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P R E S E N T S

# CFM QUARTERLY IN FINANCE

## JULY 2011 EDITION

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CFM Quarterly in Finance, a publication of the Centre for Financial Management, Bangalore is primarily a practitioner-oriented journal. It seeks to discuss contemporary developments, analytical concepts and techniques, research insights, perspectives, and state-of-the art practices. By and large, the CFM Quarterly in Finance seeks to convey important developments in the theory and practice of finance in a rigorous, but relatively non-technical, manner.

# SECTION A: ARTICLES / CASES

## 1. GLOBAL FINANCIAL CRISIS

For a quarter of century, beginning in early 1980s, finance enjoyed its golden age. As an *Economist* article put it: "As financial globalisation spread capital more widely, markets evolved, businesses were able to finance new ventures, and ordinary people had unprecedented access to borrowing and foreign exchange. Modern finance improved countless lives."

But more recently something went seriously wrong and that led to an unprecedented global financial crisis. It surfaced in the subprime mortgage sector in the U.S. in August 2007 and, following the collapse of Lehman Brothers in September 2008, snow balled into a global financial crisis. It led to the bankruptcy or rescue of the top five investment banks on Wall Street, the biggest insurance company (AIG), the biggest bank (Citibank), the biggest automobile company (General Motors), and the biggest mortgage underwriters (Fannie Mae and Freddie Mae). It is widely regarded as the greatest crisis in the history of financial capitalism because of the speed and intensity with which it simultaneously propagated to other countries. Apart from its huge financial cost, its adverse impact on the real economy has been severe. According to IMF, in 2009 the world GDP declined by 0.8 and the world trade volume contracted by 12 percent.

The crisis has called for re-examining the dominant tenets in macroeconomics. It has challenged the belief in the self-correcting nature of financial markets and brought to focus the role of finance in economic growth.

### Contributory Factors

A confluence of factors seems to have caused the global financial crisis. The major ones are discussed below:

**Macro-economic Imbalances** Last decade has witnessed an explosion of macro-economic imbalances in the world, with a very high savings rate in countries like China and very low savings rates in countries like the U.S. The high savings rate resulted in a fall in the real risk-free interest rate to historically low levels. For example, in 1990 the risk-free index-linked government bonds in U.K. or U.S. provided 3 percent real rate. In recent years it fell below 2 percent and at times to about 1 percent.

The fall in real interest rates has led to rapid growth of credit in some developed countries (which fuelled a property boom) along with a decline in credit standards. It also drove investors to search for improvement in yield, however slight that might be. Any product that appeared to increase yield by 10, 20, or 30 basis points, without adding measurably to risk, seemed attractive.

**Unbridled Financial Innovation** The demand for yield enhancement was met by a wave of financial innovation, focused on securitised credit instruments.

Securitisation involves packaging a designated pool of assets (mortgage loans, consumer loans, hire purchase receivables, and so on) and issuing securities which are collateralised by the underlying assets and their associated cash flow streams. Securitisation gained in

importance from the early 1980s and was regarded as a major financial innovation that reduced the risk of the banking system as credit risk was transferred to the end investors.

But when the crisis broke, it was realised that most of the holdings of securitised credit instruments were in the books of highly leveraged banks and financial institutions and not in the books of end investors. As the *Turner Review* noted: "The evolution of the securitised credit model was accompanied by a remarkable growth in the relative size of the wholesale financial services within the overall economy, with activities internal to the banking system growing far more rapidly than end services to the real economy." For example, in the U.K. the debt of the financial sector as a proportion of GDP increased from 30 percent in 1987 to nearly 250 percent in 2007. Naturally, the growth of the relative size of the financial sector, and in particular the activities in securitised credit instruments, increased systemic risk, contributing to the credit boom during the upswing and accentuating the subsequent downswing.

A worrisome aspect of this growth was the fact that Collateralised Debt Obligations (CDOs) loomed large in this wave of financial innovation. A CDO is a product backed by a diversified pool of debt obligations such as corporate bonds, bank loans, emerging market bonds, asset-backed securities, mortgages, and other CDOs. When the underlying pool of debt obligations represents bond-type instruments, a CDO is called a collateralised bond obligation (CBO); when the underlying pool of debt obligations represents bank loans, a CDO is called a collateralised loan obligation (CLO).

The problem with CDOs is that they have a very high and imperfectly embedded leverage and are very difficult to value. As Emanuel Dreman of Goldman Sachs says: "With Black-Scholes model you know what you are assuming when you use the model, and you know exactly what has been swept out of view, and hence you can think clearly about what you may have overlooked." With CDOs he says, "you don't know how to adjust for its inadequacies." It appears that the sophisticated U.S. financial services overwhelmed the relatively unsophisticated financial services elsewhere.

**Misplaced Reliance on Sophisticated Maths** The expansion of financial sector and the complexity of securitised credit products was accompanied by the development of sophisticated mathematical models for measuring and managing risks. But these models were based on the assumption that the distribution of future prices would be similar to their past distribution. This was indeed a fragile assumption that caused massive damage.

As Warren Buffett notes: "Indeed, the stupefying losses in mortgage-related securities came in large part because of flawed, history-based models used by salesmen, rating agencies, and investors." He warns "Investors should be skeptical of history-based models. Constructed by a nerdy-sounding priesthood using esoteric terms such as beta, gamma, sigma, and the like, these models tend to look impressive. Too often, though, investors tend to forget to examine the assumptions behind the symbols."

In a similar vein, Edmund Phelps, Nobel Laureate in Economics, says: "Risk assessment and risk-management models were never well-founded." He adds: "There was a mystique to the idea that market participants know the price to put on this or that risk. But it is impossible to imagine that such a complex system could be understood in such detail and with such amazing correctness. The requirements of information have gone beyond our abilities to gather."

**Flawed VAR Calculations** An important abuse of quantitative analysis has been with respect to value at risk (VAR) calculation. VAR reflects a limit on the loss of value of a portfolio, on account of normal market movements, which will be exceeded only with a small pre-specified probability. Thus if VAR is Rs. 10 million (or whatever) with a confidence level of 95 percent, it

means that there is only a 5 percent probability that the loss in portfolio value will exceed Rs. 10 million. Quantifying risk in this fashion requires sophisticated analytical modeling and simulation analysis. The typical VAR analysis is based on the assumption that the underlying market movement follows a normal distribution.

Benoit Mandelbrot, the polymath who invented fractal theory, calculated the theoretical changes (under normal distribution) and the actual changes of the Dow Jones Industrial Average (DJIA) over the period 1916 to 2003, as shown below:

| ***Theory*** | ***Reality*** |
|---|---|
| • More than 3.4 percent on 58 days | • More than 3.4 percent on 1001 |
| • More than 4.5 percent on 6 days | • More than 4.5 percent on 366 days |
| • More than 7 percent once in 300,000 years | • More than 7 percent on 48 days |

Mandelbrot argues that the market movement is characterised by fat-tail distribution and not normal distribution. The market should have been "mildly stable" but it was actually "wildly stable."

This presents a conundrum. As an *Economist* article put it: "On the one hand, you cannot observe the tails of the VAR curve by studying extreme events, because extreme events are rare by definition. On the other hand, you cannot deduce very much about the frequency of rare extreme events from the shape of the curve in the middle." Put differently, while VAR is good at predicting small losses in the middle of the distribution, it is unreliable in predicting severe losses that are much rarer, but matter the most.

Modern finance perhaps has made the tails fatter. When all kinds of specific risks in foreign exchange, interest rates, and stock prices are traded away the portfolio may appear safer. But in reality every day risk may be swapped for an exceptional risk like the failure of the insurer, as it happened with AIG.

**Explosive Growth in Derivatives** Since the early 1970s financial prices – exchange rates, interest rates, commodity prices, and equity prices – have become more volatile. To cope with these risks corporations and banks resorted to the use of derivatives like options, futures, forwards, and swaps.

Another force that fuelled the explosion in derivatives was a powerful combination of mathematics and computing. Before the development of Black-Scholes model, option pricing was more or less educated guesswork. The Black-Scholes model instilled confidence in buyers and sellers to trade heavily in derivatives. Explains Emanuel Derman of Goldman Sachs: "In a thirsty world filled with hydrogen and oxygen, someone had finally worked out how to synthesise $H_20$."

A significant portion of trading in derivatives takes place in the OTC (over-the-counter) market. In June 2008, the volume of outstanding OTC derivatives contracts was of $530 trillion (interest rate derivatives accounted for $460 trillion, credit default swaps accounted for $60 trillion, and equity derivatives accounted for $ 10 trillion). The staggering size and complexity of derivatives market and the fact that it is mostly an OTC market increases the potential danger of market disruption.

John Shad, former chairman, Securities Exchange Commission, expressed concern about this phenomenon. He said: "Futures and options are the tail wagging the dog. They have escalated the leverage and volatility of the markets to precipitous, unacceptable levels." Warren Buffett echoed a similar warning :"Charlie and I are of one mind in how we feel about derivatives and the trading activities that go with them: we view them as time bombs, both for the parties that deal in them and the economic system."

Warren Buffett had expressed his concern in 2003 itself: "Many people argue that derivatives reduce systemic problems, in that participants who can't bear certain risks are able to transfer them to stronger hands. These people believe that derivatives act to stabilize the economy, facilitate trade, and eliminate bumps for individual participants. And, on a micro level, what they say is often true. Indeed, at BH, I sometimes engage in large scale derivatives transactions in order to facilitate certain investment strategies. Charlie and I believe, however, that the macro picture is dangerous and getting more so. Large amounts of risk, particularly credit risk, have become concentrated in the hands of relatively few derivatives dealers, who in addition trade extensively with one another. The troubles of one could quickly infect the others."

Unfortunately, the bulk of the financial community, enamoured of the derivatives revolution, did not appreciate the systemic implications of the explosive growth of derivatives.

**Regulatory Laxity** The general euphoria about the contribution of modern finance to economic performance seems to have induced complacency in regulators. For example, in 2004, the Securities Exchange Commission (SEC) exempted the brokerage units of investment banks from a regulation that limited the amount of debt they could take in return for a greater oversight of the investment activities of the banks by the SEC. The SEC merely relied on the firms' own computer models for determining the riskiness of investments. And it hardly did anything to follow up on the risky activities uncovered by its examiners. Thanks to the connivance of the regulators, investment banks could increase their debt equity ratio to such preposterous levels as 30:1.

A conspicuous example of regulatory laxity was the introduction of 'Commodity Futures Modernisation Act' on the last day of the last session of a lame duck 106th session of the U.S. Congress in 2000. This Act removed the various capital constraints on lending and exempted derivatives and credit default swaps from legislative purview. This had a far-reaching impact on the U.S. financial system. As an example, in 2000 when the U.S. Congress introduced the new legislation the size of the CDS (credit default swaps) market was $100 billion; in late 2008 the size of the CDS market was $62 trillion. Charlie Munger finds CDS inherently objectionable: "Do you think it would be desirable if everybody in America could buy life insurance on any person they wanted to buy life insurance on? He continues "That would be pretty dangerous for the person who was insured. Some of that danger exists once you get people who have a vested interest in the destruction of some business."Even if CDS are not used to destroy good companies, they induce cynicism and sloppiness in bank lending. As Cristine Richard says: "In the end, the $62 trillion CDS market allowed Wall Street to lend without having confidence in the men and women it lent to. Wall Street hedged away the risk of lending and in the process undermined the entire system."

**Flaw in the Business Model of Investment Banks** Investment banks originally started off as brokerage firms and then diversified into underwriting of securities and advisory services. None of these businesses requires huge amounts of capital.

When commissions on their traditional businesses declined, investment banks further diversified into proprietary trading and then to private equity, businesses which require large

amounts of capital to be committed to risky and illiquid assets. To finance these risky businesses they recklessly levered themselves. In August 2008, even after additional equity infusions, Lehman Brothers had a debt-equity ratio of 20:1. With such vulnerability, the acquisition of a property investment company at the height of the property bubble was sufficient to kill Lehman Brothers.

There were serious flaws in the model followed by investment banks. First, their assets were financed in the wholesale markets. If there is uncertainty about the value of the assets, access to funds is cut off, triggering a collapse. Second, high leverage incentivises managers to take huge risks. If the bets succeed, managers get outsized rewards; if the bets fail, shareholders get screwed up.

One can argue that the irresponsible behaviour of financial institutions is a manifestation of moral hazard to a certain extent. The involvement of the Federal Reserve Bank of New York in rescuing Long Term Capital Management perhaps prodded large financial institutions to assume more risk.

**Excessive Leverage in European Banks** While Europeans criticised the U.S. investment banks for their casino capitalism, their own banks such as UBS, Credit Suisse, ING, Dexia, ad B N P Paribas had debt-equity ratios nearing 50:1. Using the Basel norms European banks justified their high leverage by arguing that their assets (including much sovereign debt) were of high quality.

Yet the crisis of late 2008 taught some sobering lessons. First, even the highest rated assets can get tainted in a crisis thereby inflicting huge losses on highly leveraged banks. Second, in a panic, even the biggest financial institutions are vulnerable to a run on deposits or panic sales of securities. Third, practices like capital adequacy norms and mark-to-market are pro-cyclical, not anti-cyclical.

**Reverse Natural Selection in Finance** In financial services, there is always a temptation to play. This tendency has been heightened with the evolution of financial services from a guild of small partnerships to a joist of gigantic multinational corporations and clashing egos. As Chuck Prince, CEO of Citigroup in 2007, said: "As long as the music is playing you have got to get up and dance." A bank of Citi's size cannot sit on the sidelines without inviting criticism from investors and commentators.

The perturbing message in Prince's words is that bit by bit boom induces excessive risk taking, thereby causing reverse natural selection. As an *Economist* article says: "The end of partnerships turned private rivalries into a public tournament. The senior managers' wealth, careers and status were completely wrapped up in their firm's pre-eminence. League tables, quarterly results, daily share-price movements, total shareholder returns, all are ways of keeping score." It adds: "If you did not compete you were a dullard. If you pulled back your career may be cut short."

To paraphrase Keynes, the market can stay irrational longer than you can stay in your job. So in the last 35 years it appeared that everyone in finance tried to be someone else. As an *Economist* article put it: "Hedge funds and private equity wanted to be as cool as a dotcom. Goldman Sachs wanted to be as smart as a hedge fund. The other investment banks wanted to be as profitable as Goldman Sachs. America's retail banks wanted to be as cutting edge as investment banks. And European banks wanted to be as aggressive as American banks. They all ended up wishing they could be back precisely where they started."

## 2. NOISE AND PERFORMANCE IN STOCK MARKET

In general, if returns are independent over time (which means that they behave like a random walk), the standard deviation of the average return over *n* years is s / $\sqrt{n}$, where s is the standard deviation of one-year return and *n* is the length of investment horizon. This means that as the investment horizon elongates the standard deviation of average return decreases and as the investment horizon contracts the standard deviation of average return increases. For example, if equities earn an average annual return of 15 percent with a standard deviation of 10 percent, the standard deviation of average return will be as follows for different investment horizons:

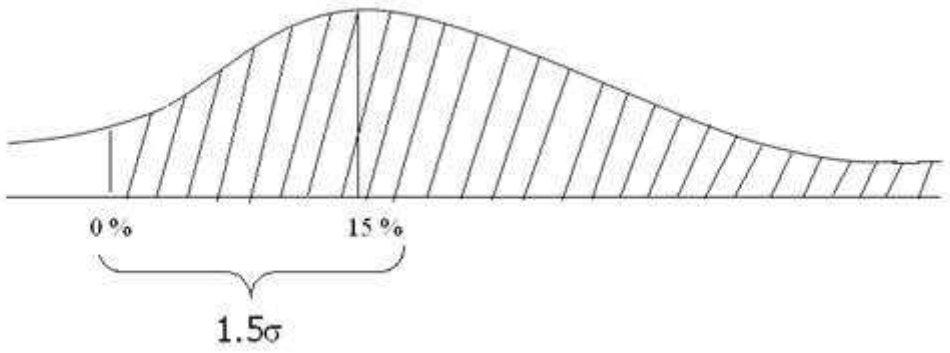
| Investment Horizon | Standard Deviation of Average Return |
|---|---|
| 2 years | $10 / \sqrt{2}$ = 7.07 percent |
| 1 year | $10 / \sqrt{1}$ = 10.00 percent |
| 3 months | $10 / \sqrt{0.25}$ = 20.00 percent |

Note that while the average annual return remains the same, viz., 15 percent, the standard deviation of average return varies inversely with the investment horizon. This means that as the observation period shortens, noise (volatility) dominates performance (average return) and vice versa. To appreciate the significance of this let us assume that equities provide an average annual return of 15 percent with a standard deviation of 10 percent and answer two questions:

- What is the probability of success (defined as a positive return) for different observation periods?
- How much of noise and how much of performance do we see over different observation periods?

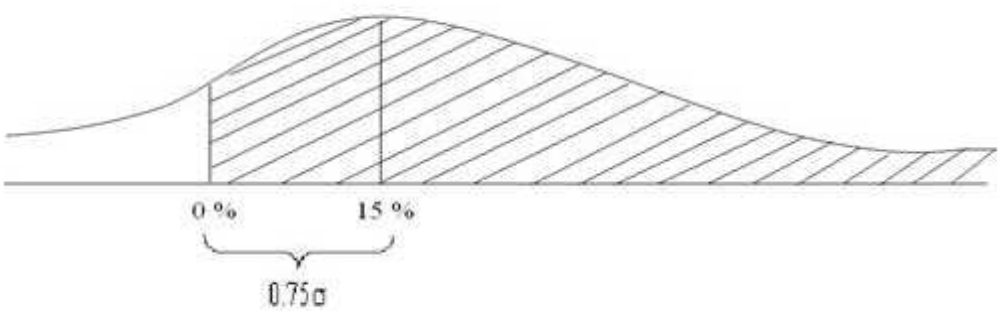
### Probability of Success

What would be the probability of success (defined as a positive return) in any given year? Since the standard deviation of average return over a one-year period is 10 percent and the average return is 15 percent, 0 percent (which separates success from failure) is 1.5 s to the left of the mean (15 percent). So, the probability of success is equal to the shaded area in the following distribution:




Consulting the table of standard normal distribution, we find that the probability of the shaded area is 0.93 or 93 percent.

What would be the probability of success over a quarter (0.25 years)? The standard deviation of return when the period is 0.25 is: 10% / $\sqrt{0.25}$ = 20 percent. Now, given a mean return of 15 percent and a standard deviation of 20 percent, 0 percent is 0.75 s to the left of the mean. So, the probability of success is equal to the shaded area in the following distribution.




From the standard normal distribution table, we find that the probability of the shaded area is 0.77 or 77 percent.

Thus we find that when the time scale is 1 year the probability of success is 93 percent and when the time scale is a quarter, the probability of success is 77 percent. As the time scale reduces the probability of success falls as shown below:

| Scale | Probability of Success |
|---|---|
| 1 year | 93% |
| 1 quarter | 77% |
| 1 month | 67% |
| 1 day | 54% |
| 1 hour | 51.3% |
| 1 minute | 50.17% |
| 1 second | 50.02% |

From the above it is clear that as the observation period shortens noise dominates performance.

## Proportions of Performance and Noise over Different Observation Periods

Average return represents performance and standard deviation (volatility) represents noise. If equities earn an average annual return of 15 percent with a standard deviation of 10 percent, then the performance and noise for various observation periods are:

| Observation Period | Performance (Average Return) | Noise (Standard Deviation) |
|---|---|---|
| 2 years | 15 percent | 7.07 percent |
| 1 year | 15 percent | 10.00 percent |
| 3 months | 15 percent | 20.00 percent |
| 1 month | 15 percent | 34.64 percent |
| 1 week | 15 percent | 72.11 percent |
| 1 day | 15 percent | 191.10 percent |

Thus we find that over 2 years, we observe 0.47 parts noise for one part performance; over 1 year we observe 0.67 parts noise for one part performance; over one-quarter we observe 1.33 parts noise for one part performance; over one month we observe 2.31 parts noise for one part performance; over one week we observe 4.81 parts noise for one part performance; and over 1 day we observe 12.74 parts noise for one part performance. As the observation period contracts, noise dominates performance.

## 3. PROCTOR AND GAMBLE: MASTER IN INNOVATION

Proctor and Gamble (P&G) has excelled in innovation, which is at the heart of their business model, for decades. P&G has innovated consistently, reliably and successfully. Its long list of innovation firsts includes Tide (the first heavy-duty laundry detergent), Crest (the first fluoride toothpaste clinically proven to prevent tooth decay), Head and Shoulders (the first pleasant-to-use shampoo effective against dandruff), Pampers (the first affordable, mass-marketed disposable diaper), Bounty (the first three-dimensional paper towel), Always (the first feminine protection pad with an innovative, dry-weave topsheet), Febreze (the first fabric and air care product that actually removes odors from fabrics and the air), and Crest White Strips (the first patented in-home teeth whitening technology).

P&G has created a unique design for innovation. P&G defines innovation broadly, invests in innovation at industry-leading levels, manages innovation with discipline, delivers innovation that builds customer trust and loyalty over time, and leads innovation with global brands and an outstanding team of innovation leaders.

P&G's integrated, end-to-end approach, to innovation, complemented by its global scale and scope, enables it to win customers and generate sustainable long-term growth and shareholder value.

P&G invests more than $2 billion a year a R&D, nearly twice the level of its closest competitor, Unilever and roughly equal to the combined total of its other major competitors – Avon, Clorox, Colgate, Energizer, Henkel, Kimberly Clark, L'Oreal, and Reckitt Bencksier. It also maintains a high level of marketing investment in its brands. Its advertising budget has averaged 10% of sales over the past 15 years.

P&G takes a very comprehensive approach to productivity improvement leading to systematic growth in productivity. Sales per employee have grown more than three-fold and net earnings per employee have grown eight-fold since 1980. A good example of P&G's productivity improvement is its Global Business Services – P&G's shared services business model.

P&G systems, infrastructure, and services are focused on improved service levels and greater value creation. Its Global Business Services (GBS)is recognised as the best shared-services organisation in the world. It has brought about substantial savings in cost. The GBS, in collaboration with R&D and Engineering functions, is making P&G a more productive and effective innovator.

P&G exercises tight control over overhead spending. For businesses projected to grow significantly faster than the balance of the portfolio, the overhead target growth is set equal to or less than half their projected sales growth, for slower-growing businesses and all corporate functions, no overhead growth is allowed; for businesses growing below company goals and / or having significant cost structure issues, overhead spending must reduce each year.

P&G's Corporate Innovation Fund is in essence an in-house venture capital fund that does initial concept, design, engineering, and qualification work. It hands over successful ideas to the appropriate business units.

# SECTION B: SNIPPETS

## Basic and Diluted Earnings per Share

As per Accounting Standard 20 all listed companies should present basic and diluted earnings per share for each class of equity share.

To calculate the basic earnings per share, the net profit or loss for the period attributable to equity shareholders is divided by the weighted average number of equity shares during the period.

To calculate the diluted earnings per share, the net profit or loss for the period attributable to equity shareholders and the weighted average number of shares outstanding during the period should be adjusted for the potential dilution arising from conversion of debt into equity, exercise of warrants and stock options, and so on. The nature of adjustment is illustrated below:

**Convertible Debentures** To illustrate the diluted EPS is calculated, when a company has outstanding convertible debentures let us consider an example. Magnum Company has 10 million equity shares of Rs. 10 each and 200,000 convertible debentures of Rs. 100 each carrying a coupon rate of 8 percent. Each convertible debenture is convertible into 4 equity shares. Magnum's profit after tax for the year ended March 31, 20X5, was Rs. 25 million and its tax rate is 30 percent.

The basic earnings per share is:

| | | | | |
|---|---|---|---|---|
| Basic earnings per share | = | Rs. 25,000,000<br>Rs. 10,000,000 | = | Rs. 2.50 |

The diluted earnings per share is calculated as follows:

| | |
|---|---|
| Number of existing equity shares | 10,000,000 |
| Equivalent number of equity shares corresponding to convertible debentures | 800,000 |
| Number of equity shares for calculating the diluted earnings per share | 10,800,000 |
| Profit after tax | Rs. 25,000,000 |
| Add: After-tax debenture interest<br>200,000 x 100 x .08 x 0.70 | 1,120,000 |
| Adjusted profit after tax | 26,120,000 |
| Diluted earnings per share<br>26,120,000 / 10,800,000 | Rs. 2.42 |

**Stock Options** To illustrate how the diluted earnings per share is calculated when a company has issued stock options, assume that the Magnum Company does not have convertible debentures but has issued stock options for 1 million shares which are exercisable at a price of Rs. 24. The fair value of an equity share is Rs. 30.

The excess of fair value (Rs. 30) over the exercise price (Rs. 24) is translated into an equivalent number of equity shares for calculating the diluted earnings per share. The calculation of the diluted earnings per share is shown below:

| | | |
|---|---|---|
| Number of existing equity shares | | 10,000,000 |
| Number of equity shares | | 10,000,000 |
| Number of equity shares under stock option | 1,000,000 | |
| Number of equity shares that would have been issued at fair value: 1,000,000 x 24/30 | 800,000 | |
| Dilution impact in terms of equivalent number of shares | | 200,000 |
| Number of equity shares for calculating the diluted earnings per share | | 10,200,000 |
| Diluted earnings per share : Rs. 25,000,000 / 10,200,000 | | Rs. 2.45 |

## Offer Document

'Offer document' is a document used for inviting subscription to the issue being made by the issuer. It contains information about the company, promoters, projects, financial details, objects for raising money, terms of the issue, and so on.

Depending on the stage or type of the issue, the terms used for the offer document are as follows:

- *Draft Offer Document* This is the offer document filed with SEBI for specifying changes, if any, before it is filed with the Registrar of Companies (ROCs). Through SEBI website, the draft offer document is made available in public domain to enable public to give comments.
- *Red Herring Prospectus* This is the offer document used in case of a book built public issue. It contains all the relevant details excepting the price and the number of shares being offered. It is filed with the ROC before the issue opens.
- *Prospectus* This is the offer document in case of a public issue that contains all the relevant details, including the price and the number of shares being offered. The prospectus has to be filed with ROC before the issue opens in case of a *fixed price issue* and after the issue closes in case of a *book built issue.*
- *Letter of Offer* This is the offer document in case of a rights issue. It is filed with the stock exchanges before the issue opens.
- *Abridged Prospectus* This is an abridged version of the offer document for a public issue, which has to be issued along with the application form of a public issue.
- *Abridged Letter of Offer* This is an abridged version of the letter of offer, which is sent to all shareholders along with the application form.

- *Shelf Prospectus* This is a prospectus that enables an issuer to make a series of issues within a period of 1 year without the need to file a fresh prospectus every time. This facility is available to public sector banks / public financial institutions.
- *Placement Document* This is an offer document used for the purpose of Qualified Institutional Placement.

## Micro Efficiency and Macro Inefficiency

Paul Samuelson has argued that modern markets show considerable micro efficiency because the minority that spots deviations from micro efficiency can make money by exploiting those deviations and in doing so they eliminate persisting inefficiencies. In contrast, Paul Samuelson hypothesized that markets display considerable macro inefficiency in the sense that aggregate indexes of security prices remain below or above various definitions of fundamental values for long periods of time. There seems to be substantial evidence in support of Samuelson's dictum where inefficiency is defined as predictability of future (excess) returns.

Samuelson's dictum is plausible because much more information is available about future changes in fundamentals of individual firms than about future changes in the fundamentals of the aggregate stock market. Activities and prospects of individual firms are highly diverse. Some firms may be poised to grow rapidly in profitable segments because of major technological breakthroughs or favourable market developments; other firms may be experiencing declining fortunes.

The wide variations in the prospects of individual firms overwhelm the effect on price of time as speculative booms and busts. Hence the efficient markets model works fairly well for individual firms.

In contrast, the market has lesser clarity about changes in aggregate dividend or earnings flows. It is harder for investing public to understand the changes in aggregate dividends and earnings as they are influenced by factors like overall economic growth, fiscal and monetary policies, profitability margins, and the like. Given this difficulty in predicting aggregate dividends, we might expect that factors like market psychology would dominate the effect of information about aggregate future dividends in determining prices. Hence the efficient markets model may be a bad approximation for the aggregate stock market.

(This note draws on "Samuelson's Dictum and the Stock Market," by Jeman Jung and Robert J. Shiller (Cowles Foundation Paper No. 1183))

## Risk Management at L&T

L&T has to manage risks across currencies and commodities. To execute billion dollar projects that range from power to hydrocarbons, L&T has to deal in at least a dozen commodities (which serve as inputs) and a number of currencies (in which it borrows or is paid for turnkey projects). L&T's greatest challenge is to budget for a project in terms of costs and expected revenues 3-5 years after the bidding is done. As Y.M. Deosthalee, L&T's CFO, says: "The projects business has its own peculiarities. It is lumpy which means that orders are spread unevenly and cash flows are not uniform. It is also risky; all the risks – be it in people, foreign currency, commodity price – are on you." He further adds "What complicates matters further is that in the projects business you cannot pad up for contingencies. Your margins are already very low – about 11 to 12 percent – so if you provide for adversity, you'll never bag a project."

Given the nature of risks faced by L&T, its treasury team is involved right from bidding to completion, to ensure that risks arising from fluctuations in exchange rates and commodity prices are minimised. The treasury team makes explicit assumptions about these rates and

reviews these assumptions periodically. This has helped L&T in maintaining its operating margins, despite large fluctuations in exchange rates and commodity prices.

L&T has a treasury team of about 50 persons to manage these risks. Its track record in managing these risks is one of the best in corporate India. Here are some of its notable successes.

- Like many domestic and global companies, L&T had raised huge yen borrowings (equivalent to $1 billion) because of rock-bottom interest rates in Japan which were unhedged. In July 2007, the treasury people noticed an erratic pattern of yen's appreciation against the US dollar, in contrast to the earlier trend of depreciating yen. L&T quickly shifted from an open position to a completely hedged position by August 2007, between 117 and 122 yen per dollar.
- L&T had forex loans of $1 billion which it hedged in April 2008 at Rs. 40 and Rs. 40.50 per dollar.
- In February 2009, the price of copper, a commodity that L&T uses heavily across a range of projects, was at a year's low of $3400 per tonne. At this price, L&T locked into long-term contracts quantities totaling 6,600 tonnes. (In early 2010, the price of copper rose to $8000 a tonne).
- In 2008-2009, L&T generated an average return of almost 14.5 percent on its investment portfolio.

## Some of the Greatest Business Decisions

1. Walt Disney decided to call his cartoon mouse Mickey rather than Mortimer, on the advice of his wife Lillian. Entertainment has never been the same after the debut of Mickey and Minnie in Steamboat Willie.
2. Richard Sears decided to put all his products together in a catalogue and laid the basis for the huge success of Sears Roebuck.
3. Coca Cola decided to hold a competition for the design of its new bottle. One of the best icons of the 20th century was created without any charge, gathering unusual publicity along the way.
4. Pier Du Pont of General Motors decided to adopt Alfred P. Sloan's reorganisation plan for General Motors.
5. In 1981, Bill Gates decided to license MS-DOS to IBM, while retaining the control of the license for all non-IBM personal computers. This laid the foundation for Microsoft's stellar success and IBM's fall from grace.
6. Akito Morito decided to develop the Walkman. Sony has pioneered many product innovations and Akita Morito subscribed to the view: "The public does not what is possible, we do."
7. Michael Dell decided to sell personal computers directly to consumers and build it to order.

## Dividend Policy of Hero Honda Motors

Hero Honda Motors is a BSE Sensex and NSE Nifty company that has steadily paid the highest dividends to shareholders over the same period. For example, for the financial year 2009-2010, Hero Honda Motors paid a dividend of 5,500 percent on each share (inclusive of a special 4,000 percent "Silver Jubilee" payout). On a share that had a face value of Rs. 2, the company paid a dividend of Rs. 110 when the earnings per share was Rs. 111.77.

Several inter-related factors explain the dividend policy of Hero Honda Motors:

1. The company has been a debt-free company for more than a decade.
2. The company operates in a sector which is not capital-intensive.
3. The company is highly profitable and generates a lot of cash.
4. To maintain the ROCE at a reasonable level, the company has to pay high dividends. As Ravi Sud, Senior VP & CFO, Hero Honda Motors says: "The best returns I can generate on that cash, therefore, are 9 or 10 percent. So why not give the money back to the people it belongs to – shareholders."

# SECTION C: WIT AND WISDOM

## Humour

- Here is an old Wall Street Joke

Customer : "Thanks for putting me in stock A at 10. I find that it has climbed to 30."

Broker : "Yes, and that's just the beginning. As a matter of fact, the company's prospects have improved so much that it is an even better buy at 30 than it was when you made the purchase."

Customer : "Damn, I knew I should have waited."

- After their death, a priest and a stock broker qualified for heaven. Since the heaven was overcrowded, the angel at the gate of heaven admitted the stock broker but asked the priest to wait for six months. The priest protested and said that he should be given priority because all his life he preached and propagated the message of God. The angel clarified: "When you were preaching, the audience was sleeping, but when the stock broker was preaching, the audience was praying."

## Wise Saws

- Ronald E. Osborn "Unless you try to do something beyond what you have already mastered, you will never grow."
- A compromise is the art of dividing a cake in such a way that everyone believes he has the biggest piece.
- The best job goes to the one who can get it done without passing the buck or coming back with alibis.

## Perspectives

- A balanced perspective cannot be acquired by studying disciplines in pieces but through pursuit of the consilience among them. Such unification will come hard. But I think it is inevitable. Intellectually it rings true, and it gratifies impulses that rise from the admirable side of human nature. To the extent that the gaps between the great branches of learning can be narrowed, diversity and depth of knowledge will increase.

  Edward O. Wilson, *Consilience*

- Individual decisions can be badly thought through, and yet be successful, or exceedingly well thought through, but be unsuccessful, because the recognized possibility of failure in fact occurs. But over time, more thoughtful decision-making will lead to better overall results, and more thoughtful decision-making can be encouraged by evaluating decisions on how well they were made rather than on outcome.

  Robert Rubbin, Harvard Commencement Address, 2001