

Question Paper

Security Analysis - II (212) : October 2006

Section D : Case Study (50 Marks)

- This section consists of questions with serial number 1 - 5.
- Answer all questions.
- Marks are indicated against each question.
- Do not spend more than 80 - 90 minutes on Section D.

Case Study

Read the case carefully and answer the following questions:

1. Discuss the factors that drive the sales in the two-wheeler industry. [< Answer >](#)
(10 marks)
2. The EPS of Bajaj Auto Ltd. (BAL) is expected to grow at 16% p.a. for the next 4 years, and then it is expected to linearly decline to a stable rate of 8.5% within a period of 3 years. The dividend payout ratio will be 40% during the next 4 years and it will linearly increase to a stable rate of 55% within a period of 3 years. The beta of BAL is expected to linearly increase from the current level to a stable rate of 1.12 in a period of 7 years. Presently, risk free rate of return is 6% and the market risk premium is 5.5% and they are expected to remain same in future.
You are **required** to estimate the share price of BAL as on 31st March, 2006 as per Dividend Discount Model, using the above given information and the data given in Annexure I. [< Answer >](#)
(10 marks)
3. Perform ratio analysis for BAL for the past 3 years and analyse the same. [< Answer >](#)
(10 marks)
4. Perform SWOT analysis of BAL. [< Answer >](#)
(10 marks)
5. Being a technical Analyst, you are **required** to analyse the points A, B, C, D and E given in the charts (Annexure – II) and advise your client whether to buy, sell or hold the stock of BAL at these points. [< Answer >](#)
(10 marks)

Two Wheeler Industry

Riding on top gear is what our two-wheeler industry update said for the first half of FY05, wherein the industry volumes had grown over 12% on back of good monsoons. If that was anything to be happy about, the second half of FY05 has given the industry reasons to celebrate, with strong volume rise of nearly 16% quarterly in motorcycles, largely aided by faster growth in the entry level 100 cc segment. Though competition has been on the rise in the past year, with new models and variants being launched every alternate day, the overall market has been growing fast enough to accommodate all of these models.

Industry leaders Hero Honda and Bajaj Auto have once again kept the other players at bay, and increased their market share during the year. Infact, Bajaj Auto has been outperforming the industry by a good margin for the last few months, courtesy it's new launches CT100 and the Discover. TVS Motor on the other hand has been reeling under pressure since the time its Max 100 sales started dipping at the end of FY04 while the new models are yet to taste success in the market. Apart from the big three, the talk of the town in the past year was the entry of Honda Motors into the Indian motorcycle segment through its 'Unicorn'. Launched in the premium 150 cc category, the bike received spectacular response initially with a waiting period of almost 6 weeks.

Despite the strong volume growth witnessed by the industry, profits have grown at a slower rate or even grown in some cases due to the cost pressures and higher sales of economy bikes. Due to growing competition, manufacturers resisted passing on price hikes and instead took a hit on their profits. However, recently the companies have raised prices on most of their models

by around 1-3%.

Evolution of Indian Two Wheeler Industry

The Two-Wheeler Industry (TWI) in India has been in existence since 1955. It consists of three segments viz., scooters, motorcycles, and mopeds. The increase in sales volume of this industry is proof of its high growth. In 1971, sales were around 0.1 million units per annum. But by 1998, this figure had risen to 3 million units per annum. Similarly, capacities of production have also increased from about 0.2 million units of annual capacity in the seventies to more than 4 million units in the late nineties. The TWI in India began operations within the framework of the national industrial policy as adopted by the Industrial Policy Resolution of 1956. This resolution divided the entire industrial sector into three groups, of which one contained industries whose development was the exclusive responsibility of the State, another included those industries in which both the State and the private sector could participate and the last set of industries that could be developed exclusively under private initiative within the guidelines and objectives laid out by the Five Year Plans. Private investment was channelised and regulated through the extensive use of licensing giving the state comprehensive control over the direction and pattern of investment. Entry of firms, capacity expansion, choice of product and capacity mix and technology, were all effectively controlled by the State in a bid to prevent the concentration of economic power. However due to lapses in the system, fresh policies were brought in at the end. The net of controls on the economy in the seventies caused several firms to a) operate below the Minimum Scale of Efficiency (MES), b) under-utilize capacity and, c) use outdated technology. While operation below MES resulted from the fact that several incentives were given to smaller firms, the capacity under-utilization was the result of the capacity mix being determined independent of the market demand, and the policy of distributing imports based on capacity, causing firms to expand beyond levels determined by demand so as to be eligible for more imports. Use of outdated technology resulted from the restrictions placed on import of technology through the provisions of FERA. As part of the reforms, several groups of industries were delicensed and broadbanding was permitted in select industries. Controls over capacity expansion were relaxed through the specification of the MES of production for several industries. Foreign investment was allowed in select industries and norms under the MRTP Act were relaxed. These reforms led to a rise in the trend rate of growth of real GDP from 3.7% in the seventies to 5.4% in the eighties. However the major set of reforms came in 1991 in response. Delicensed industries meant that firms no longer required licenses from the State to enter the industry or expand their plants. Several industries were deregulated, the Indian rupee was devalued and made convertible on the current account and tariffs replaced quantitative restrictions in the area of trade. A description of the evolution of the two wheeler industry in India is usefully split up into four ten year periods. This division traces significant changes in economic policy making. The first time-period, 1960-1969, was one during which the growth of the two-wheeler industry was fostered through means like permitting foreign collaborations and phasing out of. The Indian economy was faced with several problems at this time. Foreign exchange reserves were down to two month's imports, there was a large budget deficit, double digit inflation, and with India's credit rating downgraded, private foreign lending was cut off. In the early 80's, a series of liberal policy changes were announced marking a turning point for the two wheeler industry. Apart to stringent emission norms by GOI, that become effective from April 2000, it could not change the market sentiments of the players. These days India has increased the demand of its two wheeler with an impressive growth in his history. Two wheeler industry is among the few that have managed to decrease the industrial slowdown. There has been a massive competition with majors like Bajaj Auto, Hero Honda and TVS Suzuki making aggressive product and launching its products in all segments.

Motorcycles grown faster than Scooters

Two-wheeler industries grown up steadily. A close look indicates changes in the dynamics of the industry. It is observed that much of the growth is been in the motorcycles at the expenses of scooter. After liberalization and with the consequent opening up of the sector it took a rapid movement in the industry. The primary reason for the bias is the superior mileage and riding comfort that motorcycles offer compared to scooters. Even in most recent the engine has been molded unevenly. Even in urban roads, the scooter is perceived to be relatively unstable beyond certain speeds because of the smaller wheel size. The fact remains that there has been no significant improvement in the product design, or the range of scooters. The share of motorcycles has been improved from 25.60 percent to 68.08 percent in recent times. This rise in off take was largely driven by the replacement demand for erstwhile scooter owners.

Scenario and Prospects

The emission compliance norms applied by GOI has forced quite a few players to take a hard look at the four-stroke segment. TVS Suzuki and Bajaj Auto have launched four-stroke scooters. Escorts Yamaha has launched a 135 cc Four Stroke motorcycle while TVS Suzuki is set to introduce 150 cc. The present strategy, especially on product launching, is also predicted on the stringent emission norms that would come into force. Initially, TVS Suzuki has resorted to his opinion especially for places like Delhi and high-polluted cities. From the long-term perceptive companies with presence across all segments stand for a better chance to have a consolidated balance sheet. LML, whose presence was confined to scooters, also geared up and launch four-stroke motorcycle. On the whole, the customers are headed for an exciting phase given the flurry of

product launches lined up by the two-wheeler majors. They would have a fare wide range to choose for, both in terms of price and design. The players would however feel the heat of the mounting competition. As far as the financials are concerned profit margins are likely to be squeezed, especially if there is lethargy on product launching. Aggressive and successful launching enables a company to protect its pricing and profit margin and makes it relatively at a higher level. This is a manifest in the relatively stable profit margin of TVS Suzuki and Hero Honda. A significant trend in the near future would definitely be the assortment and redefinition of the existing product segmentation with emergence of hybrid products. In this backdrop, obviously innovation and nice product positioning would be the key to success. The emerging trend suggests that the two-wheeler industry is slowly acquiring some of the characteristic of consumer durables sector. It is quite obvious to maintain the discipline of the desired attitude for innovation, which will help to rise up in market share battle. Indications are available that in next five years the two wheeler market will grow up leaving the four wheeler segment even behind.

A Growth Perspective

The composition of the two-wheeler industry has witnessed sea changes in the post-reform period. In 1991, the share of scooters was about 50 per cent of the total 2-wheeler demand in the Indian market. Motorcycle and moped had been experiencing almost equal level of shares in the total number of two-wheelers. A clear picture of the motorcycle segment's gaining importance during this period is exhibited by the following figure.

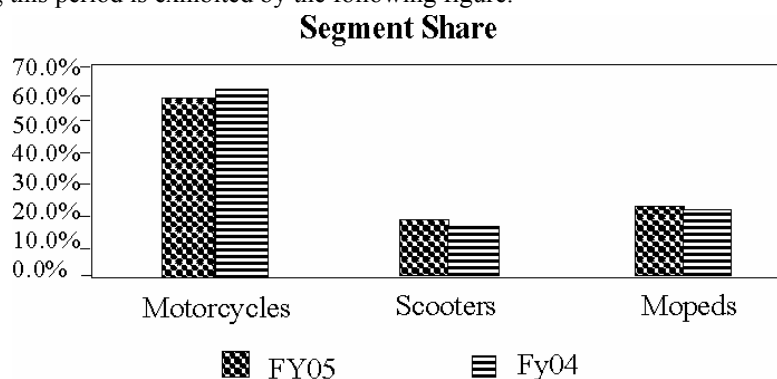


Figure -1
FY04

The forecasts had been made using econometric technique along with tained from a primary survey conducted at 14 prime cities in the country. Estimations were based on Panel Regression, which takes into account both time series and cross section variation. Different scenarios have been presented based on different assumptions regarding the demand drivers of the two-wheeler industry. The most likely scenario assumed annual growth rate of Gross Domestic Product (GDP) to be at 6.5 per cent during 2011-12.

It is important to remember that the above-mentioned forecast presents a long-term growth. The high growth rate in motorcycle segment at present will stabilize after a certain point beyond which a condition of equilibrium will set the growth path. Another important thing to keep in mind while interpreting these growth rates is that the forecast could consider the trend till 1999 and the model could not capture the recent developments that have taken place in last few years. However, this will not alter the regional distribution to a significant extent. The region-wise numbers of motorcycle and scooter suggest the future market for these segments. At the all India level, the demand for motorcycles will be almost 10 times of that of the scooters. The same in the western region will be almost 20 times. It is also evident that motorcycle will find its major market in the western region of the country, which will account for more than 40 per cent of its total demand. The south and the north-central region will follow this. The demand for scooters will be the maximum in the northern region, which will account for more than 50 per cent of the demand for scooters in 2011-12.

Bajaj Auto Ltd. (BAL)

Bajaj Auto Ltd. is the flagship of the Bajaj Group of Companies. BAL is currently India's largest two- and three-wheeler manufacturer and one of the biggest in the world.

Current Performance

- BAL is currently outperforming the industry growth rate in two-wheeler segment with 32% growth in year 2004-05 v/s industry growth of 19%
- Market share in Motorcycles is improving with every passing year. It has also increased from 28% in 2004-05 to 31% in

2005-06.

- BAL has significant presence in all the three basic segments - Price Segment, Value Segment and Performance Segment - and has been showing increased sales in all the segments over years.
- Besides this, BAL is a market leader in two-wheeler exports and it consists a great chunk of there overall revenues. Currently, BAL is selling over 1 lac motorcycles annually in Sri Lanka. Further, they are commanding 50% market share in Central America.

The Inevitable Change

BAL on internal analysis found that it lacked –

1. The technical expertise to deliver competitive goods.
2. The design know-how.
3. And the immediate inability to support the onslaught of competitors.

All these forced BAL to look for an international partner who could bring in technology and also offer some basic platforms to be manufactured and marketed in India. Kawasaki of Japan is a world-renowned manufacturer of high performance bikes. BAL entered into a strategic tie-up with Kawasaki in late 1990s to enhance its product line and knowledge up-gradation to support long-term strategies.

This served the purpose of sustaining the market competition for a while. From 1996 to 2000, BAL invested hugely in infrastructure while simultaneously developing product design and innovation capabilities, which is the prime reason behind the energetic Bajaj of 21st century. BAL introduced a slew of products right from entry-level motorcycle to the high premium segment right from 2001 onwards, and since then its raining success all the way for Bajaj.

Last quarter, BAL had impressive performance growing at a rate of 20%+ when the largest manufacturer grew at just 6%. This stands a testimony to the various important strategic decisions over the past decade.

Marketing Strategies

The focus of BAL off late has been on providing the best of the class models at competitive prices. Most of the BAL models come loaded with the latest features within the price band acceptable by the market. BAL has been the pioneer in stretching competition into providing latest features in the price segment by updating the low price bikes with the latest features like disk-brakes, anti-skid technology and dual suspension, etc. BAL adopted different marketing strategies for different models.

Strategies & Implementation

FMCG Business Model

BAL now is taking a leaf out of the FMCG business model to take the company to greater heights. BAL has kicked off a project to completely restructure the company's retail network and create multiple sales channels. Over the next few months, the company will set-up separate sales channels for every segment of its business and consumers. BAL's entire product portfolio, from the entry-level to the premium, is being sold by the same dealers. The restructuring will involve separate dealer networks catering to the urban and rural markets as well as its three-wheeler and premium bikes segments. BAL also plans to set-up an independent network of dealers for the rural areas. The needs of financing, selling, distribution and even after-sales service are completely different in the rural areas and do not makes sense for city dealers to control this. The company also plans to set-up exclusive dealerships for its three-wheeler products instead of having them sold through an estimated 300 of its existing dealers.

Other Strategic Issues

Cash is strength: BAL has been sitting on a cash pile for over five years now. Over the next couple of years, competition in the two-wheeler market is set to intensify. TVS Motors and Hero Honda are on a product expansion binge. To fight this battle and retain its hard-earned market share in the motorcycle segment, BAL will need its cash muscle.

Delisting worry: What is worrying is that there is an idea to delist the investment company (also an indirect indication that it would be listed initially). This would be closing the valve of equitable ownership distribution. There is a hint of a buyback of shares of the investment company as this is the only way it can be delisted. The company would not be short of cash to put through such a buyback. Factors such as low valuation, low trading interest and the need to provide shareholders may be cited as plausible reasons for the buyback.

Stake for Kawasaki: BAL's attempt to vest the surplus cash in a separate company may be a prelude to offering a stake to Kawasaki of Japan in the equity of the automobile company. The latter has been playing an increasingly active role in BAL's recent models, and its brand name is also more visible in Bajaj bikes than in the past.

Better value proposition: Shareholder interests may be better served if the cash is retained to pursue growth in a tough market. This would also obviate the need to fork-out fancy sums as stamp duty to the government for the de-merger. A combination of a large one-time dividend and a regular buyback program through the tender route may offer better value. A strategic stake for Kawasaki would only positively influence the stock's valuation.

Strategies for the Overseas Markets

BAL looks at external markets primarily with three strategies:

1. A market where all BAL need to do is distribute through CKD or CBU routes.
2. Markets where BAL need to create new products.
3. Markets where BAL need to enter with existing products and probably with a good distributor or a production facility or a joint venture.

Earlier, most of the products that BAL exported were scooters and some motorcycles. However, in its target markets, like in India, the shift was towards motorcycles. With the expansion in BAL's own range to almost five-six platforms of motorcycles, it had a better offering to export, also the reason for its stronger showing. For the last fiscal, 60 per cent of its exports were two-wheelers and the rest three-wheelers. Of the two-wheeler exports, close to 90 per cent were motorcycles. BAL has identified certain key markets, which hold potential. Its first overseas office established at the Jebel Ali free trade zone has been the focal point for exports to middle Africa and the Saharan nations. Egypt and Iran also continue to be strong markets for BAL. The other market, which would be a focus area, is South America, where the company feels it is fairly well represented in most countries, except in Brazil, the largest market. The company recently participated in a large auto exhibition in Brazil and found good consumer acceptance to products like Pulsar and Wind 125. The other focus area is the ASEAN nations, which constitute the third biggest consumer of two-wheelers. The biggest among them is Indonesia, where BAL distributors are looking to introduce eco-friendly four-stroke auto rickshaws. But two-wheeler market requires great deal of effort from BAL. Everybody is there with Honda leading the show. There's Suzuki, Kawasaki and some Korean and Chinese models. BAL should look at the right product mix for two-wheelers. Bajaj's Pulsar model has taken off well there. It also wants to develop a new step-through model for the Indonesian market, but for now it will create a base there with its motorcycle models. BAL has also made a beginning by selling bikes in the Philippines branded in the name of its technical partner, Kawasaki. The two signed an MoU in February. Kawasaki, a large multi-product conglomerate, only makes high-end bikes and does not have sub-200cc models. Kawasaki is marketing the new model, Wind 125, developed by both companies, in the Philippines. The Bajaj-developed models, Caliber and Byk, which is a fuel-efficient bike, are also being distributed by Kawasaki. This is a good beginning strategically for Kawasaki to evince interest in BAL products for markets which can still buy less than 150 cc.

R&D

BAL has a huge, extensive and very well-equipped Research and Development wing geared to meet two critical organizational goals: development of exciting new products that anticipate and meet emerging customer needs in India and abroad, and development of eco-friendly automobile technologies. While the manpower strength of the R&D represents a cross-section of in-depth design and engineering expertise, the company has also been investing heavily in the latest, sophisticated technologies to scale down product development lifecycles and enhance testing capabilities. Bajaj Auto R&D also enjoys access to the specialized expertise of leading international design and automobile engineering companies working in specific areas.

The Future

Although the avalanche of motorcycles offered Indian consumers a wide variety of models to choose from, it has also resulted in increased pressure on the companies to concentrate on cost-cuts, technology enhancements and up-gradations and styling. Their margins have come under pressure as marketing costs escalated. The companies are forced to reduce prices and offer discounts to survive the competition. Moreover, analysts are skeptical about the segment's ability to maintain the growth rate in the years to come. One of the major assumptions underlying the motorcycles rush is that if the market is considerably large and is growing at a constant pace, there is a room for a profitable existence for all brands. In 2001, there were over 30 motorcycle brands in the market. However, with the top five brands accounting for more than 60% of the market, only 40% of the market was available for all other new brands put together. Despite the launch of more vehicles, the survival prospects of many of the individual brands were deemed to be rather bleak. Further, the growth in the motorcycle segment is dependant on continuing favorable market conditions. Analysts claim that to sustain this growth rate, the segment will have to completely cannibalize the market for scooters and a considerable part of the market for scooterettes and mopeds. Considering the fast growing scooterettes segment, with high demand from female customers, followed by the moderately growing moped segment and the

restructuring in the scooter segment with major national and foreign players reinforcing their presence, it is unlikely that the entire growth in the two-wheeler sector would be due to motorcycles. Analysts also comment that as the two-wheeler industry had grown steadily for eight years, stages in the product life cycle would apply to the field sooner, rather than later and the decline stage will invariably come some day. There is little differentiation between the brands being launched apart from styling as most companies have introduced their four-stroke vehicles. With the failure of the joint ventures, the expected introduction of cheaper Chinese brands, stringent emission norms and threat from major international players, the survival of indigenous brands looks uncertain. Constrained with the ruling price levels in the market place, limited infrastructure and lack of technological innovations when compared to their foreign counterparts, whether the Indian companies will succeed in generating the kind of volumes needed to sustain in the competitive motorcycle market, remains to be seen.

Profit and Loss account of BAL for the year ended on
(Rs. in crores)

	31/3/2006	31/3/2005	31/3/2004
Income			
Operating Income	7,572.62	5,852.36	4,845.13
Expenses			
Material Consumed	5,397.61	4,151.31	3,240.68
Manufacturing Expenses	138.59	132.38	122.59
Personnel Expenses	282.45	250.59	241.76
Selling Expenses	258.92	257.40	236.51
Administrative Expenses	240.02	207.78	207.35
Expenses Capitalised	-24.81	-19.84	-23.82
Cost of Sales	6,292.78	4,979.63	4,025.07
Operating Profit	1,279.84	872.73	820.07
Other Recurring Income	369.99	297.93	274.04
Adjusted PBDIT	1,649.83	1,170.66	1,094.10
Financial Expenses	0.34	0.67	0.94
Depreciation	191.00	185.37	179.89
Other Write offs	4.05	4.04	4.09
Adjusted PBT	1,454.44	980.59	909.19
Tax Charges	479.11	319.63	228.91
Adjusted PAT	975.33	660.96	680.28
Non-recurring Items	88.91	87.11	33.56
Other Non-cash adjustments	59.03	-18.91	24.56
Reported Net Profit	1,123.27	729.16	738.39
Earnings Before Appropriation	1,123.27	729.16	738.39
Equity Dividend	404.74	252.96	252.96
Preference Dividend	0.00	0.00	0.00
Dividend Tax	56.76	35.48	32.41
Retained Earnings	661.77	440.72	453.02

Balance Sheet of BAL as on
(Rs in crores)

	31/3/2006	31/3/2005	31/3/2004
SOURCES OF FUNDS			
Owner's Fund			
Equity Share Capital	101.18	101.18	101.18

Share Application Money	0.00	0.00	0.00
Preference Share Capital	0.00	0.00	0.00
Reserves & Surplus	4,669.55	4,033.17	3,592.44
Loan Funds			
Secured Loans	0.02	0.00	0.00
Unsecured Loans	1,467.13	1,226.99	1,005.72
Total	6,237.88	5,361.34	4,699.34
USES OF FUNDS			
Fixed Assets			
Gross Block	2,894.22	2,765.17	2,710.66
Less: Revaluation Reserve	0.00	0.00	0.00
Less: Accumulated Depreciation	1,761.22	1,628.64	1,496.68
Net Block	1,133.00	1,136.53	1,213.98
Capital Work-in-progress	24.18	8.36	25.76
Investments	5,753.45	4,560.58	3,855.44
Net Current Assets			
Current Assets, Loans & Advances	3,062.22	2,662.65	2,169.26
Less : Current Liabilities & Provisions	3,734.97	3,006.78	2,565.11
Total Net Current Assets	-672.75	-344.13	-395.84
Miscellaneous expenses not written	0.00	0.00	0.00
Total	6,237.88	5,361.34	4,699.34
Note:			
Book Value of Unquoted Investments	247.22	253.59	318.50
Market Value of Quoted Investments	7,303.41	5,033.64	4,140.51
Contingent liabilities	719.06	573.24	549.88
Number of Equity shares outstanding (in Lacs)	1,011.84	1,011.84	1,011.84

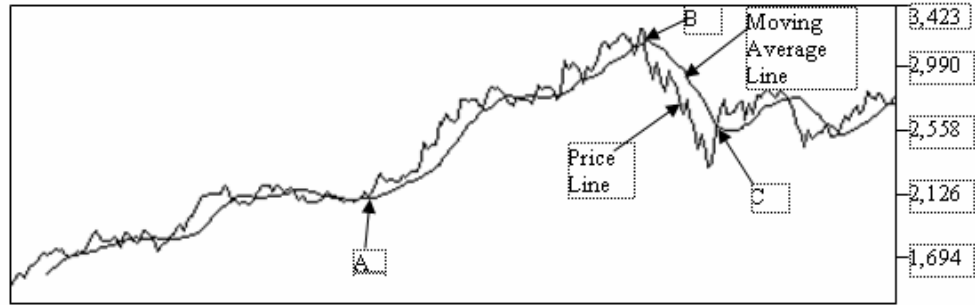
Annexure I

Month	Stock price of BAL	Market index
Sep 05	2154.65	3001.10
Oct 05	2601.25	3074.70
Nov 05	2746.25	3402.50
Dec 05	2928.05	3557.60
Jan 06	2836.85	3071.05
Feb 06	2748.75	3128.20
Mar 06	2815.74	3265.28

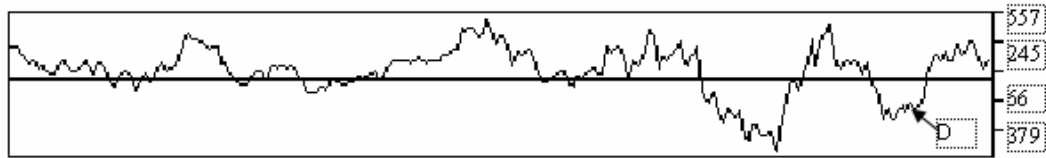
Annexure II

Technical charts of Bajaj Auto Ltd

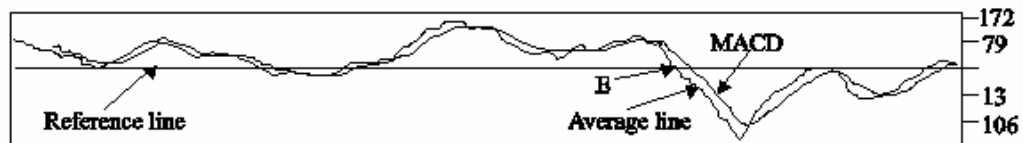
Simple Moving Average Chart



ROC Chart



MACD Chart



END OF SECTION D

Section E : Caselets (50 Marks)

- This section consists of questions with serial number 6 - 12.
- Answer **all** questions.
- Marks are indicated against each question.
- Do not spend more than 80 - 90 minutes on Section E.

Caselet 1

Read the caselet carefully and answer the following questions:

6. Most analysts estimate risk premiums by looking at historical data. What are the perils of using historical data?

(7 marks) [< Answer >](#)

7. Beta is a key component for the 'Capital Asset Pricing Model'. Discuss the various advantages and disadvantages of using Beta.

(7 marks) [< Answer >](#)

8. There are a number of different risk and return models in finance used to compute the cost of equity but they all assume that the marginal investor is well diversified. If you use these models to estimate costs of equity for private or closely held firms, are you likely to under or over estimate the cost of equity? How would you fix the bias?

(8 marks) [< Answer >](#)

The awareness that risk matters is not new with the development in financial activities. Risk and return simultaneously went growing side by side, which in addition is more quantitative and specific. The Capital Asset pricing Model (CAPM) is the standard against risk and return model. Here the investments are measured based on two dimensions called expected return and variance. When the standardization of the co-variances taken into consideration there comes the diversifiable and non-diversifiable risk and thus beta arises that measures the non-diversifiable risk. Beta is a measure of a stock's volatility in relation to the market. By definition, the market has a beta of 1.0, and individual stocks are ranked according to how much they deviate from the market. A stock that swings more than the market over time has a beta above 1.0. If a stock moves less than the market, the stock's beta is less than 1.0. High-beta stocks are supposed to be riskier but provide a potential for higher returns; low-beta stocks pose less risk but also lower returns. To followers of CAPM, beta is a useful measure. Beta is a key component for the CAPM, which is used to calculate cost of equity. Recall that the cost of capital represents the discount rate used to arrive at the present value of a company's future cash flows. All things being equal, the higher a company's beta is, the higher its cost of capital i.e. the discount rate. The higher the discount rate, the lower the present value placed on the company's future cash flows. In short, beta can impact a company's share valuation. While the risk is measured the risk premium comes into existence that focuses on implied equity risk. The CAPM provides an explicit measure of the risk premium. As stock prices rise and deliver high positive returns, historical risk premiums go up. The well-known definition of risk is the possibility of suffering a loss. Of course, when investors consider risk, they are thinking about the chance that the stock they buy will decrease in value. The trouble is that beta, as a proxy for risk, doesn't distinguish between upside and downside price movements. For most investors, downside movements are risk while upside ones mean opportunity. Beta doesn't help investors tell the difference. In this past price movements are very poor predictors of the future. For most investors, that doesn't make much sense. However, if you are investing in a stock's fundamentals, beta has plenty of shortcomings. While considering the discounted cash flow model we notify that the value of any asset is covered under three principles a) how much it generates in cash flows b) when these cash flows are expected to occur and c) the uncertainty associated with these cash flows. Thus from all aspects the motive is to focus on the minimization of the risk and gaining maximum returns. Besides investors should have through analysis to cover their risk exposure.

Caselet 2

Read the caselet carefully and answer the following questions:

9. Do you think that due to changes in the economic factors the Indian market developed into a speculative bubble? Justify.
10. The markets have been showing extremely erratic movements, which are no way in tandem with the information that is fed to the markets. In this context discuss the volatility of the market.

(7 marks) [< Answer >](#)

(7 marks) [< Answer >](#)

The ups and downs of the financial markets are always in the news. Wide price fluctuations are a daily occurrence on the world's stock markets as investors react to economic, business, and political events. Of late, the markets have been showing extremely erratic movements, which are in no way tandem with the information that is fed to the markets. Thus chaos prevails in the markets with investor optimism at unexpected levels. Irrational exuberance has substituted financial prudence. There are two schools of thought that have divergent views on the reasons of volatility. The economists in their fundamentalist approach argue that these market movements can be explained entirely by the information that is provided to the market. The Popular Models Theory proposes that people act inappropriately to information that they receive. Thus freely available information is not necessarily already incorporated into a stock market price as the EMH would have proved. It stands that analysts cannot agree on whether or not it is economic or psychological realities, which are the major cause of price fluctuations in the stock market. The soaring stock prices around the globe have taken valuations of stocks to unreachable heights and economists all around are hinting at creation of a speculative bubble that can burst in near future. In finance, "bubble" is an especially ominous yet fascinating term. So much of the presentation of economic news, especially in the financial press, is oriented around the behavior of stock markets, that the uninitiated and their movements actually reflect real economic performance. Across the world, the investors believe that the relatively small set of players in international stock markets really do

comprehend and correctly assess the patterns of growth in an economy, and that their interests are broadly in conformity with the economic interests of the masses of people in those countries. The latest fall in the Indian stock market signifies some indication over the reaction to the uncertainty created by the unexpected and remarkable contingencies. It also should be noted that across the world, financial markets have been in downswing in recent weeks. Much of this is because of rising oil prices, the failure of the economically and politically expensive US military occupation in Iraq, and fears of interest rate hikes in the US. It is usually argued that stock market behavior is a reflection of "investor confidence" and this in turn affects important real variables such as productive investment in the economy, which is critical for growth and development. This is not really the case, and has become even less true in the recent period. Earlier, the stock market has experienced huge increases and wild swings, while investment has not shown any such volatility and indeed has barely increased in real terms. The current downslide in the stock markets is really not a matter of serious concern for most Indians, and it should certainly not be much of an issue for the new government either. Stock market indices are indicators of the expectations of finance capital, and they can move up and down for a variety of reasons, most of which are not related even to the current profitability of productive enterprises. They are prone to irrational bubbles and sudden collapses which reflect all sorts of factors, ranging from international forces to domestic political changes, and may have very little relation to economic processes within the economy.

Caselet 3

Read the caselet carefully and answer the following questions:

11. P/E Multiple reflects the future earnings capacity of a firm. While computing PEG ratio, the average of historical earning growth rate is considered. Is it not inconsistent to do so? Explain.
12. High PEG ratio may not always indicate good performance of the firm. Sometimes even low PEG ratio firms may be good performers. Analyze the reasons for this.

(7 marks) [< Answer >](#)

(7 marks) [< Answer >](#)

PEG ratio is obtained by dividing the PE multiple by the historical earnings growth rate. Stocks with high PEG that suggests trading at larger multiples of their earnings growth rate outperformed low-PEG stocks. The returns are consistent over a decade. Only in 1994 did the low-PEG stocks perform better than higher-PEG ones. In 1994, SmithKline Beecham Pharma, Hindustan Lever, Nestlé, and Castrol, having a high PEG ratio, did well. However, high-PEG commodity stocks, such as Century Textiles, Tisco, Coates of India, and JK Industries performed poorly. Low-PEG stocks that performed well include BHEL, Madras Cements, Cabot India, Tata Donnelley and Kodak India. However, most low-PEG stocks, such as Voltas, Indian Rayon, Videocon Appliances, and Tata Chemicals, fared badly. High-PE stocks that did well had high PEG ratios. The PEG ratio of stocks that formed the top quartile was consistently higher than the PEG of stocks forming the bottom quartile. Low-PE stocks, conversely, usually had low PEG ratios. This suggests that their historical earnings growth rate was high. Yet investors ignored these stocks. This reveals an important aspect of trading in the past five years and suggests that investors shunned these stocks due to a perception of risk. But according to researchers in the US, stocks need to have a PEG of 1 or less to be attractive. In India, a number of stocks trade at a PEG of less than 1. But assuming a cut-off ratio of 1 would certainly put a lot of worthwhile stocks, such as Hindustan Lever, out of the 'investible' set. Nevertheless, PEG is a useful addition to the set of investment decision tools. For instance, Hindustan Lever trades at a PE multiple of 66, which might appear fairly high and not deserving investment support. However, the PEG ratio suggests differently. As HLL's average growth rate in profits has been around 35 percent in the past five years, its PEG ratio is 1.8, not too high when the average for Indian stocks is 1.3. If a high PE multiple is accompanied by a low PEG ratio, it indicates that the current market price is justified by an anticipated superior earnings growth rate. Still, PEG may not always lead us to the right answer if it is used in isolation. In fact, any single tool used in isolation may not provide the right answer. It would seem to be a good sell. The change in earnings profile comes in the wake of a change in control in the company; such factors need to be considered. There are several other such variables, prime examples being mergers, acquisitions and divestitures. For instance, the earnings growth rate of Indian Rayon, after the divestiture of its cement business, may be much lower than in the past. In such cases, there is a case for making an adjustment to the PEG ratio by working out an equilibrium growth rate. The PEG ratio calculated after making such adjustments may identify the right set of stocks to invest in.

**END OF SECTION
E**

**END OF QUESTION
PAPER**

Suggested Answers Security Analysis - II (212) : October 2006

Section D : Case Study

1. The factors which drive the sales in the two-wheeler industry are:

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- i. A desire for cost effective personal transport,
- ii. A rise in per capita income and also the disposable income,
- iii. Availability of easy financing schemes,
- iv. Rapid pace of urbanization,
- v. Improvement in products and technology,
- vi. The replacement market,
- vii. Government policy impact on petrol prices

A desire for cost effective personal transport: With the frequent hike in fares of the public transportation system it may sooner become more economical to travel through a personal two-wheeler. In addition to this one has the flexibility and the convenience to do so.

A rise in per capita and disposable income: Most of the households have been experiencing an increase in the per capita income level. Similar is the case with rural people. Regular increases in the support price of agricultural produce, a tax-free income at higher income levels and a relatively low cost of living has resulted in them having higher disposable income.

This factor may be the most important among the above given factors in driving the sales of the two-wheeler industry.

Availability of financing schemes: Simplification of the procedure and a cut-throat competition has ensured that funds are available easily and at attractive rates.

Rapid pace of urbanization: Most of the small towns had been experiencing rapid urbanization during the past decade with almost all the facilities available in those places. This has been the market where the two-wheelers has been experiencing substantial growth in demand.

Improvement in products and technology: The last two to three years in the two-wheeler industry has witnessed a big development in product design. The two-wheelers have been becoming trendier and now a customer has more shades to choose from as compared to few years back. Hero Honda, the biggest player in the motorcycles, already employs the four-stroke technology in its vehicles. In future this will be the rule rather than exception, keeping in line with strict emission norms. The improved technology will result in low pollutant emissions and vis-à-vis less pollution.

The replacement market: This aspect has been within the two-wheeler industry itself. People who owned scooters are now shifting to motorcycles in a large way.

Government policy impact on petrol prices: Petrol prices determine the running cost of two/three wheelers expressed in Rupees per kilometer. Petrol prices are the highest in India as GOI subsidizes kerosene and diesel. But with the recent change in GOI policy to reduce the subsidy, the prices of petrol will remain constant at the current prices. This will have a positive effect on purchases of two/three wheelers.

2. Current EPS = Rs.1123.27/10.1184 = Rs.111.01

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Growth rate in EPS for next 4 years = 16%.

Decline in growth rate every year = $(16 - 8.5) / 3 = 2.5\%$

Dividend pay-out ratio for next 4 years = 40%.

Increase in dividend pay-out ratio every year = $(55 - 40) / 3 = 5\%$.

Calculation of beta:

Period	Stock prices	Market index	Return on stock (y)	Return on index (x)	$(x - \bar{x})$	$(y - \bar{y})$	$(x - \bar{x}) (y - \bar{y})$	$(x - \bar{x})^2$
Sep 05	2154.65	3001.10	-	-	-	-	-	-

Oct 05	2601.25	3074.70	20.73	2.45	0.74	15.87	11.74	0.55
Nov 05	2746.25	3402.50	5.57	10.66	8.95	0.71	6.35	80.10
Dec 05	2928.05	3557.60	6.62	4.56	2.85	1.76	5.02	8.12
Jan 06	2836.85	3071.05	-3.11	-13.68	-15.39	-7.97	122.66	236.85
Feb 06	2748.75	3128.20	-3.11	1.86	0.15	-7.97	-1.20	0.02
Mar 06	2815.74	3265.28	2.44	4.38	2.67	-2.42	-6.46	7.13
Total			29.14	10.24			138.09	332.77

$$\bar{x} = 10.24/6 = 1.71$$

$$\bar{y} = 29.14/6 = 4.86$$

$$\text{Variance of market return} = \frac{\sum(x - \bar{x})^2}{(n-1)} = 332.77/5 = 66.55$$

$$\text{Cov}(i,m) = \frac{\sum(x - \bar{x})(y - \bar{y})}{(n-1)} = 138.09/5 = 27.62$$

$$\text{Therefore, current beta of BAL} = \frac{COV_{(i,m)}}{\sigma_m^2} = 27.62/66.55 = 0.42$$

$$\text{Increase in beta per year} = (1.12 - 0.42)/7 = 0.10$$

$$\text{Ke for the first year} = R_f + \beta(R_m - R_f) = 6 + (0.52 \times 5.5) = 8.86\%$$

Year	Growth rate(%)	EPS (Rs.)	DPR(%)	DPS (Rs.)	Beta	Cost of equity (Ke) (%)
1	16	128.77	40	51.51	0.52	8.86
2	16	149.38	40	59.75	0.62	9.41
3	16	173.28	40	69.31	0.72	9.96
4	16	201.00	40	80.40	0.82	10.51
5	13.5	228.13	45	102.66	0.92	11.06
6	11	253.23	50	126.62	1.02	11.61
7	8.5	274.75	55	151.11	1.12	12.16

151.11

$$\text{Terminal value at the end of year 6} = \frac{151.11}{(0.1216 - 0.085)} = \text{Rs.4128.69}$$

Intrinsic value of share as per DDM model as on 31st March 2006:

$$\frac{51.51}{1.0886} + \frac{59.75}{1.0886 \times 1.0941} + \frac{69.31}{1.0886 \times 1.0941 \times 1.0996} + \frac{80.40}{1.0886 \times 1.0941 \times 1.0996 \times 1.1051} + \frac{102.66}{1.0886 \times 1.0941 \times 1.0996 \times 1.1051 \times 1.1106} + \frac{126.62 + 4128.69}{1.0886 \times 1.0941 \times 1.0996 \times 1.1051 \times 1.1106 \times 1.1161} = \text{Rs.2641.80}$$

3.

Profitability ratios	2006	2005	2004
Operating profit margin (%)	16.90	14.91	16.93
Net Profit margin (%)	12.88	11.29	14.04
Return on Net worth (%)	20.44	15.99	18.42
Return on Investment (%)	14.59	11.73	12.53
Turnover ratios			
Fixed assets Turnover	6.68	5.15	3.99

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Total asset Turnover	0.76	0.70	0.67
Liquidity ratios			
Current ratio	0.82	0.89	0.85
Leverage ratios			
Debt-equity	0.31	0.30	0.27
Interest coverage	4278.76	1464.57	968.22

INTERPRETATION:

Profitability ratios:

The profitability position of the company has initially decreased and then increased in the subsequent years.

The operating profit margin of the firm has remained more or less at the same level during past three years under consideration. As a whole the net profit margin of the company has decreased from the year 2004 to the year 2006. Which may be due to the increase in the operating expenses. There is an overall increase in the return available to equity share holders as indicated by increased return on net worth ratio. Similarly, there is an increase in the return available to all fund contributors as in revealed by increased return on investment. From, this we can say that the firm's ability to generate funds out of funds contributed by different stakeholders has increased.

Turnover ratio:

Fixed assets turnover ratio has increased during the last three years this implies that fixed assets are being efficiently utilized. The total assets turnover ratio has increased gradually but the extent of increase is insignificant. Total assets turnover ratio reveals the firms' ability in generating sales from all financial resources committed to total assets. However, the total asset turnover ratio is less than 1, which indicates that there is further scope for efficient utilization of the assets of the firm. However, by looking at both the ratios we can say that the firm has invested more in current assets than in fixed assets.

Liquidity ratios:

The liquidity position of the firm is not satisfactory as evidenced by the current ratios for different years. The current ratio of the firm has first moderately increased and later on in the subsequent year it has decreased moderately. However as a whole it can be said that the firm is facing the problem of liquidity risk. In other words, the firm doesn't have sufficient liquid assets to pay for its short term obligations.

Leverage ratio:

The debt-equity ratio of the firm has increased moderately over past three years, which indicates that the firm has employed increasing amount of debt. The company is at comfortable level as far as its ability to pay for interest on debt is considered, as indicated by higher interest coverage ratio. After careful observation of debt equity ratio and interest coverage ratio together it can be interpreted that the firm is not utilizing its borrowing capacity to the full extent.

4. Strengths:

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- Highly experienced management.
- Product design and development capabilities.
- Extensive R & D focus.
- Widespread distribution network after restructuring.
- High performance products across all categories.
- High export to domestic sales ratio.
- High economies of scale.
- High economies of scope.

Weaknesses:

- Still has no established brand to match Hero Honda's Splendor in commuter segment.
- * Entire product portfolio, from the entry-level to the premium, is being sold by the same dealers.

Threats:

- The competition catches-up any new innovation in no time.
- Threat of cheap imported motorcycles from China.
- Margins getting squeezed from both the directions (Price as well as Cost)
- * The industry is moving towards declining stage of product lifecycle.

Opportunities:

- Double-digit growth in two-wheeler market.
- Untapped market above 180 cc in motorcycles.
- More maturity and movement towards higher-end motorcycles.
- The growing gearless trendy scooters and scooterette market.
- Growing world demand for entry-level motorcycles especially in emerging markets.

5. **At point A:** A moving average represents a smoothened trend and therefore also acts as supports /resistance line. A [<TOP>](#) declining price line often finds support at the moving average line and rallies without crossing the line. So it is an indication to buy.

At point B: At this point the price line is falling below the rising moving average. This only indicates a secondary reaction and need not signal a trend reversal. So, at this point it gives an indication to hold the security and fresh purchases can be made after observing further price movements.

At point C: At this point the price line is rising above a falling moving average line. This is an indication to sell.

At point D: The ROC index turning upward, even while it lies below the reference line, marks a reversal of bearish trend and therefore it is an indication to buy.

At point E: The point of crossing between the oscillator and the reference line acts as signals to buy or sell the stock. Here, since the indicator crosses the reference line from above, we interpret this point as a signal for selling the stock.

Section E: Caselets

Caselet 1

6. The obvious problem is that historical premiums are backward looking whereas what you really want is the premium [<TOP>](#) for the future. There are also three measurement problems:

- Historical risk premiums come with large standard errors. Even with 75 years of data on stock and bond returns, the standard errors remain high (about 2.5%). The problem becomes worse in emerging markets with less data. If you go further back in time, you run the risk of getting a risk premium that means very little at the current time.
- If you decide to use historical data in the United States because you have a long and easily accessible history, you run into a problem of selection bias. After all, the market is most volatile as a consequence, the premium you get will be too high as a forward-looking estimate. A more reasonable estimate would require you to look across a number of different equity markets over the twentieth century and compute an average premium over the markets.
- Markets are priced based upon investor assessments of how risky stocks are and how much of a premium they should charge for investing in stocks. In bullish times, stock prices rise as investors become more optimistic about the future and reduce their required risk premiums. As stock prices rise and deliver high positive returns, historical risk premiums go up. In other words, historical risk premiums rise just as investor's expected risk premiums decrease.

There is an alternative to historical premiums. Based upon how stocks are priced collectively and the expected cashflows you would get from buying these stocks (dividends, for instance), you can back out the risk premium that investors are demanding. This risk premium is called an implied equity risk premium.

7. **Advantages of Beta** [<TOP>](#)

To followers of CAPM, beta is a useful measure. A stock's price variability is important to consider when assessing risk. Indeed, if you think about risk as the possibility of a stock losing its value, beta has appeal as a proxy for risk.

Intuitively, it makes plenty of sense. Think of an early-stage technology stock with a price that bounces up and down

more than the market. It's hard not to think that stock will be riskier than, say, a safe-haven utility industry stock with a low beta.

Besides, beta offers a clear, quantifiable measure, which makes it easy to work with. Sure, there are variations on beta depending on things such as the market index used and the time period measured, but broadly speaking, the notion of beta is fairly straightforward to understand. It's a convenient measure that can be used to calculate the costs of equity used in a valuation method that discounts cash flows.

Disadvantages of Beta

For starters, beta doesn't incorporate new information. Consider the electrical utility company Historically; it has been considered a defensive stock with a low beta. But when it entered the merchant energy business and assumed high debt levels, historical beta no longer captured the substantial risks the company took on. At the same time, many technology stocks, such as Google, are so new to the market they have insufficient price history to establish a reliable beta.

Another troubling factor is that past price movements are very poor predictors of the future. Betas are merely rear-view mirrors, reflecting very little of what lies ahead. Furthermore, the beta measure on a single stock tends to flip around over time, which makes it unreliable. Granted, for traders looking to buy and sell stocks within short time periods, beta is a fairly good risk metric. But for investors with long-term horizons, it's less useful.

8. When you use conventional risk and return models (such as the CAPM, APM and multi-factor models) to estimate costs of equity for a private firm, you will tend to under estimate the risk in the firm. This is because these models look at only the portion of the risk that is not diversifiable and assume that the remaining risk will be diversified away. To the extent that private business owners or the investors in closely held firms are not diversified, they will be cognizant of all risk (and not just the market risk). In fact, if you know how much of the risk in the firm is market risk, you can compute a modified beta for the CAPM: [<TOP>](#)

Total Beta = Market Beta/ Correlation between stock and the market

For a private business, both the market beta and the correlation will have to come from looking at publicly traded firms in the same business. For example, assume that you have to estimate the cost of equity for a private software firm. If the average market beta of software firms is 1.20 and only 25% of the risk in software firms is from the market (correlation with the market), the total beta for the software firm will be:

Total beta = $1.20 / .25 = 4.80$

This total beta can be used to come up with a much higher cost of equity for a private business. As the owner of the private firm diversifies (either by taking his firm into other business or by withdrawing some of his or her wealth out of the business and investing in an index fund or a pension fund), the total beta will decrease.

Caselet 2

9. A bubble is a speculative buying binge that sends the stock market or any other asset, for that matter to heights far beyond the realm of reason. It leads to over-valuation of stocks taking them to undesirable heights based on speculative expectations that creates a cycle of prosperity leading to mass investment delusion, and ending in catastrophe when the bubble bursts. By historical standards the Indian stock market has reached extremely high levels in recent years. This change reflects the improvement in the market and the growth of the economy as well. The recent fall in the stock prices has partly washed off these unwarranted gains making the markets range-bound. Thus we see that there was spectacular change in the economy that could take the stock prices to such heights. If we take a long-term view at the changes in economic factors no clear reason emerges out for such increase. Thus we don't see any clear indicator, which could support the Bull Run in the stock markets during the period. Thus it is a clear indication that the volatility cannot be directly measured by the speculative thoughts. Besides focusing on the market we have to standardize our analysis accordingly to gain in near future. A more analytical thinking which highlights better risk management coupled with investor learning will surely lead to more stable market. [<TOP>](#)
10. Volatility of an asset is measured by the variability in the price over time measured as the variance or the standard deviation of the returns on the asset. There are two schools of thought whereon one says that changes in the information available in the market affects the prices. Others have argued that these movements have nothing to do with economic or external factors. It is the investor reactions, due to psychological or social beliefs, which exert a greater influence on the markets. This gives rise to the speculative movement of the market. This reveals that the volatility is changing empirically. This cycle continues increasing the stock price more than what it would have been considering the changes in the information available in the market. Though this may seem quite perfect but this leads [<TOP>](#)

to a spiraling affect and increases volatility in stock markets. The overall market regulations and the movement in the prices reveal the partial ups and down towards the market. Thus overall the physiological view probes the volatility of the market and surely will give a definite structure to predict the market efficiencies effectively and efficiently.

Caselet 3

11. In the computation of not only the PEG ratio but any other financial parameter we begin by examining the historical data. Historical data will be suitable only if there has not been any major deviation over the past years is considered. If the historical data is not normal and there are enough reasons to believe that in future, the historical data will not truly reflect the trends, then either it is discarded or suitable adjustments are made so that it reflects the scenario to the possible extent. For example, assume that during the past five years the domestic economy has been in a recession, and now the economy has started reviving. If we consider the growth rate in earnings for cyclical stocks over the past five years and try to forecast the growth rate for the future, obviously the results will be inconsistent. Therefore, as long as this consistency factor is maintained we can safely employ the historical data for projecting future trends. [<TOP>](#)
12. The PEG ratio is obtained on dividing the PE multiple with historical EGR (earnings growth rate). EGR is the arithmetic mean of earnings growth rate over the period considered. A low PEG ratio results when either the stock has low PE multiple and a high EGR or a low PE multiple and low EGR. Further, a stock has a high PEG ratio when either the stock has high PE multiple and high EGR or when the stock has high PE multiple but a low EGR. Of these four possibilities we need to look at stocks which have low PE multiple but high EGR and stocks which have a high PE multiple and a low EGR. Obviously stocks with low PE multiple and low EGR are poor performers and those with high PE multiple and high EGR are exceptional performers. Therefore, stocks with low PEG ratio have performed well due to fundamental reasons and stocks with high PEG ratio (with high PE multiple, low EGR) perform well due to technical reasons. By fundamental reasons we refer to the performance of the company and technical reasons to the action in the stock market keeping in view the expectations regarding the potential of future cash flows. [<TOP>](#)

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