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Newsletter | 15 Nov 2011 | Issue 263

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Editorial

Interview with Milind Sharma, CEO, QuantZ Capital Management

Mr. Sharma is Chief Executive Officer, QuantZ Capital Management. He ran the LTMN desk in Global Arbitrage & Trading at RBC where he served as Portfolio Manager for Quant EMN. In his capacity as Director & Senior Proprietary Trader at Deutsche, he managed Quant EMN portfolios of significant size & contributed to the broader prop mandate in Cap Structure Arb & with LBOs. Prior to that he was co-founder of Quant Strategies (previously R&P) at BlackRock (MLIM). Prior to MLIM, he was Manager of the Risk Analytics and Research Group at Ernst & Young LLP where he was co-architect of Raven (one of the earliest derivatives pricing/ validation engines) & co-created the 1st model for pricing cross-currency puttable Bermudan swaptions. Amongst the first to receive a degree in Financial Engineering from the pioneering MSCF program at Tepper (Carnegie Mellon), Mr. Sharma has a dual MS in Applied Math from CMU where he was also in the PhD program. His publications have appeared in the Journal of Investment Management, Risk, Wiley, HedgeQuest, World Scientific, Elsevier etc. and he is a frequent speaker at conferences.

Milind, you are an experienced fund manager with a quantitative background, where do you see the current trends in the investment industry in NY?

Clearly the investment industry is witnessing a radically new paradigm driven by tectonic shifts which need to be acknowledged first before they can be effectively dealt with:

1. **De-bunking the "stocks for the long run" thesis & its "buy & hold" corollary** which have turned out to be disastrous in recent years is critical in light of the fact that the S&P500 has gone nowhere fast for some 13 years now. For perspective, it took 25 years for the S&P to reclaim the Sept 1929 highs. Japan aside, there are a number of countries where Beta one i.e. long only investing has been a fool's game. Given the post-WWII period of prosperity (of which the US was the prime beneficiary), this inductive fallacy tantamount to stocks having the God given birth-right to go up in the long run became the accepted wisdom. Even after a lost decade & faced with potentially another lost decade

in Equities the investment industry remains utterly paralyzed in terms of dealing with the grim new reality. The simple reason for this seemingly inexplicable paralysis is that the vast majority of professional investors, allocators & retail individuals grew up wired inherently "long biased". Shorting stocks/ hedging is rather more difficult & requires much greater quantitative wherewithal than most participants of the eco-system have had at their disposal, not to mention that it pre-supposes a re-wiring of the industry mind-space.

2. **Alpha vs. Beta & closet Levered Long Beta riders**: Coming out of denial about the fallibility of "stocks for the long run" thesis allows us to abandon the Beta one default position with respect to various asset classes. The housing market collapse of recent years has shown that even the American dream of home ownership was not immune to the forces of financial gravity. Inflation adjusted Real Estate has in fact been a lousy long term investment in the developed world contrary to popular misconceptions. The archetypal "hedge" fund of Alfred Jones was supposed to be "hedged". Sadly, most long-short Equity managers fail miserably in Bear markets because of their inability to monetize alpha on the short side since most are far from hedged. The data shows that LS Equity HF managers are mostly "closet" Long-biased Beta chasers (analogous to their "closet" index hugging Mutual Fund brethren) who tend to lever up long when they sense a rally coming. Given the scant evidence in support of market timing prowess, it appears that many fundamental managers have simply granted themselves the license to gamble. This often results in stomach-churning drawdowns which cannot be justified based on any sensible risk framework. Needless to say, when the VIX remains elevated for a period of time (2008 & 2011 to wit) with sideways to downwards churn, this approach fails. Allocators can choose to be more discerning & refuse to pay 2 & 20 for mere Beta access (which should only cost 5 to 10 bps given the availability of index ETFs). After all, even cab drivers have great stock tips to offer during raging bull markets. It is only when the tide goes out that we get to know who is swimming naked.

3. **Regulatory hurdles to putative fundamental alpha**: By now we all know that US regulators have done a mighty fine job of prosecuting the insider trading cabals of Galleon & SAC alumni. More important for investors to take note of is the prosecution of expert networks & the fundamental Long-Short clientele who were heavily reliant upon such "expertise". Noah Freeman's (SAC alum) damning testimony regarding the use of expert networks should put a chill on supposedly standard industry practices amongst fundamental managers. In light of that, one can't help but notice the interestingly coincidental timing of SAC's Quant fund launch. The better known fundamental stock pickers now aspire to be Quants? The changing landscape for fundamental Long-Short based on recent developments is reminiscent of what transpired post Reg-FD which brought an end to the incestuous peddling of information between management & the Street.

4. **High Frequency Trading**: HFT & the onslaught of algorithmic trading has dramatically reshaped the equity landscape. The manifold compression of bid/ ask spreads, reduction of commissions almost to zero & increased liquidity are all

unadulterated positives for both the retail & institutional investor alike & have greatly enhanced market efficiency. Alas, the media spin on these remarkably positive developments has been remarkably negative for the simple reason that most of the talking heads on TV are the old timers who either don't get it, are too innumerate to get it or belong to the disgruntled masses dis-intermediated by the onslaught of algorithmic trading. Let's not forget that the much revered "specialist" in the old system in fact turned out to be the ultimate frontrunner (by virtue of being the human backstop with access to the order book). Despite the indictment & successful conviction of NYSE specialist firms, we continue to hear buyside managers reminisce blissfully as to how great the old system was (back when they paid obscenely large commissions as opposed to the putative evils of HFT). Alas, the industry remains woefully in denial about the paradigm shifts in the making.

How important are Quants and who uses quantitative models? Do we still need quants in the financial industry?

In the 15+ years since Quant Finance programs, such as the pioneering one at Carnegie Mellon started cranking out financial engineers, Quants have become entirely indispensable to the Wall St eco-system. The simple math of fixed income instruments has evolved into the much more complex credit models of today which attempt to more realistically model the dynamics of the relevant stochastic variables. Equity trading on the sellside has been completely transformed due to HFT & algorithmic trading as previously noted. Risk measurement & management based on complex quant models has now become the de facto standard. Perhaps the most dramatic changes underway are on the buyside, where old fashioned fundamental security selection is being rapidly replaced by quant model/ process driven security selection & optimization based portfolio construction in order to minimize drawdowns & enhance risk-adjusted returns. Hedge funds in particular, due to the use of dynamic leverage, dynamic position sizing & time varying beta were early adopters of Quant as an "edge".

The growing complexity of markets as dynamical systems (often on the edge of chaos of late) & the rapid proliferation of voluminous financial data means that many traders will have no choice but to evolve into systems architects who use discretion to manipulate model parameters instead of trying to manually deal with the incessant information overload. The others will have to become more proficient at leveraging Quant screens in order to keep from drowning in the sea of data. Technology as an enabler means that the great insights of Buffett & Benjamin Graham can be rather trivially plugged into a Yahoo Finance screen online by a 10th grader with modest effort. On the other hand, the wide dissemination of such information also chips away at remaining investment opportunities. While traditional stock investing techniques have found slim pickings in recent years with exacerbated risks & outsized drawdowns, even some Quants who got complacent have had to throw in the towel (note the recent closure of Goldman's Global Alpha fund). Factor foresight & nimbleness in terms of judicious tweaking of model parameters to anticipate shifting regimes along with the copious use of common sense remain a virtue. There is validity to the criticism of over-reliance on blackbox strategies back-tested on yesterday's data & the last

crisis. That said, any well constructed systematic process is still far more rigorous & transparent than what might transpire inside a trader's head which is the ultimate (& ultimately capricious) blackbox. GIGO (garbage in garbage out) checks are as important in modeling as they are for real life cognitive biases. Much can be said for the hybrid approach.

With the financial debt crisis in mind, where would you invest?

Challenging markets like 2008 & 2011 showcase the benefits of rigorous risk controls & have demonstrably shown that the careful portfolio construction/ optimization inherent to Quant portfolios pays off when the VIX stays elevated over 30 while traditional deep value investors of the "doubling down" kind tend to get somewhat battered & bruised. It is noteworthy that the pension fund behemoths like Calpers are now increasing their allocation to alternatives while being "underweight" directional equities after having compounded only 3.41% in the past five years (woefully short of their 7.75% bogey). Joe Dear (Calpers CIO), noted that with "low interest rates and a relatively small equity risk premium you have a hard time getting that 7.75".

Call it Ken Rogoff's "Second Great Contraction" or Roubini's "Great Depression 2.0", either way, it sure seems we are in the midst of something far more ominous than a garden variety recession. Should the base case for Europe ought to be rolling recessions or a depression as the currency bloc unravels? How many European banks will fail by the time all is said & done? What are the chances that the European crisis can be contained in this age of global inter-dependence? What's going to prop up US equities now that Fed appears to be out of ammunition & politicians are equating QE with treason? We repeatedly harped on all of these issues throughout the Fed-orchestrated contrived QE2 melt-up in Equities. Clearly, at this point enough cans have been kicked down enough roads in enough countries that one would think something has to give. Disorderly default/ restructuring remains a significant risk with the subsequent unraveling of the Euro. The bond market may yet enforce the truth this time around. A default is a default regardless of the political euphemism of the day not to mention the inevitable sovereign downgrades across the globe as we work our way through this massive de-leveraging cycle. The renewed domestic bi-partisan bickering as the Super-committee deadline approaches in the US is no more reassuring. Given the macro headwinds & the fact that the world is unlikely to magically heal itself anytime soon – we have to believe that regardless of any year end seasonal relief rallies, most traditional (mutual fund) & HF strategies are likely to disappoint in the decade to come.

A recent Bank of America Merrill Lynch study noted that HF's correlation with directional equities hit an all-time high in September which means that the vast majority of HFs continue to offer less alpha than beta. Meantime, average pair-wise stock correlations being at historically high levels creates a challenging environment for stock pickers (quant and fundamental alike). CTAs & Market Neutral funds e.g., Statistical or Vol Arbitrage strategies have historically flourished in such volatile environments. Not surprisingly, a new breed of Black Swan funds have emerged. These "tail risk" funds usually load up on OTM options in anticipation of exogenous shocks. However, they usually continue to bleed theta till the Black Swan materializes. Arbitrage strategies embodied by EMN funds typically do not display this problematic trait since they are inherently long vol without the theta bleed. One can safely conjecture that the marginal dollar ought to rotate out of directional

strategies towards better Sharpe ratios in non-directional strategies like EMN/ Statistical Arbitrage which can still thrive in a world where the positive slope of the security market line can no longer be taken for granted (hence the assumed positive drift term for the stochastic process being modelled).

What do you think about the occupy movement?

For those of us who actually work in the immediate vicinity of Wall St, the OWS protests have been significantly disruptive. At first, it was difficult to take this amorphous expression of discontent seriously given that the protests did not have a clear agenda or a coherent, well-articulated message. However, the cognoscenti in the form of the Stiglitz's, Krugman's & the Jeffrey Sachs' have taken it upon themselves to articulate their message & lend the movement much credibility. The message has been transmogrified into one representing the "screwflation" of the 99% (to borrow from Doug Kass). This social unrest is symptomatic of the structural unemployment, a moribund housing industry, the mortgage mess, the lingering effects of the credit bubble & most importantly it is a backlash against the income disparities that came about from capitalistic excesses of recent decades. How we work towards a self-sustaining economic recovery to address these issues will depend in large part upon enlightened policy initiatives that get us to escape velocity. However, this is easier said than done. After all, the Keynes versus Hayek debate rages on a century later.

Thank you for your insights, Milind, we hope to speak again soon.
Uwe Wystup
Managing Director of MathFinance

Career

Business Analyst (m/w) Risikomanagement - Quantitativer Fokus, Deloitte, Düsseldorf, Frankfurt, München

Für unser Team an den Standorten **Düsseldorf**, **Frankfurt** und **München** suchen wir engagierte Verstärkung.

Ihre Aufgaben

Im Spannungsfeld von Mathematik und regulatorischen Anforderungen erarbeiten Sie für unsere Mandanten betriebswirtschaftliche Lösungen unter Einsatz von finanzmathematischen Modellen. Sie verstärken unser Quant-Team, das für quantitative Fragestellungen im Kontext betriebswirtschaftlicher, aufsichtsrechtlicher und

Company News

MathFinance (Asia) presents its Independent Model Validation Services

Charles Brown and **Uwe Wystup**, the directors of MathFinance (Asia) spent the first week of November to present their independent model validation services in Tokyo, Singapore and Sydney. In particular, we have validated to pricing of Murex' Local-Stochastic-Volatility (LSV) model(**See pdf!**).

The FX Options market has taken a clear trend to LSV models in last few years. While top tier banks have developed their own versions of LSV, Murex is the first software vendor to provide an LSV model working on the portfolio level in their risk management system.

The MathFinance team has implemented the pricing tool for first generation exotics on its own systems and generated automated pricing verification using both Monte Carlo and a PDE based approach. For example, the graph below shows the differences