, adding to the high degree of liquidity which characterizes CTAs. An important feature of the CTA offering is the manager's ability to provide greater flexibility to investors on liquidity terms. Many CTAs offer immediate, or nearly immediate, redemption features to clients - in large part because their futures holdings permit them to quickly reverse positions in most market conditions.

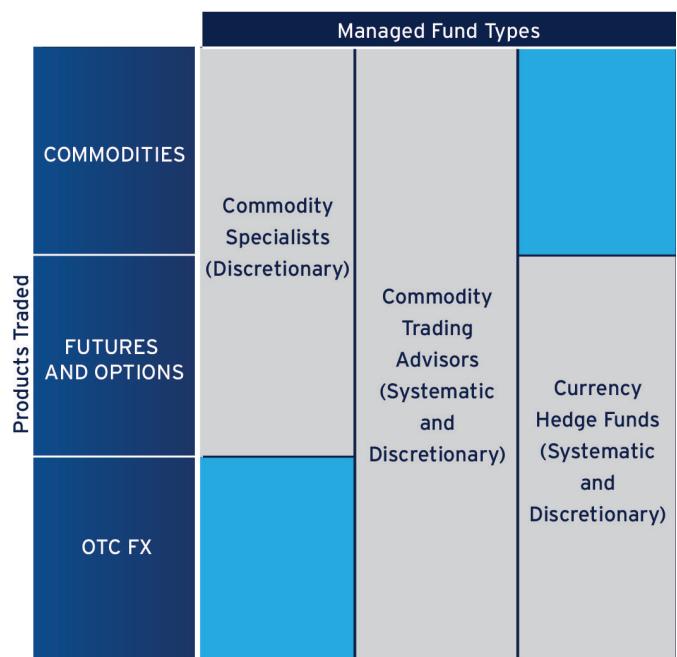
Another factor distinguishing CTA portfolios is the expanse of markets across which they trade. Many of the participants in our survey noted that their portfolios span 100 or more markets across the globe. The ability of CTAs to look across such a broad opportunity pool is linked to active growth in the number of exchanges and contracts in recent years.

A final distinguishing factor for CTA portfolios is the instruments in which they do not trade. Unlike traditional or hedge fund managers, CTAs do not put securities or OTC derivative positions in their portfolios.

We have also opted to include a certain subset of hedge fund managers in this report. These hedge fund managers trade exclusively in the currency markets. Their portfolios mimic the same characteristics as a CTA portfolio. They trade only in highly liquid currency markets and do not have any fully paid or margined securities in their portfolios (other than for funding purposes), nor do they have any OTC derivative swap positions. They trade across a large number of markets to achieve diversity in their portfolios. They also offer highly liquid investor terms.

For this reason, we have chosen to include their views in this study and classify them broadly as part of the CTA universe. We will therefore refer to this combined audience going forward as the Liquid CTA/Macro subset. The full set of managers in this subset is listed in Chart 1.

CHART 1: LIQUID CTA/MACRO LANDSCAPE



Source: Citi Prime Finance & Futures

"CTA started as a regulatory term. What does it even mean anymore? The C doesn't even have meaning for a bond guy. The term I use is tactical strategies. This classification contains what we typically call CTAs, global macro, macro & FX. Any strategy that uses liquid OTC instruments or exchange-traded instruments that are not a bond or a stock,"

- CTA-Focused Fund of Fund

"We are very strong around liquidity and transparency. We provide views of our holdings on a daily basis and we offer daily liquidity,"

- >\$5B Currency Hedge Fund

"We want investors that are aligned with us. We require one month notice in our documents, but if you're not comfortable with us, we can get you out in 24 hours,"

- <\$100M CTA

"The biggest market development in recent years has been the increased liquidity and number of markets. In our approach, we are always trying to increase the number of markets we trade for diversification. When we launched, we traded 50-60 markets. Now we trade a global futures portfolio of over 180 markets,"

- \$1-\$5B CTA

"I almost always present FX as a part of CTA and investors almost never push back. If you say that a systematic CTA with an intermediate to long-term model is generating trades in futures markets, what's important is how they are generating trades. They are generating trading signals on trend-focused markets. If that signal is being generated in an FX market, there is no real difference,"

- CTA-Focused Fund of Fund

"We tend to be more diversified than most big macro name hedge funds. Our Systematic trading approach is very different from a fundamental approach. We'll be trading currencies and interest rates and bonds like a macro fund, but we'll also be trading other weird small esoteric markets like rubber or sugar,"

- \$1-\$5B CTA

"We have global exposure and we're trading macro products, but it's very different. Our approach is math-based. It's not opinion or report-based. It's about volatility and momentum. We're looking at charts and they're looking at names,"

- \$100-\$500M CTA

against their securities via margin loans or repo transactions. If they go short equities, they need to perform a "locate" ahead of establishing a short position and then "borrow" the security they've shorted within a narrow time frame.

In contrast, Liquid CTA/Macro traders buy standardized and OTC contracts on "margin" by posting a percentage of the contract's total value with the exchange. This margin rate is determined by the exchange and is standard for all industry participants. Moreover, both long and short exposures are considered equally by the exchanges and there is no process difference in the establishment, maintenance, or liquidation of these positions.

Another difference between the participants is that Global Macro hedge fund managers will only offer limited transparency into their comingled investment portfolios because many of their investments may be in bespoke or thinly traded instruments. They do not post a daily mark-to-market that allows their investors to track the fund's value, although the manager's prime brokers evaluate their margin exposure and collateral coverage daily.

"Global Macro aims at buying at the bottom and selling at the top and so are we, but we don't try to anticipate. We only buy when the bottom has been made. We don't anticipate, period,"

- \$100-\$500M CTA

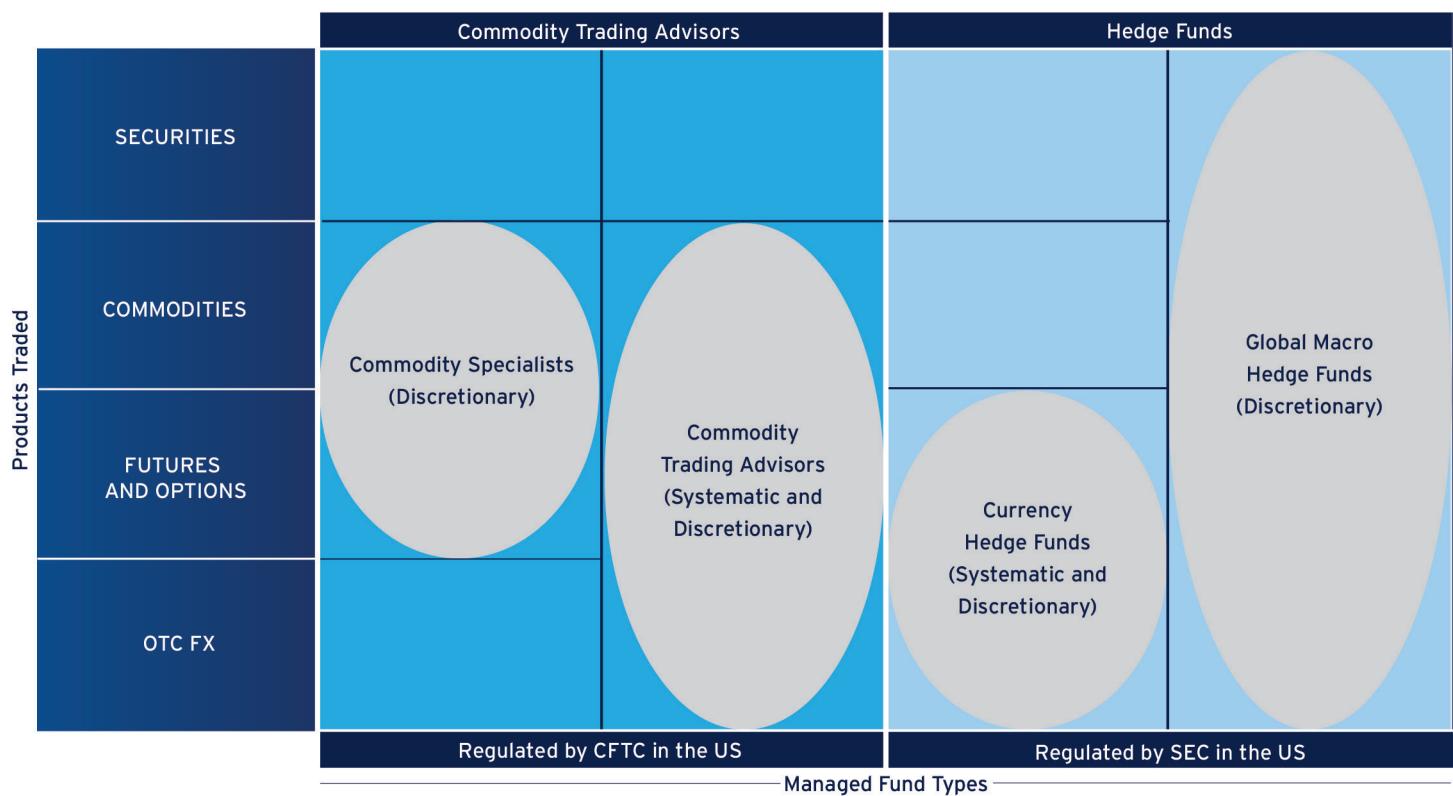
"Many global macro traders have embedded biases just like many other long/short or long-only managers. If you compare their returns to certain indices, their correlation never changes. They are always long commodities. They are always long Emerging Markets. If you're in normal conditions, those strategies do fine, but in more volatile conditions, their inability to be tactical and adapt shows through,"

- \$1-\$5B CTA

Finally, Global Macro hedge funds typically have much more restrictive lock-up and redemption terms than Liquid CTA/Macro funds. Global Macro hedge funds usually require monthly or quarterly notice from investors to redeem funds and then only allow quarterly or annual redemptions, sometimes choosing to impose investor gates that limit the portion of their investment that they can withdraw in any given redemption period.

For all these reasons, we have opted to exclude Global Macro managers as part of this survey. This difference is highlighted in Chart 2.

CHART 2: COMPARISON OF CTA AND GLOBAL MACRO FUNDS



Source: Citi Prime Finance & Futures

Assets in Liquid CTA/ Macro Strategies Are Growing Rapidly

According to BarclayHedge, AUM in the liquid CTA/Macro space reached a record \$314.7 billion USD by the end of 2011. This represents nearly a 10x expansion in the overall size of the industry since 2000, when assets were only \$37.9 billion USD as illustrated in Chart 3.

CHART 3: GROWTH IN CTA AUM



Source: BarclayHedge



The rapid expansion in the industry over the past decade has marked a major shift in the profile of the liquid CTA/Macro space. It took nearly 20 years from the inception of tracking managed futures industry assets in 1980 for AUM to surpass the \$40 billion USD mark, but in recent years the pace of growth has accelerated dramatically. One reason for the increase has been the explosion in the number of exchanges and contracts where Liquid CTA/Macro traders can participate.

According to the FIA, from a notional \$2.2 trillion USD at the end of 1998, global turnover of futures and options had increased by 2010 to more than \$22 trillion USD. In that same period, fierce competition among exchanges has led to an enormous increase in the kinds of futures traded.

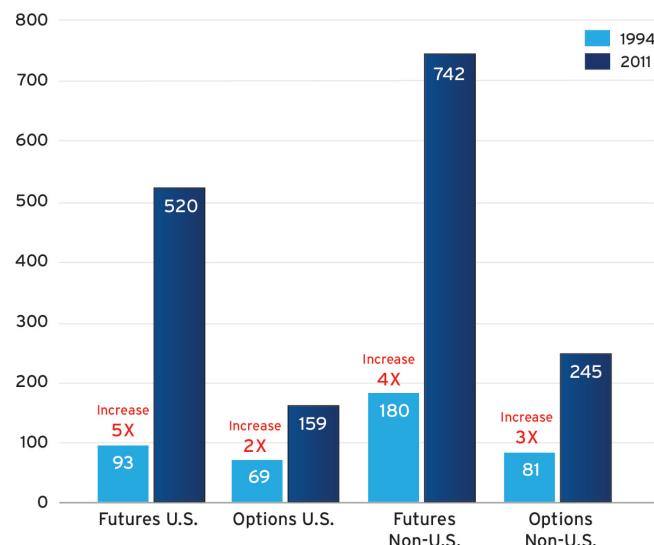
Chart 4 illustrates that the number of distinct futures contracts traded has expanded from 273 in 1994 to 1,262 at the end of 2011 (excluding single stock futures). In that same period, the number of U.S.-based futures contracts increased 5x from 93 to 520 and non-U.S.-based futures products increased 4x from 180 to 742 contracts. Simultaneously, the number of options contracts globally grew from 150 to 404 contracts.

The explosion in the number of contracts has provided Liquid CTA/Macro managers a fertile landscape for growing their portfolios. Many of the more established managers interviewed for the survey noted that their perceptions about how much capacity their strategies could support changed dramatically between the 1990s and the past decade. For many years, there was a sense within the Liquid CTA/Macro community that any individual manager could only absorb so

much AUM before becoming too large to effectively move into and out of positions without disrupting market activity.

As the number of markets in the U.S. and abroad began to expand, managers realized that they could broaden their portfolios and thus absorb much larger amounts of AUM than previously anticipated. This allowed them to expand their marketing efforts and focus on a broader array of clients. Several managers who now have several billion dollars in AUM noted that back in the late 1990s, they had thought their total capacity was no more than \$1.0 billion USD.

CHART 4: NUMBER OF FUTURES AND OPTIONS CONTRACTS: 1994 VS. 2011



Source: Futures Industry Association

"We did research back in 1997 sizing the market and we thought we wouldn't be able to get our AUM above \$1.0 billion. We've realized subsequently that futures are actually much bigger and able to absorb much more,"

- >\$5B CTA

"A lot of CTAs that started around the time we did in the late 1990s and before had smaller estimates on what they could manage and they've all subsequently increased their estimates,"

- \$1-\$5B CTA

"We look at 120 exchange-traded markets, some of which are very small markets like red soybeans in Tokyo or cocoa. We have to be careful. We can't step into those markets with size. We'd kill it. If you look at a market like bonds, we'd be only a blip on the radar,"

- >\$5B CTA

"We were trading in 80-90 markets in 2000. We added another 20-25 a couple years ago. We are constantly looking at new markets. Some of our peers will cite a much larger number of markets that they trade in because they are counting single swaps or synthetic exposure and we don't. It has to be meaningful to the portfolio. It has to have enough liquidity,"

- >\$5B CTA

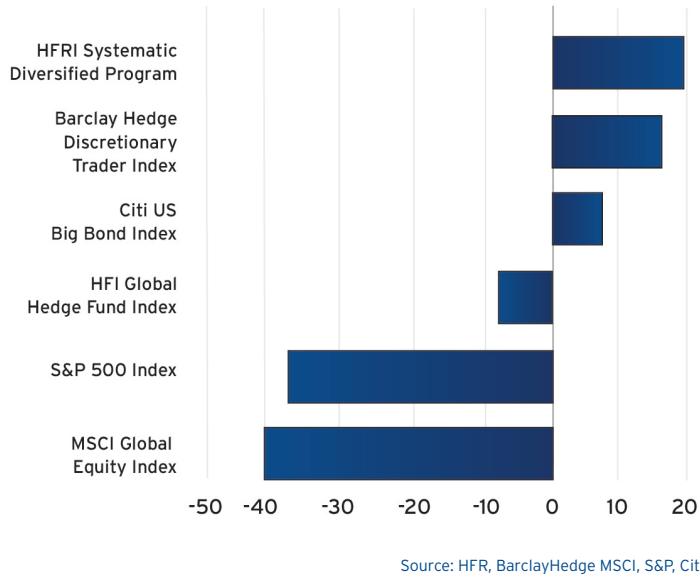
"The biggest market development in recent years has been the increased liquidity and number of markets. In our approach, we are always trying to increase the number of markets we trade for diversification. When we launched, we traded 50-60 markets. Now we trade a global futures portfolio of over 180 markets,"

- \$1-\$5B CTA

Another factor driving growth in AUM has been growing interest from institutional investors. Many institutional participants (particularly pension funds) had been heavily invested in equity markets in the period running up to the technology bubble in 2000. These participants suffered heavy losses in the aftermath of market declines in that period, and were left with liability gaps that prompted them to rethink their portfolio approach.

Many of these institutional participants observed that leading endowments that had diversified their portfolios more heavily into alternative investments outperformed in this period, as their investments were less correlated to the major stock and bond market indices. This led to a shift in institutional

CHART 5: RELATIVE RETURNS DURING CALENDAR YEAR 2008



"Recent years have helped to really drive home the concept of being diversified. Don't try to be too smart about it and time things too much. Just be diversified,"

- \$100m-\$500m CTA

"90% of the interest in making increased allocations to the CTA space is being driven by the lack of correlation demonstrated to the major asset classes,"

- \$500m-\$1.0b CTA

"There's lots of studies showing that commodities are not correlated to stocks. They trade much differently due to the long and short nature of commodities,"

- \$1.0b-\$5.0b CTA

"99.9% of everything does really well in risk-seeking periods and really poorly in risk-averse periods. Our first mandate as a CTA is to be an absolute return strategy, probably a portfolio hedge in our investor's book. Our second mandate is to make money in risk averse periods when everyone else is doing poorly,"

- \$500m-\$1.0b CTA

"We don't fall into the group that's looking at CTAs for their tail hedge during crisis periods because sometimes they are well positioned to capture the tail and sometimes they're not. We look at CTAs for them being uncorrelated to our other managers."

- Fund of Fund with CTA/Macro Sleeve

portfolio construction from an asset class-driven allocation to a "portable alpha" approach that increased the percentage of portfolio assets devoted to absolute return and uncorrelated strategies. This resulted in a wave of institutional investment interest into hedge funds, private equity funds, and Liquid CTA/Macro managers.

Early pioneers into the Liquid CTA/Macro space were soon joined by a second wave of institutional investors after the 2008 Global Financial Crisis.

"2008 Effect" Drives Major Reassessment of Liquid CTA/Macro Strategies

Performance during the 2008 Global Financial Crisis proved to be a watershed moment for the Liquid CTA/Macro fund community. Indeed, the impact was so great that many of our interviewees attribute expanded interest in these strategies in recent years to the "2008 Effect".

There were three aspects of Liquid CTA/Macro performance that have led to this paradigm shift in the view about these managers.

Foremost was their ability to show that they offered uncorrelated market returns as shown in Chart 5. For the calendar year 2008, the MSCI Global Equity Index was down 40.3%; the S&P 500 was down 37.0%; the Citi U.S. Broad Investment Grade bond index (USBIG) was up 7.0%; and the HFI Global Hedge Fund Index was down 6.85%. By contrast, the HFRI Systematic Diversified Index that tracks many of the systematic CTA/Macro traders was up 17.2% and the BarclayHedge Discretionary traders index was up 12.2%. For many institutional participants, having some exposure to Liquid CTA/Macro strategies were now viewed as a necessary

diversification option for their portfolios to provide a tail-risk hedge for unanticipated stress periods.

Beyond offering better returns, Liquid CTA/Macro managers also provided another critical benefit during that period—liquidity.

One of the most commonly used refrains emerging from our series of interviews for this survey was a reference to the Liquid CTA/Macro funds ability to act as an “ATM” for the industry during the previous crisis. Many investors were desperate to generate cash in that period, particularly those that had money invested directly with hedge funds or in fund of hedge funds, where many managers opted to impose gates that prevented investors from withdrawing assets; these managers realized that there were misalignments between the actual and promised liquidity of assets in their portfolios.

In contrast, Liquid CTA/Macro funds were able to easily exit positions and generate cash. They were thus seen as an important source of capital for investors looking to generate cash during that time frame. Indeed, the demand for capital was so great that even top-performing Liquid CTA/Macro fund managers were subject to substantial withdrawals, as cash-strapped investors sought funds through any liquid portal. This provision of liquidity was important for both the small and large investor.

The third factor that impacted investor perceptions of Liquid CTA/Macro fund managers was the contrast they provided to hedge funds in terms of their ability to provide transparency into their portfolio holdings.

“We’re 1 month in and out, no lock-ups or commitments. There are advantages and disadvantages to this. In 2008, those folks with lock-ups locked their clients and held onto that money. We didn’t. There were lots of funds people wanted to get out of that they couldn’t so they got out of us,”

- \$100-\$500M CTA

“We were pretty much used as an ATM in 2008 because of our liberal liquidity,”

- \$1-\$5B CTA

“What we saw in 2008 which was really frustrating was that in the 4th quarter we were up 20% but lost half our assets because of the liquidity. If people were facing losses elsewhere or margin calls elsewhere, they will take money out of CTAs because we can liquidate them,”

- >\$5B CTA

“2008 was a big watershed. It has upped the level of demand from investors for CTAs,”

- \$1-\$5B CTA

“2008 really underscored to people that we are an “uncorrelation” play to hedge funds,”

- \$1-\$5B CTA

“2008 helped. Prior to 2008, everyone was afraid of managed futures. They were too risky, too scary, too complicated. People were educated about stocks. They were educated about bonds. In 2008, managed futures did really well and now pension funds and institutional investors are starting to show interest in the space,”

- \$100-\$500M CTA

Many investors who were unable to exit their hedge fund and fund of hedge fund holdings were shocked to find out the types of assets being held in those portfolios. Many of these investors found out that their capital had been used to purchase assets as diverse as airplanes, mines, and production facilities, even though in many instances these types of investments had not been discussed as part of the hedge fund manager’s investment approach.

Surprise at the holdings in these portfolios was to be expected. Hedge fund managers have traditionally been reticent to share information, especially prior to the 2008 crisis, and many institutional investors had adopted a “leave it to the professionals” attitude about understanding the exact nature of their manager’s approach and portfolio holdings.

While hedge funds’ willingness to provide information has improved post-2008, there is still a lot of tension between investors and hedge fund managers regarding how much transparency should be provided into the portfolio. This has raised investor appreciation for the full transparency Liquid CTA/Macro funds offer.

Moreover, lessons learned in 2008 have prompted nearly all investors to adopt a more proactive and informed stance with regards to ensuring their own understanding of the investments in their portfolio. Improved knowledge about the types of investment strategies available to them has resulted in many more investors now looking at Liquid CTA/Macro funds for the first time.

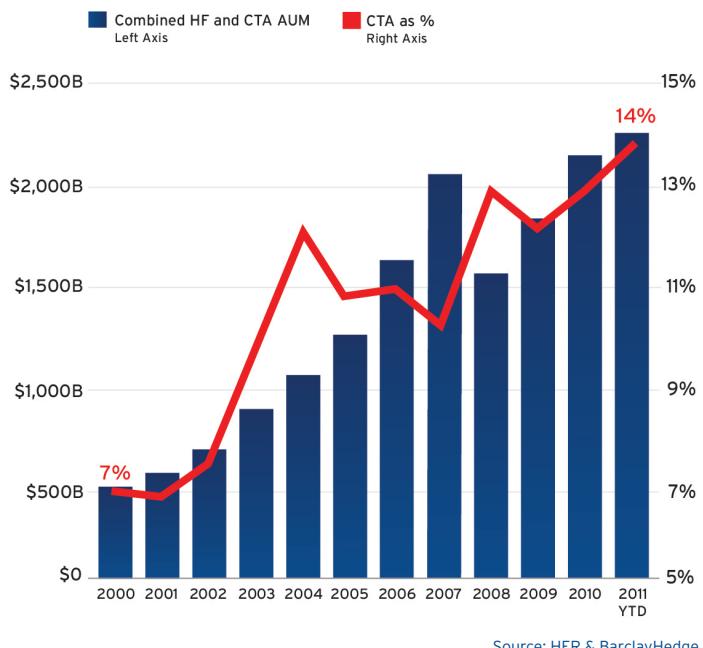
Liquid CTA/Macro Funds Gain Market Share from Hedge Funds

As investors become more familiar with the profile of Liquid CTA/Macro funds, their interest in these strategies is rising. Changes in overall AUM levels post-2008 also indicate that a portion of the capital directed to the space is being diverted from more traditional hedge fund investments.

While Liquid CTA/Macro strategies accounted for only 7% of the combined pool of assets in 2000, that figure has risen to 14% by 2011 as shown in Chart 6. The acceleration of gains post-2008 is quite clear and continues to the present.

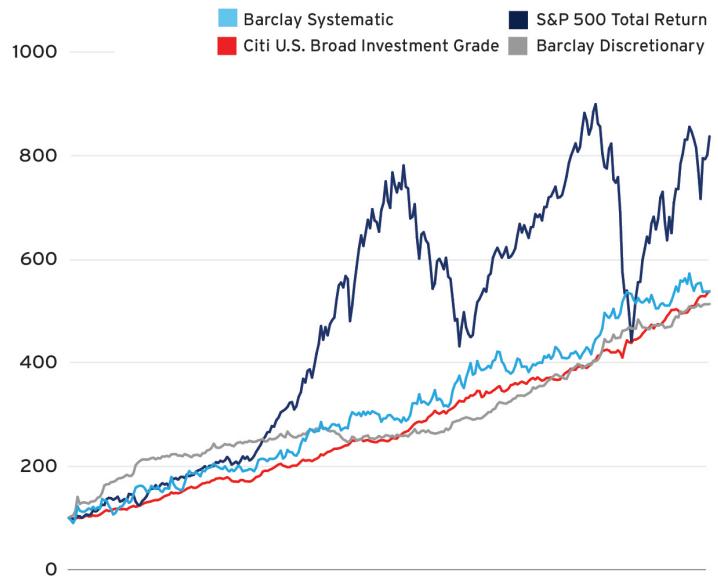
The trend toward increasing allocations was already underway prior to 2008; however, gains since the Global Financial Crisis represent an acceleration of interest. What became clear through the interviews is that this trend is being driven by investor desire to create resiliency in their portfolios by using Liquid CTA/Macro strategies and position themselves for uncorrelated returns. As the following analysis shows, there is a clear diversification benefit in having Liquid CTA/Macro funds in an investor's portfolio.

CHART 6: CTAS GAIN MARKET SHARE FROM HEDGE FUNDS



As noted previously, many institutional investors first began focusing on the Liquid CTA/Macro space as part of their "portable alpha" push post the 2000 technology bubble. Most investor portfolios at the time were heavily weighted toward equities, with an 80% allocation to this asset class and 20% allocation to bonds representing the typical institutional

CHART 7: COMPARISON OF CTA RETURNS & MAJOR INDUSTRY BENCHMARKS



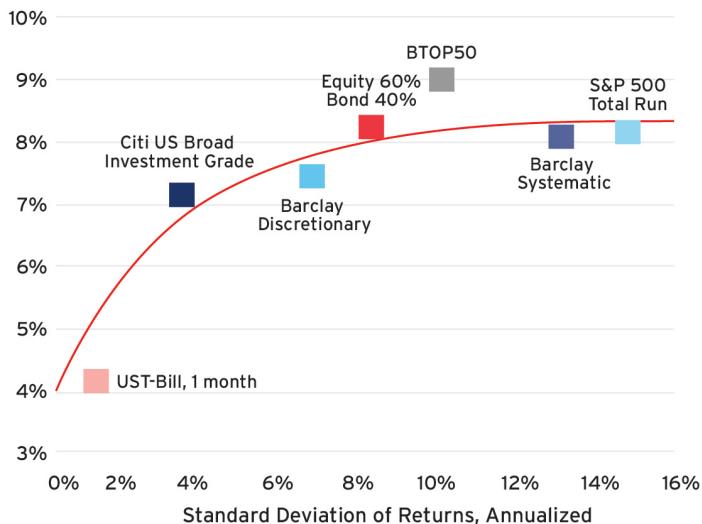
Source: BarclayHedge, Bloomberg, L.P., Citi 100=January 1988

portfolio. This left many participants overly exposed to equity risk. In their desire to add investments to the portfolio that did not correlate to the major equity indices, many institutional investors (led by several high-profile endowments and foundations) began to increase their allocation to investment managers with a diversified approach uncorrelated to the major indices such as hedge funds and CTAs.

The long-term returns of CTAs have generally paced that of a diversified fixed-income portfolio consisting of U.S. Treasuries, mortgages and corporates as is shown in Chart 7. Along with that of the S&P500 total return index, the chart shows the performance histories of two CTA style indexes - systematic and discretionary - together with the Citi U.S. Broad-Investment Grade index (USBIG). For the period shown, large-cap stock returns (the S&P500) have outpaced those accrued by CTAs , but not without submitting investors to greater volatility and much larger drawdowns.

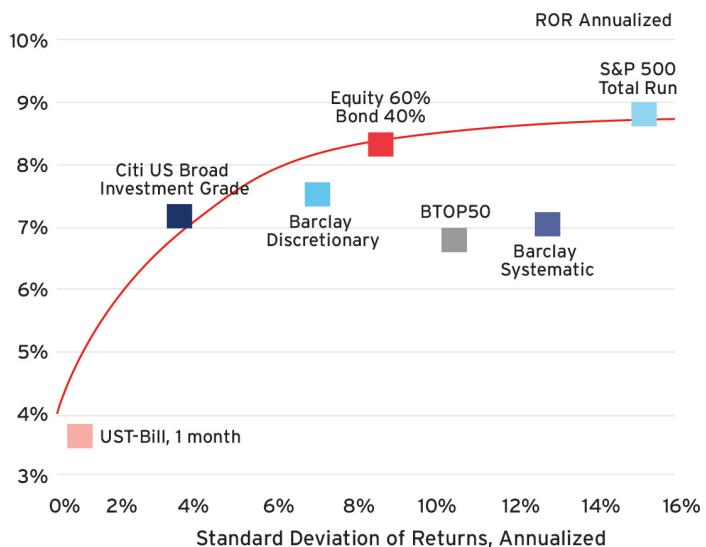
When returns offered by these asset classes over the same 23-year period are examined in light of the volatility they experienced, the picture shown in Chart 9 emerges. From 1988 through 2011, returns to CTAs lagged those of stock and bond portfolios when adjusted for volatility; however, the underperformance is entirely a function of the period chosen. Ending the study at the end of 2008 would reveal that CTAs performed quite well for each unit of volatility added, as can be seen in Chart 8. It is only in the past four years, with the recovery of the financial markets in the aftermath of the subprime crisis, that strong equity gains have been accompanied by relatively low volatility in that market.

CHART 8: EFFICIENT FRONTIER: FEBRUARY 1988 - DECEMBER 2008



Source: BarclayHedge, Bloomberg, L.P., Citi

CHART 9: EFFICIENT FRONTIER: FEBRUARY 1988-DECEMBER 2011

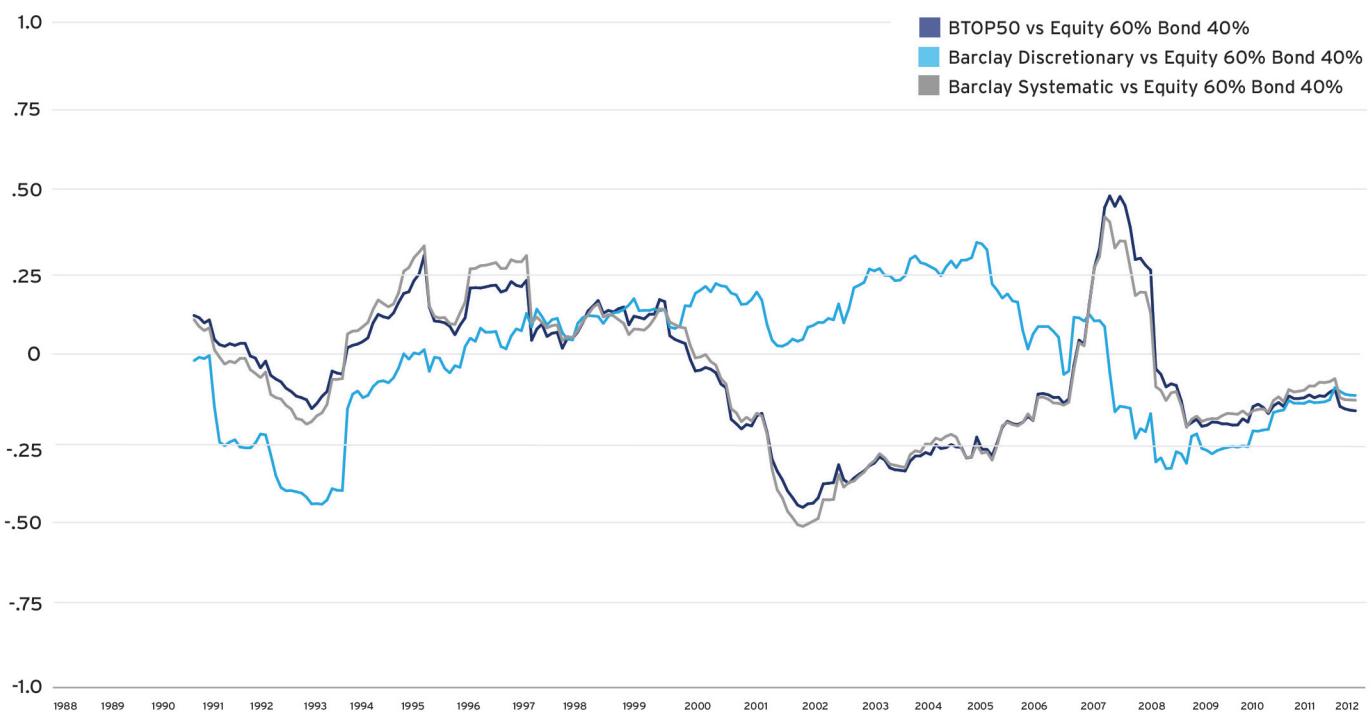


Source: BarclayHedge, Bloomberg, L.P., Citi

CTA outperformance during the turmoil that overtook equity and fixed income markets in late 2007 through early 2009 was, and is, a strong argument for including managed futures in a portfolio designed to withstand periods of extreme stress. This important feature of CTA performance is underscored in Chart 10, which shows the very low correlation between returns of a "balanced" 60% stock / 40% bond portfolio over the entire 23 years.

During this longer-term time frame, the correlation coefficient of returns between the Barclay BTOP50 index and a 60% stock/40% bond portfolio was -0.03. For shorter time frames, correlations between CTA performance and the stock / bond portfolio can be greater. The trailing 5-year correlation coefficients of monthly returns of CTAs vs. a 60% stock/40% bond portfolio fall within +/- 0.4.

CHART 10: TRAILING 5-YEAR CORRELATION COEFFICIENTS



Source: BarclayHedge, Bloomberg, L.P., Citi. 100=January 1988

"There is no question that since 2000 the stock market has had a rocky road. Investors have had no choice but to look at Alternatives. Literally. The one thing we constantly come up against is that Global Macro and CTA have been swept up in that vortex,"

- \$100-\$500m Currency Hedge

"We had a huge dip in 2008 in a lot of strategies and we lost a lot of money but CTA/Macro did really well. We saw a big influx of money into CTA/Macro as a result. It went up to nearly 50% of our book at one point, but now it's come back down and moved toward fixed income,"

- Fund of Fund with CTA/Macro Sleeve

"You have CTAs in the portfolio to even out the returns in periods of market disruptions,"

- \$1.0b-\$5.0b CTA

"We push our product as offering 'crisis alpha'. We offer good performance during periods of equity downturns. We prove our value during an equity crisis and then when equities are not in crisis, we can still offer a risk free 2% pretty steadily,"

- CTA-Focused Fund of Fund

Views Are Mixed on Whether Current Institutional Interest Will Persist

The uptick in institutional interest witnessed post-2008 has been greeted with some skepticism and concern by many within the Liquid CTA/Macro space. They note that there is a history in the commodity markets of investors looking to make allocations to managed futures after a period of high performance, and that this is often exactly the wrong timing for such investment.

Commodity markets are often subject to "boom and bust" cycles and periods of intense volatility. Many investors buying in at the top of that cycle are often dissatisfied with the subsequent performance of their managers and alarmed by the volatility these allocations contribute to their portfolio.

Many of the interviewees pointed to the relative under-performance of CTAs post-2008 and the downturn in CTA performance in 2011 (-3.10% according to BarclayHedge CTA Index), and expressed concern that many institutional investors may begin to sour on their allocations to these products. As noted above, CTA performance lagged those of stock and bond portfolios when performance from 1988 - 2011 was considered, whereas that was not the case if the examination period was limited to 1988-2008.

Others, however, see several shifts in the marketplace that may indicate that investors have now become more understanding of how these types of allocations fit in their portfolios, and that their commitment to the space may be long-lasting.

"Generally investors stay away from CTAs and would rather not be involved in them. They don't understand them and the pattern of CTA returns scare them—up and down, up and down, up and down and then some event or some trend occurs and they make money. Before 2008, investors only looked at CTAs after an event. CTAs are very cyclical and grouped. The worst time to invest in CTAs is right after they made a lot of money. There is a long history of boom and bust cycles. Post-2008 people made the mistake of looking at CTAs like other parts of the portfolio that should work over time. They bought high into CTAs and that changed how they look at CTAs,"

- \$500-\$1B CTA

"There has been a huge migration of pensions into the CTA space. The whole pension world has turned upside down since 2008. The money coming from these investors has not been in long enough for us to know whether or not it's sticky. Typically, these investors would have just put their money into an S&P tracker and left it there,"

- > \$5B CTA

Investors have adopted a much more proactive stance toward educating themselves on the strategies they hold in their portfolio. Their previous "leave it to the professionals" attitude was badly shaken by events such as the Bernard Madoff scandal and by the unexpected assets many investors found themselves holding in their broader hedge fund portfolios toward the end of 2008/early 2009.

As a result, they now look to fully vet the alternatives managers they are considering for allocations and ensure that they have clear expectations on each manager's style, expected returns and volatility. Many survey participants felt that having more clear expectations on how these investments should behave in different periods will result in investors maintaining allocations even during periods when they are not realizing strong returns.

Many Liquid CTA/Macro participants soliciting institutional money have also begun to adjust their own trading approach to better align to the desired profile of these investors. Most of the large CTAs and Macro participants interviewed for the survey with substantial institutional allocations note that they have significantly cut the volatility and expected returns on their portfolios. This helps with the "stickiness" of their allocations.

Regardless of how this debate plays out, it is important to remember that money has been flowing more rapidly into these investments than at any previous time, and there are currently record allocations held in Liquid CTA/Macro strategies. We will now look within this category and examine which strategies have been attracting the most interest in recent years.

"Investors wait for these huge returns and by the time they get into CTAs, the move is overdone. Then they get stuck in a period of volatility,"

- Fund of Fund with a CTA/Macro Sleeve

"The problem last year was the whipsaw choppy environment due to political intervention. People who had CTAs for tail risk coverage expect CTAs to do well when things feel bad and last year things felt bad but a lot of CTAs struggled to even stay afloat,"

-> \$5B CTA

"We are putting more emphasis on developing institutional like products to provide them their desired risk adjusted returns whereas in the past, we were looking for more high octane returns,"

- \$1-\$5B CTA

"Clients like the constrained drawdown profile we generate. It makes us look like a pension product,"

- \$1-\$5B CTA

"We're an old fashioned CTA. We have higher volatility. Some of the biggest CTAs in the market today used to have 17%-18% volatility in 2005 and today they are down to 5%. That's just 200-300 basis points over cash,"

- \$100-\$500M CTA

"Clients are expecting communication to make them feel comfortable and you have to make a lot of efforts around their education and helping them to understand how the fund is going to react, particularly in periods of high volatility. You have to make them feel confident for a long period of time. You're not trying to build a relationship for 3 weeks or one month or one year. You have to really get them to think of the investment as performing over 3 years,"

- \$100-\$500M CTA

"We are currently under 10% volatility. Most of our competitors are running at 12-15%. When I started, we were aiming for under 20%,"

->\$5B CTA

Section Two: Growing Sophistication of Systematic Trading Prompts Major Industry Realignment

For much of its early history, the Liquid CTA/Macro space was fairly evenly divided between discretionary and systematic trading approaches. This balance has shifted dramatically in favor of systematic programs in recent years as technology advances and the move away from floor-brokered to electronic execution has laid the foundation for more complex and sophisticated models that can screen markets dynamically and identify opportunities across a whole array of potential models and time horizons.

CTAs Break Down into Two Main Categories

A variety of trading approaches are used by CTAs in deploying client funds, but there are two main styles that characterize the space.

One group of participants use their understanding of market supply and demand and their interpretation of news and events to determine their trading approach. These CTAs are known as discretionary traders. Many discretionary traders have a specialty area that relates to their personal backgrounds. Prior experiences either on the trading floors or within the industry position these participants to offer unique insights and experience to gauge market activity and the impact of emerging news—political, economic or weather related. Specialization is a hallmark of the discretionary trader. They typically offer expertise in a specific market segment such as grains, energy, or livestock.

The other category of traders in the CTA space measure certain mathematical relationships within a market and build systems with rules for establishing, adding to, reducing, or exiting positions. They then use the signals generated by their system to inform their trading activity. As a result, these CTAs are known as systematic traders.

"Our strategy is a little bit of both. We have a systematic core portfolio and we trade around that. Most CTAs are systematic traders. They build systems to take their emotions out of it and they try to let the system work. We do that too in most products, but because I'm a discretionary trader as well, I integrate our global macro picks on top of the system. I can overrule the system. We are far more proactive than most systematic traders."

- \$1-\$5B CTA

"I've been involved in global macro for over 30 years. I incorporate my economic perspective and my discretionary trading experience together with a quantitative application to develop an edge in screening and responding to changes in the market environment."

- \$1-\$5B CTA

Discretionary and systematic funds occupy opposite ends of an axis characterized by the degree to which a portfolio manager is likely - or permitted by agreement -- to intervene in the mechanics of a trading program. There are many shades of grey between these two extremes, however.

Most discretionary traders will use some of the market measures followed by systematic traders to help them with their market timing. Many systematic traders will reserve an option to override their trading signals if they perceive that there is something unusual about the market circumstances. One factor that investors typically press on in evaluating systematic traders is the degree to which they are permitted to interpret their signals.

Systematic Trading Approaches Come to Dominate Liquid CTA/Macro Strategies

A fairly even split between discretionary and systematic strategies was evident from 1980, when, according to BarclayHedge, total industry assets were only \$310 million USD until 1999, when that AUM figure had increased more than 10x to approximately \$40 billion USD. As shown in Chart 11, discretionary traders held 45% of the industry's assets in 1999 and systematic traders accounted for 55% of AUM.

There has been a massive realignment of the industry since that time, however. As shown, between 1999 and 2007 systematic trading rose from 55% of total industry AUM to 67%. According to BarclayHedge, post-2008 those increases accelerated and by the end of 2011, systematic trading systems accounted for 83% of the industry's total assets.

Three foundational changes in the industry have helped to drive this shift. Foremost has been the growth in broadly available computing power and an increase in the ability of market participants to access market data electronically.

Between 1980 and the late 1990s, there was only very limited access to the technology and data required to create and test a systematic trading program. The majority of Liquid CTA/Macro managers looking to create a systematic trading program needed to be affiliated with a major firm that possessed robust mainframe systems able to upload price data from major commodity and futures exchanges. They would then need access to professional developers to write query routines to generate signals and back test system results.

The explosion in Internet technologies in the late 1990s/early 2000s completely altered that paradigm. More and more data were becoming widely available on the Web, and tools to model and test such data were becoming commonplace. This made developing systems much more readily available to a broad pool of industry participants.

A second factor driving a surge in systematic compared with discretionary trading programs was the move away from floor trading in the commodity pits.

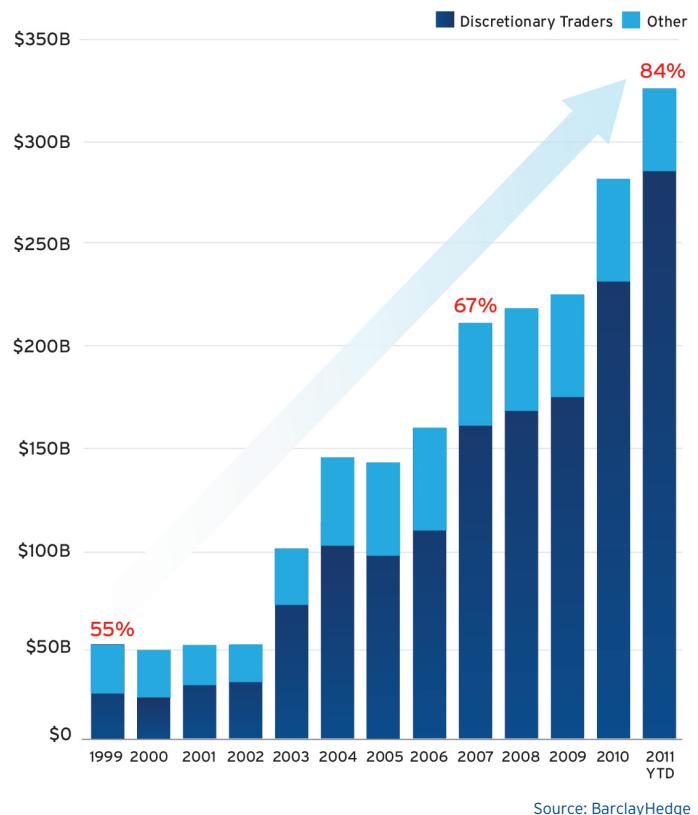
Many of the industry's leading discretionary traders had emerged from the trading floors, where they had insights gained over years of watching specific markets and knowing the intricacies of the seasonal patterns, carry, and spreads in a specific market sector. Without the pits to breed these experts, there was less impetus for a trader to focus their attention solely on one market sector such as energy or grains or livestock or even the financial futures.

Once they became electronic, every market was equally accessible for study and testing, and the majority of participants found it more beneficial to look across markets for tradable patterns so that they had a broader opportunity set to examine. Indeed, one industry participant noted that this trend has gone so far that today "finding a good discretionary trader is like finding the Holy Grail."

"The currency side of our trading is largely systematic. Three-quarters of our trades are generated by the system. The remaining percent is discretionary where the portfolio managers try and do the smart thing and get in front of the flows or get in front of the model when there is going to be a big number or when they see a big order coming in in front of them. We want all the signals generated by our model executed by people. We just think of this as a common sense overlay,"

- \$500M-\$1B Currency Hedge Fund

CHART 11: DOMINANCE OF SYSTEMATIC TRADERS IN CTA AUM



Source: BarclayHedge

The third factor driving the move away from discretionary toward systematic trading has been the concentration of industry AUM with the largest Liquid CTA/Macro participants and the development of a tiered market structure.

"Most of the discretionary managers out there have a heritage from the floor—the corn or the bond pits. The way they looked at the markets was on the supply and demand. They took that kind of knowledge off the floor and started their own money management firms. A lot of traders today have never seen or been on the floor. They sit behind a computer screen and that's their entire exposure to the markets."

- Third Party CTA Marketer

"Most pensions are underwater and even at 7-8% growth, they are in deficit. They are all scrambling to increase their returns. Most pensions are not CALPERS or Ontario Teachers. They are understaffed and have no idea so they turn to consultants and these consultants are not the highest paying jobs so they choose the safest, biggest funds. They want the names where if something goes wrong, they won't get blamed,"

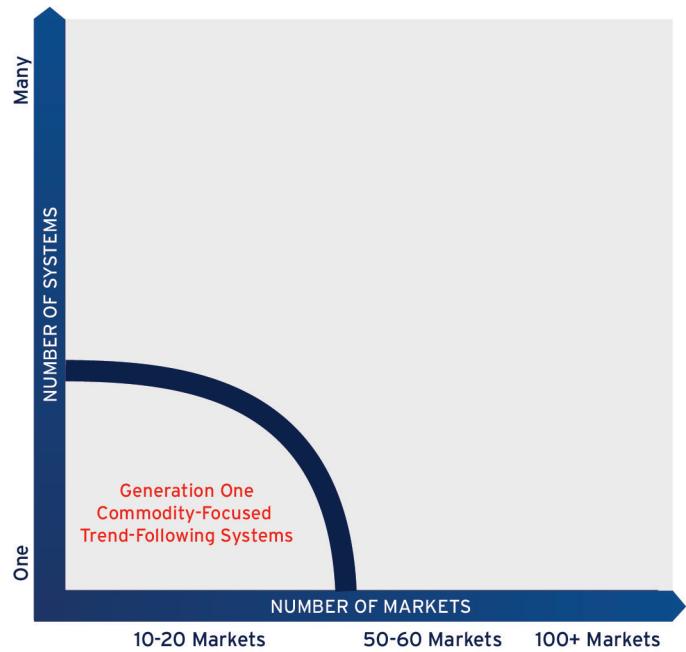
- \$500M-\$1B CTA

Generation One Trading Systems Track Simple Moving Averages

The first generation of systematic trading systems emerged broadly in the late 1960s/ early 1970s. These systems gained broad attention as their signals were able to produce highly meaningful returns, helped by a period of strongly trending commodity markets. These trends were shaped by post-World War II economic patterns which fueled sustained growth and rising inflation with accommodative monetary and fiscal policy.

There are two main characteristics to these early trend following systems as highlighted in Chart 12. These Generation One systems were singular—one and only one system was used to generate a signal and the managers pursuing these trades focused on a limited number of markets that were predominantly found in the traditional commodity sectors.

CHART 12: EVOLUTION OF SYSTEMATIC TRADING: GENERATION ONE



Source: Citi Prime Finance & Futures

Richard Donchian is known as the “father” of trend following and the originator of the first widely followed systematic trading program. He launched the first publicly managed futures fund, Futures, Inc., in 1949. Donchian’s focus was not on forecasting markets but on studying underlying price developments for signals on when to enter and exit a trade most successfully. Donchian joined Citi’s predecessor firm,

Hayden Stone, as the Director of Commodity Research in 1960 and began to publish a weekly newsletter for the firm's clients, where he listed the signals generated by his "system".

"New institutions entering the CTA space don't chase the returns, they chase the assets. They'll start by allocating to the big names. This way they gain a little more comfort,"

- \$100-\$500M CTA

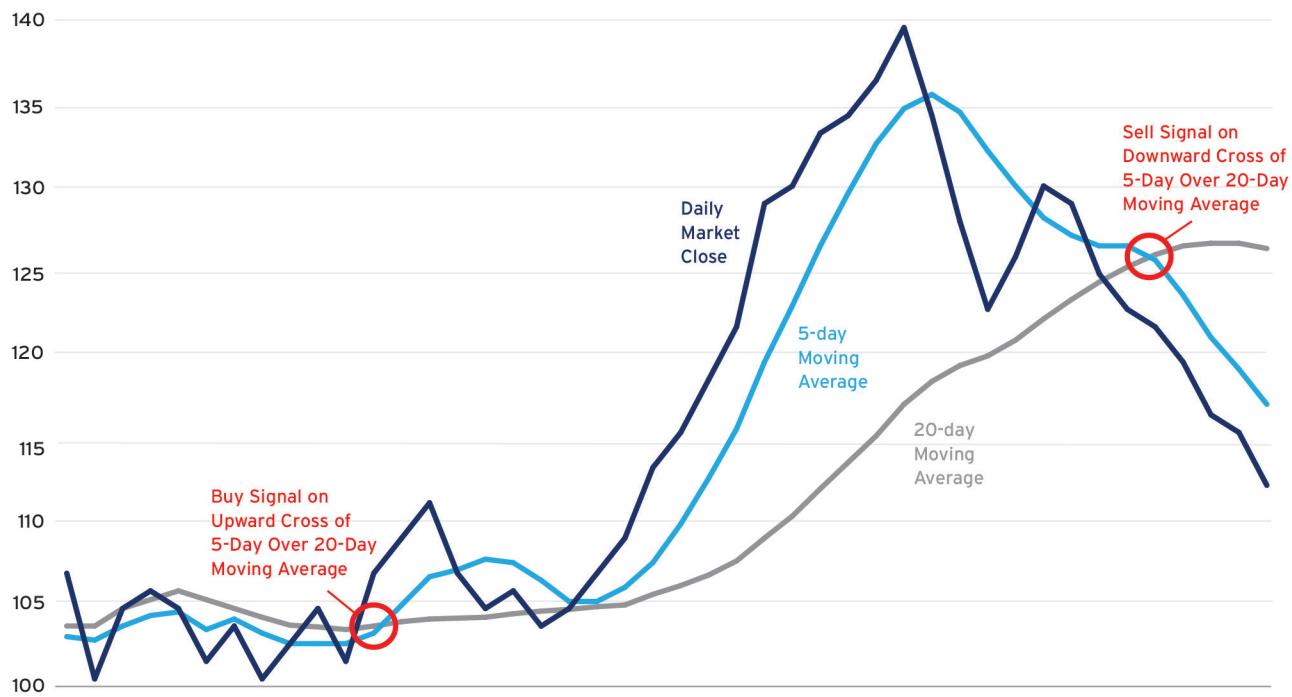
Chart 13 illustrates the mechanics behind Donchian's system that looked at one-week and one-month moving averages - corresponding to 5 and 20 trading sessions, respectively. As shown, each day's closing price is added together with a set number of earlier closing prices. Five days' closes are averaged together to create the 5-day average and 20 days' closes are averaged together to create the 20-day average. The daily results are then plotted and over time they create two "moving averages" or smoothed lines—one for the 5-day moving average and one for the 20-day moving average.

Buys, or the establishment of long positions, are signaled by the passage of the shorter-term moving average upward through the longer-term average, and sells, or the establishment of short positions, are triggered when the shorter-term average descends through the longer-term average from above. Practitioners have elaborated on moving average systems over the years, developing the Moving Average Convergence Divergence (MACD) system as well as other schemes.

Strongly trending commodity markets in the 1970s offered particularly good trading opportunities, where reliable signals could be established for entering and exiting a position. Several factors were driving such trends, such as grain shortages and the OPEC oil crisis. There were also only a few other speculators in the markets looking at price movements in this manner. Most of the trading activity on the major commodity exchanges of the time was between industry participants looking to hedge their physical requirements with liquidity between sellers and buyers facilitated by the professional floor traders. Some of the efficacy of trend-following systems began to fade as more and more participants piled on with this approach in later years.

Other factors also led to an evolution in the systematic trading approach.

CHART 13: EXAMPLE OF GENERATION ONE SYSTEMATIC TRADING



Source: Citi Prime Finance & Futures

"There was a perfect confluence of factors in the early 1970s of people thinking about computers and data, rampant inflation because of all the money we spent in Vietnam, grain shortages in many areas of the world and the stock market being flat. Commodity prices started to go up,"

- Retired CTA & Managed Futures Pioneer

"Early systems were breakout systems—all trend-following. Trends exist and persist. Let's design something to take advantage of them,"

- Third Party CTA Marketer

"The first generation of CTAs had breakout systems. You get on board and catch the trend. The volume of that speculation ruined the model. The amount of money using those approaches broke the pattern. Those that adapted expanded their markets, they didn't change their models. It got them to survive and move on,"

- CTA-Focused Fund of Funds

"We remain long-term and true to the initial vision of our strategy. Other folks are looking at shorter time frames, but we are a long-term trend following system. We want to change with the industry, but also be true to our core product. We want to provide a certain amount of exposure in a certain way and let people fit us into their portfolio,"

- \$100-\$500M CTA

Generation Two Trading Systems Vary Approach and Time Horizon

Financial futures markets began to emerge after the decoupling of the U.S. dollar from the gold standard. This afforded investment managers opportunities to participate in futures markets in currencies, bonds, and, over time, equity indices and then finally single stock futures. These markets came to maturity in the 1970s and 1980s, providing those looking to trade futures systematically a broader set of markets to consider.

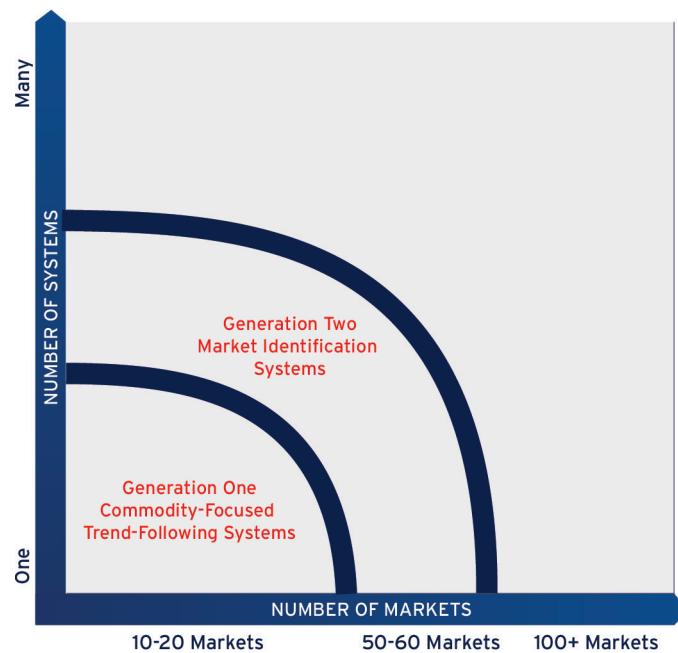
Chart 14 shows that the managers creating Generation Two systematic programs took advantage of this expanding landscape to broaden the number of markets against which they participated. This was an important evolution, as many of these newer systems were being created by those with an academic background rather than a futures background coming from the floors or the physical commodity industries.

As such, those creating these systems began to look beyond just trend following and price breakouts (which at their core were primarily related to the market's fundamentals) and instead began to apply more mathematical models focused on different types of market patterns such as mean reversion, momentum, and countertrend signals. Looking at the markets in this way became increasingly important as more and more institutional players were coming into the Liquid CTA/Macro space, and they were looking for less volatility. As the number of patterns they could identify within the market activity expanded, so too did the number of systems that could be applied.

Rather than just examining a market with one system that would only intermittently be generating a tradable signal, Generation Two managers were able to cycle markets through multiple systems in order to determine whether there was a potential opportunity. This concept is illustrated in Chart 15.

Signal generation became phased. First, price activity in a market would be examined through a filtering program to determine what "type" of market the price pattern

CHART 14: EVOLUTION OF SYSTEMATIC TRADING APPROACHES: GENERATION TWO



Source: Citi Prime Finance & Futures

was pointing toward. Once a recognizable pattern was determined, then the appropriate system would be selected and signals generated. As additional price activity unfolded, the pattern and the model selection could shift from one approach to another.

As the provision of market data improved in the early 2000s, Generation Two systems were able to look at increasingly smaller windows of time to identify patterns. Whereas initially systems looked at daily price activity and patterns that would be established based on the day's high, low, and close, over time they were able to look at intraday patterns and thus generate increasingly short-term signals.

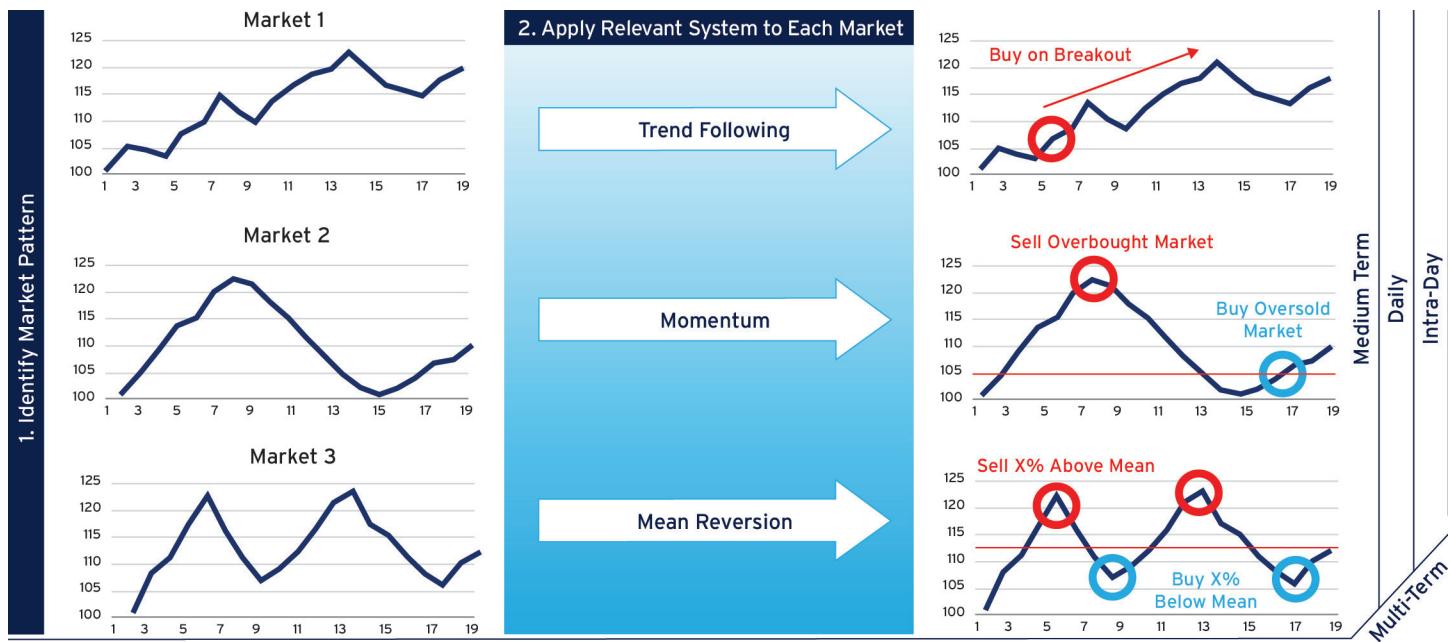
The hallmark of these Generation Two systems is that they became multisystem and multi-term. Having a much broader

"Between 2003 and 2007, 70% of our models were mean reversion models. That hasn't worked well in highly correlated markets. The answer wasn't to throw out the models. The answer was to add other models to add diversity. Now we have 22 models. That is a reflection of us evaluating the market regime and picking the type of regime and applying the models that work in the right type of regime,"

- \$1B-\$5B CTA

opportunity set to look across for signal generation, coupled with the expansion in the number of markets themselves as discussed previously, set the stage for the industry growth we saw in the early and mid-2000s.

CHART 15: EXAMPLE OF GENERATION TWO TRADING SYSTEM



Source: Citi Prime Finance & Futures

"The inefficiencies that trend followers could take advantage of became diminished and additional systems have come into the space. By the early 2000s, CTAs were saying, 'let's put some counter-trend systems or some reversion systems in there to cut our volatility. We need to get rid of this reputation of being gunslingers. We need to be more attractive for institutional players.' This caused their profile to change. They started going for mid-teen returns and high single digit volatility,"

- Third Party CTA Marketer

"The next generation of systematic traders embraced the new financial market sectors and embraced more systems. They started talking about multiple models, not just 'the' model. We started seeing sequential, momentum, volatility, relative value, mean reversion,"

- CTA-Focused Fund of Fund

"There is a constant dialog between our strategies and the markets and our ability to respond whether it be volatility or structural changes. I've done this through many market environments. The key to success is survivability,"

- \$1B-\$5B CTA

Generation Three Trading Systems Overlay Multiple Models Simultaneously

As more and more money flowed into systematic trading programs, there was yet another evolution beyond the Generation Two approach. The impetus to identify as many usable patterns - and profits - from the price action of a single market as possible has led in recent years to the emergence of multi-tiered trading systems, as illustrated in Chart 16.

These Generation Three systems layer several trading models onto a single market and run these models simultaneously. Signal generating systems are surrounded by different types of models. As with Generation Two, there are filtering programs that determine the type of signal generating system to apply based on the identified market pattern, but there are also transition monitoring programs that scan for a different set of patterns that may indicate an earlier pattern is ending. These transition scanning programs can turn off certain models just as the pattern recognition systems can turn on certain systems.

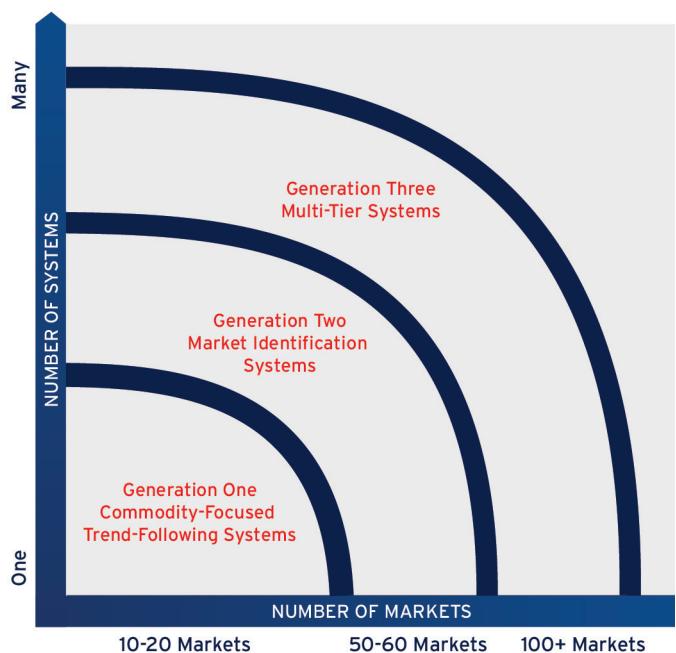
"The third generation of models have this market environment identification component. There are at least 2 layers of models. This is all research driven. Research intensive. There are more white lab coats at these shops. More PHD's. These guys are doing really interesting stuff. What do you do with this thing called price? Can we price T-bonds in terms of gold? Corn in terms of T-bonds? ,"

- CTA-Focused Fund of Fund

"Everything we do is portfolio based. We're running 25 models against 65-80 markets per model. We pretty much run our models once a day and that gives us an opportunity to rationalize and net down models,"

- \$1-\$5B CTA

CHART 16: EVOLUTION OF SYSTEMATIC TRADING APPROACHES: GENERATION THREE



Source: Citi Prime Finance & Futures

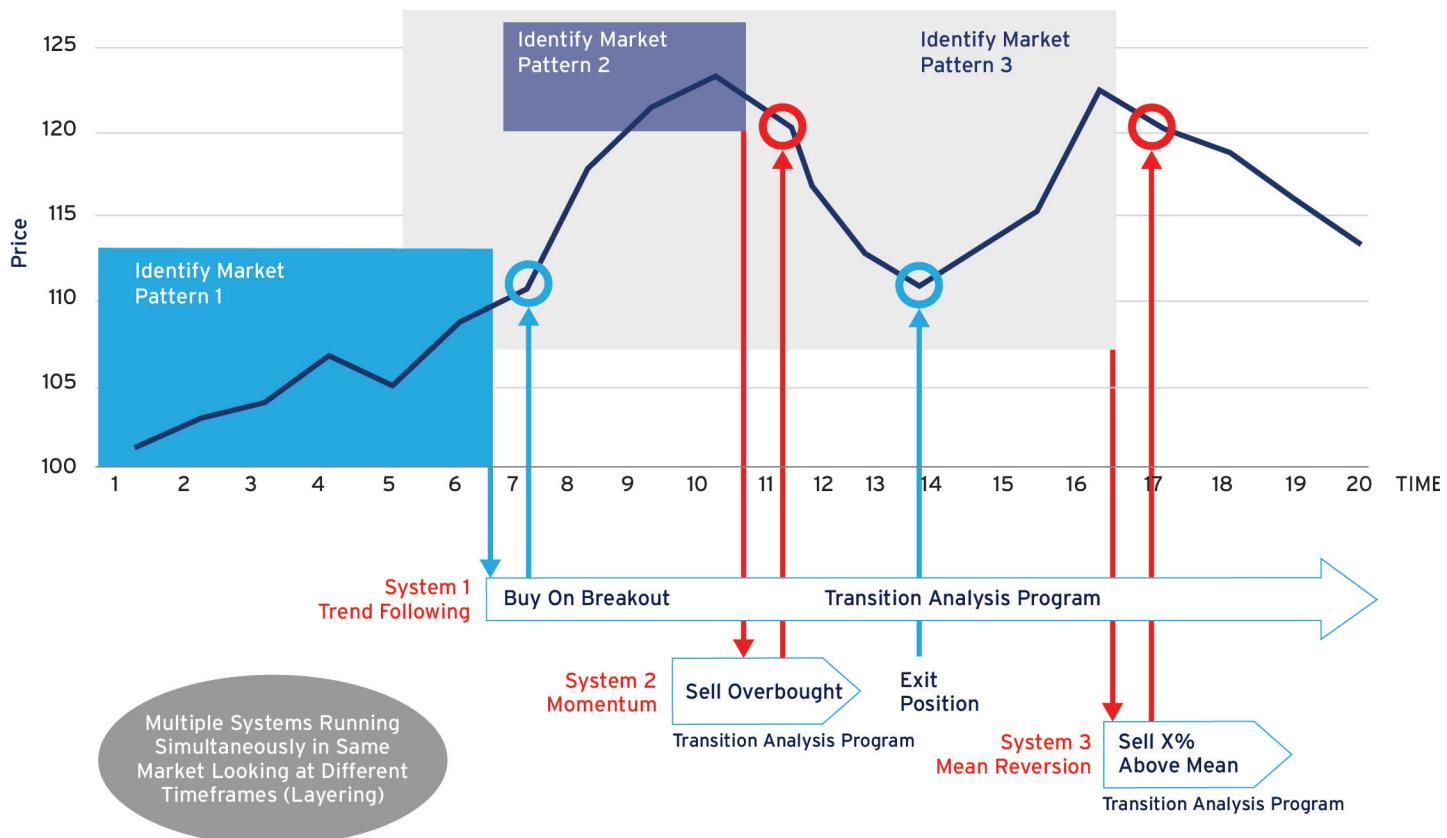
monitoring system may be applied. This process is ongoing, and there can often be as many as 20-30 models running simultaneously in a single market.

There are two ways in which Generation Three systems handle the multi-tier nature of their approach. In the first, the signals being generated by the various models are netted. If the first signal generated is a long position and the next overlay system also indicates a long position, the manager would end up holding two long position units for that market. If a third signal generated is short, the two long position indicators and the short position indicator would be netted and the manager would reduce their overall exposure to only one long position unit.

In contrast, there can also be a risk "budget" approach used, where the money in the master fund would be parceled out to different models. In this approach, each signal would have a separate pool of AUM assigned to it and it would trade according to its unique signal generation. Using the example above, instead of netting the two long signals and the short signal, the system may initiate 3 separate positions—two long and one short and track each trade independently as if they were separate accounts.

Chart 17 attempts to illustrate the workings of a Generation Three model. As shown, the filtering programs identify a tradable market pattern and initiate a signal-generating system. Once the trading signal has been initiated, the transition monitoring program takes over and is constantly reassessing whether the original pattern is still in effect. As additional market activity unfolds, the pattern recognition systems may pick up an additional pattern and start another system with a different signal generation approach and once that system is turned on, a different type of transition

CHART 17: EXAMPLE OF GENERATION THREE SYSTEMATIC TRADING PROGRAM



Source: Citi Prime Finance & Futures

One interesting facet of these Generation Three models is the highly diverse nature of the patterns they scan. Most of the pattern recognition used in Generation Two systems referred to open-high-low-close related price patterns (regardless of the time interval being examined). Generation Three systems will often look to recast prices in other measures (such as recalculating bond market prices in their equivalent gold value as opposed to USD or EUR), they can look for other patterns such as the gap between bid-offer spreads, or they can identify “equivalency” markets where signals in one market will prompt them to initiate trades in another market.

The primary factor to remember about Generation Three funds is that they are applying multiple models in a simultaneous time frame to the same market.

“ You have to have a robust portfolio of systems that are apropos to the current market environment. This allows us to have dynamic allocation. We have a correlation index that tells us how trending the markets we are looking at are. Longer-term strategies are good for some markets. Shorter-term strategies are good for volatile markets. In 2008, we put in an intraday program that added a valuable edge on our time horizon,”

- \$100-\$500M CTA

“ We have filtering models that we use as a trend detection mechanism. Then we'll apply a trend strength qualifier to evaluate the accuracy of the trend signal and to decide whether or not to accept the signal. If we accept the signal, we run a sectors model that tells us what other sectors are likely to be acting similarly given the market conditions. Then we look at a technical timing model that gives us a “go or wait” indicator in terms of releasing orders,”

- \$100-\$500M CTA

Evolution in Systematic Approaches Underscores the Importance of Constant Research

Evolution in the design of systematic trading programs can be directly attributed to the depth of importance placed on research in Liquid CTA/Macro strategies. Many of the interviewees indicated that their research teams often made up 50% or more of their total staff. Several participants referred to these individuals as the “white coats” in deference to their academic pedigree. Research is critical to these strategies for several reasons.

As noted with the early trend-following models, there can often be a piling-on effect evident with systematic programs. This occurs when one type of system becomes broadly adopted and many different managers are having signals generated against similar patterns at similar times. This makes it harder for any one manager to benefit from the signal, and it can often work to dampen the efficacy of signal generation overall. As a result, managers must be constantly looking for patterns that others are not already following so that they can have a unique view into their opportunity.

“We are actively engaged in research. We focus on pattern recognition. We have a number of PhD's that look at past patterns of prices looking for patterns in the noise. We try to keep our research department at close to 50% of our people,”

- >\$5B CTA

“We're always involved in ongoing research and development. We're always looking at other asset classes. If we want to grow, we need to prepare. We need to have everything ready to go,”

- \$1-\$5B CTA

“Short-term systematic traders have much more complex models. They might have physics professors from Harvard on their team,”

- Fund of Fund with CTA/Macro Sleeve

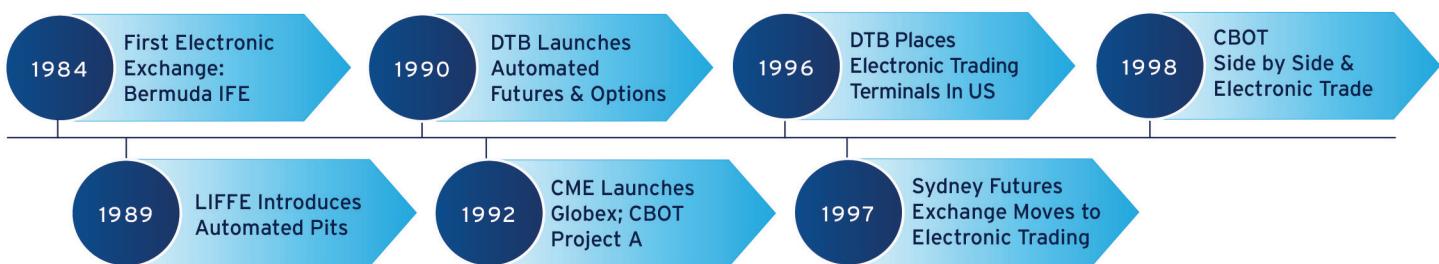
“We've ramped up our expense base in terms of research and now we are trying to raise our AUM to catch up with it,”

- \$500M-\$1B Currency Hedge Fund

Another reason is that to keep expanding capacity, managers need to constantly be testing their models and assumptions against new markets, and monitoring to see how deep the liquidity pool in a new market must be for their system to work optimally. Expansion in the number of markets is equally as important to the later generation of systematic traders as the type of system they design.

Finally, there is an opportunity for innovation in research as the body of knowledge about price behavior improves and better execution tools emerge. One of the managers we interviewed for the survey discussed how their systematic approach is focused on such a short time horizon that they can actually be said to be providing liquidity between price ticks in the market.

CHART 18: TIMELINE OF SHIFT TO ELECTRONIC TRADING



Source: Citi Prime Finance & Futures

Emergence of Electronic Execution and Direct Access Facilitate New Strategies

The move from floor-based to electronic execution has also been an important driver of the layered Generation Three and dynamic Generation Two systematic trading approaches. As shown in Chart 18, the trend toward having electronic as opposed to floor-based trading pits began in 1984 and by 1998 the major commodity and futures exchanges had shifted to an electronic execution approach.

Early trend followers were required to phone up their floor brokers to place orders. Their ability to get an order executed depended in part on how busy the pits were and how many other clients were calling in to get orders executed at the same time. Once they got through and placed their order, the trend followers needed to wait for their floor broker to announce their desired buy or sell level to the other traders in the pit via open outcry. Then the floor broker would wait to have their order matched by the pit managers and recognized by the exchange representative. Once that "fill" had occurred,

the floor broker would have to go back to the phones and relay back to the trend follower that their order had been completed.

Acting on a short-term signal would have been nearly impossible in these circumstances. In contrast, today's systematic programs are often co-located on servers in remote data centers alongside the exchange's own servers. Tick level price data can be scanned by these programs in near real time or algorithms can be applied that normalize the release of orders based on a certain rules and when a signal is generated, orders are compiled and submitted mechanically via FIX protocols directly into the broker or exchange queues.

The move to electronic markets has been as important a contributor to the emergence of more sophisticated systematic trading as improved modeling capabilities and broader availability of data realized through the emergence of Internet technologies. Without this enhancement, there would not have been an opportunity to develop so many varied and short-term trading approaches.

"There has been an electronic trading revolution in the markets. When I started, everything was being done over the phones. It could take minutes, hours or even days to get a trade off. Now this is done via algorithms which are rule-based and gives you more regular results,"

- \$1-\$5B CTA

"We had over 20 some traders when I started interacting with the markets. They were calling the FX dealers, calling the traders in the pit. Over time, we changed over to transact electronically in the markets. It was a slow transition. We started making heavy investments about 2-3 years ago. Now we're down to 6 traders and 97% of their activity is monitoring our FIX flow,"

- \$1-\$5B CTA

"One of the biggest changes in how we do business is the move to electronic trading. We need to have speed and an infrastructure to support it. This is what gives us the ability to stage our orders. 80% of our alpha comes from trend following, but we have some short-term trade overlays on top of that. We were one of the first on electronic platforms and are currently almost 100% electronic. Right now, from signal generation to generating orders to having them waiting at the brokers happens seamlessly. As a business, electronic execution has made things smoother and easier and more efficient. You don't get the breaks you used to get with the floor brokers,"

\$500M-\$1B CTA

Complexity of Systematic Approaches Challenge and Concern Investors

While evolution in the systematic Liquid CTA/Macro space has been impressive, the increasing sophistication and complexity of many of the latter generation systems has elicited concerns from many in the investor community. These concerns typically fall into two categories - whether investors really understand the manager's approach sufficiently to evaluate the manager adequately, and whether the addition of ever larger numbers of models is actually contributing to performance.

The first concern is the outcome of CTAs bringing in academic PhDs to create models. These intellectuals are trained in mathematical concepts that range far beyond most investors' understanding of market theory. Explaining how the models work can be very challenging, and many investors noted that they walk away with only a high-level understanding of the manager's approach.

When an investor is uncertain about how the model works, they often lack conviction on how that manager would perform in unusual market circumstances. Looking at performance in past periods of market stress is not always illustrative. Many survey participants expressed concern that CTAs' commitment to ongoing research means that the models and approach used in past periods may not be providing an apples-to-apples comparison to how the current models and the set of markets against which they are running would perform in similar circumstances.

Intuitively, investors also expressed concerns about whether the increased trend toward layering systems is actually achieving positive results. This is a particular concern with the Generation Three systematic approaches, as these managers are applying multiple models to the same market at the same time. Investors worry at what point diversification crosses over into "de-worsification".

"The understanding of how these systems work exceed most investor's abilities beyond having a broad brush understanding,"

- Third Party CTA Marketer

"For the Gen 1 guys, it would take me 1.5 hours to understand their process. For these Gen 3 guys it can take days and you have to sign NDA's,"

- CTA-Focused Fund of Fund

"We may like the portfolio manager and like the head of the firm and like their performance and the systems, but how do you evaluate what to expect when something outside what they'd statistically expect to see in the model happens? How do they anticipate that and adjust for it? That's why it's hard to evaluate these managers, because you look at their 15-year track record and it looks pretty good but you don't know what the models looked like back then and you don't know the markets they were in and how they have changed,"

- Fund of Fund with CTA/Macro Sleeve

"You've got a lot of really popular managers now that layer their models. This one plus that one plus another one. Some may have 100 models they're running. You have to watch out for conflicting indicators. When managers over diversify, the models might end up doing nothing,"

- Fund of Fund with CTA/Macro Sleeve

"There are some concerns emerging. If you have 10 different systems going on in one market, you could have long positions in some systems and shorts in others and your net exposure to the market may be much smaller and you'll see your returns damped by de-worsification. Too many systems in place could be a big problem,"

- Third Party Marketer

Section Three: Layered Distribution Approaches Offer Diversified Options for Accessing Capital

Liquid CTA/Macro product appeals to a broad range of investor types. Because of its regulated nature, broker-dealers have long pushed managed fund product to their retail clientele via their financial advisors network. Post-2000, the industry has also attracted significant flows of institutional capital, and new platforms have emerged to target this audience. Finally, many CTA/Macro participants view themselves as part of the hedge fund space, particularly in Europe, and thus look to follow that industry's model by marketing their product directly to end investors. The result has been a multilayer distribution approach. Additional channels are also emerging via regulated fund structures such as ETFs, 40 Act alternative funds, and UCITS funds.

Retail Roots of the Industry

High net worth and retail participants were the first noncommercial audience to invest broadly in the Liquid CTA/Macro space. Such investments were realized through a set of managed futures products created and distributed by the brokerage or wire houses in the 1970s/early 1980s.

Widely publicized bull markets in many core commodity products ignited the imagination of retail and high net worth investors. Brokerage houses at the time were encouraging diversification in investor portfolios using a concept called the "risk pyramid". This approach encouraged investors to parcel their investment capital out in a pyramid structure based on the likely risk-reward ratio of the products at each level of the pyramid.

The base of the pyramid was supposed to be low-risk instruments with limited returns such as government bonds, CDs, and money market funds. The middle of the pyramid contained slightly riskier assets such as real estate, mutual funds, and individual securities slated to generate slightly more aggressive returns. The top of the pyramid were the riskiest assets that would produce the highest reward. Managed futures fell into this final category, and they were seen as offering "high octane" returns in exchange for high risk.

In some instances, such as with Citi's predecessor firm Shearson Lehman Brothers (the successor firm to Hayden Stone), the talent around which to create a managed futures product was found internally. As we mentioned earlier, Dick Donchian was the Director of Commodities Research and he had established the industry's first managed futures fund earlier in his career. He and his team were able to build dedicated managed futures product and distribute those funds via the organizations' financial advisor network.

Other wire houses were also active in creating and distributing managed futures product. Many of these firms hired outside

managers considered emerging industry leaders to manage their portfolios. Many of these managers came from a firm called Commodities Corporation.

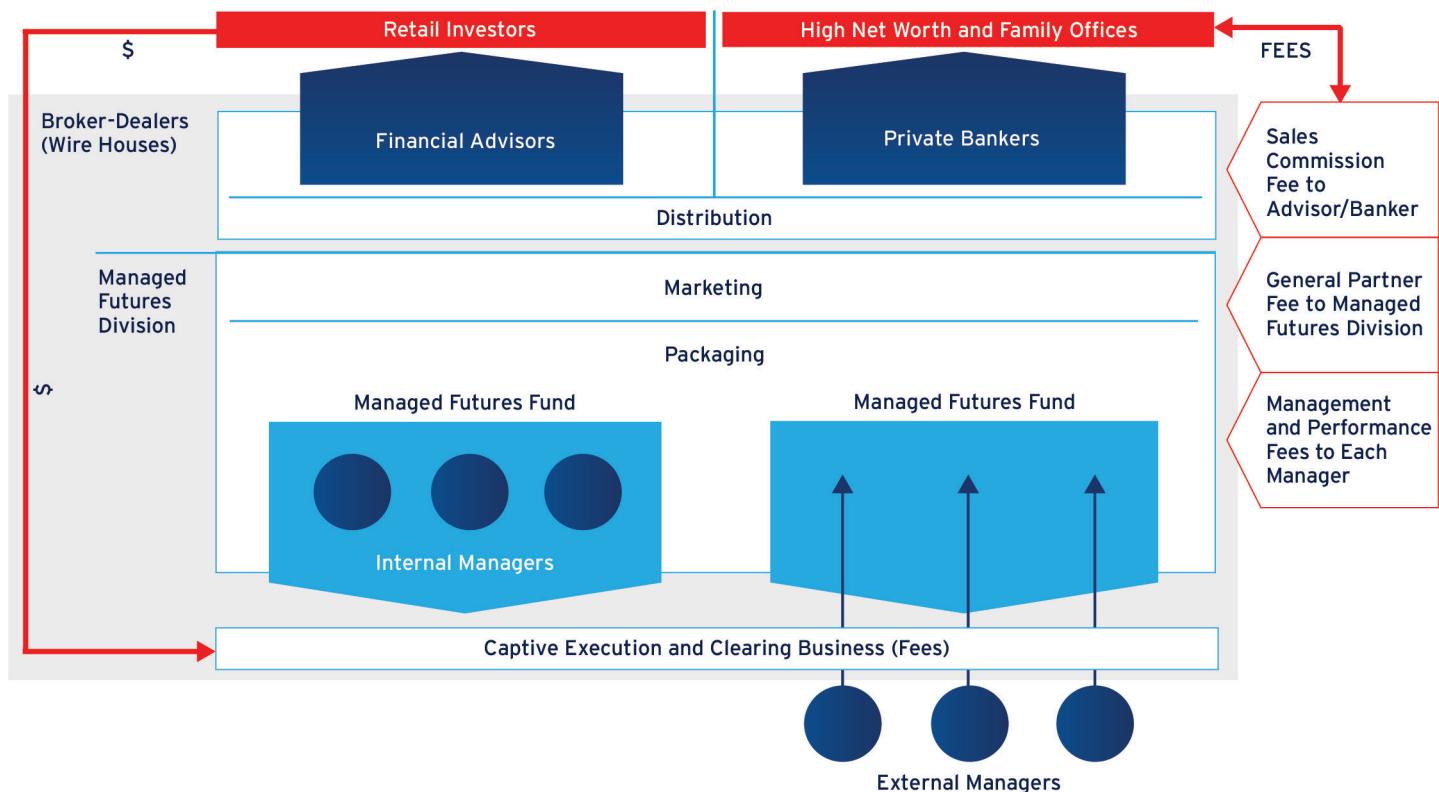
Commodities Corporation has a rich history and possesses a unique role in the Liquid CTA/Macro and overall hedge fund space. The firm was co-founded by a set of commodity experts and academics including Hayden Stone alumni Amos Hostetter, Nabisco alumni Helmut Weymar and Frank Vannerson, the economist Paul Samuelson, and MIT professor Paul Cootner.

Many successful traders were affiliated with Commodity Corporation, including several well-known traders who were among the first generation of managers hired for the wire houses' managed futures product. Such traders included Paul Tudor Jones (who then went on to form Tudor Investment Corporation), Bruce Kovner (who went on to form Caxton Associates), Louis Bacon (who went on to form Moore Capital Management), Bill Eckhardt (who went on to form Eckhardt Trading Company), and other luminaries of the time including Michael Marcus, Jack Schwager, and Ed Seykota.

Another manager chosen for the early managed futures products was a highly successful floor trader named Richard Dennis, who had created his own unique breakout system that pyramided positions. Richard Dennis was also the mentor and sponsor of a group of traders known as the "turtles". To settle a debate he was having with Bill Eckhardt about whether or not trading skills could be taught, Richard Dennis recruited a group of 21 individuals, taught them his trading approach, and staked them each with \$1.0 million of his own money. His experiment ran from 1983-1988. During that period, the group turned Dennis' \$21 million into \$175 million. Graduates of the turtle program include Jerry Parker from Chesapeake Capital, Tom Shanks from Hawksbill, and Elizabeth Cheval from EMC.

Chart 19 illustrates the model used for creating and distributing retail focused managed futures products.

CHART 19: RETAIL MANAGED FUTURES DISTRIBUTION MODEL



Source: Citi Prime Finance & Futures

After signing the manager, the wire houses would then structure the terms of the investment fund. There were multiple layers of fees built into these products. First, there were the fees paid to the manager running the fund. Typically, these included a fee for managing the money (set at 2.0%

of the fund's assets) and an incentive for managing the fund successfully (20.0% of the net profits generated by the fund). Many view the structuring of these early managed futures products as the model for the 2 and 20 arrangements later adopted by the hedge fund industry and which remains the norm for those managers to the present day.

"Back in the 1980s it was all about the risk pyramid and diversification. After you invested in your stocks and your bonds and your real estate, managed futures were where you invested your riskiest assets. We preached it and we believed it."

- Retired CTA & Managed Futures Pioneer

"20% of our distribution is done via outside managers that on-sell our products to their retail investors. These distributors typically tack on additional fees—most often upfront fees. People often have to pay 3-4% just to get into the product. For large clients, we might take our fees down a little from the 2&20 we charge to make the overall package more attractive for them,"

- \$500M-\$1B CTA

Rising Institutionalization Prompts a New Distribution Model

As institutional investors began to show more interest in the Liquid CTA/Macro space, the industry's original managed futures distribution model proved untenable for this audience. High fees associated with these retail managed futures products were prohibitive to the institutional audience. Institutional investors were also not positioned to directly approach managers because they (and many of the consultants that supported them) lacked familiarity about which managers to evaluate and they were ill-prepared to perform due diligence on such managers. Many allocators instead turned to fund of funds that specialized in the Liquid CTA/Macro space.

Increased allocations to fund of funds created operational issues for many of the Liquid CTA/Macro managers. Regardless of whether the institutional investor would place money into the fund of fund's co-mingled vehicle or if they wanted to establish their own segregated account, there were very few Liquid CTA/Macro managers on the other side of the allocation that were set up with a co-mingled fund.

The industry norm in the managed futures arena was, and for the most part still is, to open a segregated customer account for each investor in the fund. Thus, every time an institution would sign on with a fund of fund, the fund of fund would need to open a new segregated account in the investor's name with the underlying Liquid CTA/Macro manager. Without a platform to handle this operational burden, the influx of accounts could quickly become overwhelming for both the fund of fund manager and the Liquid CTA/Macro manager.

This led to the emergence of a new platform called AlphaMetrix in the mid-2000s. Drawing on the managed account platform model in the hedge fund industry, the original goal of this platform was to be a facility for allocators to simplify the operational handling of their investments. The platform would allow them to bundle the money coming in for a specific manager and establish the platform as a single face-off to that manager rather than having to pass each individual account onto the manager to be handled as a segregated customer account.

"The only channel in the 1980s and 1990s was the wire house managed fund platform. We'd build a strategy, set up a separate account and they'd go out to their vast sales force to raise money. We still have a lot of high net worth money from those sources,"

- \$500M-\$1B CTA

"Our investor base is 99% retail due to our affiliation with a wire house. Most of our clients are going to be on the smaller side—the lawyer, the doctor, the retiree—each looking to put in \$200,000 to \$300,000,"

- \$100-\$500M CTA

"Commodities traders had always been viewed as gunslingers, especially in the beginning. It was a gambling stake. People would put \$50,000 in and expect to double or triple it or blow it all,"

- Third Party CTA Marketer

In the new model, the platform itself would handle the segregation and subaccounting of the individual investor funds. What quickly became evident was that once managers were set up on the platform, it became much easier to allow investors to look through to the underlying managers and create their own custom portfolios, since all of the managers on the platform had already been vetted from a due diligence perspective and information on their style, returns, and volatility could be accessed via simple filtering tools. AlphaMetrix initiated a new business model that allowed institutional investors direct access to Liquid CTA/Macro managers.

Meanwhile, the brokerage houses that had long been active in the managed futures arena were looking for new product opportunities to capture an increasingly institutional audience. Deutsche Bank launched a variation on the AlphaMetrix platform in the mid-2000s called dbSelect. Their model was slightly different in that instead of opening a segregated customer account for each investor, they would provide access to the underlying managers on the platform via a swap construct that delivered the indexed returns of the manager.

The dynamics of these platforms are highlighted in Chart 20.

"Distribution platforms have been a major source of growth for the industry, especially for certain segments. Some institutional investors will only access managers via a platform. They've done the due diligence and eliminated as many risks of the manager as can be eliminated,"

- Third Party CTA Marketer

"For certain managers, being on a platform really helps because you can aggregate a lot of smaller tickets. It's really good for a manager on the smaller side,"

- CTA-Focused Fund of Fund

"One of the reasons we are doing the joint ventures with the platforms is that we didn't see a change in the clients we have. We still had clients from the old wire houses where we got our start. The majority of clients on the distribution platforms were institutional and non-U.S."

- \$500M-\$1B CTA

"Small fund of funds are using the platforms for liquidity,"

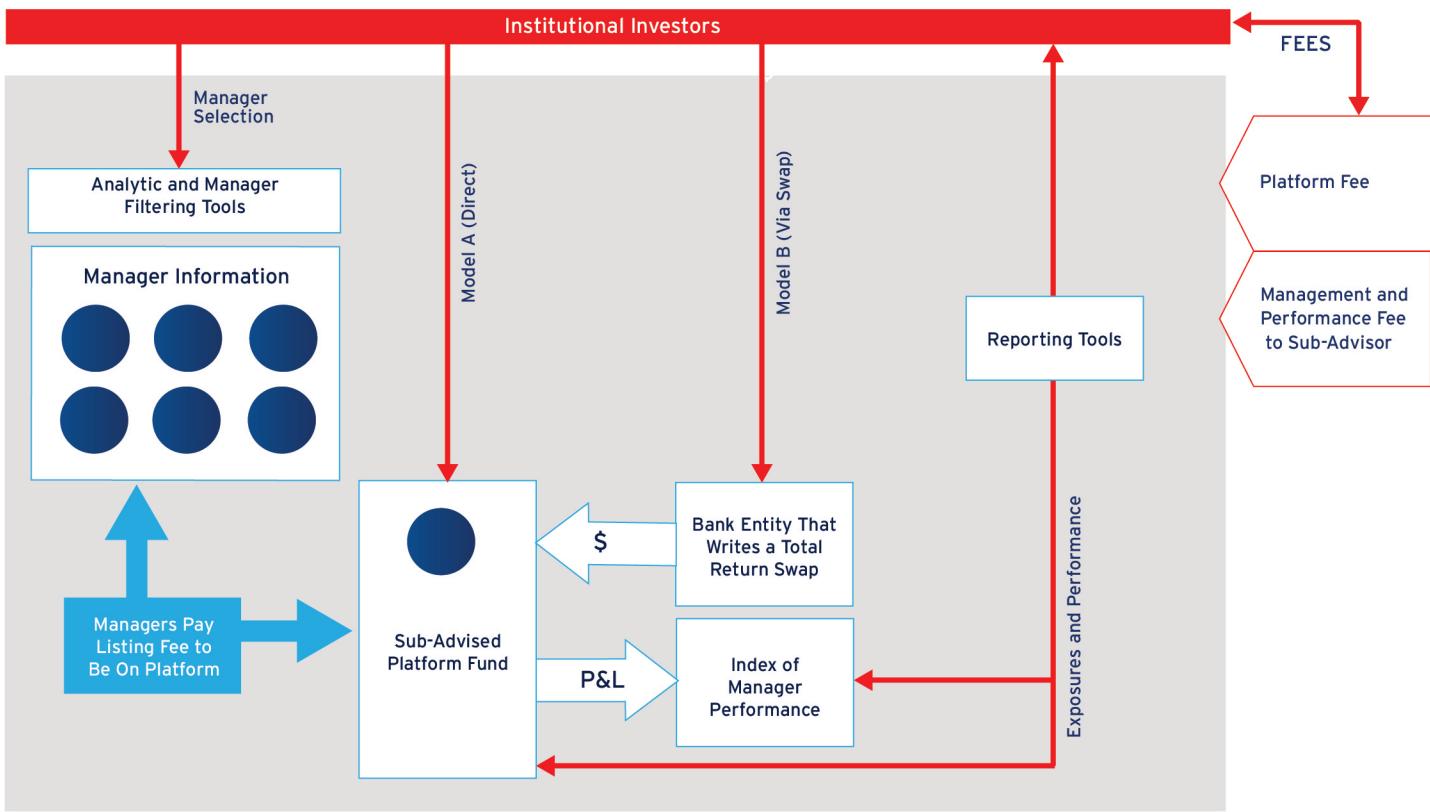
- \$500M-\$1B Currency Hedge Fund

We have opted to call this distribution model the "shopping mall" because of the way that institutional investors were able to use the platform. Institutional investors could go on to the platform and browse a broad selection of managers. They could then narrow their set of choices by using filtering tools built into the platform. Once they had determined which managers they wished to invest in, they could direct funds to the platform and the platform provider would then channel those funds to the underlying managers.

In the AlphaMetrix model, the investor's money would go directly into a subadvised platform fund set up for each manager on the platform. In the dbSelect model, the investor would set up an ISDA agreement with dbSelect and then fund a swap with Deutsche Bank. This swap would guarantee the investor the monthly returns of an index that mirrored the performance of that manager's subadvised fund on the dbSelect platform. Meanwhile, Deutsche Bank would fund the manager's account in proportion to the swap value and face off to the manager as their counterparty.

In both models, the investors would then have access to reports that summarized the manager's activity and their account status.

CHART 20: EVOLUTION OF INSTITUTIONAL DISTRIBUTION PLATFORMS: SHOPPING MALL



Source: Citi Prime Finance & Futures

Managers Seize on Opportunities with Institutional Platforms

In recent years, other brokerage houses have launched similar platforms and many Liquid CTA/Macro managers are looking to list their funds. Although there are high costs for joining such platforms, interviewees noted that being listed in these venues has become a part of their marketing and promotional efforts. There is a sense that these platforms help get their names out in front of many institutions who might otherwise not have seen their information.

For managers outside the United States, there is also a secondary benefit. Since managers listed on a platform are not actively marketing their funds, they do not need to register as a CTA with the CFTC. Thus, the platforms offer an opportunity to many foreign firms to access U.S. investors, but at arm's length so that they do not carry the accompanying regulatory burden.

There are, however, other issues that have emerged regarding the distribution platforms, particularly these early "shopping mall" models.

"The nice thing about platforms is that everyone is seeing your name and performance. It's almost an advertising tool or a great marketing tool,"

- \$1-\$5B CTA

"We are launching a US product off one of the platforms. We'll be using their registrations,"

- CTA-Focused Fund of Funds

"We feel that there is more regulation coming and we don't see much harmonization. In the short-term, for European managers it's hard to have US clients, at least directly. It's more difficult to talk to investors directly because you would need SEC registration. This is why we are happy to be on the platforms. We don't need to be registered because there is no direct contact,"

- >\$5B Currency Hedge Fund

Issues Emerge with Original "Shopping Mall" Platforms

There are three main areas of concern interviewees cited in discussing the early wave of institutional distribution platforms. Foremost, both investors and managers noted that the fees charged by the platforms could be prohibitive, either because the all-in price to the institution was too high or because the platforms required the underlying managers to cut their own fees by too much in order to leave the platform provider room to charge their fees.

In some early incarnations, platforms were opaque about their fee structure and in some instances were actually charging an additional 1% management fee and 10% incentive fee over and above the 2% and 20% being charged by the actual Liquid CTA/Macro manager. This mirrored the fund of fund fee structure, but unlike the fund of funds where the pool manager would be responsible for selecting the optimal set of individual managers, the institutional platforms were leaving it to the investor themselves to choose the manager. While fees have come down, by some reports the platforms still charge as many as 75 basis points against AUM directed via their offering. These fees need to be factored against the underlying manager's performance.

"Hedge funds charge 2&20 and fund of funds would whack on 1&10 on top of that so that they were charging 3&30. Many fund of funds have had to rethink that model. They are being a little less greedy and working harder for their money,"

- >\$5B CTA

"We charge only 1 and 20 to leave wiggle room for distributors to add their charges,"

- >\$5B CTA

"We're also on (a bank's CTA) platform. We've been on the platform for less than 6 months. So far, we haven't had good performance in terms of finding capital,"

- \$100-\$500m CTA

"If I'm an unknowledgeable investor and I get this long list of managers and I don't know who to pick, I'll end up losing money. You need people to translate these choices,"

- <\$100M Currency Hedge Fund

"We haven't had much success with these platforms raising any money for us at all. It's been pretty disappointing. We haven't seen any significant flows from these things and they're selling themselves on the analytics, especially the ones not affiliated with a bank. These platforms are also misleading when they report their AUM. They have 3 managers with 98% of the AUM and 100 managers with \$0,"

- \$500M-\$1B Currency Hedge Fund

The second issue that became clear was that institutional investors were uncomfortable picking managers themselves via the platforms, even with a full set of filtering and modeling tools to support them. While the platforms offered the means to construct a portfolio, they did not offer the expertise required by the institutions to create an adequately diversified portfolio. Many institutions were not confident about their selections, particularly if the manager under consideration was on the smaller side. As a result, many simply chose to put money with the largest managers on the platform figuring those bets to be the safest.

The result of this pattern has been a highly disproportionate allocation of AUM moving through the platforms. Several interviewees noted that the AUM figures cited by the platforms were highly misleading because the majority of AUM went to only a small handful of managers, and that the majority of managers listed on the platform saw little to no flow. This was very problematic for some managers, particularly smaller managers that had struggled to come up with the listing fee, which reportedly could be as high as \$250,000 for each fund.

New Platform Models Emerge that Deliver Expert Advice

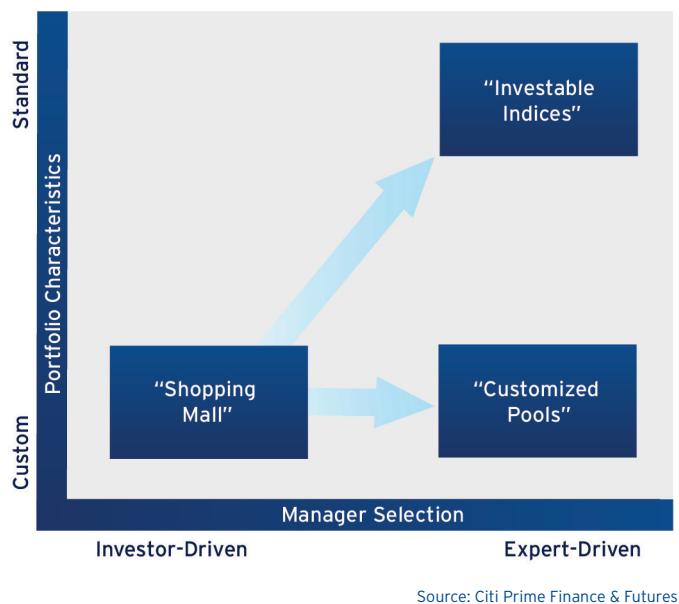
Since the mid-2000s, the distribution platforms have undergone an important evolution in approach. These changes are highlighted in Chart 21.

As shown, two new models have emerged. Both of these models address the need for an expert-driven level of advice that shapes an investor's choice of managers. Where the two new models differ is on whether the advice is focused on offering the investor a customized or a standardized portfolio.

The new Customized Pools model provides a different course for those investors looking to shape a portfolio around their specific goals. This model is primarily being offered by fund of funds to their institutional and family office clientele.

In the Customized Pools approach, the fund of fund or pool manager works exclusively with the investor to understand their goals. They then identify a set of Liquid CTA/Macro managers that will satisfy these objectives. Once this set of managers is selected, the platform is used to create a "fund of one" structure. These funds of one have become quite popular post-2008 because they offer an investor the benefits of a co-mingled fund, but they avoid any contagion risk from co-investors.

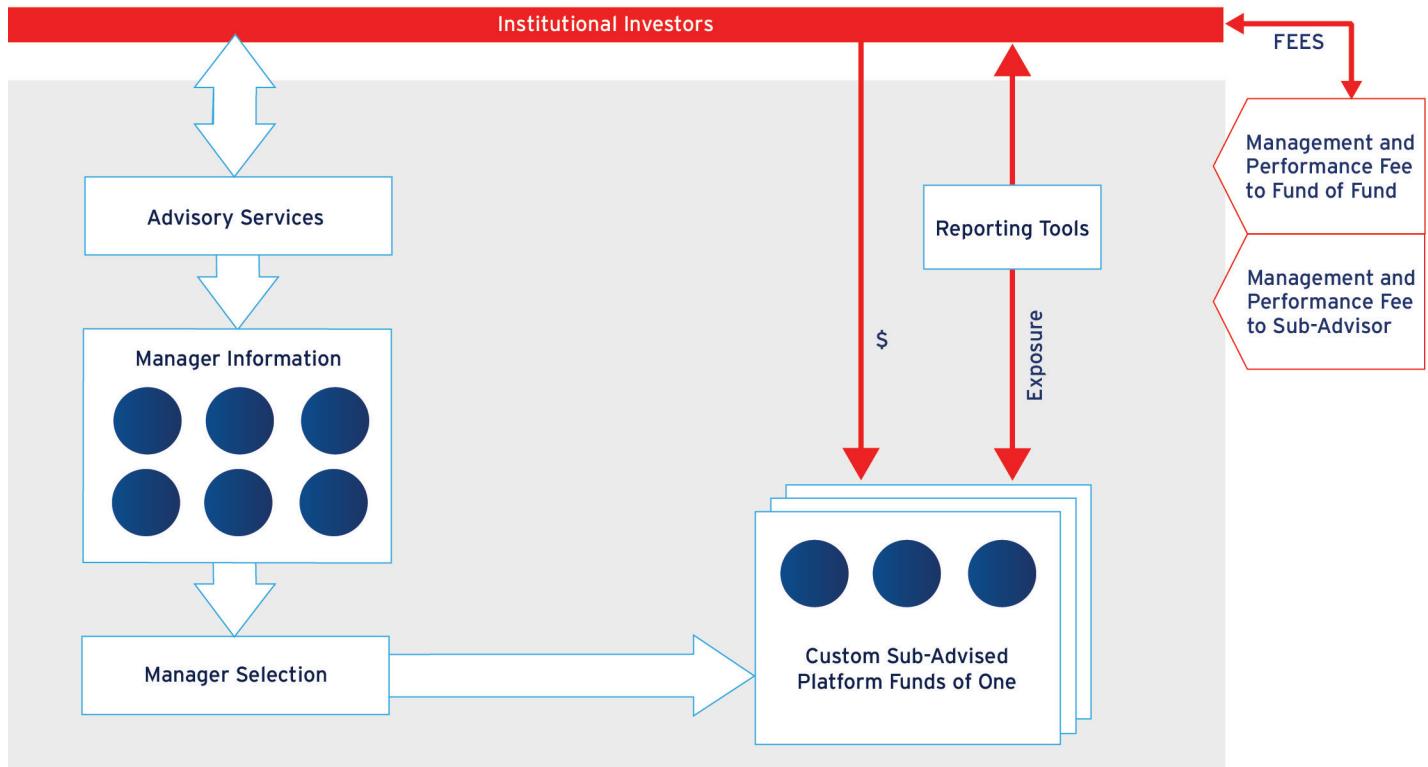
CHART 21: EVOLUTION OF INSTITUTIONAL DISTRIBUTION PLATFORMS



Source: Citi Prime Finance & Futures

The customized fund of one is managed via the platform, and the investors can capitalize their accounts and view reports on activity via the platform. These interactions are highlighted in Chart 22.

CHART 22: CUSTOMIZED POOL INSTITUTIONAL DISTRIBUTION MODEL



Source: Citi Prime Finance & Futures

Fund of fund managers focused on the CTA space are moving increasingly toward this model. Having the platform to offer such a service is seen as a real differentiator. One point of concern with this model, however, was that the fund of fund is hard pressed to show a track record for the custom fund, and many investors are hesitant to use the track record of the co-mingled vehicle as a stand-in since the composition of managers may differ significantly.

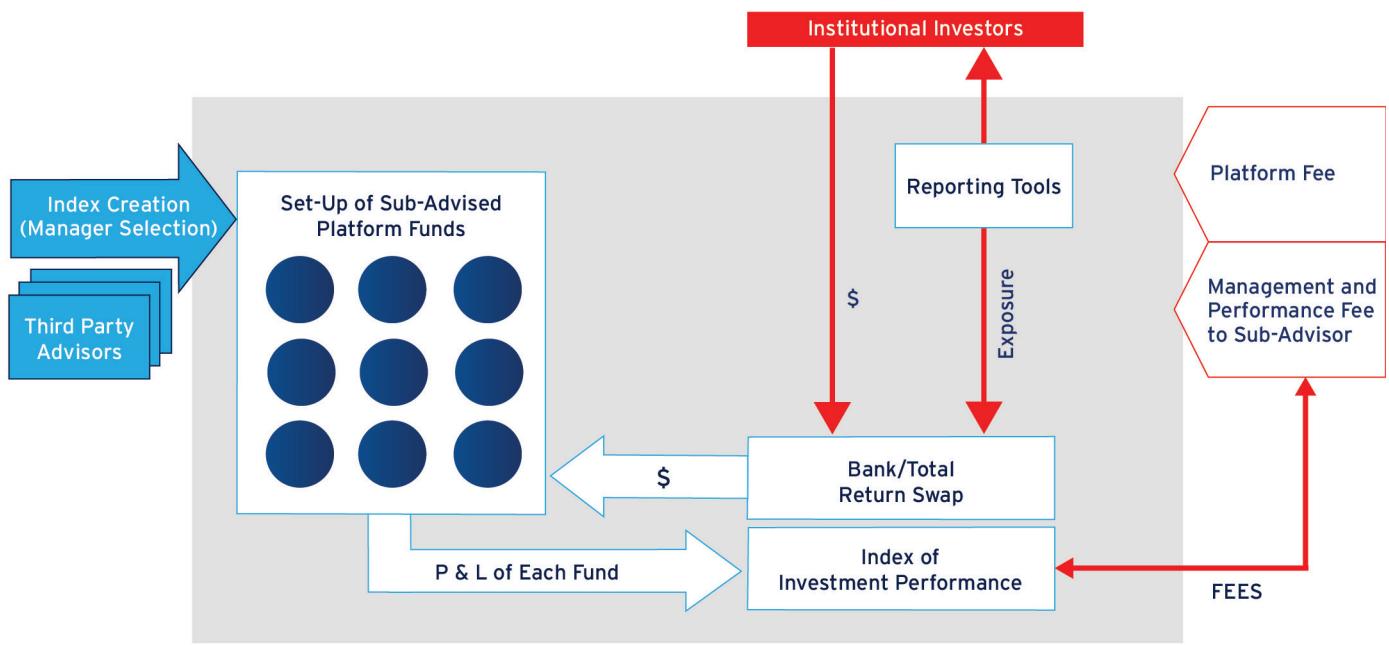
By contrast, the other new model emerging in the market is a platform that offers investors a standardized, expert-driven portfolio, typically linked to one of the recognized industry indices such as the BarclayHedge Top 50 CTA Index (BTOP50) or the Parker Global FX index. These models are highlighted in Chart 23.

In these models, an external agency unaffiliated with the platform provider, like BarclayHedge or Parker Global, picks a set of managers that correspond to their index universe and informs the platform operator which Liquid CTA/Macro funds make up that pool and in what proportion. The platform manager then sets up subadvised funds on the platform for each of these managers and stakes those investments in the same proportion as their index weight. This allows the platform to capture the performance of the underlying managers within their own environment.

The platform operator then recreates the index as an investable instrument and writes total return swaps for investors interested in having exposure to that index as a hedge or investment vehicle. These swaps have a delta of one, which means that they exactly match the performance of the underlying index. By having the investment in a swap vehicle, the platform operator can adjust the index components in line with changes from the index provider without having to rewrite the swaps or rebalance their investor accounts. Investors are only receiving the return stream, not the underlying exposure to each manager.

Investable indices are just beginning to emerge in the Liquid CTA/Macro space. Citi has launched our own platform using this model, called Citi Access. Both investors and managers have high hopes for these products. In many ways, these indices are seen as representing an ideal institutional vehicle. The underlying investor can obtain exposure to a leading set of managers, but without having to select that set of managers on their own and without having to pay excess fees to a market expert to select managers on their behalf.

CHART 23: INVESTABLE INDICES INSTITUTIONAL DISTRIBUTION MODEL



Source: Citi Prime Finance & Futures

"Platforms have to play a role in fund of funds. In 2005, it was possible to just form a fund of fund without a platform. You were just passing on expertise and access. Now, if you can't get access via a platform, that model's dead. Now fund of funds really need to be able to customize portfolios to your taste,"

- CTA-Focused Fund of Fund

"US Pensions, particularly state funds, prefer to deal with fund of funds. They are getting these fund of funds to create custom holdings for them,"

- >\$5B CTA

"You tell me what growth you want, what the exposures should be, what volatility you want and then I'll put a custom portfolio together for you. With a platform to use, I can set it up for as little as \$10 million,"

- \$100-\$500M CTA

"The new index platform model offers two important things. An independent allocator is selecting the managers and the bank is watching the assets. That's two levels of protection for the investor. Also, the banks are putting their own money in. The idea of co-investing with a major bank is quite persuasive. I know that the rule changes post 2008 make that hard, but it is still very comforting,"

- \$100-\$500M Currency Hedge Fund

"Indexes are very powerful to institutional investors. With an index, they say all this past performance is pro forma and they're okay with that because it's an index. Whereas it's harder to get people to buy into that for a multi-manager portfolio track record,"

- CTA-Focused Fund of Fund

Largest Managers Build Out Direct, Hedge Fund-Like Marketing Capabilities

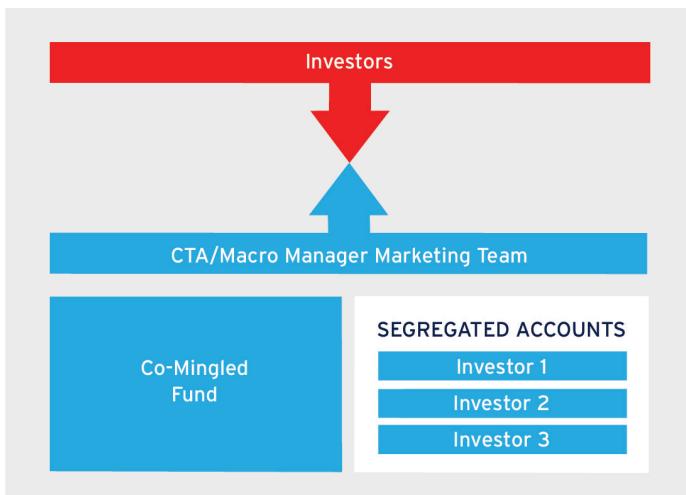
Because of regulatory distinctions, U.S. investors have traditionally seen hedge funds and CTAs as belonging to two different spheres. As a result, hedge funds' and Liquid CTA/Macro managers' distribution and support evolved along separate paths.

The Liquid CTA/Macro distribution approaches were highlighted above. To recap, wire houses took the lead originally in distributing managed fund product and since they were selling these products to retail participants, they developed and then standardized a model that required client funds to be segregated into individual accounts. The emergence of the institutional distribution platforms provided another route to market for U.S. CTAs/Macro managers; and in this model as well, clients maintained individual segregated accounts or accessed performance via swap.

This long tradition of separating and insuring client funds was one reason that the recent MF Global bankruptcy has been so impactful. That firm's alleged use of customer funds to cover the broker-dealers' proprietary positions broke the foundational agreement between clients and managers in the U.S. market.

For hedge funds trading in the U.S., there was a very different distribution and support model. This model aligns much more closely with how the CTA model developed in Europe. This direct marketing and distribution model is highlighted in Chart 24.

CHART 24: DIRECT MARKETING & DISTRIBUTION APPROACH



Source: Citi Prime Finance & Futures

In Europe, where a significant portion of today's Liquid CTA/Macro traders can be found, there has not been the same perceived split between hedge funds and CTAs. In most European participants' minds, CTA is a strategy within the hedge fund set of alternative investment approaches. As a result, European managers have aligned predominantly with the hedge fund's direct marketing and support model noted in Chart 24.

With the increased institutional focus of recent years, larger U.S. managers are also now beginning to adopt this approach.

"The downside of not having a co-mingled fund is that some investors only want that structure and I can't attract that money. Usually, it's the large institutional investors looking for that option and they probably wouldn't give me money at this point anyway,"

- <\$100M CTA

"To avoid tracking errors, we needed at least \$70 million in a separate account. Given that minimum, we are getting a lot of interest about going into our co-mingled fund,"

- <\$1-\$5B CTA

There are several important differences in the direct, hedge fund-like marketing approach. First, the manager will typically hire a marketing or investor relations professional to run their team and be charged with raising capital for the organization. Such individuals form direct relationships with pension funds, endowments and foundations, family offices and high net worth individuals. This differs from the models discussed earlier, where the fund manager would typically handle marketing efforts and hold discussions with the brokerage houses, fund of funds, and platforms. It was these brokerage houses, fund of funds, and distribution platforms, not the managers, that had the direct investor relationships.

The second difference relates to the structure of the fund. As noted above, the earlier U.S. model had investors either putting money directly with an investor via a segregated account or accessing that manager's performance via swap. Only fund of funds offered a co-mingled investment vehicle to the investor. In the hedge fund model, the Liquid CTA/Macro managers themselves create a co-mingled investment structure and allow investors to directly access this pool. Fund of funds would invest in the managers' co-mingled vehicle alongside institutional and high net worth investors.

By allowing investors to go directly into a co-mingled vehicle, Liquid CTA/Macro managers are able to eliminate the "middleman" fees. At the most, these co-mingled vehicles

"We have regional sales teams who own the relationship with the investors. Their coverage is all institutional,"

- \$5-\$10B CTA

"A CTA is much cheaper to manage than a hedge fund. I don't have a full-time operations person, mostly because I don't see a need. Everything is automated in terms of reconciliation with the providers and I don't have to move cash. I don't have to deal with an administrator. It's also cheaper to operate an SMA instead of a co-mingled fund,"

- <\$1-\$5B CTA

"We always have relied on segregated accounts. Even though we had power of attorney over our accounts to trade, the accounts are still there for the client to see. They could close it tomorrow if they want to. MF Global blew that away when it looked like fraud. It hurt our industry pretty badly. The slow response of the exchanges and the slow disbursement of funds left us not looking very good as an industry,"

- \$500M-\$1B CTA

"One of the challenges of marketing your own product is that you need to think about where to invest resources. There is tremendous wealth in the Middle East and Asia and you'd think that we'd see a big influx of this money, but we haven't. Should we focus our efforts here or should we focus on North and South America and Switzerland? How should we deploy our marketing resources?"

- \$500M-\$1B Currency Hedge Fund

"About 1/3 of our capital is in the general fund. This is where pensions are coming--over 36% of that fund is pension money. The other 2/3 of our capital is in futures managed accounts. Pensions prefer the general fund because the fees are more attractive,"

- >\$5B CTA

charge investors the base 2% management fee and 20% incentive fee. Institutions that are willing to write large tickets can often access a different share class that offers them even lower fees in the co-mingled fund.

This ability to support co-mingled funds was possible because of the final difference. Liquid CTA/Macro managers that viewed themselves as hedge funds would build out their own operational infrastructure and not rely on their distribution partners to handle the operational aspects of their fund. While many U.S. CTAs spent money on infrastructure, the bulk of that spend was on research or execution, not operational support and reporting. With their own trade reconciliation and portfolio management capabilities, CTAs operating like a hedge fund did not need to be affiliated with a broker-dealer or a distribution platform, and could directly accept and manage investor funds.

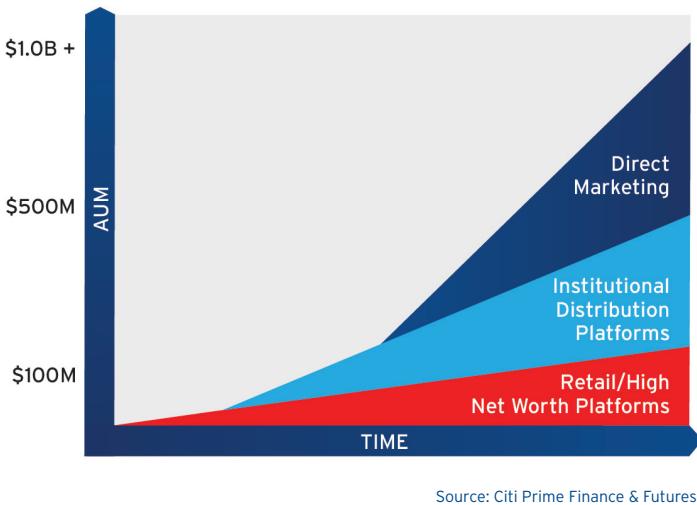
While the bulk of the capital in these firms would be directed to the co-mingled vehicle, these managers might be willing to accept capital via a separately managed account; however, this would only be considered for extremely large allocations and not as a standard practice. Moreover, the manager would typically administer their own separately managed accounts or if they used a platform, that platform was likely to be sponsored by a different set of providers that focused their offering on operational support, not capital raising and asset allocation services.

Layered Distribution Becomes the Industry Norm

In the past several years, particularly post-2008, the largest U.S. and European managers are now typically running a mix of money, some in segregated customer accounts at a broker-dealer or on asset-raising platforms, some in separately managed accounts which might be on different operational platforms, and some in co-mingled funds.

As the CTA's AUM grows, new distribution options are added, but, interestingly, the managers rarely choose to end any distribution relationships. The result is a multilayered model for attracting assets. This is highlighted in Chart 25.

CHART 25: MULTILAYERED APPROACH TO ASSET RAISING



"High net worth individuals tend to come through the wire houses. They don't provide any due diligence. Just a point of contact,"

- \$1-\$5B CTA

"The only channel in the 1980s and 1990s was the wire house managed fund platform. We'd build a strategy, set-up a separate account and they'd go out to their vast sales force to raise money. We still have a lot of high net worth money from those sources,"

- \$500M-\$1B CTA

"High net worth platforms, managed account platforms and mutual fund platforms are all distributing CTAs. It's attractive to us because of the diversification of the investors they offer,"

- \$1-\$5B CTA

"My investors rely on their financial advisors and that's it. Most of my business is by referral,"

- <\$100M CTA

"We are now trying to branch out and target the institutional space. There is interest in systematic trading that we've never seen before from pensions, sovereigns and endowments. I never thought I'd see interest from them,"

- \$500M-\$1B CTA

"If an investor can't come up with the size we require to have a separate account, we push them to the platforms. We've added three distribution platforms in the past 2 years,"

- \$1.0-\$5B CTA

"We've done a good job transitioning our portfolio to include more institutional investors. In 2008, our portfolio was 85% fund of funds. Now fund of funds are down to the mid-30% range,"

- \$1.0-\$5B CTA

Having multiple paths to raise capital is a hallmark of the larger CTA/Macro managers, particularly those with a long history. Each distribution approach can be thought of as an attempt to access different investment audiences: Retail, High Net Worth, Emerging Institutional and Large Institutional. Liquid CTA/Macro managers add new distribution channels each time they approach certain AUM thresholds.

Chart 25 shows that small managers with AUM of less than \$100 million USD typically rely on financial advisor networks to raise money for them from small retail clientele. As the AUM moves above this \$100 million USD mark, the manager will start to pay up and make a marketing investment to have their fund listed on the institutional distribution platforms that could give them access to high net worth, family office, and emerging institutional interest. As a manager's AUM surpasses \$500 million to \$1.0 billion USD, the manager will begin to build out their own direct marketing team and if they had not done so before, they will also typically launch a co-mingled investment vehicle.

This Liquid CTA/Macro distribution model is quite unique. It bridges two investment pools that are typically quite separate. Liquid CTA/Macro managers can effectively compete for capital with traditional hedge fund managers, as the allocations targeted for both types of funds usually originate from an investor's risk capital or alternatives bucket. Yet, CTAs are also a regulated product like mutual funds and long-only

funds that can be broadly marketed to a range of investors, including retail participants that are barred from participating in the hedge fund space.

This ability for CTAs to compete for retail allocations could open a new marketing platform and add yet another source of distribution for managers in the period ahead.

"We're starting to see a lot of interest in the mutual fund products. Some people are hesitant to go down that road because they're not sure about the regulatory environment, but this could be a huge pool of money. In essence, it is retail investment into the Alternatives space disguised as a mutual fund,"

- \$500M-\$1B CTA

"There's growing interest from individuals in 40 Act funds. The returns for the manager are less, but the ability to raise assets in this space is easier because people understand mutual funds more. The mythology of futures is that you can lose all your money and more. That lack of familiarity is limiting people's interest, but when you wrap it in a mutual fund, suddenly it's all okay,"

-<\$100M CTA

ETFs, Mutual Funds, and UCITS Are Seen as Potential Growth Areas

Interest in efficiently tapping into the retail space, with its smaller investment sizes, has led to the creation of several types of new regulated fund structures.

In the U.S., these new vehicles differ from traditional CTA offerings in that they require investors to go directly into a pooled vehicle with publicly traded shares rather than into a segregated client account. Moreover, regulatory limits on the amount of fees that can be charged on these investments force managers opening such funds to abandon their traditional fee arrangements and instead agree to a flat basis point management fee. Emerging structures in this category include Exchange Traded Funds (ETFs), Exchange Traded Certificates (ETCs) mutual funds and mutual fund of funds set up under the terms of the Investment Act of 1940, also known as "40 Act" alternative funds.

Expectations are that these new vehicles will draw substantial interest, but there is one impediment holding many participants back from exploring the new structures. All of these emerging products are regulated by the Securities

Exchange Commission (SEC) whereas the traditional CTA product is regulated by a different body, the CFTC.

Many participants expressed concern that until there is guidance about how to harmonize these two regimes, there could be too much uncertainty to warrant a full-blown effort to structure and launch these newer types of funds, particularly from the large long-only or traditional asset managers that have traditionally dominated the mutual fund space.

By contrast, in Europe, UCITS regulated fund structures have been around for several years, and are gaining significant traction in the Liquid CTA/Macro space. The goal of these regulated funds is to offer investors onshore funds that clearly fall under the jurisdiction of European law. Many hedge funds had previously been set up as off-shore accounts and in the wake of the Madoff scandal, many investors found themselves with only limited if any protections.

UCITS funds have very short-term liquidity requirements and although there is spotty uptake by many hedge fund managers that may be holding illiquid securities in their portfolios, Liquid CTA/Macro participants find that their investment profile and product set aligns well with the structure. Traditional investment management firms have also been active participants, expanding their long-only product lines to offer these UCITS vehicles.

Several of the industry's largest Liquid CTA/Macro participants have raised billions of dollars via the UCITS forum in recent years, hinting at the possibilities that may lie ahead in the U.S. marketplace

"It will be interesting to see what happens to fees with this 40 Act money. Rule 12B-1 on exposures limits what you can raise on fees in a 40 Act fund. Nonetheless, retail is all the rage in the US for managed funds,"

- CTA-Focused Fund of Fund

"We've had a lot of success with UCITS funds. We've raised more than \$1.5 billion Euros through a large UCITS fund structured by a bank,"

- >\$5B CTA

Conclusion

From their original position atop the retail and high net worth investor's "risk pyramid", the Liquid CTA/Macro industry has broadened out and become a core portfolio component for institutional investors of all flavors in recent years—from public and corporate pensions to endowments and foundations to family offices.

Positive, uncorrelated performance during the 2008 Global Financial Crisis helped accelerate this expansion in the industry's investor base. Yet, the industry itself also changed to accommodate this new institutional base.

To absorb the extensive asset flows originating from institutions, the industry sought means to extend its capacity and reduce portfolio volatility.

As the audience base has grown, the distribution model too has evolved. Whereas money was primarily raised for these managers by wire house financial advisors via managed futures product in the early years of the industry, we are now seeing managers list their funds on institutionally focused capital raising platforms and develop their own hedge fund-like marketing teams to directly raise assets.

All of these factors are working to move Liquid CTA/Macro managers into the mainstream. Prospects for continued asset growth are good and the rising level of institutional interest may soon be matched by a new wave of retail interest via products emerging in the regulated fund space including ETFs, 40 Act alternative funds, and UCITS funds.

Citi Futures & Prime Finance are committed to supporting this growth. This report marks just one facet of a multipronged approach we have underway to improve our platform and position ourselves as a trusted advisor and partner to both our CTA clients and investors focused on this space.

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