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Covering Letter

We argue that our Financial Markets Dynamics methodology generates above average and persistent Alphas (in line with the Top 5 hedge funds) starting from a very effective structure of risk control. This structure excludes, *inter alia*, most of the controversial characters of alternative management styles, such as leverage, investments in exotic derivatives and poorly liquid markets, market exposures & earthquake insurance, opacity and difficulty to timely compute portfolio's value. In fact, anticipating a probable restrictive regulation that could demand structural changes for models used till now. The 2008 performance, as a brutal reshaping of the financial industry takes place, shows the strength of our methodology: the FMD annual return has been positive and nearly 52%.

Despite well-known financial markets's complexities, we show that a finite number of dynamic regularities are observable and can be and used to anticipate market movements, permitting to build effective active strategies for managing funds.

To show how our FMD methodology works, we exemplify three major market dynamics for 11 US futures markets over their entire life-span. A strategy built on such dynamics and on a set of consistent decision rules forms the core of the FMD model. Evidence of its power to interpret real market dynamics has been produced following two steps.

We have first validated the FMD model via a real time certified portfolio management simulation, where our trading operations, including orders' modifications, are recorded in the official Audit reports from a major international Brokerage House.

Adopting the industry's best practises, a back-testing analysis has then been employed to build the FMD's track record. Its results are particularly meaningful having the analysis included, rather unusually, the entire life-span of the selected futures markets. Moreover, since these results come from FMD's certified model, they can be verified in every detail applying the same model to Reuters markets data (datalink).

In other words, the test process has been extremely complete and severe, all had to be demonstrated has been demonstrated. Analysing the official Audits it is obvious that there are no differences between the results obtained in simulation and those obtainable in live trading. From the analysis of our back-testing it is obvious that the results have been obtained adopting penalizing conditions respect to a live management.

The empirical evidence shows that FMD consistently maintains its high explanatory power over a wide range of markets.

The FMD is ready to trade, tested and stressed in every part of its structure, with not significant costs, in terms of initial capital to manage, fees or losses. In addition to the demonstrations for auditing the results, it is possible to implement a period of applied simulation, not theoretical, so to practically test on the markets all the aspects of our management style, from the orders execution efficiency of the trading platform to the analysis of the risk control model.

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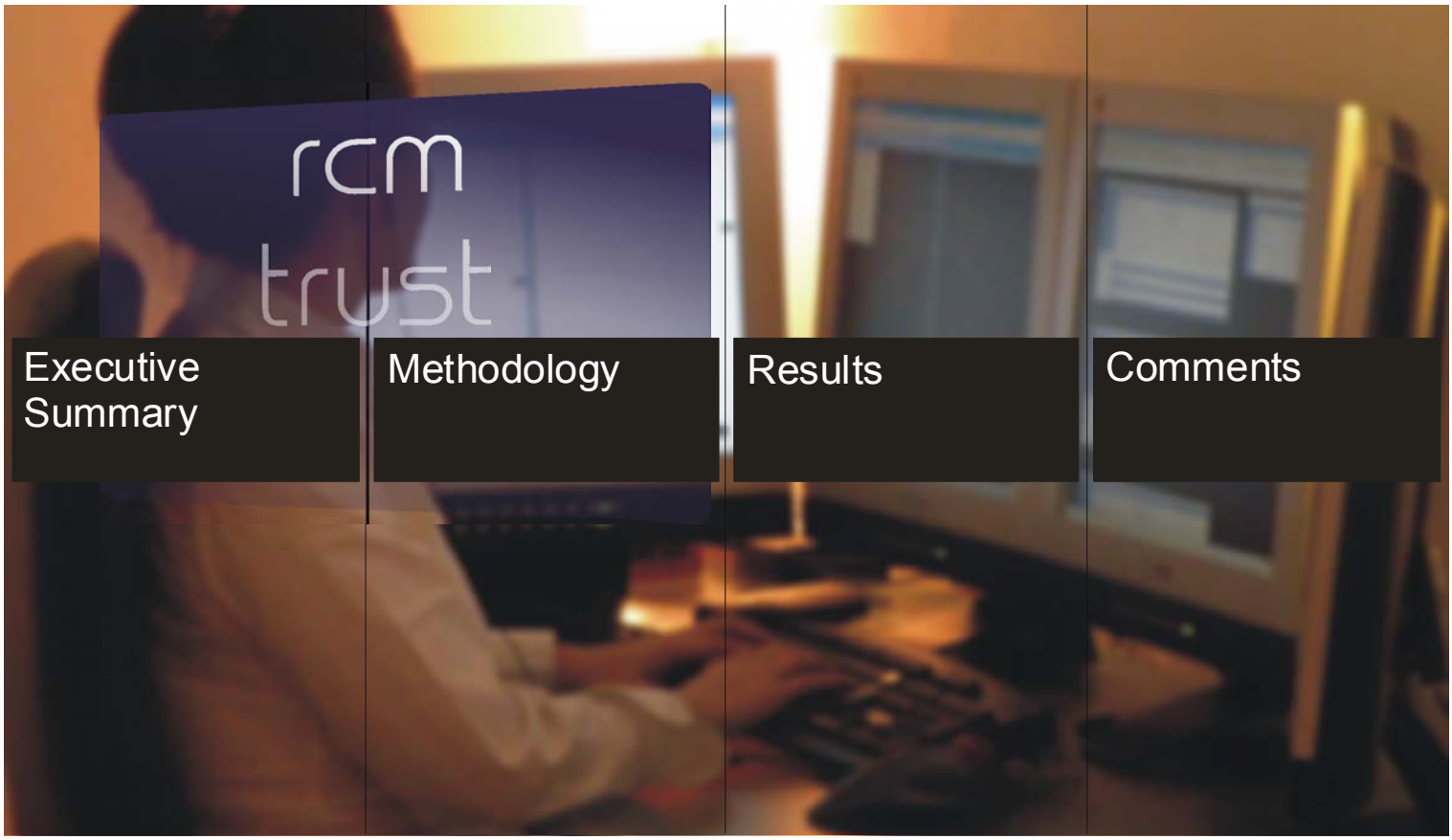
Financial **M**arkets **D**ynamics

A new approach to active funds management



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A new approach to active funds management

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Index

Executive Summary

The official Audits of a major international Brokerage House have certified all FMD's six entry conditions, each for short and long positions. The certification started on 16-10-07 and ended on 10-04-08. During this period all the 27 certified transactions generated profits and interested the following markets: Mini Dow Jones IA, Mini Nasdaq 100, Mini Standard & Poor' s 500, Mini Russell 2000, Ten Year US Treasury Notes, EUR/USD Futures, Wheat, Soybeans, Mini Sweet Oil, Mini Natural Gas, Corn. In this real time certified portfolio management simulation all the transactions occurring in any account were registered by a state of the art trading platform and recorded in the official Audit reports. The certification document, signed by the Broker on 22-04-2008, contains the details of the amount managed, account numbers, markets traded, the dates of all the official Audits relative to every transaction executed during the period. Every detail of our trading operations, orders modifications included, is contained in the official Audits. The complete documentation is available upon request.

In order to perform the certification we had to run a virtual real time portfolio management because the minimum optimal amount of capital for the FMD implementation was not available.[1] The main achieved objectives are:

1 – The certification of all the six FMD entry conditions, each for short and long positions. During the certification period our portfolio has been managed opening positions not for every entry condition that was in place, but only for the conditions to be certified.

2 – To make available certified empirical evidence to show how the FMD consistently maintains explanatory power over a range of 11 different futures markets.

3 – To show the characteristics of our real time fund management style, which are the risk minimization in adverse market conditions, the maximization of returns in favourable market conditions, the trade taken while the entry conditions are forming - Mario Trade (MT) -, our extremely low market exposure: all the trades have obtained break-even+1 the same day in which the position has been initiated.

The FMD methodology has an important implication for balance sheet leverage. Our funding strategy is similar to the one adopted by early hedge funds managing a portfolio for a minimal period, a year, without the use of debt. During the last few years hedge funds have made an

[1] FMD's strategy does not encounter upper limits for the management of a single portfolio.

increasing use of financial leverage in order obtain higher returns. Taking as reference the Top 5, theirs minimal leverage are estimated at around 2-3.

Without leverage, our portfolio is immune from the related funding liquidity risk; nonetheless, our returns are in line with those of the Top 5 hedge funds. Using the same level of leverage our portfolio management could generate returns 2-3 times higher than the average of the Top 5 hedge funds.

RCM trust combines high and stable returns with a variety of meaningful advantages for transparency and investments stability, that is for a real protection of the investor.

1. FMD Methodology

1.1 Some preliminary foundations

Forecasting markets movements is at the heart of the financial industry, from traders and intermediaries to policymakers.

Since the changing nature of the economic system does not allow for the existence of a complete and perfect set of physical spot and futures markets, the burden to link the present with the future falls on the financial system. Hence, the very existence of financial markets rests on the uncertainty coming from unforeseeable quantitative and structural changes. The result is that speaking of perfect financial markets, as some economists do, is simply a nonsense.

The implications of uncertainty for decisions are manifold. Having to act with incomplete information, economic agents must base their Keynesian “animal spirits” on the best forecast they can make, mixing past experience with any new reliable information they can get regarding the future.

In general, but especially when the economic system experiences relevant innovations, the past can be a poor guide for the future. Formally, the past could be described as the outcome of a complex mathematical generator; if the generator did not change, the future could be perfectly foreseeable via statistical analysis. The point is that the generator is subject to more or less important and unforeseen changes, which limits the reliability of such techniques. Economic agents must therefore act knowing that the future may not validate their expectations.

This is not to say that the system is chaotic. Endogenous evolutions and public interventions have shaped the economic system by means of institutions aimed at giving it some stability. Organised financial markets, their regulation and supervision are part of this institutional framework.

A second relevant implication of uncertainty is the heterogeneity of points of view and strategies. Differently from the rational expectations model, uncertainty also regards the way the economy structurally evolves, thus allowing to form different views of its functioning, even when they are based on the same set of (incomplete) information. Heterogeneities also comes from the strategies of agents linked to different objectives to which the funds they manage are constrained. Think for instance to pension schemes and hedge funds. This generally implies different time horizons and reaction functions. These heterogeneities are, however, far from being a stable feature of the markets, where herding behaviours and the search for value may at times overshadow basic strategic differences. Financial markets works, therefore, in a changing environment and with changing heterogeneities. The resulting information inflow is filtered and interpreted, also generating conflicting valuations on the new fair values (equilibrium). Observable dynamic response of the market depends on the complex interaction among different models and different functions of reaction where each step of the price path is non uniformly interpreted by different market participants. While some of them may consider the price getting closer to its new

equilibrium, others propend for an accumulation of disequilibria. Moreover, the specific market dynamics can, over time, leads some market participants to change their view on the level of the new equilibrium.

While this complex result often appears *ex post* as a random walk, it conceals significant regularities. Active managements of funds can be based on bets on information-induced dynamic paths or on discovering such regularities. Our model follows this second approach, trying to single out and classify deep regularities common to an ample set of financial markets.

1.2. FMD methodology

Our methodology is based on the hypothesis that a finite number of dynamic regularities are observable, can be classified and consequently used to anticipate market movements and build strategies to actively allocate funds.

Financial markets are complex adaptable systems, where participants determine market cycles. Market cycles are the results of participants reactions to the inflow of information, which includes all types of markets related news, from quarterly results to a FOMC voting member speech. All this information inflow leads to short term and long term patterns of behaviour that will form different, yet repetitive, market dynamics.

For the sake of simplicity we will concentrate on three major markets dynamics, which show participants interactions at a market level.

1) The first market dynamics is a pattern of behaviour determining a trend -up or down. As the trend develops, regular prices retracements are observable, which take a symmetrical form as shown by the continuous segments in Chart 1, where the Mini Dow Jones IA futures 2007 Daily Open-High-Low-Close (OHLC) price bars are represented (YM, from 25/09/2007 to 27/11/2007). This is a -down trend- Symmetric dynamic where the markets are driven by a predominant presence of big size traders who re-determine the market value. These phases are characterized by above average volume. The High-Low range over the trend period is medium to large.

Chart 1

2) The second market dynamics is a pattern of behaviour determining regular and repetitive Ups and Downs of prices, which take a Zig-Zag form as shown by the continuous segments in Chart 2, where YM 2006 Daily OHLC price bars are represented (from 07/12/2005 to 08/02/2006). In this Zig-Zag dynamic markets are influenced by medium-big size traders who preserve and determine regular and continuous turning points in the market cycles. These phases are characterized by average volumes. The high-low spread over the Zig-Zag period is significant.

Chart 2:

3) The third market dynamics is a pattern of behaviour determining sudden price spikes out of low volume and volatility trading. Although with different forms (Random) price spikes preceded and followed by low volume-volatility trading are always observed. In Chart 3, where YM 2005 Daily OHLC price bars are represented (from 23/05/2005 to 29/08/2005), the horizontal continuous segments represent the low volume-volatility periods, the oblique ones are the up and down prices spikes respectively. This is a Random dynamic. During the low volume-volatility periods there is a predominant presence of small size traders transacting low volumes, enough to provide liquidity but not sufficient to define any market direction. The high-low spread over these periods are not significant. Because of low volumes, these markets phases are exposed to manipulation that could be one explanation of the subsequent spikes. During spikes periods there is a predominant presence of medium-big size traders transacting medium-heavy volumes, enough to define market direction. The high-low spread over these periods are significant.

Chart 3:

Let's go back on how the revision of expectations and the three major market dynamics can lead to building 'universal' and 'stable' strategy to allocate funds.

If we accept that the revision of expectation is 'universal' process, i.e. applying to every business activity, it should be possible to find the same regularities on different market. In other words, once the information inflow defines short and long term patterns of behaviour, those should form different, yet repetitive, dynamics over a range of markets.

It can be easily verified that the above three dynamics appears in any time frame, from tick data to yearly periodicity, confirming their explanatory power. Singling out market dynamics has value in itself because it explains how the markets behave under particular conditions. Yet, the most important fact is their finite number, making it reasonable to suggest that markets move in a repetitive fashion. In these conditions we have a well known phenomenon: if in a repetitive environment the same set of decisional rules are applied the output will be stable.

Following these concepts it is possible to build 'universal' and stable strategy to allocate funds. To this end, we have devised a proprietary optimisation process to analyse the frequency of regularities, and built a stochastic model to compute the probability that any given pattern of behaviour will complete. Of course, the performance of a strategy built on these foundations depends on the accuracy of the chosen set of decisional rules, which refers to the regularities singled out to identify markets cycle and its turning points, which in turn depends on the analysis design. As we will see, our results confirm a high probability of anticipating forthcoming market movements.

Finally, a brief note on a crucial difference between our methodology and arbitrage trading, a strategy common among hedge funds. Generally, these funds seek temporary misalignments between theoretical values and market prices, betting on their convergence. It follows the necessity of a continuously search for that type of divergences, with returns depending on the accuracy of the theoretical models and on the amplitude and frequencies of those misalignments Differently, the FMD model detects structural and non transitory dynamics which characterize all tested futures markets. Although FMD's returns depend, as it has been said, on markets volatility conditions, the design of its strategy allows the risk/reward ratio to remain favourable in all volatility scenarios we have tested. As a result, in the medium-long run our risk/reward ratio tends to be much more stable than those of standard active portfolio management practises.

2. Empirical Evidence

Let's now turn to the certification of RCM Trust Financial Markets Dynamics model (FMD) and the its back-testing returns.

2.1 Certification

The official Audits of a major international Brokerage House have certified all FMD's six entry conditions, each for short and long positions. The certification started on 16-10-07 and ended on 10-04-08. During this period all the 27 certified transactions generated profits and interested the following markets: Mini Dow Jones IA, Mini Nasdaq 100, Mini Standard & Poor' s 500, Mini Russell 2000, Ten Year US Treasury Notes, EUR/USD Futures, Wheat, Soybeans, Mini Sweet Oil, Mini Natural Gas, Corn. In this real time certified portfolio management simulation all the transactions occurring in any account were registered by a state of the art trading platform and recorded in the official Audit reports. The certification document, signed by the Broker on 22-04-2008, contains the details of the amount managed, account numbers, markets traded, the dates of all the official Audits relative to every transaction executed during the period. Every detail of our trading operations, orders modifications included, is contained in the official Audits. The complete documentation is available upon request.

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2.2 Back-testing

Once certified the FMD entry conditions and money management rules, they were automatically applied to the 11 markets in our portfolio, using a back-testing analysis covering the entire markets activity.

[2] FMD's strategy does not encounter upper limits for the management of a single portfolio.

A virtual portfolio of 1.650.000 US$ has been tested on Daily OHLC price bars.[3] The back-testing results are from the RCM Trust certified model and can be verifiable in details applying our model to Reuters markets data (datalink).

The results are presented in tables 1-4, where we show the single markets returns (Rs), the portfolio returns (Rp), the benchmark returns on every market (Rb) and the returns net of the risk-free rate (Rrf) and of benchmark returns. All returns have been calculated on the entire deposited margin, that is $10,000 per contract. Benchmark returns are computed applying a buy and hold passive strategy according to the Capital asset pricing model definition (CAPM), hence as the difference between the closing and the opening price of each reference period.

Table 1 - Returns deriving from the simulation of the FMD model (Rs and Rp)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
S&P's	*60.36*	25.84	35.93	55.27	37.65	34.00	24.55	7.07	27.96	42.75	37.26
NQ 100		*47.05*	55.49	72.12	41.90	11.11	16.86	11.59	8.07	28.07	27.49
Mini DJIA					*54.48*	24.99	17.92	19.12	29.21	45.58	68.15
Mini Russell						31.02	14.40	22.94	49.85	31.13	69.49
US Ten Y Notes		47.84	58.54	84.55	68.97	48.82	44.71	55.67	31.87	76.17	95.81
€ / USD		29.33	50.76	31.89	43.32	79.88	32.28	8.81	21.61	28.15	86.54
MLS Crude Oil						24.60	5.61	39.13	28.13	36.92	70.31
Mini Natural Gas						17.50	12.91	32.26	46.31	34.38	34.84
Corn									*48.75*	17.83	9.20
Soy Beans									*23.58*	52.07	39.89
Wheat									*17.08*	32.50	33.38
Portfolio return	60.36	37.52	50.18	60.96	49.26	33.99	21.16	24.57	30.22	38.69	52.03
Norm. St. Dev.	-	0.31	0.20	0.37	0.26	0.64	0.59	0.69	0.44	0.40	0.52
Average portfolio return selected periods	**41.72**								**34.45**		
										45.36	
									40.31		

Note: In *italics* the years with less than 12 months. S&P's 1998: last four months; NQ 100 1999: last four months; Mini DJIA 2002: second-half; Corn, Soybeans and Wheat 2006: last four months.

When the beginning of a market activity is less than a year the returns have been annualised. The selected periods are: 2006/07, 20007/08, 2006/08. Latest update 31/11/2008.

Table 2 - Benchmarks Returns %

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Equity											
S&P500	26.67	19.53	-10.14	-13.04	-23.37	26.38	8.99	3.00	13.62	3.53	-45.00
Commodity											
DJ AIG						23.93	9.15	21.36	2.07	16.23	-32.00
Interest rate											
US Ten Y Notes	5.26	5.64	6.03	5.02	4.61	4.02	4.27	4.29	4.79	4.63	3.77
Currency											
€ / USD		-13.83	-7.1	-5.92	16.08	20.02	7.71	-12.54	10.92	1.00	-11.50

Latest update 31/11/2008.

[3] US$ 1.650.000 is the minimum capital to efficiently implement the FMD model.

Table 3 – FMD Net-of-risk free rate returns (Rp-Rrf)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
S&P's	55.10	20.20	29.90	50.25	33.04	29.99	20.28	2.78	23.17	38.12	33.49
NQ 100		41.41	49.46	67.10	37.29	7.10	12.59	7.30	3.28	23.44	23.72
Mini DJIA					49.87	20.98	13.65	14.83	24.42	40.95	64.38
Mini Russell						27.01	10.13	18.65	45.06	26.50	65.72
US Ten Y Notes		42.20	52.51	79.53	64.36	44.81	40.44	51.38	27.08	71.54	96.99
€ / USD		23.69	44.73	26.87	38.71	75.87	28.01	4.52	16.82	23.52	82.77
MLS Crude Oil						20.59	1.34	34.84	23.34	32.29	66.54
Mini Natural Gas						13.49	8.64	27.97	41.52	29.75	31.07
Corn									43.96	18.11	5.43
Soy Beans									18.79	47.44	36.12
Wheat									12.29	27.87	29.61
Return	55.10	31.88	44.15	55.94	44.65	29.98	16.88	20.28	25.43	34.06	48.26
Norm. St. Dev.	-	0.36	0.23	0.41	0.28	0.72	0.73	0.83	0.53	0.46	0.57
Average Rp-Rrf Selected periods	**36.96**								**29.74**		
										41.16	
									35.92		

Table 4 – FMD Net-of-benchmark returns (Rp-Rb)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
S&P's	33.69	6.31	46.07	68.31	61.02	7.62	15.56	4.07	14.34	39.22	82.26
NQ 100		27.52	65.63	85.16	65.27	-15.3	7.87	8.59	-5.55	24.54	72.49
Mini DJIA					77.85	-1.39	8.93	16.12	15.59	42.05	113.15
Mini Russell						4.64	5.41	19.94	36.23	27.6	114.49
US Ten Y Notes		42.2	52.51	79.53	64.36	44.81	40.44	51.38	27.08	71.54	96.99
€ / USD		43.16	57.86	37.81	27.24	59.86	24.57	21.35	10.69	27.15	98.04
MLS Crude Oil						0.67	-3.54	17.77	26.06	20.69	102.31
Mini Natural Gas						-6.43	3.76	10.9	44.24	18.15	66.84
Corn									46.68	6.51	41.2
Soy Beans									21.51	35.84	71.89
Wheat									15.01	16.27	65.38
Return	33.69	29.80	55.52	67.70	59.15	11.81	12.87	18.77	22.90	29.51	83.64
Norm. St. Dev.	-	0.58	0.15	0.31	0.32	2.22	1.08	0.77	0.67	0.61	0.27
Average Rp-Rb selected periods	**38.67**								**26.21**		
										56.58	
									45.35		

Over the entire period the average portfolio return exceeds 41%, over-performing the risk-free rate for more than 36 percentage points and the benchmarks average for more than 38 points. The most unfavourable biennium produces nearly 23% return.

It should be noted that the above returns are the result of an automatic application of the FMD model to all the markets in our portfolio without idiosyncratic adjustments regarding entry conditions and money management rules. In other words, even if we have managed 11 futures markets characterised by different dynamics and volatility, the results obtained by the same

interpretative model have been very stable, not only over time but also cross-section. Moreover, the management of a markets portfolio has remarkably dulled the single annual volatility.

3. Comments and comparison with alternative active fund management models

In order to facilitate the evaluation of our model's returns, risks, transparency and costs we introduce a comparison with hedge funds' strategies and results with reference to the industry and Top 5 averages.

3.1 Returns

It has been calculated (Stulz, cit., p. 20) that the average return of the hedge funds industry in the last decade has been equal to 12,8%; with average fees of 3.7% the return net of fees amounts to 9.1%. The Top 5's average returns are estimated between 40% and 30% over the last decade.[4]

Overall, FMD's results are in line with the best funds, both in terms of returns and their stability. The 2008 shows the superiority of our methodology: in front of average losses of 7% for the hedge funds industry the FMD annual return has been a positive 52%.

The evaluation of the performance centres on two points: the size of the average alpha and the persistence of the alpha of individual funds. Both during the real time certification and in back-testing the FMD model shows a persistent and above average Alpha. The FMD average Alpha measured as the difference between RP and Risk free of the markets portfolio, obtained in back-testing, is equal to 37,15%. Using the average of the Jensen Alpha (subtracting the Beta risk, that is the return attributable to exposure to market indexes) we obtain a return of 38,9%, so that only 3% of our performance is due to the exposure to broad markets. In the comparison with the average of the industry, with equal fees (3,7%) the FMD produces an Alpha 10 times higher.[5] It should be noted that the back-testing results are obtained from non fine-tuned trading operations, as they come from the execution of orders in intraday real time trading. Two elements influence possible differences: order entry and stop loss.[6] The unfavourable hypothesis regards their rigidity, as these two orders have been used in a predetermined mode without adjustments to intraday dynamics. This leaves them unchanged when it would have been possible to modify them in order to protect the position and obtain more contained losses. In particular, the order entry has always been executed at the close of the day when the model indicated an entry condition; the initial stop

[4] According to The Economist (Hedge funds Special report, "The new money men", Feb 17th 2005), Caxton Associates, Moore Capital, Renaissance Technologies, SAC Capital Advisors, Maverick Capital ed Highbridge Capital Fund management show annual *track records* between 30% and 40% over the lest decade, but these hedge Funds are not accessible so not included in the Standard & Poor's index of investible funds.

[5] "The first component is the return earned for exposure to broad markets – "beta risk." They find that exposure to broad market indexes accounts for a return of 5.4 percent. The return net of fees of 9.1 percent minus the return attributable to exposure to market indexes of 5.4 percent equals the average alpha of the funds of 3.7 percent." (Stulz 2007, p. 20).

[6] The order entry it is the order sent to the exchange to open a position; the stop loss is the order that determines the closing of the position when it is losing.

loss has always been calculated according to the lowest price of the same day. The results are entry conditions less favourable than the real time ones, and initial stop loss two times bigger than those used with intraday entries, penalising both profits and losses. For instance, for intraday entry in the T Notes market our money management model predetermines a 6.9% as the maximum risk per trade, while for simulation purposes the order entry was always executed at the close of the day with a maximum risk of 13,9% per trade.

3.2 Leverage

The FMD methodology has an important implication for balance sheet leverage. Our funding strategy is similar to the one adopted by early hedge funds managing a portfolio for a minimal period, a year, without the use of debt. During the last few years hedge funds have made an increasing use of financial leverage in order obtain higher returns. Taking as reference the Top 5, theirs minimal leverage are estimated at around 2-3. [7]

Without leverage, our portfolio is immune from the related funding liquidity risk; nonetheless, our returns are in line with those of the Top 5 hedge funds. Using the same level of leverage our portfolio management could generate returns 2-3 times higher than the average of the Top 5 hedge funds.[8]

[7] The Hedge Fund Research (from The Economist: `Dead, or just resting? 'May 26th 2005) asserts that hedge funds are constantly increasing their debt position in order to improve their performance. Today 70% of the hedge funds use their ability to leverage. Many funds have debt positions that double their equity capital and some even five times or more. On the use of the leverage from the hedge funds, in the meaning of balance sheet leverage and instrument leverage (discussed in the next paragraph), see McGuire et al (2005).

[8] "To illustrate, if a hedge fund starts with equity of $100 million invested in a strategy that earns $5 million, its return on equity is 5%. However, if the fund borrows an additional $300 million to take advantage of three similar strategies and the cost of borrowing is $2 million per $100 million, its return on equity becomes 14% on the original $100 million invested (the income becomes $14 million, or $5 million + 3 x $3 million)". (Stulz 2007, p.14)

3.3 Margin Utilisation Ratio

Table 4 shows the Interactive Brokers (IB) margins requirements per contract for the markets included in RCM Trust portfolio. IB margins equal the average of the industry.

Table 4 - IB Margins for single futures contract

Exchange	IB Underlying	Product description	Trading Class	Intraday Initial	Intraday Maintenance	Overnight Initial-OI	Overnight Maintenance	Currency	RCM Trust MM Model	MUR OI/MM
ECBOT	YM	Mini Sized Dow Jones Industrial Average $5	YM	1751	1401	3503	2802	USD	10000	0.35
ECBOT	ZC	Corn Futures	ZC	2025	N/A	2025	1500	USD	10000	0.20
ECBOT	ZG	Gold 100 Troy Oz	ZG	3645	N/A	3645	2700	USD	10000	0.36
ECBOT	ZN	10 Year US Treasury Note	ZN	945	700	1890	1400	USD	10000	0.19
ECBOT	ZS	Soybean Futures	ZS	4725	N/A	4725	3500	USD	10000	0.47
ECBOT	ZW	Wheat Futures	ZW	4050	N/A	4050	3000	USD	10000	0.41
GLOBEX	ER2	E-mini Russell 2000	ER2	2625	2100	5250	4200	USD	10000	0.53
GLOBEX	ES	E-mini S&P 500	ES	2250	1800	4500	3600	USD	10000	0.45
GLOBEX	EUR	European Monetary Union euro	6E	1553	1150	3105	2300	USD	10000	0.31
GLOBEX	NQ	E-mini NASDAQ 100 Futures	NQ	1375	1100	2750	2200	USD	10000	0.28
NYMEX	QG	NYMEX MINY Natural Gas Index	QG	2784	N/A	2784	2062	USD	10000	0.28
NYMEX	QM	NYMEX MINY Light Sweet Crude Oil Index	QM	5906	N/A	5906	4375	USD	10000	0.59

The last two columns show that:

• the RCM Trust money management model is set up to use ex ante $10.000 as margin for every contract;

• the RCM Trust deposited margin is always bigger than the highest margin requirement, which is the Overnight Initial (OI);

• OI/MM values, which indicate the relation between the IB required margin and the RCM Trust deposited margin - that is the margin utilisation ratio (MUR) –, are on average 0.37; therefore, RCM Trust on average uses 37% of its own deposited margins.

A MUR significantly lower than one has important risk/reward implications. First, it reduces the instrument or embedded leverage and therefore the probability of margin calls, and its costs. Second, it makes possible to adopt, at zero risk, a strategy of dynamic variation of portfolio's weights.

The practical standard is to determine *ex ante*, that is before the fund management begins, the portfolio's weights according to the analysis of the portfolio manager and its team. Thanks to the MUR of 0,37, the FMD has instead two different and independent structures of portfolio weights. The first one is fixed, established *ex ante*. The second one is dynamic, put into effect at zero risk once the fund management has begun. Let's see an example. *Ex ante* we establish to manage 15 contracts per market, depositing $10.000 per contract, so that every market has an endowment of $150.000. The model gives fixed and equal weights to every market. With the fund management running, let's say we have a long position on YM and one of the 15 contracts realizes a 50 ticks profit; given the MUR of 0.37, we can add an additional, sixteenth, contract at zero risk,

with a predetermined variation of the return (S), for instance: -50≤S≤+350. In other words we have a maximum downside that equals the already realised return of +50 ticks, but we can set the new upside 7 times higher than its own downside. Therefore, a MUR significantly lower than one allows, while the fund management is in progress, to dynamically change the weight of each market. As a result, when S = -50, we suffer a marginal reduction in the return of the specific transaction; when S > 1, that return is increased in proportion to S.

A low MUR then allows to adopt a strategy of weights homogeneity, eliminating the typical risks of an *ex ante* weights allocation (due for instance to wrong analyses), but at the same time to dynamically optimise the portfolio return. Hence, while the performance of the FMD model at least tracks the average record of the Top 5 hedge funds, we have the additional advantages of almost zero margin call costs while dynamically optimising the portfolio composition.

3.5 Portfolio management and risks

Besides avoiding funding liquidity risks and related margin calls costs, the FMD model offers other advantages when considering the risks that other active management styles typically bear.

The main differences stem from the nature of the implemented strategic models. While the FMD model analyses the structural dynamics of very liquids markets, operating with directional trading and a proprietary money management model to contain risks, typically the other active funds operate arbitrage trading based on markets inefficiencies. Arbitrage models' present several problems, among them the cost of the continuous search of meaningful inefficiencies, the necessity of high leverages for smaller inefficiencies and the tendency of profits to disappear. 'More hedge funds chasing such discrepancies means that these discrepancies get eliminated faster, so that the profits of hedge funds that find them are smaller' (Stulz 2007, p. 28). The considerable increase of hedge funds and the resulting thinning of arbitrage opportunities push them towards an increasing use of exotic derivatives and OTC, which are *per se* opaque and poorly liquid. Consequently, the funds implementing arbitrage-like strategies are normally exposed to high market liquidity risk and are characterised by opacity or unreliability on the evaluation of their performance. In fact, trading OTC operations often do not have closing prices, while those of poorly liquid markets are not significant. On the contrary, the FMD model allows clear cut daily portfolio evaluations simply looking at the closing price of the markets. Obviously, also the FMD results depend on markets liquidity conditions; however, our portfolio includes only extremely liquids futures markets which do not correlate with their liquidity gaps. Given these conditions the crash event can only derive from the default of the entire financial system, an occurrence that no stress test may include, no matter how extreme it is.

Let's briefly see how our model is interested by other interactions between portfolio risks and liquidity. Markets liquidity is also related to volatility and liquidity gaps (slippages). First, unbiased

stress testing analyses of volatility and slippage are not possible for lack of official data to which make reference. Moreover, unfavourable volatility conditions for our model are not relative to its quantitative excesses (from which we normally gain), but to movements identifiable as highly erratic. The problem is that there are as many technical definitions of erratic volatility as the number of interpretative models of market dynamics and fund management styles. Excluding favourable *ad hoc* definitions, we can only refer to extreme volatility and slippage conditions as reported by experience. The long period used for our the back-testing analysis has been characterised by various extreme events for the financial system. None of these conditions has produced an FMD annual return lower than 20%, not secondarily due to the market diversification of our portfolio.

Looking more closely at slippage events, we know that they occur when the bid/ask spread is more unfavourable for at least one tick beyond the standard spread indicated in the exchange's specifications on its futures contracts[9] The slippage size crucially depends on market liquidity conditions, either due to the market's structural characteristics (which do not concern our futures markets), or characterising very short markets phases that are atypical especially for the types of orders and the amount of contracts. A further critical aspect of the slippage is relative to unexpected shocks that hit the markets. We refer to rare events, as the technological crash of an exchange, that determines the block of all transactions till its reopening, or errors in sending abnormal amount of contracts to the order book. In the event of a technological crash the slippage is due to the fact that it is not possible to close the position at the price established when the trade was initiated, but only at the opening price when the transactions resume. In both cases a significant misalignment of the bid/ask spread is produced.

The FMD structure makes it possible to adopt a prudent management style with regard to both the 'toxic' erratic markets phases and big size slippages. Thanks to proprietary `filters of erratic volatility', our model tends not to generate entry conditions during erratic markets phases that are potentially dangerous for our management style. Moreover, a stay-out rule is adopted during events that have historically generated peaks of volatility and consequent big size slippage (FOMC announcements, employment situation reports and the publication of other sensible economic data). An additional solution we adopt is to create, when possible, a market neutral position at the moment of the crash, opening a position equal in dimension and contrary in sign to the one interested by the crash, so to neutralize the size of the slippage.

[9] Let's see an example of a buy market order. Suppose to send an order to be executed at price x; given the standard spread bid/ask (x-1/x+1) we expect the execution at a x+1 price, (standard in the sense of normal conditions of liquidity indicated by the exchange and shown in the electronic trading platform as a one tick spread). We have slippage if for some reason the spread of one tick is not consistent with the extreme volatility of the market at the moment our order reaches the trading platform, the latter may execute it, for example, at x+3, with two ticks of penalization with respect to the price indicated in our market order.

Furthermore, our fund management style, differently from alternative active ones, is not subject to a peculiar class of operating risks, analogous to those assumed by insurance companies for catastrophic events, the so-called earthquake insurance. Cases of hedge funds with a history of good stability of returns, which, because of their market exposure, lose the majority of their funds out of a single event are not rare. The LTCM case is only the most famous example. Let's for example look at the relation between arbitrage trading and market exposure. Even when the *ex ante* valuations on the temporary misalignments between theoretical and market prices are correct, their exposure to market risk can determine the crash of the fund. In fact, the profit from arbitrage trading also crucially depends on the time taken by the market to realign the prices. If, after the fund has opened its position the market increases the prices misalignment and maintains it over a significant period the losses accumulated by the fund can determine its crash or, if it uses debt, at least push 'non patient' creditors away from it. RCM Trust risk management totally avoids catastrophic events. Our market exposure is at the lowest levels; as the back-testing shows, for the 70% of trades the exposure to the market risk is limited to one day. Market exposure also depends on break-even techniques. The FMD uses multiple techniques for closing the positions, i.e. we close the contracts at various targets levels. Once a predetermined target is reached, all remaining contracts are left open with a stop loss equal to the entry price plus one tick in order to cover the commissions. It follows that at the break-even the position is already profitable and remains open with contracts at a trailing stop level higher than the entry price, which makes it risk-free.

Conclusion

We argue that the FMD methodology generates above average and persistent Alphas starting from a very effective structure of risk control. This structure excludes, *inter alia*, most of the controversial characters of alternative management styles, such as leverage, investments in exotic derivatives and poorly liquid markets, market exposures & earthquake insurance, opacity and difficulty to timely compute portfolio's value. In fact, a probable restrictive regulation would not affect FMD's risk/reward ratio.

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