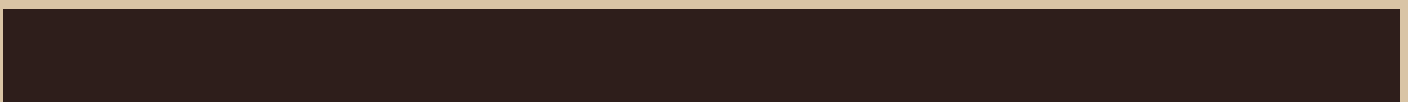




15 Dec 2008, Volume IV



...Influences of recent market events have been felt by rather remote institutions such as the Nobel Foundation. The Nobel committee awarded the Nobel Prize for Economics to Paul Krugman who all along has advocated an interventionist capitalism – where inter-linkages between real economy and finance world is looked at in detail by the federal banks and authorities more as preventative mechanism than as a post-event analysis and imposing a penalty...





Reflecting on the unprecedented events that have unfolded, banks and capital markets players globally believe, that saying '2009 will be challenging', is definitely an understatement. Businesses at large need to reinvent themselves to exploit the opportunity which has been created through asset price increase over the last decade without causing further contractions within the macro variable of an economy. And this is priority. Though the bailout effort is underway globally, what is unclear is how this will impact IT spend and identifying critical programmes within an enterprise will be viewed as top priority for further support and investment. However, if I have to pick among best available options for an IT Head within Banking, Financial Services, Insurance and Capital Markets players, I will pick the following as top priorities.

#### **Rationalisation of IT Service Providers:**

Outsourcing of core and peripheral applications development, support and maintenance are executed through multiple service providers ranging from professional service providers to product specialists. In addition, large numbers of individual contractors are deployed across IT supporting Line of Businesses (LOBs). This is particularly true for asset management firms. It is important that the banks recognise that though this trend helped during the economically buoyant period, where availability of required skill was higher priority than efficiency, today it cannot be considered as a strong strategic initiative to build leaner and more effective IT organisations. Co-operation among competitive service providers is a good wish but difficult to apply in reality. Rationalisation of the service provider portfolio having one player who can provide scale supported by one or two mid size service providers will help an enterprise to bring much needed efficiency in the services buying process. It should be followed by significant reductions in individual contractors whose continuity in the long run has always been in question.

However, if the bank is considering outsourcing for the first time, selection criteria should involve the service provider's experience of helping first time outsourcers to achieve significant flexibility, cost saving and risk mitigated contractor replacement. This should be the top most concern for any first time outsourcer.

#### **Building deeper capabilities and stronger IT infrastructure to support enterprise wide decision making:**

Study of Economics of recessions shows that, financial contractions of Japan which began during the early 1990's, still continue. Japanese banks haven't really been able to exploit markets. If we look at this history from an IT perspective, it's easy to infer that Japanese enterprises did not invest in building a robust IT infrastructure. This has been considered as one of the major reasons why Japan did not benefit significantly through the global boom which lasted almost a decade. It is important for financial organisations globally that invest into IT infrastructure to enable better insight into data attributes which resides in front, middle and back office applications. This will enable better decision making with respect to pricing of deal, managing risk and supporting back office functions from clearing to final accounting. Improving real time availability of critical data attributes and turning them into meaningful information will be the key to success.

#### **Redefining the internal compliance and regulations department as a profit centre:**

A myopic view of the compliance and regulations department sees these critical functions as cost overheads and therefore reducing investment into their technology infrastructure has cost deeply to the banks as well as tax payers. Inability of a decision maker to understand the risk exposure has been considered as one of the core issues of this global meltdown. Risk through contaminated assets went unnoticed, to a large extent; even though all the data attributes were available within the systems – it was all there. Eventually, desire for growth overtook the need to be careful. Though the problems have been validated, doubts exist that the back office functions did not really raise an alarm in time to warrant highest level attention. When a function gets branded as a cost centre, its ability to get mindshare becomes limited. Its voice becomes feeble and not everyone wants to hear what it says. Rebuilding IT infrastructure that supports back offices on the principles of any profit centre needs to be taken up as priority.

In a nutshell, failure to invest further into technology will limit any enterprise's ability to override the turn of events.

Warm Regards

**Dr. Ashok Hegde**  
(PhD Economics)

# Business at a glance

## Non-normality nature of hedge fund index returns

Hedge funds hedge the investors' risk arising out of market exposure. Hedge funds worldwide posted record monthly losses in September. Now would be a good time to take stock of the returns of hedge funds. In this article we look into the mean return and volatility of hedge funds and what they mean to the average investor

**Sandeep R Upadhyia**

*Sandeep R Upadhyia is PGDM from IIM-K and is working as a Business Analyst in the Capital Markets Group in MindTree Ltd*

### Introduction:

Hedge funds are private pools of money collected, mostly from accredited investors or other qualified investors, which is invested in securities such as stocks, bonds, and derivative contracts (options, futures, swaps, interest rate derivatives, weather derivatives, commodity derivatives etc.). It is similar to mutual funds in that money is pooled from various investors and invested in securities. But hedge funds are different as they follow much more diverse strategies in order to fulfill the objective of generating returns that are not highly correlated to returns on stocks and bonds.

To hedge against a risk is to, in effect; buy some insurance against an adverse event. When two

assets depend oppositely on the same risk factor, the combined value of the pair is less sensitive to that factor. In the case of hedge funds, the measurement of risk in hedge funds is a matter of contention and debate. In this article we see that since the hedge fund index returns do not follow normal distribution, the traditional measures to analyze risk in a portfolio of assets like volatility (the standard deviation of returns) or the Sharpe ratio (a measure of risk adjusted return, that is, a measure excess return per unit of risk) may not be applicable in the case of hedge funds.

### Use of volatility and Sharpe ratio to compare hedge fund returns with that of S&P 500:

There may be a general perception among investors that hedge funds offer a superior risk/return profile compared to mutual funds. At first glance, the perception does not seem to be unfounded as the following data shows that the standard deviation is indeed lesser for hedge funds and the mean return (expected value, or mean, of all the likely returns of investments comprising a portfolio), too, is slightly higher in the case of hedge funds.

Index	Mean return*	Standard deviation*	Sharpe ratio**
Credit Suisse/Tremont Hedge Fund Aggregate Index	0.00871	0.02158	0.21061
Convertible arbitrage	0.00655	0.01415	0.16888
Dedicated short bias	-0.00023	0.04859	-0.09053
Emerging markets	0.00855	0.04458	0.09840
Equity Market Neutral	0.00791	0.00808	0.46311
Event Driven	0.00913	0.01608	0.30899
Distressed	0.01017	0.01772	0.33917
Multi-Strategy	0.00865	0.01751	0.25634
Risk Arbitrage	0.00643	0.01185	0.19128
Fixed Income Arbitrage	0.00473	0.01176	0.04864
Global Macro	0.01132	0.03007	0.23805
Long/Short Equity	0.00969	0.02836	0.19478
Managed Futures	0.00615	0.03449	0.05752
S&P 500 Index	0.00717	0.04038	0.07434

\* Statistics computed from monthly data collected for the period Jan-1994 to Apr-2008

\*\* Annual risk-free rate used in calculation of Sharpe ratio is 0.05

\*\* Sharpe ratio =  $(R_{\mu} - R_f) / \sigma$  where  $R_{\mu}$  = mean monthly return,  $R_f$  = monthly risk-free rate,  $\sigma$  = standard deviation of the monthly index returns

From the above table, we see that the mean return for most hedge fund strategies is higher and standard deviation is lower. Hence, Sharpe ratio is considerably more in the case of hedge funds which would suggest that hedge funds offer a superior risk/return profile compared to the S&P 500.

However, both the volatility and Sharpe ratio, which uses the standard deviation as a proxy for risk, assume normality of return distribution which has many implications for the investor. Normal distribution has the mathematical property that about 95.5% of all the values in the distribution lie within +/- 2 standard deviations from the mean value<sup>1</sup>. This means that given that a fund/portfolio follows normal distribution of returns, it is possible to say with a given confidence level that returns of the portfolio will be within a specified interval since its volatility is known.

Volatility, however, implies information on extreme losses only in the case of normal distribution. If a fund/portfolio does not follow normal distribution, volatility (and thus Sharpe ratio) is not of much help in determining the extreme losses to the portfolio with a given confidence level.

### Do hedge funds follow normal distribution?

The return distributions of the hedge fund strategies are far from being normally distributed as shown in the histograms in the next page.

We can infer from the histograms that most of the hedge fund index returns have fat or long tails implying that although the mean return is higher and standard deviation is lesser than those of S&P 500, there is a small yet significant chance of a large loss in the case of hedge funds. In fact, strategies like event driven, fixed income arbitrage, distressed and multi-strategy all have small instances of very high negative returns implying that the extreme losses that can occur in the portfolio over a period of time is high; in other words the perception of risk in these strategies is quite high contradicting to the earlier inference that we made when we looked only into the mean returns and standard deviation of these strategies (assuming normality of return distribution).

Normality of the returns series is also tested using the Jarque-Bera statistic in order to see

whether mean-variance approach does not fully capture the risks investors bear from higher moments of return distribution.

Jarque-Bera test is a goodness-of-fit measure of departure from normality, based on the sample kurtosis and skewness. It is defined as:

$$JB = T/6 * (\text{skewness}^2 + (\text{kurtosis}^2)/4)$$

where T is the number of observations.

The statistic follows a chi-square distribution with two degrees of freedom with critical values of 5.99 and 9.21 at 5% and 1% significance level respectively. When the test statistic exceeds the critical values, then the null hypothesis that the returns are normally distributed is rejected at the respective significance level<sup>2</sup>.

- T = no. of observations = 172

- Skewness is the third moment of the distribution given by

$$T * (\sum ((R_t - \mu_R) / \sigma_R)^3) / ((T-1) * (T-2))$$

where (R<sub>t</sub> : t=1,2...T) is the sequence of returns ; μ<sub>R</sub> is the mean return of the series; σ<sub>R</sub> is its volatility

- Excess kurtosis is the fourth moment of the distribution given by

$$T * (T+1) * (\sum ((R_t - \mu_R) / \sigma_R)^4) / ((T-1) * (T-2) * (T-3)) - 3 * (T-1)^2 / ((T-2) * (T-3))$$

where (R<sub>t</sub> : t=1,2...T) is the sequence of returns ; μ<sub>R</sub> is the mean return of the series; σ<sub>R</sub> is its volatility<sup>3</sup>

- \* Significant at the 1% critical value of 9.21

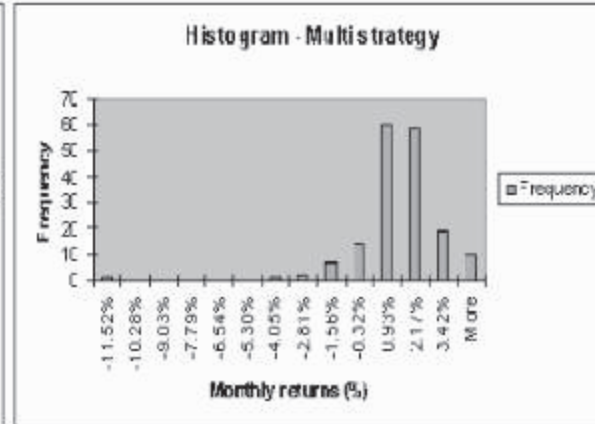
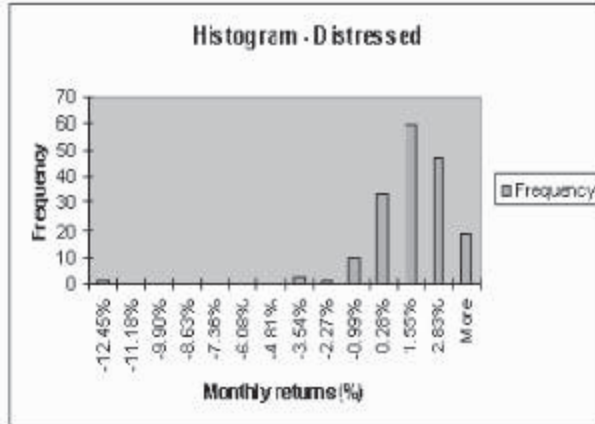
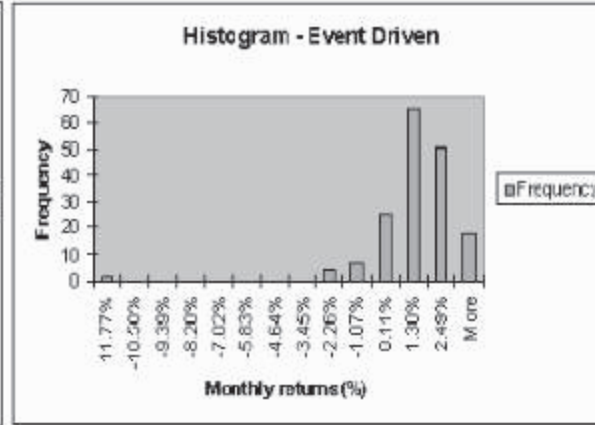
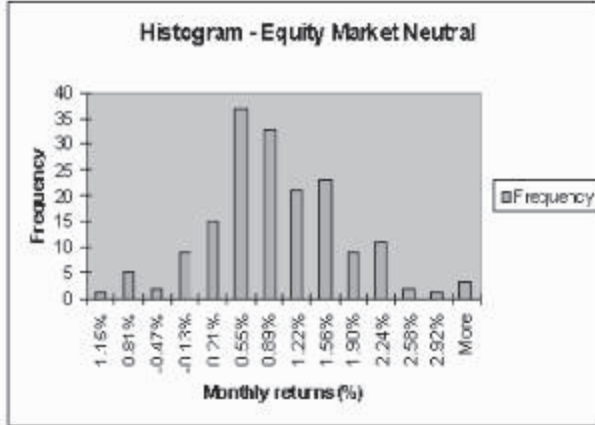
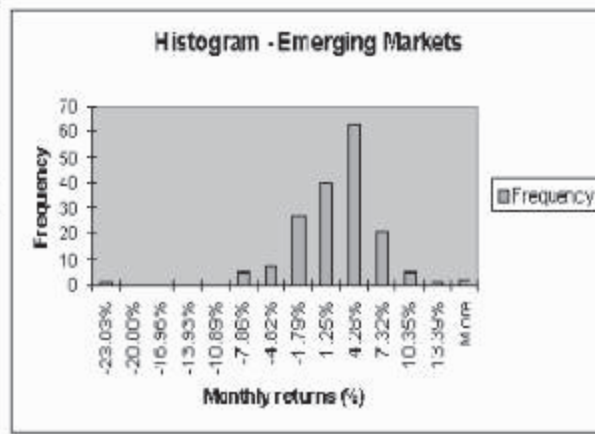
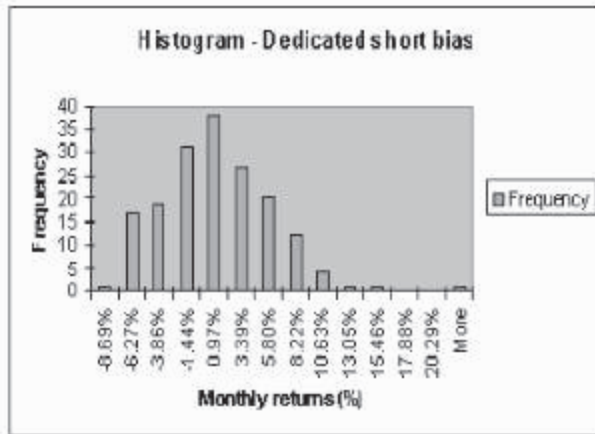
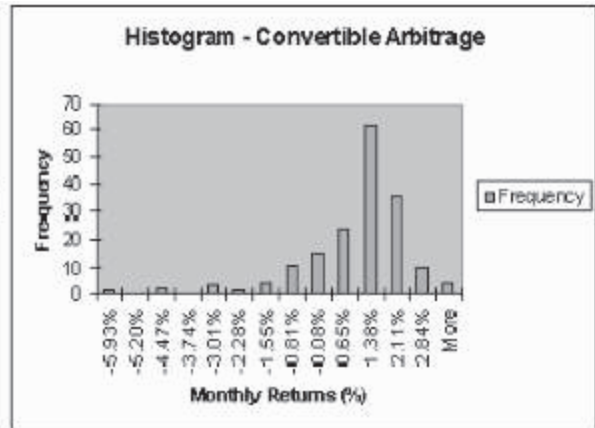
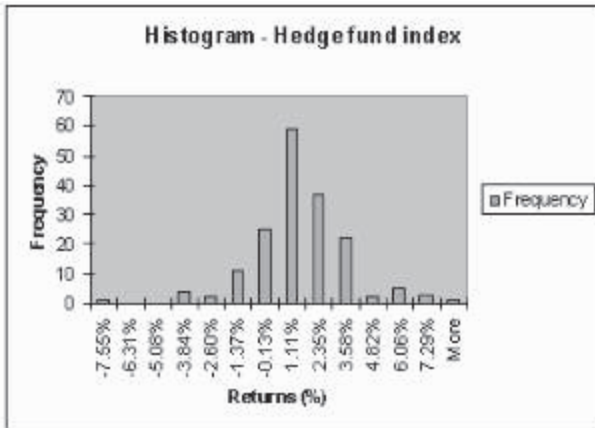
We can infer from the Jarque-Bera statistics from the above table that, except for the Equity Market Neutral and Managed Futures strategy indices, all the hedge fund indices have a significant Jarque-Bera statistic at the 1% critical value (99% confidence interval) of 9.21. Hence the null hypothesis of normality can be rejected implying that the hedge fund index returns in general are non-normal in nature.

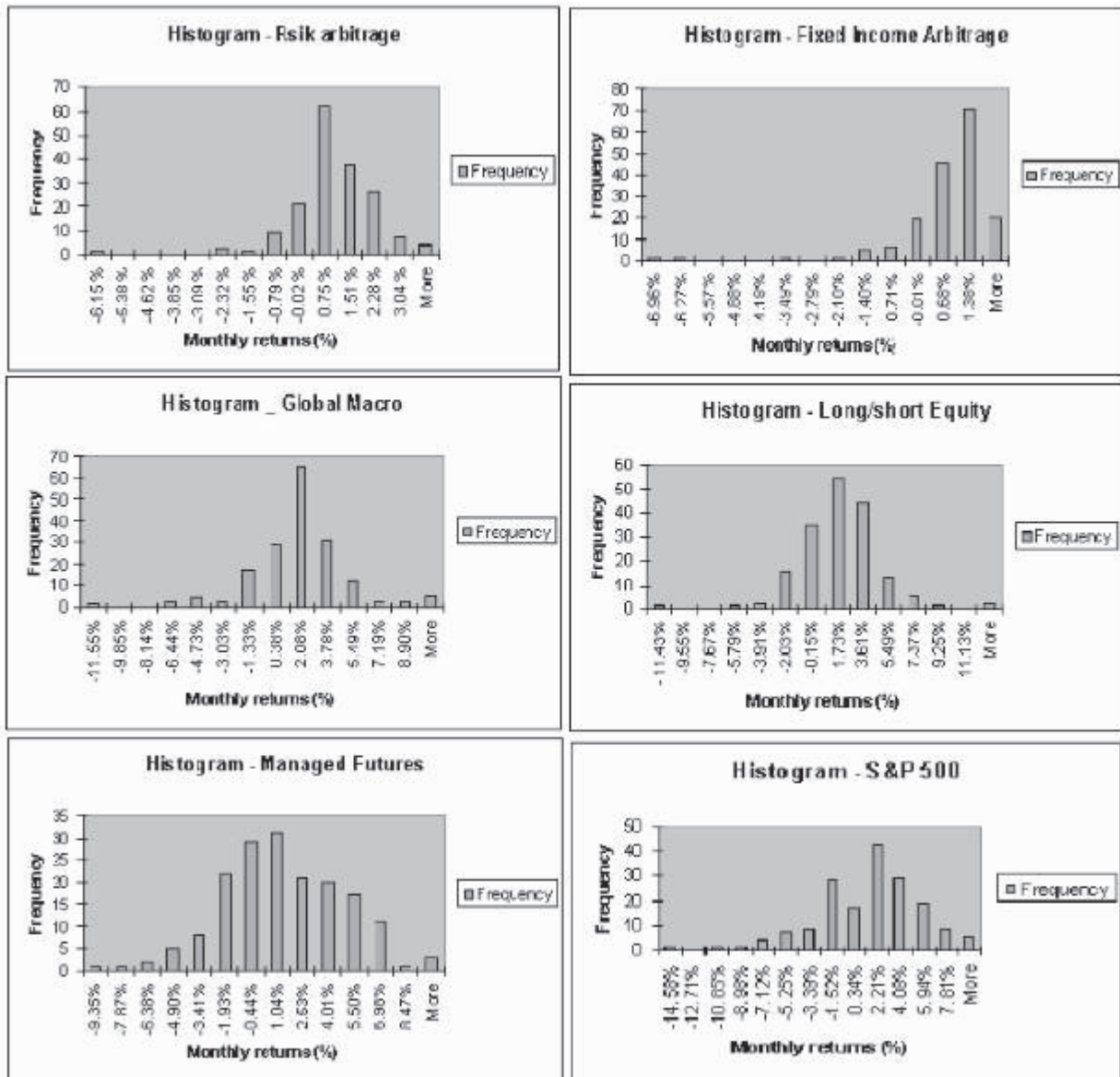
### Implications to the investor:

1. We have now seen that alternative portfolios, like the hedge funds, rarely follow the normal distribution. Thus given that standard deviation of historical monthly return is small doesn't mean that the extreme losses of the portfolio are also small.
2. We also see that most of the indices have negative skewness and high kurtosis which has the following implications:
  - a. Negative skewness implies there is a higher

1. Statistics for management, 7th edition by Richard I. Levin and David S. Rubin

2. "Hedge fund performance measurement" by Dmitrijs Osipovs





probability of earning below average returns and the distribution has a long left tail (more values in the left tail than in the case of normal distribution)

- b. High excess kurtosis implies that low volatility of hedge fund index returns comes at the cost of fatter distribution tails resulting in higher probability of incurring extreme losses
3. In general, investors prefer high odd moments and low even moments. Although hedge fund indices offer high mean returns and low variances, they tend to give negative third order moment and high positive fourth order moments which is exactly opposite of those that investors

desire. Thus we can say that Sharpe ratio overstates the hedge fund performance relative to the standard market indices<sup>4</sup>.

4. Additionally, from their very definitions, volatility does not distinguish between positive deviations and negative deviations from the mean where as the Sharpe ratio ignores the existence of higher moments such as skewness and kurtosis. They assume symmetrical distributions about the mean which may not cause a problem in the case of normal distributions. However in the case of alternate strategies such as hedge funds, where the returns tend to be negatively skewed, it is possible to have two very different distributions

3. "Hedge fund performance measurement" by Dmitrijs Osipovs

Index	Mean	Volatility	Skewness	Kurtosis	JB statistic
Hedge fund aggregate index	0.00871	0.02158	0.10093	2.50847	45.38 *
Convertible arbitrage	0.00655	0.01415	-1.55662	4.27095	200.18 *
Dedicated short bias	-0.00023	0.04859	0.81087	1.97255	46.73 *
Emerging markets	0.00855	0.04458	-0.71012	5.24275	211.44 *
Equity Market Neutral	0.00791	0.00808	0.35427	0.55033	5.76
Event Driven	0.00913	0.01608	-3.12920	21.88488	3713.16 *
Distressed	0.01017	0.01772	-2.77672	18.83010	2762.13 *
Multi-Strategy	0.00865	0.01751	-2.24676	14.27157	1604.39 *
Risk Arbitrage	0.00643	0.01185	-1.05783	6.10500	299.18 *
Fixed Income Arbitrage	0.00473	0.01176	-3.16778	15.70472	2055.24 *
Global Macro	0.01132	0.03007	0.02298	3.32547	79.26 *
Long/Short Equity	0.00969	0.02836	0.19244	4.03008	117.45 *
Managed Futures	0.00615	0.03449	0.01023	0.17303	0.21
S&P 500	0.00716	0.04038	-0.56981	0.77070	13.56 *

that have the same volatility/Sharpe ratio<sup>5</sup>. From the above implications, we could say that volatility and the Sharpe ratio are not adequate tools for performance evaluation of hedge funds.

#### Conclusion:

In this article, based on the empirical data provided, we can draw forward the following conclusions:

1. Non-normal distributions of hedge fund index returns – In this article, we have seen that most hedge fund indices do not follow normal distribution but instead exhibit negative skewness and high positive excess kurtosis (Note: investors desire high skewness and low kurtosis). The non-normality nature is seen from the Jarque-Bera statistic calculated empirically for the various indices.
2. Unsuitability of Sharpe ratio and Standard deviation for performance evaluation – Since the perception of the investment risk is related to the extreme losses that can occur in the portfolio over a period of time, we can say that the assumption of

normality of hedge fund index returns can indeed lead us to the wrong conclusions. Specifically, standard deviation and Sharpe ratio, which assume normality of distribution, may be termed as unsuitable for performance evaluation in the case of hedge funds. In this regard, consideration of higher order moments such as skewness and kurtosis is needed for performance evaluation of hedge funds.

#### References:

1. *Statistics for management, 7th edition* by Richard I. Levin and David S. Rubin
2. *The Challenge of Hedge Fund Performance Measurement: a Toolbox Rather Than a Pandora's Box* by Walter Géhin
3. *Hedge fund course* by Stuart A. McCrary
4. *An approach to the non-normal behavior of hedge fund indices using Johnson distributions* by Pedro Gurrola Perez
5. [www.investopedia.com](http://www.investopedia.com)



4. "The statistical properties of hedge fund index returns and their implications for investors" by Chris Brooks and Harry M. Kat
5. "Hedge fund performance measurement" by Dmitrijs Osipovs

# Collateralized Debt Obligations: Structure, pricing and concerns

Over the years the number of financial and investment services has grown and so has the complexity of financial instruments. This article explains the structure and working of the Collateralized Debt Obligations (CDOs)

Raghunath Tripasuri

*Raghunath Tripasuri is PGDM from IIM-B and is working as a Principal Consultant in the Banking and Financial Services Group in MindTree Ltd*

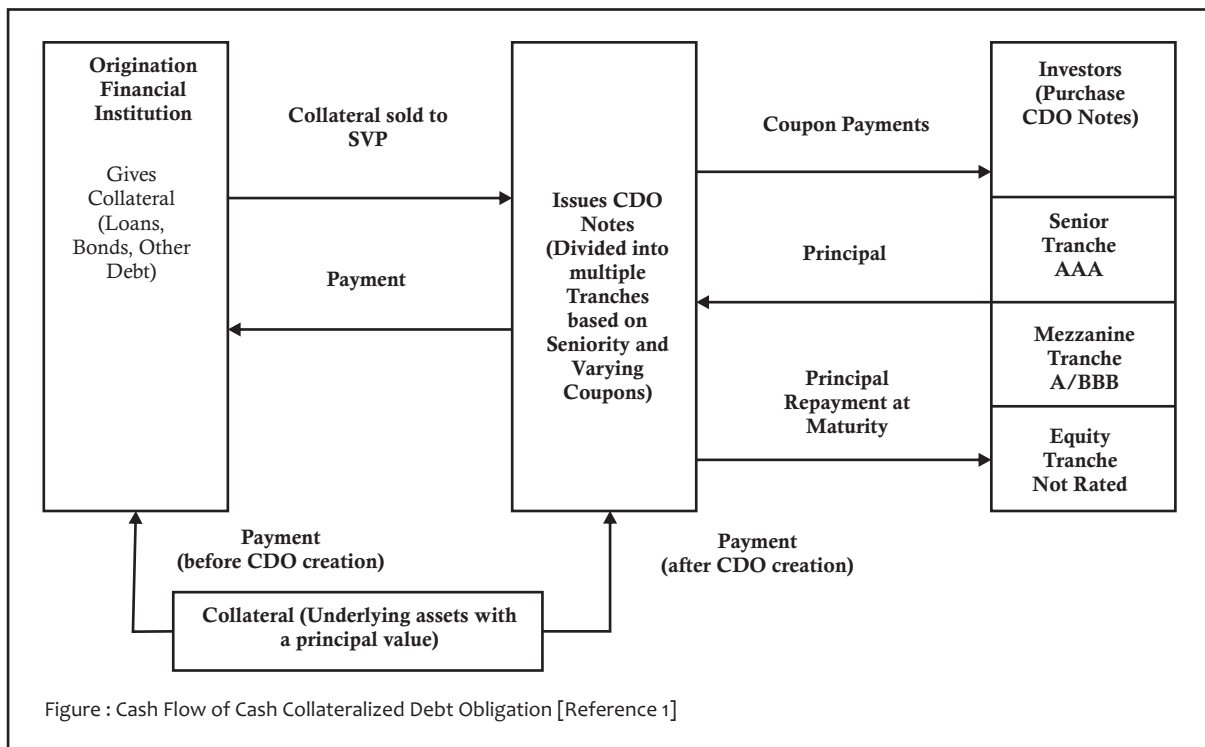
### Collateralized Debt Obligations:

Collateralized Debt Obligations or CDOs are credit derivatives backed by a portfolio of assets such as loans, bonds or other debt instruments. CDOs collect cash flows from the underlying pool of assets and sell it to investors and thus allowing the Originators to redistribute the credit risk in any given portfolio into new tranches with risk profiles totally different from the underlying assets.

### The Structure of Collateralized Debt Obligations:

The figure 1 below explains how cash collateralized debt obligations are structured.

The originating financial institution (bank or any financing company) is primarily interested in transferring the credit risk to a group of investors, who are willing to assume the risk. The Special Purpose Vehicle (SPV) purchases the assets (loans,



bonds and other debt) from the financial institution and gains access to all the coupon payments arising out of them. The SPV pools all the assets and sells them in pieces as notes to investors. These notes are grouped into several tranches with different level of rights on repayment in case of a credit event (default or ratings downgrade). The investors, across all tranches, jointly pay a price equivalent to the principal value of the assets and in return, they receive regular coupon payments till maturity of the CDO. The coupon payments vary with the risk profile of the tranches. Senior tranches with AAA rating have lower risk followed by Mezzanine tranches with A/ BBB rating and finally Equity tranches have no rating and carry maximum risk. In case of a default on the underlying asset portfolio, the investors are paid according to the seniority of the tranches. The primary advantage of a CDO is the fact that it provides the Originator, an ability to redistribute the risk of a portfolio of assets through the use of tranches. The table below illustrates this concept well:

Tranche	Attachment Points	Notional Amount (\$ million)	Credit Rating	Spread (Basis Points)
Equity	0% - 4%	40	Not rated	1400
Mezzanine	4% - 10%	60	A	150
Senior	10% - 100%	900	AAA	10
Entire Portfolio	0% - 100%	1,000	A	74

Table : Illustration of Tranches [Based on BIS Standards – Reference 5]

The Originator often retains the Equity tranche, as a way to ensure information asymmetry is limited and also to signal to other investors about the quality of the issue. In some cases, it could also be to ensure that the risk-return preferences of the Originators are met.

The separation between Originator of loans and the Issuer of CDO notes ensures that the Financial Institution is able to remove the loans from its balance-sheet and protects the investors by honoring its obligations to them even in case of bankruptcy of the originator.

Originators typically use CDOs for off-loading debt from their balance-sheets. This especially helps them to reduce their regulatory capital requirements or do more originations with the same capital base. Also the re-shuffling of risk profile helps in creating a more liquid market. Originators also create CDOs with a motivation to leverage the arbitrage opportunities arising out of the differences in yield of the assets in the underlying portfolio and the cost of funding the CDO through sale of notes to investors in Capital Markets. An arbitrage CDO exploits the historical and implicit default probabilities of a debt issuer.

There is another type of CDOs called the Synthetic Collateralized Debt Obligations which use Credit Default Swaps (CDS) as collateral instead of the reference assets themselves. Through Synthetic

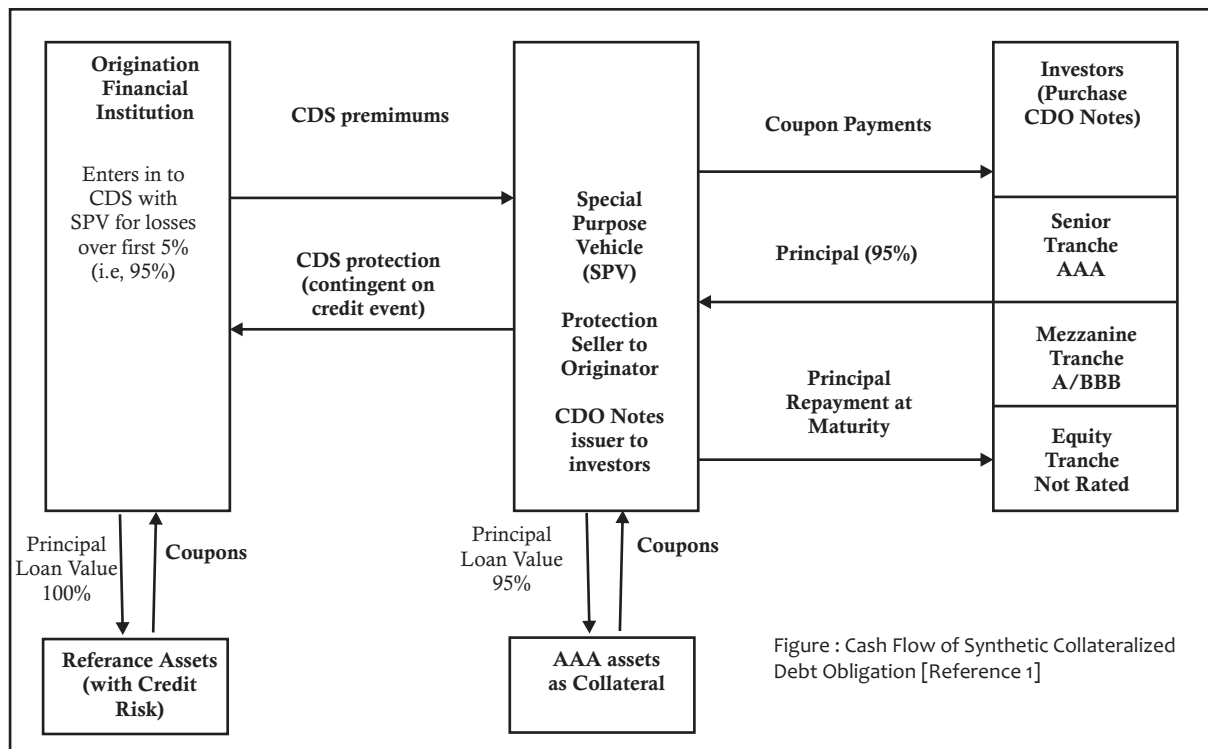


Figure : Cash Flow of Synthetic Collateralized Debt Obligation [Reference 1]

CDOs, Originators can transfer the credit risk of their asset portfolio, without removing the assets from their balance-sheets. They also help Originators to overcome any tax related disadvantages associated with actual sale of assets. Synthetic CDOs provide an option to the investors to trade only in credit aspect of investment in a diversified portfolio, without having to worry about the interest rate risk, prepayment risk or currency risk.

It is designed to monitor the general robustness of the CDOs tranches and ensures that the principal value of the notes is at least a certain percentage of the value of the underlying collateral.

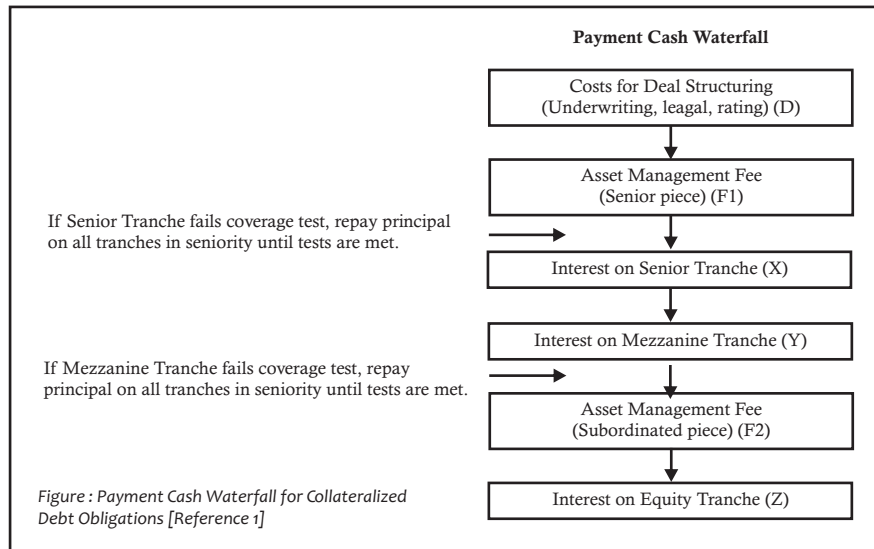
The interest coverage test is defined as

$$I / C = \frac{\text{Scheduled Interest due on underlying collateral portfolio}}{\text{Scheduled interest to that tranche} + \text{Scheduled interest to all tranches senior}}$$

It is designed to monitor the robustness of the tranches specifically for interest (or coupon) proceeds. It ensures that sufficient collateral interest income to cover losses and still make interest payments to the more senior notes.

### Pricing of Collateralized Debt Obligation:

The key challenge in any pricing model adopted for pricing credit risk is that related to finding out the joint probabilities of default for the reference assets in the underlying asset portfolio.



### Credit Enhancement of Collateralized Debt Obligations:

Credit enhancement provisions in credit derivatives serve to reduce the credit risk of an obligation. Credit enhancement is typically achieved through guarantors and insurance.

Credit enhancement mechanisms could also be built into the structure of the CDO contracts. The “Trigger” provisions typically provide additional credit enhancement to the senior tranches by diverting the cashflows from junior tranches to more senior tranches if the reference portfolio par value or interest proceeds fall below a certain level. The cash flow waterfall depicted in the figure below illustrates this concept better.

Each tranche is evaluated using the overcollateralization test and the interest coverage test. If any of the tranches fail the test, “trigger” is activated and then cash flow streams from interest is used to re-pay back the principal amounts in all the tranches in the order of seniority of debt. This is done till all the tranches meet the coverage tests.

The overcollateralization test is defined as:

$$o / c = \frac{\text{Principal Value of collateral portfolio}}{\text{Principal for tranche} \quad \text{Principal for all tranches senior to it}}$$

Diversification of the underlying portfolio of assets is quite important to assess the risk of the different tranches of a CDO. Strong diversification in the asset portfolio implies low correlation between the assets and it reduces the probability of extreme outcomes in performance of the portfolio. Thus it is beneficial for the senior tranches. Senior tranches would get affected if there is an extreme outcome of significant losses. However, for the equity tranche, the exact opposite would hold true. Equity tranche would have some value if there is an extreme outcome of very low losses. As CDOs are sensitive to correlation, and correlation of defaults is driven by business cycles, correlation risk of CDO tranches can be classified and measured as business cycle risk.

### Concerns with Credit Risk Transfer:

In any form of Credit Risk Transfer, there is a significant counterparty risk. If the counterparty fails, Originator might end up taking the default risk. Also there is a legal risk that a CDO contract may not be legally enforceable on the counterparty.

Banks could be using CDOs to transfer their credit risk out of banking system and this could be causing a concentration of risk outside the banking

system that could cause a threat to financial stability. As credit spreads widen, losses to non-bank risk takers could force them to liquidate their positions and thus causing more damage and an eventual collapse. This risk is also compounded by the fact that, unlike banks, non-bank risk takers may not be subject to any regulations.

Investors in CDO tranches cannot solely rely on ratings provided by rating agencies. This is due to the fact that CDOs are quite complex and any valuation mechanism have several parameters and not all can be taken into account by any model. Investors have to understand clearly the model parameters, assumptions, and limitations for making a sound judgment. Given the complexity of CDOs, investors may not understand all the underlying risks.

The ability of Originators to transfer credit risk using CDOs and other credit derivatives, securitization could give rise to a lending culture based on origination volume, ignoring prudent lending practices.

## REFERENCES

1. *Credit Derivatives – A primer on Credit Risk, Modeling, and Instruments* by George Chacko, Anders Sjoman, Hideto Motohashi, Vincent Dessain.
2. “The Barclays Capital Guide to Cash Flow Collateralized Debt Obligations” Barclays: March 2002
3. *Credit Risk* by D. Duffie & K. Singleton
4. <http://db.riskwaters.com/>
5. <http://www.bis.org/publ/joint13.pdf> [“The Joint Forum Credit Risk Transfer” by Basel Committee on Banking Supervision]
6. Douglas J. Lucas, Laurie S. Goodman, Frank J. Fabbozi, “Collateralized Debt Obligations and Credit Risk Transfer” : Yale ICF Working Paper No. 07-06.
7. Allan Greenspan: *Risk Transfer and Financial Stability : Remarks to the Federal Reserve Bank of Chicago's Forty-First Annual on Bank Structure , Chicago, Illinois, (via Satellite), 5 May 2005.*



# Communication in modern central banking

Central banks play an important role in steering the economy. Communication helps financial markets understand monetary policy decisions. The article discusses various aspects of communication from the Central Banks and also its target audience

## Sandeep R Upadhyia

*Sandeep R Upadhyia is PGDM from IIM-K and is working as a Business Analyst in the Capital Markets Group in MindTree Ltd*

### Introduction

In order to understand the role of a modern central bank and how communication helps in performing its role effectively, one needs to appreciate the concept and intricacies of a monetary policy. Monetary policy is the process by which the supply of money and the cost of money (prevailing interest rate) are controlled in order to bring stability and growth in the country's economy. The price at which money can be borrowed has a direct relationship on the total supply of money. When interest rates are lowered (as in an expansionary monetary policy), the supply of money increases and thus unemployment is reduced to a certain extent; when interest rates are raised (as in a contractionary monetary policy), the money supply decreases and thus inflation is curbed. Monetary policy utilizes this relationship to control many aspects like economic growth, inflation, exchange rates with other currencies and unemployment.

The entity that is responsible for implementing the monetary policy of a country is the Central Bank (for example Federal Bank in USA, Bank of England in UK, Reserve Bank of India in India). Its primary responsibility is to maintain the stability of the national currency and money supply. Other responsibilities include:

- Acting as a 'lender of last resort' to the banking sector – in other words, be the bankers' bank.
- Regulation and supervision of banking industry
- Managing the country's foreign exchange and gold reserves

- Be the government's banker and stock register

Against this backdrop, it is important to understand the need for communication, the different communication challenges faced by the central banks, and how communication helps in improving transparency in the workings of the central bank, thereby achieving more effective policy implementation.

### Why should a central bank communicate?

Communication of modern central banks has steadily increased and has become more open over the years. Previously, especially in the 1980s there was little explanation and announcements about changes made by the central banks to the interest. The market participants and the general public would take considerable time and effort in order to react to these policy decisions. But the situation is different now. Most central banks talk openly about the policy decisions and strategies adopted and why they chose a particular strategy. They not only announce policy changes but also make their detailed assessment of the prevailing economic conditions public in journals. They also publish minutes of their internal discussions<sup>1</sup> to improve transparency and make speeches to parliamentary committee to make themselves accountable to the government.

There are many reasons why central banks communicate. Firstly, there is the principle of **accountability** and **transparency** to the general public, government and other observers in the market.

Need for **accountability** means that there is

increasing demand for more frequent communication over the years from many areas which include:

- the financial markets - where asset prices are dependent on information including that about the central bank's assessment of the economy<sup>2</sup>. This is due to the fact that there has been increased development and integration among different capital markets in the world.
- the parliament - which has delegated authority and granted higher operational independence to these central banks. Such delegation would lead to more expectations about the accountability of the central bank since the parliament is answerable to the general public through the media.
- the media - who seek to create new markets by supplying more intensive and relevant economic information and also by covering, more frequently, the important issues about monetary policy.

Such transparency and accountability is required to satisfy the increasing demand for autonomous institutions (like the central banks) for achieving efficiency in implementing the monetary policy through education and for displaying legitimacy of the institution. This is especially true in the case of developing nations such as Chile where the Central bank is required to state the monetary policy undertaken to the President of the Republic as well as the Senate<sup>3</sup>. The Chile Central bank reports the monetary policy along with the other reports, internal communications and minutes not only to the Senate but also to the public.

Secondly, there is the pressure to implement a more **effective monetary policy** through education and information dissemination. By making the information publicly available, the central bank can make its own policy decisions predictable thereby conditioning the expectations. Such conditioning of expectations can indeed be quite powerful in constraining the 'current behavior' of the economy<sup>4</sup>. For example, an expectation of a series of interest rate hikes has more desirable effects than a single interest rate hike without any prior communication. Expectations about future inflation also help in controlling inflation if the people are aware of the central bank's goals, its assessment of the economy and strategies in order to combat inflation.

Although there is risk involved in the implementation of the policies due to the uncertain

nature of the markets, the intention is to alleviate this risk through proper communication so that the reaction of the public is based on information and knowledge and not on speculation. Thus, we can say that communication plays an important part in implementation of policy decisions.

#### **What and how should a central bank communicate?**

Central banks should communicate the monetary policy reports (which includes information on economic conditions, forecasts of inflation and other key macro-economic variables, inflation targets), important internal communications, the minutes of meeting of its board, research publications of their staff and public speeches on important issues by its governors in different committee meetings. While making the information publicly available, central banks should also ensure that there is scope for a healthy debate and discussion about the policy decisions among the board members.

Central banks utilize various channels for the purpose of external communication – internet - for making the monetary policy reports and minutes available to the public, journals and publications - for publishing the research data. Central bankers also make appearances in front of the parliamentary committee in order to make themselves accountable to the elected representatives.

#### **What communication challenges are faced by central banks?**

Among the challenges faced by Central banks, the **existence of communication gap** is an important one. Although the central bank might have reasonably successful in implementing its policy decisions, it has to address the overall perception, which is to improve clarity in presenting and explaining the policy strategy and the future course it is going to take, held by the public, academicians, financial analysts, market participants and media<sup>5</sup>.

Another important challenge faced by central banks is the **limits to transparency** in the implementation of monetary policies. Although transparency results in more effective implementation of monetary policy decisions as well as displays legitimacy of the central bank, there are limits to the transparency that can be displayed by

---

1. "Central bank communication" by Glenn Stevens

2. "The impact of central bank announcements on asset prices in real time" by Carlo Rosa and Giovanni Verga

3. "Transparency and communication in modern central banking" by Jose De Gregorio

4. "Central bank communication" by Glenn Stevens

the central bank. This is to ensure that there is adequate scope for internal discussion in the central bank as well as the dynamics of the discussions is sustained. It is quite common to see a handful of board members not agreeing with the majority. If every utterance of the members is noted or the meeting itself is recorded, then it may lead to situations where members would come to the meeting with a pre-written statement instead of having a genuine, interactive and quality discussion. Hence, it is important to strike the right chord of balance and there are varying levels of transparency being shown by different central banks in the world.

Other challenges related to transparency faced by the central banks are that there is a demand for more clarity and certainty about the monetary policy which should be explained in a coherent and consistent framework. But such a framework would mean that the flexibility of the policy strategy itself is compromised.

Moreover, markets may not be more interested in understanding the intricacies of monetary policy decisions but they would be interested in predicting, with more certainty, any future interest rate hikes by the central bank<sup>6</sup>. However, statements of future policy decisions can only be of conditional and ambiguous nature as the economy is inherently uncertain and such previous statements should not impose undue constraints on the central bank's flexibility and freedom to take the best-suited decisions. Thus, there is a mismatch between the expectations of the market about the information that is required and the future policy plans that is to be undertaken by the central bank.

In summary, the challenges related to transparency can be categorized as follows –

- Firstly, the clarity of the policy strategy/decisions itself (deals with how well defined the strategies are, how should strategies should be designed to be effective in different situations and to meet varying needs.)
- Secondly, the effectiveness of the communication process within the context of the chosen strategy (deals with how well motivated, well explained and well understood the policy strategy is, how should the central banks tailor their communication to diverse audiences, what, when and how should a central bank communicate to the media, government and the

general public, which channels should the central bank use for communication and education and what are the limits to transparency.)

#### **Conclusion:**

The main idea behind central bank communication is that it should educate the market participants on how the bank processes and reacts to macroeconomic data, thus revealing the core of the policy reaction function. This is an ongoing effort on the part of the central bank as there are conflicting opinions from different audiences with regards to transparency, effectiveness of policy implementation, expectations and other aspects.

Although accountability and transparency are essential for the functioning of such autonomous institutions, there are limits to the transparency that should be accommodated in order to encourage quality discussions internally among central bankers.

The effectiveness of policy implementation depends on the clarity of the strategy as well as the structure, clarity and presentation of the communication process. These two have different scopes and should not be confused with each other – clarity in strategy definition involves being open and honest about the uncertainties associated with the economic functioning where as the communication process involves presenting the complex analysis, information about macro-economic data used for analysis and the chosen strategy in a structured and effective manner.

The expectations of the market participants about the future policy plans should not be an inhibiting factor for the central bank to take the best-suited and mandated policy decision.

#### **References:**

1. *“Central bank communication”* by Glenn Stevens
2. *“Communication Challenges for the ECB”* by Otmar Issing
3. *“The impact of central bank announcements on asset prices in real time”* by Carlo Rosa and Giovanni Verga
4. *“Transparency and communication in modern central banking”* by Jose De Gregorio
5. [http://en.wikipedia.org/wiki/Monetary\\_policy](http://en.wikipedia.org/wiki/Monetary_policy)



---

5. “Communication Challenges for the ECB” by Otmar Issing

6. “Communication Challenges for the ECB” by Otmar Issing

# Who am I? Existential Question for an Investment Bank

The unprecedented events of the past few months have changed the landscape of the financial services industry. This article discusses the future role and structure of financial intermediaries.

**Dr. Ashok Hegde**

ashok\_hegde@mindtree.com

*Dr. Ashok. B Hegde is Vice President of the  
Capital Markets Group at MindTree Ltd.*

ashok\_hegde@mindtree.com

The events unfolding in the global financial arena have been unprecedented in the history of Finance and are a concern to every economy - where goods are produced, services are rendered and value is created through this exchange. Influences of these events have been felt by rather remote institutions such as the Nobel Foundation. The Nobel committee awarded the Nobel Prize for Economics to Paul Krugman who has advocated an interventionist capitalism where relationships between true economy and the finance world is looked at in detail by the federal banks, and the authorities are perceived as a more preventative machine than as a post-event analysis and penalty imposing institution.

This is the second time in the history of capitalism (first being the Great Depression of 1929), that the US Senate is discussing in detail means to overcome the challenges posed by what is termed now as the sub-prime crisis. It is believed that falling mortgage prices triggered the catastrophic events of the recent past world wide. In reality, the financial over-engineering and structured products which were hiding the true risk associated with assets, created this mayhem. It is first time in modern history (last 10 decades) that we are witnessing a crisis which has spread quicker than the bird flu.

At a summary level, Lehman Brothers filled for Chapter 11 of bankruptcy protection, Bank of America acquired Merrill Lynch, the US Federal Government picked up stake in AIG, and the UK government forced a marriage between Lloyds TSB

and HBOS. In an unprecedented move, governments across the world embarked on initiatives to create funds to support valuation of money market instruments and to ease liquidity in the system. They are taking measures to ensure credit quality does not deteriorate further. For the first time in the history of financial economics, a synchronized bailout of banks and financial intermediaries is being planned and executed with the same vigor with which a government protects and defends its borders against invasion. Truly, we are now in a global economy sharing the pains of the world, at least, if not pleasure! It is the first time in history of trading where the regulators all around the world are looking into what appeared to be a general practice of short selling. To that extent, 'bear' and 'bull' concepts will be redefined. On a lighter note, the new definition of a bear could be the person who takes government approval to sell early to minimize the loss! To put things in perspective, except Goldman Sachs, the rest have lost their top 5 positions based on the net capital calculations in the Institutional Banking space. Further, the independence of leading institutional banks are now restricted primarily due the approved Bailout Agreement. Lehman Brothers and Bear Stearns two of the largest capital markets firms are now no more. Together they constituted upward of USD 42 bn in net-worth. The finance world will surely miss them.

That was a recap of the events that occurred

during the past few months, though the storm brewed much earlier when the first signs of weaknesses in mortgage business surfaced in the year 2005. Beyond this interesting and nerve-breaking recap, what I want to look into is the question - what it means to all of us. What will be the structure of investment banks in years to come and how will it impact the spending on IT and IT-enabled services. Considering these are the organizations which first moved significant work to offshore and have built captives as well as offshore development centers within their service provider organizations, these are important questions that we will collectively try to find an answer to.

I would like to take this question by looking into a more fundamental issue - do we believe financial intermediaries, especially Investment Banks whose primary business caters to lead management, structured finance and trading will remain the same or more importantly will they survive this crisis and continue to exist? And my answer is big YES to both the questions. In addition to my personal belief of free economy, I believe Investment Banks as institutions have a significant role to play and they are critical to any market's economy. As long as the fundamental principle of economics holds good - the households will save and industries will consume the savings to produce goods and services for consumption by households, remains the same, the role for intermediaries will continue in years to come. Will they remain similar to what we have seen them as of today? Yes. Not as big? Probably no. Will they offer same services with same or similar asset class comprised of all instruments including structured products? No. Space such as credit default swaps and credit based derivatives product innovation will come under microscopic view both from internal and external risk managers. Insurance companies which used to underwrite these products to get better credit rating will no longer touch these instruments. SEC, FSA and Federal and Central banks of the world will increasingly scrutinize the off balance sheet transactions and will have a say about the nature of business being carried out or any innovation in financial markets. Risk and Risk mitigation from proactive initiatives will be the dominant theme for the next few years. More regulations will emerge for risk measurement

emerging from market practices. If you remember, the Enron debacle was one of the most important drivers and the Sarbanes-Oxley Act was used to place tremendous importance on disclosure of accounts and internal control systems. I believe year 2009 will be the year of Financial Regulations covering all intermediaries and their roles in an orderly financial world.

What is interesting to note is that regulations and interventions may bring upon consolidation within this space. If you look at American markets today, there are about 8000 banks and 7500 credit unions serving a population of 305 million. This capacity is definitely high in an age where banking touch points are now getting as close as the phone. In addition, the fact that a majority - about 80 percent - of the population lives in the urban areas, creates an unfavorable environment for banks to make healthy margins and remain competitive. It is my belief that consolidation and focus on improving service quality will further propel changes within the financial intermediaries' operations and business.

From an information and technology perspective, I believe, in the short to medium term (next 24 months), investment into this space will decline by about 15 percent. Considering that in the last five years, Investment Banking organizations have continuously improved their operational efficiencies there may not be further room available for drastic reduction without impacting the core business. For customers, asset class choice may get restricted. However, fact remains that these organizations will need to cater to the needs of trading and trading related services of their customers who are part of the real economy. They still need to trade, settle and account for it. However, they need to hold the instruments within their custody.

Though the challenges in front of the investment banks are significant and daunting, it has not changed the need for Investment Banking (IB) services. Investment banks' role may be slightly different post 2009. Their world which has hitherto been propelled by an unprecedented exposure will be far more orderly. No doubt resilience built over a period of time will help troubled institutions to tide over the crisis and come out stronger than before.



# Some amazing facts about currencies

## ■ Million Pound Note Auctioned

Spink (dealers and auctioneers in coins, stamps) put on auction the famous Number Eight £1,000,000 note. It is believed that only two notes of this high denomination exist in the world today, the other numbered 000007.

The million pound notes were issued in connection with the Marshall Aid Plan (a European Recovery Program, of the United States for rebuilding and creating a stronger foundation for the allied countries of Europe. The initiative was named after US Secretary of State George Marshall) after World War II and was intended for internal use as 'records of movement,' for a period of six weeks only. It is believed that nine examples were produced and only two, Numbers Seven and Eight, survived.

The two notes were given as mementoes to the respective U.S. and U.K. Treasury Secretaries. The Number Seven was first sold in 1977 and is listed in the Guinness Book of Records as being the highest denomination note in private hands. The 8-inch-wide green banknote, numbered 000008, was issued by the Bank of England on Aug 30, 1948. This defunct note was entered for sale by the U.K based banknote collector Bill Parkinson at Spinks' October 1, 2008 sale of world banknotes.

[Source: <http://nutmegcollector.blogspot.com/>]



■ The Bank of the United States was the first central bank chartered by the U. S. Congress. The bank issued the first currency bearing the words "United States". The bank closed in 1811 when Congress failed to renew its charter.

[Source: <http://nutmegcollector.blogspot.com/>]



■ This ten thousand dollar note from 1928 issued by the Federal Reserve Bank is the highest U. S. denomination ever issued for public circulation. It bears the portrait of Salmon P. Chase who served as Secretary of the treasury and Chief Justice of the United States.

[Source: <http://www.richmoneymillion.com/>]



■ This one hundred thousand dollar bill is the highest U.S. denomination issued but for transactions between the Federal Reserve Bank and the Treasury Department and not for public circulation. The bill bears the portrait of President Woodrow Wilson. There were 42 thousand of these bills printed. The government stopped using them in 1960 and most were destroyed. Only three are known to exist, and it is illegal for a private person to own one of these notes.

[Source: <http://www.richmoneymillion.com/>]



# Miscommunication

## Memo from CEO to Manager:

Today at 11 o'clock there will be a total eclipse of the sun. This is when the sun disappears behind the moon for two minutes. As this is something that can not be seen everyday, time will be allowed for employees to view the eclipse in the parking lot. Staff should meet in the lot at ten to eleven, when I will deliver a short speech introducing the eclipse, and giving some background information. Safty goggles will be made available at a small cost.

## Memo from Manager to Department Head:

Today at ten to eleven, all staff should meet in the car park. This will be followed by a total eclips of the sun, which will appear for two minutes. For a modarate cost, this will be made safe with goggles. The CEO will deliver a short speech beforehand to give us all some information. This is not something that can be seen every day.

## Memo from Department Head to Floor Manager:

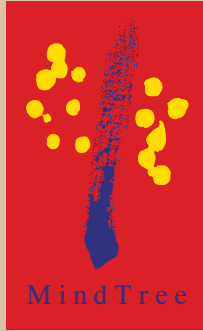
The CEO will today deliver a short speech to make the sun disappear for two minutes in the form of an eclipse. This is something that cannot be seen every day, so staff will meet in the car park at ten or eleven. This will be safe, if you pay a moderate cost.

## Memo from Floor Manager to supervisor:

Ten or eleven staff to go to the car park, where the CEO will eclipse the sun for two minutes. This doesn't happen everyday. It will be safe, and as usual it will cost you

## Memo from supervisor to staff:

Some staff will go to the car park today to see the CEO disappear. It is pity this doesn't happen everyday.



MindTree Ltd. is a global IT and R&D Services Company co-headquartered in the U.S. and India. With a passion for customer satisfaction, MindTree partners with its clients to create a transparent, value-based relationship. Our domain experts deliver business-enabling solutions by leveraging a consulting led, framework-based and IP-driven approach. MindTree's IT Services business provides a range of services to CIOs across a variety of industry segments. Our R&D Services business works with Technology companies to help build innovative products by providing Product Realization services.

MindTree was named among the Top 30 offshore service providers by the International Association of Outsourcing Professionals and Fortune Magazine. Widely known for its focus on human capital development, MindTree has been consistently rated as the most admired employers by several industry surveys, including Hewitt Associates and Mercer/TNS, and is also the winner of the MAKE Award for knowledge management. MindTree is publicly listed in India.

Please visit us at [www.mindtree.com](http://www.mindtree.com).



## In this MindScape ...

1. Editorial	
<i>By: Dr. Ashok Hegde</i> .....	1
2. Non-normality nature of hedge fund index returns	
<i>By: Sandeep R Upadhy</i> .....	2
3. Collateralized Debt Obligations: Structure, pricing and concerns	
<i>By: Raghunath Tripasuri</i> .....	9
4. Communication in modern central banking	
<i>By: Sandeep R Upadhy</i> .....	12
5. Who am I? Existential Question for an Investment Bank	
<i>By: Dr. Ashok Hegde</i> .....	16
6. Some Amazing Facts about currencies	
.....	17



*Opinion expressed in the articles are authors only and MindTree is not responsible for any representations/opinion expressed in here. This news letter is for private circulation only.*



## MindScape Team

Solution Design - Capital Markets & BFS



Please mail your feedback and suggestions to [fin\\_minds@mindtree.com](mailto:fin_minds@mindtree.com)



Designed and printed by: [gchannakeshava@gmail.com](mailto:gchannakeshava@gmail.com)