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PRIMER

Investing in managed futures programs

Understanding the risk of futures, cash allocations, and portfolio constructions.

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Introduction

Managed futures are an efficient way for institutional investors to achieve portfolio and market diversification.

This paper focuses on the key risk factors when allocating to managed futures programs: leverage, margins, volatility and drawdown risk.

Part 1 – Leverage: Uses an example of buying $100,000 worth of Oil to illustrate the different ways of funding and building leverage between a fully funded cash investment, a debt financed investment, and futures investment.

Part 2 – Cash allocation: Applies the concepts of Part 1 to illustrate how an investor may assess the risks and allocate cash when investing in a managed futures program or multiple programs using segregated managed accounts (SMAs).

Part 3 – Program selection and trading level: Introduces key metrics that help selecting managed futures programs to construct a multi program portfolio. It shows the power of diversification and scalability of managed futures program portfolios. It discusses how to determine the trading level based on volatility and other risk metrics for different programs.

The Appendix provides educational resources and definitions, which are equally important to the understanding of futures, trading, and markets in, greater detail.

Part 1 – Leverage

From fully funded cash investment to notionally funded futures investment

We use the example of buying $100,000 worth of Oil and selling it at either $120,000, $80,000, or $60,000 respectively to show the different return opportunities and risk profiles that come from different types of leverage involved in each way of funding.

Table 1 summarized the example.

	Fully funded	**Debt financed**	**Futures**
Funding characteristic	100% in cash, 0% leverage	part cash part debt (here 50:50), 50% leverage	on margin (here 10% in cash), 90% leverage
Sell at $120,000	20% profit	40% profit on equity	200% return on margin
Sell at $80,000	20% loss	40% loss of equity	200% loss of equity
Sell at $60,000	40% loss	80% loss of equity	400% loss of equity
Risk consideration	Partial loss of capital	Partial loss of capital	Total loss of capital and negative equity
Examples	Fund investment	Infrastructure investment	Corporate hedging & speculative investment

Table 1: Comparison of return opportunities and risk of loss when considering different ways to access investment. Source: J8 Capital Management LLP.

Fully funded cash investment

You buy Oil for $100,000 with $100,000 in cash. 100% of the equity is cash financed.

a) When you sell the Oil for $120,000, you make a profit of $20,000 or 20% return on your equity.

b) When you sell the oil for $80,000 (or $60,000), you lose $20,000 or 20% (or $40,000 or 40%) of your cash respectively. However, this is still leaving you with a net cash position of $80,000 ($60,000).

Subscribing to investment funds, ETFs, shares or other cash securities are examples of fully funded cash investments.

Part cash / part debt financed by taking leverage

You buy Oil for $100,000 and finance the transaction with $50,000 of your own cash and with a loan of $50,000 from a lender. Your equity is $50,000 or 50% of the total value. You levered your cash by two, in other words you have a leverage of 200%.

a) When you sell the Oil for $120,000, you make a profit of $20,000 or 40% return on your equity (leaving aside the interest charge due to the cost of financing). In comparison to a fully funded cash investment, your utilized cash is twice as efficient.

b) When you sell the Oil for $80,000, you lose $20,000 or 40% of your capital (sell for $60,000 and you lose 80% of capital).

Property and infrastructure investments are a typical example of levered investments.

Purchase via Futures Contracts

You buy Oil for future delivery in three months and strike a price of $100,000 today which you will need to pay at delivery. Under such a futures contract, you will be required to post a performance bond, the initial margin, only and not the full amount of the face value. Here, the futures exchange is the trading counterparty that is matching buyers and sellers and therefore it is the exchange that sets the margin requirements which are passed through with mark-ups by brokers and custodians to the investors. Let's set margin requirement for our contract in this example to 10% of the contract value, $10,000. Your "margin-to-equity" is 10%.

a) When you sell the Oil Contract for $120,000, you make a profit of $20,000 or 200% return on your equity or posted margin.
b) When you sell the Oil Contract for $80,000, you lose $20,000. The loss is covered by $10,000 of the Initial Margin plus a Margin Call of $10,000 which you need to pay and find the money for elsewhere. You are 100% in negative equity (you are 300% in negative equity when you sell for $60,000).

Part 2 – Notional funding and cash allocation requirement

Notional funding of managed futures programs

Managed accounts investing is more cash efficient than fund investing when allocation to managed futures programs. Managed account investors carefully assess the cash needed to avoid margin calls.

What is a prudent cash allocation for a given trading level of a managed futures program in a managed account?

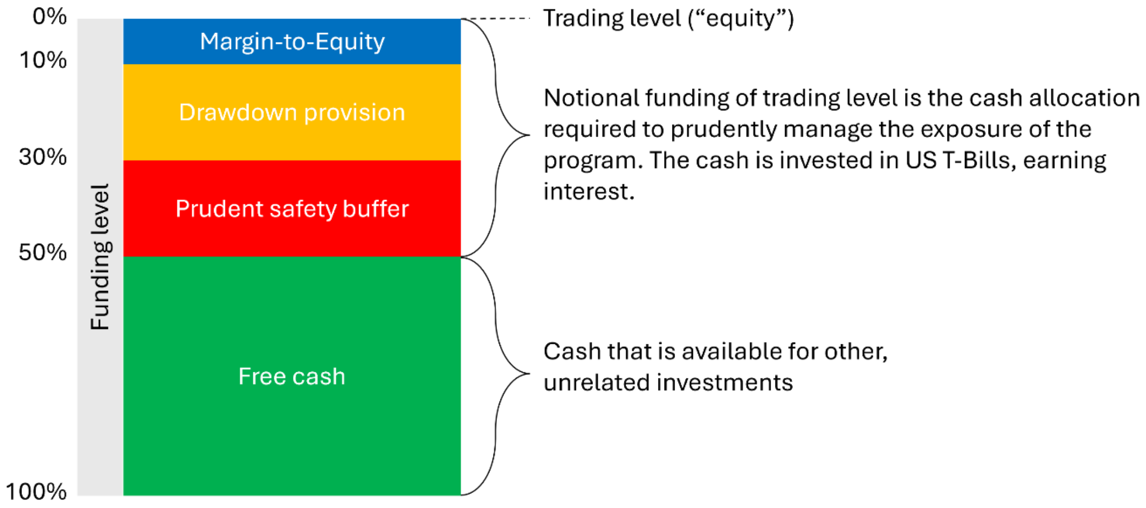

Figure 1: Illustrative of funding levels and use of cash in managed futures programs

Illustrative example

Instead of buying an investment fund for $100,000 (fully funded), the investor can simply allocate a trading level of $100,000 to that program and trade it in a notionally funded managed account. Both will have the same effective return on the trading level of $100,000 but different returns on the applied cash.

How much cash is needed for funding a program in a managed account?

The margin-to-equity requirement and expected drawdown help to determine the required funding level of the program. In our example, we assume that the program requires a margin-to-equity of 10%, has an annualized volatility of 10% and has an expected maximum drawdown of 20% (two-sigma event).

The minimum cash allocation for such an account would be $10,000 to cover the margin and a further $20,000 as contingency to buffer future drawdowns. With such a bare minimum allocation it is already likely to avoid margin calls. However, for prudent risk management, one may consider a three or four-sigma drawdown event and budget for an additional safety buffer and provision for a further $20,000. In this example, the $100,000 trading level would be 50% "notionally funded" with a $50,000 cash allocation to the program. If the investor sells at a performance adjusted trading level of $120,000, he would have made 40% profit on the cash allocated. If he suffers a four-sigma loss event, the program still has enough cash to fund the margins for efficient recovery.

In summary, the key risk parameters to consider when determining the amount of cash needed for investing in managed futures program is the expected margin-to-equity and expected drawdowns of the program. To apply a healthy and conservative safety buffer is prudent for avoiding future unexpected and excessive margin calls.

T-Bill returns and free cash

For a $100,000 exposure to the managed futures program, the investor provides $50,000 cash. The $50,000 cash is typically invested in highly liquid US T-Bills where part of the T-Bills will be posted to exchanges as collateral to cover the initial margin requirements. The remaining $50,000 cash is free and can be used for any other, unrelated investments. The cash that would otherwise be fully deployed in buying a fund is now more efficiently used with half for funding the managed account and another half “free” for any other use. The exposure to the managed futures program is the same as with a fund, whilst the cash efficiency has improved twofold.

Finally, the cash allocated to the program yields T-Bill returns. In addition to the program’s returns from the futures investment, the investor earns the risk-free interest rate on the cash deployed. Lorin and Ivarson (2024)[1] argue that it is this property that make managed futures a suitable substitute for bonds on a traditional 60% equity and 40% bond investment portfolio allocation.

Part 3 – Program selection and trading level assignment

Comparing programs and constructing portfolios

Returns, volatility, drawdowns and margin-to-equity requirements are key parameters that characterize managed futures programs. Putting these measures in comparison allows for meaningful program evaluation and selection. It is important to understand that the trading level assignment is merely a figure to communicate a certain level of risk to a manager, and which depending on the key parameter mentioned above, can result in very different risk profiles.

This table presents five individual managed futures programs A to E with their own and unique performance measures. Performance measures alone make programs difficult to compare: “B has an about 50% higher return than A, but the drawdown is almost double”. Calculating the performance measures into ratios allow for better comparability between the programs.

[1] Lorin, M., Ivarsson, P., 2024, “Fixing the 40: Reassembling the 60/40 Portfolio”’ GalaxyPlus. https://galaxyplus.io/fixing-the-40-reassembling-the-60-40-portfolio/

The table also illustrates the power of diversification when these five programs are combined into a portfolio. We show that a risk weighted program allocation is more efficient than equal notionally weighted allocation.

The investor may now simply scale the final portfolio to his risk appetite, for example to achieve equity like risk of 15% volatility, he would scale the portfolio by 750%. When scaling, the ratios remain unchanged whereas the performance measures change pro-rata with the scale factor.

Let's assume for a moment that the manager offers this risk-weighted program with a target volatility of 10% as his managed futures program. This implies that an investor who allocates a trading level of $1 million to that program has a market exposure of a bit more than $5 million but only needs to post about $100,000 in initial margins.

	A	B	C	D	E	Equal notional weighted composite	Equal volatility weighted composite
Performance measures							
Annualized Return	2.16%	3.46%	3.73%	8.43%	150.92%	14.83%	3.82%
Annualized Volatility	3.58%	6.62%	2.70%	11.88%	90.70%	12.07%	1.95%
Maximum Drawdown	-8.84%	-15.86%	-5.56%	-20.50%	-89.73%	-28.74%	-2.70%
Average of 5 largest Drawdowns	-5.98%	-10.37%	-3.92%	-16.28%	-73.54%	-19.36%	-2.54%
Average length of 5 longest Drawdowns [days] (recovery period)	759	1,052	487	568	660	455	329
Margin-to-Equity	3%	8%	7%	15%	40%	12%	2%
Performance ratios							
Annualized Return / Annualized Volatility	0.60	0.52	1.38	0.71	1.66	1.23	1.95
Annualized Return / Maximum Drawdown	0.24	0.22	0.67	0.41	1.68	0.52	1.41
Annualized Return / average 5 largest Drawdowns	0.36	0.33	0.95	0.52	2.05	0.77	1.50
Annualized Volatility / average 5 largest Drawdowns	0.60	0.64	0.69	0.73	1.23	0.62	0.77
Annualized Return / length adjusted average of 5 largest Drawdowns	0.17	0.12	0.71	0.33	1.14	0.61	1.67
Skew	-0.69	-0.18	-0.58	-1.41	0.89	1.35	-0.45
Kurtosis	15.96	6.61	12.22	9.82	12.86	31.31	4.57

Table 2: A: Government Bond Futures Trend Following, B: G10& EM Currency Futures Trend Following, C: Commodity Futures Term Structure Arbitrage, D: Volatility Futures Term Structure Arbitrage, E: Crypto Currency Futures Trend Following, equal notional weighed composite portfolio, equal volatility weighted portfolio. ***Note: Past performance is not necessarily indicative of future results. The risk of loss in commodity interest trading can be substantial.*** *Source: J8 Capital Management LLP.*

Choosing the right trading level

The key allocation question is not how much money I want to invest, but how much of my portfolio do I want to be invested at what risk. This will ultimately determine the trading level and cash required to achieve the desired risk management overlay function of the managed futures portfolio within the wider investor portfolio.

Cross-margining: the power of multi-program portfolios

Many investors that allocate to managed futures programs / CTAs, allocate to a diversified portfolio of 6 to 15 managers, each representing different styles and aspects of the managed futures universe. Some investors run portfolios of 40 managers and more. They often benefit from cross-margining effects between the different programs and accounts which may reduce the aggregate margin-to-equity and also reduce the aggregate expected drawdowns considerably. This may further increase the cash efficiency significantly.

Conclusion

Allocating to a managed future programs by way of managed accounts can be much more cash efficient than allocating to single funds. The managed account allocation benefits from scaling and cross-margining effects, which are not present in other fully funded investments.

Key considerations when deciding on the cash allocation to a specific program or portfolio of programs are the (aggregate) margin to equity requirements and drawdown risks.

Evaluating managers on performance ratios allows for comparability and proper scaling in the final investment portfolio.

J8 has significant expertise in allocating, risk managing and optimizing investments within a futures-based investment program. We are here to help and guide you to increase the efficiency of your investment process.

Acknowledgements

I want to thank Marc Lorin of Galaxy plus for his valuable contribution and comments, Vishal Sharma and Ian Fridlington of J8 Capital Management LLP for their review.

Appendix: Educational resources and definitions

Educational resources

These resources will provide a useful understanding of futures and managed futures programs / CTAs.

J8 research videos and articles:

https://www.j8capital.com/research.html and https://www.j8capital.com/videos.html

CME courses and videos on futures:

https://www.cmegroup.com/education/courses.html

CFTC Learning Resources, Futures and Markets:

https://www.cftc.gov/learnandprotect/learningresources?combine=&field_article_or_advisory_topic_target_id=2516&field_article_or_advisory_type_target_id=All

Definitions[2]

Commodity Futures Trading Commission (CFTC)

The Federal regulatory agency established by the Commodity Futures Trading Act of 1974 to administer the Commodity Exchange Act.

Commodity Trading Advisor (CTA)

A person who, for pay, regularly engages in the business of advising others as to the value of commodity futures or options or the advisability of trading in commodity futures or options, or issues analyses or reports concerning commodity futures or options. Managers at hedge funds or their advisors are often registered with the CFTC as CPOs or CTAs. See 7 USC 1a(12)

Cross-Margining

A procedure for margining related securities, options, and futures contracts jointly when different clearing organizations clear each side of the position.

Futures or Futures Contract

An agreement to purchase or sell a commodity for delivery in the future: (1) at a price that is determined at initiation of the contract; (2) that obligates each party to the contract to

[2] https://www.cftc.gov/LearnAndProtect/AdvisoriesAndArticles/CFTCGlossary/index.htm#cftc

fulfil the contract at the specified price; (3) that is used to assume or shift price risk; and (4) that may be satisfied by delivery or offset.

leverage

The ability to control large dollar amounts of a commodity or security with a comparatively small amount of capital.

Margin

The amount of money or collateral deposited by a customer with his broker, by a broker with a clearing member, or by a clearing member with a clearing organization. The margin is not partial payment on a purchase. Also called Performance Bond. (1) Initial margin is the amount of margin required by the broker when a futures position is opened; (2) Maintenance margin is an amount that must be maintained on deposit at all times. If the equity in a customer's account drops to or below the level of maintenance margin because of adverse price movement, the broker must issue a margin call to restore the customer's equity to the initial level. See Variation Margin. Exchanges specify levels of initial margin and maintenance margin for each futures contract, but futures commission merchants may require their customers to post margin at higher levels than those specified by the exchange. Futures margin is determined by the SPAN margining system, which takes into account all positions in a customer's portfolio.

Margin Call

(1) A request from a brokerage firm to a customer to bring margin deposits up to initial levels; (2) a request by the clearing organization to a clearing member to make a deposit of original margin, or a daily or intra-day variation margin payment because of adverse price movement, based on positions carried by the clearing member.

Notional Principal

In an interest rate swap, forward rate agreement, or other derivative instrument, the amount or, in a currency swap, each of the amounts to which interest rates are applied in order to calculate periodic payment obligations. Also called the notional amount, the contract amount, the reference amount, and the currency amount.

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