

Question Paper

Security Analysis - II (212) : April 2007

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. Perform the Michael Porter Analysis of the Indian Telecom Industry.

(10 marks) [< Answer >](#)
2. Analyse the strengths, weaknesses, opportunities and the threats of Bharti Airtel Ltd.

(8 marks) [< Answer >](#)
3. The telecom industry is growing rapidly and being one of the leaders, the EPS of Bharti Airtel Ltd., is expected to grow at the current rate for the next three years. After that the growth rate will linearly decline for next five years and will stabilize at 25%. It is expected that the company will come out with 1:1 bonus issue at the beginning of the year 2008. Calculate annualized return for Mr. Prashant if he bought the shares of Bharti Airtel Ltd., at Rs.360 on 1st July, 2006 and is planning to sell the same on 31st March, 2007. Mr. Prashant requires 18.81% return above the yield of 91 day T bill. (Assume that market price of each share of Bharti Airtel Ltd., as on 31st March, 2007 reflects its intrinsic value).

(10 marks) [< Answer >](#)
4. Based on the share prices of Bharti Airtel Ltd. given in the case, calculate and analyse the MACD of Bharti Airtel Ltd. considering the following:

MACD = 12 day EMA – 26 day EMA

The 12 day and 26 day simple moving averages of the share price of Bharti Airtel Ltd., on 7th December, 06 are Rs.630.21 and Rs.591.85 respectively.

(14 marks) [< Answer >](#)
5. One of the simplest and widely used methods to measure momentum is to compute the Rate of Change (ROC). With respect to this explain what ROC is and how it can be used to measure momentum of market. Also evaluate the points A and B given in the ROC chart of Bharti Airtel Ltd. with suitable explanation.

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

Indian Telecom Industry

India's telecom sector has witnessed some fundamental structural and institutional reforms in the past decade. The National Telecom Policy, initially formulated in 1991 and substantially amended in 1994 and in 1999, has been the driving force of development and liberalization in the sector. The current regulatory environment allows the entry of private companies in all areas of telecom services and equipment manufacturing.

The telecom services sector in India is on the ascendancy. India will mirror the global trend of high growth rates in mobile vis-à-vis fixed-line users (40 per cent CAGR in mobile services against 16 per cent in the fixed-line segment). However, with fixed-line teledensity in India being at a very low 4 per cent, absolute growth in fixed-line services will lead additions in mobile subscribers over the next 10 years. Despite the high projected growth, teledensity in 2010 is expected to be 11.5 per cent, falling short of the NTP99 target of 15 per cent. Revenues will also grow, albeit slowly, in the light of significant reductions in tariffs.

Several parts of the sector are being liberalized. Unlimited entry of new players has been allowed in basic,

National Long Distance (NLD) service, International Long Distance (ILD), ISP and infrastructure businesses. ILD and Internet telephony are the latest issues on the deregulation agenda, with the former being opened up in April 2002, and the guidelines for the latter expected to be announced soon. However, uncertainties remain regarding regulatory issues. Customer choice mechanisms and interconnect terms for long-distance services are yet to be finalized. And the dispute regarding limited mobility has not yet been resolved. These issues will result in changes in tariffs, market share and revenue share of Internet access and NLD/ILD players, thereby affecting their strategies and plans.

Three to four leading private players are likely to emerge as competition to the incumbents, BSNL and MTNL, which have a significant presence across the value chain. The Tata Group, Reliance Infocom and Bharti Televentures have announced plans to emerge as integrated telecom companies offering end-to-end services to customers. Hutchison, on the other hand, appears to be focused on cellular services, with no stated intention of entering other businesses.

The industry is considered as having the highest potential for investment in India. The growth in demand for telecom services in India is not limited to basic telephone services. India has witnessed rapid growth in cellular, radio paging, value-added services, internet and Global Mobile Communication by Satellite (GMCS) services. This is expected to soar in the next few years.

Recognizing that the telecom sector is one of the prime movers of the economy, the Government's regulatory and policy initiatives have also been directed towards establishing a world class telecommunications infrastructure in India. The telecom sector in India therefore offers an ideal environment for investment.

The telecommunications initiative in the country is led by Ministry of Communications through the Department of Telecommunication & Department of Telecom Services and its undertakings for provision of basic telephone services, national and international long distance communications, manufacture of complete range of telecom equipment, research and development, and consultancy services. The Telecom Commission performs the Executive and Policy making functions. The Telecom Regulatory Authority of India performs the functions of an independent regulatory body.

Indian telecom compared with China

Much of the growth in Asia Pacific Wireless Telecommunication Market is spurred by the growth in demand in countries like India and China.

- India's mobile phone subscriber base is growing at a rate of 82.2%.
- China is the biggest market in Asia Pacific with a subscriber base of 48% of the total subscribers in Asia Pacific.
- Compared to that, India's share in Asia Pacific Mobile Phone market is 6.4%. Considering the fact that India and China have almost comparable populations, India's low mobile penetration offers huge scope for growth.
- The Internet Access Market in India is all set to grow twice the existing value with the increase in deregularization, literacy level, increasing consumer awareness, PC penetration etc.
- Broadband Wireless Market in India is all set to take off in a big way. Over 70% of the households in India has no access to wired lines and the number of mobile phone users far outnumbers PC owners. Such a scenario presents a very good opportunity for Wire-less Broadband Services.

The Indian telecommunications industry has sustained impressive growth since the late nineties, supported by a progressive regulatory regime, strong demand for cellular services and in recent years, a strengthening economy. FY06 industry revenues are estimated at around Rs 86,700 crore, which represents an increase of 21% over the previous year. Boosted by subscriber growth at a CAGR of around 90% over the past five years, industry cellular revenues have registered robust growth and now account for over 40% of total telecom revenues. Most of this growth has been captured by four operators - Bharti Airtel Ltd., Reliance Communications Ltd. (RCL), Bharat Sanchar Nigam Ltd. (BSNL) and Hutchison Essar Ltd. (Hutch Essar), which collectively accounted for over 75% of industry mobile subscribers in FY06. Nonetheless, the cellular market remains highly fragmented and competitive, in view of the fact that there are around six operators in each of the country's 23 mobile circles. Whilst consolidation is ongoing, competition is expected to intensify during the current stage of rationalization, given large foreign investments in regional players.

Although traditional wireline connections are in decline, the basic services segment continues to grow at a moderate pace, underpinned by healthy demand for CDMA-based fixed-wireless services. There has been relatively limited competition in this segment, which continues to be dominated by government-controlled incumbents, BSNL and Mahanagar Telephone Nigam Ltd. (MTNL), although private operators are gradually building market share. Competition in National and International Long-Distance services (NLD and ILD) has also been limited thus far, but this is expected to change over the next year or so given the recent relaxation in licensing conditions.

Notwithstanding the industry's rapid growth and development, both cellular and fixed-line penetration were still quite low at 8.0% and 4.5% respectively at March 31, 2006 (FYE06) - indicating sound growth prospects in the medium term. Although the spotlight is currently centered on the cellular space, it is noted that the fixed-line segment also boasts good prospects for Internet, broadband and data related services. However, sustained strong growth has demanded heavy network investments over the last capex cycle, resulting in most Indian telecom operators generating negative Free Cash Flows (FCF) over the last two to three years. With aggregate industry capex expected to approximately double in FY07 compared with outlays in FY06, the agency expects a general increase in negative FCF levels over the next year or so, which coupled with intensifying competition is likely to preclude material credit improvements (for most operators) in the near term.

Even as the growth story continues unabated, the industry's landscape is evolving rapidly with rising foreign interest in the country. In particular, the subcontinent has attracted strategic investments from Malaysian and Singaporean operators, who are looking outwards to offset decelerating growth in their own markets. The growth outlook remains robust across market segments, underpinned by low teledensity and supported by strong economic fundamentals. The focus area for Indian operators and foreign investors alike is the cellular space, where monthly net additions have snowballed over the last 12 to 18 months. Meanwhile, local access services are also in demand, although incremental growth is expected to come from CDMA-based fixed wireless services rather than traditional wireline. Prospects for Internet and broadband growth are also promising, although short-term retail growth will be constrained by low PC penetration and the absence of Local Loop Unbundling (LLU).

In segments where competition is currently limited, the regulator remains focused on lowering barriers to entry and enabling sustainable competition. This was reflected in the recent easing in NLD and ILD licensing norms, and the imposition of ceiling tariffs on domestic and international leased circuits.

Burgeoning mobile growth

Growth momentum gathered pace in FY06 with net mobile additions surging from 5.2 million in Q106 to 14.2 million by Q406. This trend continued through FY06 with net additions exceeding five million per month by July 2006. As at September 2006, total telecom subscribers climbed to 170.3 million, representing a teledensity of 15.4%. In an agency's view, based on current rates of wireless growth, the government's target of 250 million telecom subscribers by end-2007 is certainly achievable.

India's mobile industry is one of Asia's fastest growing mobile markets - with industry subscribers growing at a CAGR of over 90% per annum over the past five years. GSM is the most widely used standard, accounting for around 77% of industry subscribers in FY06. However, both GSM and CDMA are entrenched platforms, with GSM's higher share arising from its early adoption. Most operators are exclusively GSM or CDMA operators; however BSNL, MTNL and RCL utilize both standards. The market is intensely competitive, with at least six operators in most circles. On a pan-India basis, the largest cellular companies are Bharti, RCL, BSNL and Hutch Essar. Market share differentials between these top four operators are narrow and together they accounted for around 78% of the market as at FYE06.

Though pan-India mobile penetration is still low at around 8%, penetration in the metros (which account for around a quarter of total industry subscribers), is higher, averaging around 33% in FY06. The focus of growth has now shifted to the B and C circles, where penetration is still largely in single figures.

The cellular market is expected to remain intensely competitive, especially as the pace of consolidation now appears to be slowing. Despite the entrenched positions and significant lead advantage of the pan-national operators, several regional players are keen to expand their footprints, some with the support of their new foreign partners. The second phase of consolidation may be delayed until cellular growth moderates - although further rationalization is inevitable in the medium to long term. At FYE06, India's telecommunications industry comprised twelve service providers - two majority state-owned fixed incumbents, a partially privatized ILD

incumbent, three national integrated operators and seven wireless specialists. At present, only one of the seven wireless specialists (Hutch Essar) has a near-national footprint. In the medium term, further consolidation appears inevitable, as the smaller operators could find it increasingly challenging to compete with the established pan-national players. The sheer scale and growth potential of the industry would sustain a five to six player market, while ensuring a rational market dynamic. In this regard, the agency anticipates the emergence of six operators of scale - BSNL, Bharti, RCL, Hutch Essar, Idea Cellular and Tata Teleservices Limited (TTSL).

The industry has vaulted into a second capex cycle, more intense than the last and reflected in the unprecedented rise in industry-wide target outlays for FY07. Consequently, a general increase in negative FCF levels, which is likely to preclude material credit improvements over the next year or so is expected. That said, the credit outlook for most major players remains broadly stable, supported by robust and growing cash flows from their wireless operations.

Key credit drivers over the next 12 to 18 months include effective management of increasing competitive pressures (as evidenced by growth and margin expansion/stability) and judicious capital management as operators ramp up capex spending. There is considerable scope for event risk given ongoing consolidation, with negative pressure likely to materialize should operators undertake large debt-funded acquisitions.

Bharti Enterprise

Bharti Enterprises has successfully focused its strategy on telecom while straddling diverse fields of business. From the creation of 'Airtel', one of India's finest brands, to becoming the largest manufacturer and exporter of world class telecom terminals under its 'Beetel' brand, Bharti has created a significant position for itself in the global telecommunications sector. Bharti Airtel Limited is today acknowledged as one of India's finest companies, and its flagship brand 'Airtel', has over 31 million customers across the length and breadth of India.

While a joint venture with TeleTech Inc., USA marked Bharti's successful foray into the Customer Management Services business, Bharti Enterprises' dynamic diversification has continued with the company venturing into telecom software development. Recently, Bharti has successfully launched an international venture with EL Rothschild Group owned ELRO Holdings India Ltd., to export fresh Agri products exclusively to markets in Europe and USA.

Group companies

- Bharti Airtel
- Bharti Teletech
- Telecom Seychelles
- Bharti Telesoft
- TeleTech Services India
- FieldFresh Foods Pvt Ltd.

Bharti Airtel Ltd.

Company Profile

Bharti Airtel is one of India's leading private sector providers of telecommunications services based on an aggregate of 31,958,465 customers as on November 30, 2006, consisting of 30,262,269 GSM mobile and 1,696,196 broadband & telephone customers.

The businesses at Bharti Airtel have been structured into three individual Strategic Business Units (SBUs) - mobile services, Broadband & Telephone services (B&T) & enterprise services. The mobile services group provides GSM mobile services across India in 23 telecom circles, while the B&T business group provides broadband & telephone services in 94 cities. The Enterprise services group has two sub-units - carriers (long distance services) and services to corporates. All these services are provided under the Airtel brand.

Company shares are listed on The Stock Exchange, Mumbai (BSE) and The National Stock Exchange of India Limited (NSE).

Partners

The company has a strategic alliance with Singapore Telecom. The investment made by Singapore Telecom is one of the largest investments made in the world outside Singapore, in the company.

The company also has a strategic alliance with Vodafone. The investment made by Vodafone in Bharti is one of the largest single foreign investment made in the Indian telecom sector.

The company's mobile network equipment partners include Ericsson and Nokia. In the case of the broadband and telephone services and enterprise services (carriers), equipment suppliers include Siemens, Nortel, Corning, among others. The Company also has an information technology alliance with IBM for its group-wide information technology requirements and with Nortel for call center technology requirements. The call center operations for the mobile services have been outsourced to IBM Daksh, Hinduja TMT, Teletech & Mphasis.

Singapore Telecom

- Singapore Telecom is a leading provider of international, local and mobile telecom services in Singapore. The company has invested over US\$400 million for a 17.7 per cent stake in Bharti Televentures and 20 per cent in Bharti Telecom.
- This is the largest investment by an international investor in the Indian telecom sector and Singapore Telecom's second largest investment overseas. Singapore Telecom has also entered into a joint venture with Bharti Telesonic to build, operate and maintain a cable landing station.
- Global telecom equipment manufacturers like Motorola, Ericsson, Nokia are also active in the Indian telecom industry.

Airtel Enterprise Services

The company is a part of Bharti Enterprises, and is India's leading provider of telecommunications services. Following are the services provided by Airtel Enterprise:

- Voice Services
- Mobile Services
- Satellite Services
- Managed Data & Internet Services
- Managed e-Business Services

Airtel Broadband Service is powered by DSL technology.

DSL provides blazing-fast, secure Internet access and can be delivered to both homes and to businesses. Delivered right through a regular telephone line, data rates can vary from 128Kb to 8Mb per second depending on the type and cost of the service.

Digital Subscriber Line (DSL) technology provides instant Internet and network access at speeds up to 50 times faster than a 28.8Kbps modem on a standard analog phone line. There are no dial-up delays, no busy signals. What used to take minutes or hours to download will take just seconds or minutes.

With DSL Internet Service one can download graphics-heavy files, large documents, software, photos, email attachments, and more, instantly. It's perfect for real-time interactive multimedia, broadcast quality video, distance learning, and video-on-demand. And because DSL Internet Service sends data and voice over the same line, you can talk on the phone while you are online.

It's also a service that one doesn't have to dial into. Just turn on the PC, open a browser, and you're ready to surf. (No more hearing those annoying beeps and tones, then waiting to be connected. You're always connected whenever you wish to!). Beyond Internet access, DSL also has the ability to carry additional phone lines and entertainment services using the same pair of wires.

High-speed Internet access through DSL, changes your Internet experience perceptibly.

Milestones

For the Year 2006 - 2007

- Bharti Airtel draws Top Honors at the MIS Asia IT Excellence Awards 2006.
- Bharti Airtel is among the top 10 best performing companies in the world according to BusinessWeek IT 100 list.

- Sunil Bharti Mittal is 'CEO of the Year' at the Frost & Sullivan Asia Pacific ICT Awards 2006 & Bharti Airtel bags 'Wireless Service Provider of the Year' and 'Competitive Service Provider of the Year'..
- Bharti Tele-Ventures is the "BEST INDIAN CARRIER" at Telecom Asia Awards 2006.

For the Year 2005 – 2006

- Airtel chosen as 'Most Preferred Mobile Service' by CNBC Awaaz Consumer Awards.
- Business Week features Bharti Tele-Ventures amongst the top technology companies in the world.
- Bharti Tele-Ventures amongst top three companies in the latest ET top 500 companies ranking.
- Bharti Tele-Ventures is the "Indian Mobile Operator of the Year 2005".
- Sunil Bharti Mittal, Chairman & Managing Director, Bharti Enterprises gets 'The Best Asian Telecom CEO' award. Bharti Tele-Ventures is Asia's 'Best GSM Carrier'.

Consolidated Balance Sheet - BHARTI AIRTEL LIMITED (Amounts in thousands of Indian Rupees, except per share data and as stated otherwise)

Particulars	As of March 31, 2005	As of March 31, 2006
ASSETS		
Cash and cash equivalents	3,087,245	2,649,379
Accounts receivable, net of allowances for doubtful debts	7,308,383	10,573,690
Unbilled receivables	2,790,091	3,629,076
Inventories	544,835	381,320
Short term investments	4,991,756	2,526,649
Deferred taxes on income (current)	2,440,947	1,562,481
Derivative financial instruments	422,356	531,815
Restricted cash	168,362	188,958
Prepaid expenses and other current assets	4,676,845	9,589,918
Due from related parties	167,432	675,022
Total Current Assets	26,598,252	32,308,308
Property and equipment, net	92,597,458	142,411,233
Acquired intangible assets, net	15,964,013	14,872,964
Goodwill	23,247,058	23,687,179
License entry fees, net	-	-
Investment in joint ventures	159,655	189,566
Investments	510,945	500,000
Restricted cash, non-current	69,868	56,058
Deferred taxes on income	-	-
Other assets	2,399,737	3,217,853
Total Assets	161,546,986	217,243,161
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Short-term borrowings and current portion of long-term debt	11,237,136	12,892,457
Trade payables	7,209,234	14,129,534
Equipment supply payables	17,106,128	25,041,000
Accrued expenses	5,973,873	8,312,982
Unearned income	5,955,578	12,690,393
Unearned income – Indefeasible right to use sales	290,159	335,763
Derivative financial instruments	1,672,492	1,582,559
Due to related parties	57,382	49,921
Other current liabilities	1,858,745	3,361,350
Deferred taxes on income	130,755	-
Total current liabilities	51,491,482	78,395,959
Long-term debt, net of current portion	37,802,831	34,502,503

Deferred taxes on income	3,493,524	3,508,024
Unearned income – Indefeasible right to use sales	3,950,584	4,135,804
Other liabilities	2,994,431	3,565,525
Total liabilities	99,732,852	124,107,815
Contingencies and commitments	–	–
Minority interest	749,255	957,136
Stockholders' equity		
Common stock, par value Rs.10 per share (2,500,000,000 equity shares authorized; and 1,853,366,767 issued and outstanding as of March 2004 and 2005)	18,533,668	18,938,793
Additional paid in capital	47,986,645	56,363,471
Deferred stock based compensation	(68,928)	(419,339)
Treasury stock	(330,620)	(215,539)
Retained earnings / (deficit)	(5,055,886)	17,510,824
Total stockholders' equity	61,064,879	92,178,210
Total liabilities and stockholders' equity	161,546,986	217,243,161

CONSOLIDATED FINANCIAL STATEMENTS - BHARTI AIRTEL LIMITED

(Amounts in thousands of Indian Rupees, except per share data and as stated otherwise)

Particulars	For the year ended March 31, 2005	For the year ended March 31, 2006
Revenues		
Services	78,726,865	114,638,009
Indefeasible right to use sales	209,257	417,683
Equipment	1,091,654	1,159,761
Total revenues	80,027,776	116,215,453
Operating Expenses		
Costs of services	(47,254,693)	(68,295,069)
Costs of equipment sales	(1,020,564)	(1,168,771)
Selling, general and administrative expenses	(13,029,106)	(19,145,884)
Pre-operating costs	(533,326)	(119,670)
Total Operating Expenses	(61,837,689)	(88,729,394)
Operating (Loss) / Income	18,190,087	27,486,059
Interest expense	(3,114,323)	(2,958,039)
Interest income	1,118,765	446,045
Share of profits / (losses) in joint ventures	(37,662)	(5,039)
Other income	478,580	499,225
Non operating expenses	(31,137)	(102,534)
(Loss) / Income before Income Taxes	16,604,310	25,365,717
Income tax expense	(1,527,944)	(2,539,495)
Minority interest	(98,477)	(259,512)
Net (Loss) / Income	14,977,889	22,566,710

Other information:

- The current price of the 91 day T bill is Rs.98.24.
- Currently the company is retaining the entire earnings but from the next year onwards the company will retain 80% of its earnings and distribute the remaining as dividend.

Share price of Bharti Airtel Ltd. for last 16 trading days of December 2006.

Date	Price (Rs.)
7-Dec-06	637.90
8-Dec-06	634.40
11-Dec-06	606.85

12-Dec-06	575.95
13-Dec-06	598.00
14-Dec-06	610.40
15-Dec-06	615.95
18-Dec-06	619.25
19-Dec-06	605.50
20-Dec-06	604.70
21-Dec-06	611.75
22-Dec-06	614.90
26-Dec-06	624.35
27-Dec-06	631.30
28-Dec-06	630.70
29-Dec-06	629.95

ROC chart of Bharti Airtel Ltd.

END OF SECTION D

Section E : Caselets (50 Marks)

- This section consists of questions with serial number 6 - 11.
- 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. With respect to the caselet explain what margin trading is. Also explain with an example how it works.

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

7. Should retail investors opt for margin trading? Discuss.

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

"The higher you walk, the farther you fall. The longer the walk, the farther you crawl,"

James Hetfield poured out from the record player as Ashok buried his head and cursed himself for taking so long to realise the real meaning of these lines from his favourite song.

A few months back, when a stock broker had emphatically narrated stories of riches made in a single day of trading in stocks, Ashok wanted to do the same. The broker had told him that, for a sum of Rs.5,000, he could carry out transactions worth Rs.25,000 in a day (five times the amount kept with the broker). But, whatever stocks he bought, had to be sold by the end of the day. Margin trading, since it gives multiple times exposure to the money invested, disproportionately leveraged his return on investment.

"While trading on margin, one should be very clear that they should have enough money to pay up when the stock declines in value and a margin call is generated. Taking leveraged position in a fluctuating market is very risky," says Prashant Prabhakaran, senior vice-president of Kotak Securities.

It is important for one to go through the client-broker agreement before venturing into margin trading. Some agreements explicitly state that the broker has the right to alter the margin applicable for a security without giving any notice to the client and without assigning any reason. Further, the broker need not inform the client while selling his/her securities for recovering the payments due from the client. Both conditions together mean that a broker need not inform the client, if a margin call is generated and can sell securities if he/she fails to meet the additional margin requirements.

Under such a scenario, it is desirable to limit one's losses. It is better to choose a broker that mandate a stop-loss price along with a buy order on margin account. This would ensure that your loss will be limited to the difference between the buy price and the stop-loss price mentioned, as the shares get automatically sold once the prices dip to the stop loss level.

Though brokers may be willing to give extreme leverages on the basis of long-term relationship, it is always better to take the least leveraged position.

All said, "Heavily margined, heavily watched," is a market principle worth following. Though total protection is not possible, a few precautions can ease the knock of a drastic crash.

Caselet 2

Read the caselet carefully and answer the following questions:

8. The income and asset-based approaches to valuation have relative strengths as well as obvious limitations. Explain the limitations attached with the income approach.

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

9. The trouble is that while relative valuation is quick and easy to use, it can be a trap for investors. Elucidate.

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

It is widely accepted that business value is derived from the stream of discounted future benefits to the owners. The primary difference among the various valuation approaches is attributable to the method in which those benefits are estimated. Controversy exists among valuation practitioners and academics as to which methods are most appropriate, as evidenced by, among other things, the substantial amount of litigation and other legal proceedings surrounding valuation issues. The importance of developing reliable valuation estimates cannot be overstated, especially considering their impact on matters such as estate tax liability, business acquisitions, buy-sell agreements, and the division of assets in marital dissolutions. Research on the theory and application of valuation methods often yields mixed results, which only exacerbates the debate.

Business valuation theory recognizes three broad approaches to estimating value: the income approach, the asset-based approach, and the market approach. The income approach uses an entity's estimated future income stream as a basis for value. The asset-based approach focuses on determining an entity's collective asset values.

The market approach can be thought of as a derivative of the other two approaches (the application of some market multiple of assets or income). Because the income and asset-based approaches each demonstrate comparative advantages and weaknesses, it follows that some form of hybrid technique that utilizes a combination of income and asset-based data may be generally superior as a valuation model.

The most common methods of estimating value have traditionally involved the discounting or capitalizing of an income stream. In the income approach, variables such as earnings or cash flows are utilized as a proxy for the expected benefits to the owners of the business. Common examples of valuation methods under the income approach are the earnings capitalization model and the discounted cash flows model.

Asset-based methods typically involve restating both assets and liabilities to their current values to arrive at a net asset value. The restatement can be done on an individual component level (discrete valuation) or collectively (collective valuation). Given the relative difficulty of individually valuing a variety of assets, such as real estate, machinery and equipment, and inventory, it is often necessary to employ valuation specialists.

The market approach or the relative valuation is a simple way to unearth low-priced companies with strong fundamentals. As such, investors use comparative multiples like Price-Earnings ratio (P/E), enterprise multiple (EV/EBITDA) and price-to-book ratio all the time to assess the relative worth and performance of companies and to identify buy and sell opportunities. The trouble is that while relative valuation is quick and easy to use, it can be a trap for investors. The concept behind relative valuation is simple and easy to understand: the value of a company is determined in relation to how similar companies are priced in the market.

Caselet 3

Read the caselet carefully and answer the following questions:

10. As per the caselet the Stock Index is a single figure that sums up the overall performance of the entire market. Explain the various parameters that should be considered before constructing an ideal stock index.

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

11. This caselet says that a good stock index captures the movement of the well diversified and highly liquid stocks. The liquidity of the stock is measured based on its impact cost. With respect to this, explain how the impact cost is measured.

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

“It’s ironical that something as huge as a stock market which should be stable as it represents the economy of a nation, is actually extremely volatile since it is driven more by the sentiments of the people.”

Stock Market is a place where the stocks of the listed companies are traded. A single figure that sums up the overall performance of the market on a daily basis is the Stock Index. A good Stock Index captures the movement of the well diversified and highly liquid stocks. For a lay man it is the pulse rate of the economy. Index movements reflect the changing expectations of the stock market about future performance of the corporate sector. The index is calculated by finding the weighted average of the prices of the most actively traded companies in the market, where the weights are generally in proportion to the market capitalization of the companies.

But when and where did it all start? Stock Exchanges as a centre for trading were established as early as the 16th century. In Antwerp, a major financial hub in Belgium, traders gathered together in 1531 to speculate in shares and commodities. This was the world's first Stock Exchange. London and Paris set up Exchanges sometime near the end of the 17th century. Close to hundred years later, in 1792, the New York Stock Exchange (NYSE) was established, which is still one of the world’s most powerful exchanges today. The reason for its establishment was primarily the need for financing businesses and for providing returns for the finances.

In India, the Stock Exchange, Mumbai, was established in 1875 as "The Native Share and Stockbrokers Association" (a voluntary non-profit making association) and is now popularly known as the Bombay Stock Exchange (BSE). The other major exchange is the National Stock Exchange of India Limited (NSE) and was incorporated in November 1992. Combined, the two trading zones are responsible for 99.9% of the trading done in India.

Following are the types of indexes:-

- **Broad-Market Index:** This consists of all the large, liquid stocks of the country and becomes the

benchmark for the entire capital market of the country. An example for this is the S&P CNX 500.

- **Specialized Index:** We can either have Industry or Sector specific Index for any particular sector of the economy which then serves as the benchmark for that particular industry or we can have an index for the highly liquid stocks. Taking an example for an industry specific index we have the S&P Banking Index which is a capitalization-weighted index of 26 domestic equities traded on the New York Stock Exchange and NASDAQ. The stocks in the Index are high-capitalization stocks representing a sector of the S&P 500. Similarly, the S&P CNX Nifty is a relevant example for an index composed of highly liquid stocks.

END OF SECTION E

END OF QUESTION PAPER

Suggested Answers

Security Analysis - II (212) : April 2007

Section D : Case Study

1. Michael Porter Analysis

Threat of entry

- Telecom industry is capital intensive and the gestation period to start up business in this industry is also high. This is the major cause of concern for the new entrant.
- In this industry product differentiation is highly desired because the basic service provided by the players is the same. So new entrants will have to differentiate its product based on the value-added services and the price charged.
- In this industry the customers can easily switch from one service provider to another service provider. Because of this capturing and maintaining the market share is difficult which the new entrant should keep in mind.
- Setting up distribution channels and proper marketing plays vital role for survival in this industry, which can hinder the entrance of new players in this industry.
- The scale of operation or economies of scale is required to be high to generate revenues and to cover up the cost incurred.
- In this industry there exist established players like Bharati, Reliance, Tata, BSNL, MTNL, Hutch, Idea etc. So, new player will have to face severe competition from these giants.
- Now a days the Government has opened this sector for private players and foreign players are also investing substantially in this industry as we can see in the case of Bharati Televentures. A new player can enter in this industry but surviving against existing players may become difficult.
- Intensity of rivalry is also very high. Once one player comes out with some new product or some differentiation, the existing players are also imitating or putting the similar products in the market. For example life time connection, caller tune etc.

Exit barriers:

- In this industry assets are highly specialized. Possibility of assets being utilized for other purpose is very less and they can not be sold or liquidated easily.
- Exit from this industry can be done by selling the assets to existing player, which depends on the state of industry and the market share of the company. Therefore the exit barriers in this industry are very high.

Pressure from substitute products

- In this industry there is less amount of threat from the substitute products.
- In current scenario there are no close substitutes for GSM and CDMA service providers. As well as there are no close substitutes for broadband services. The things which are required to be considered are the competition and the product differentiation.

Bargaining power of the buyers

- In telecom industry the services providers are required to set the necessary infrastructure to start the business and they also require the technical assistance regularly. Therefore it can be observed that service providers may not possess bargaining power for these activities. The service providers are also having the option to acquire the companies which provide assistance to them e.g. recently Reliance Communication has acquired one tower company.
- The corporate clients do possess the bargaining power from the service providers. The service providers generally provide the services to corporate clients at cheaper rates as compared to the general clients.
- All the players are having the similar prices for their services.

Bargaining power of suppliers

- A producing industry requires raw materials, labor, components and other supplies. These requirements lead to buyer supplier relationships between the industries. Suppliers, if powerful can exert an influence on the producing industry.
- In this industry the threat of forward integration from the suppliers is very less instead the suppliers are facing the threat of backward integration from the buyers.
- In this industry the product is standardized and there exists competitive suppliers.
- This industry is dominated by the large players this indicates that the buyers are powerful. Therefore the suppliers in this industry may not enjoy high amount of bargaining power.

Degree of rivalry

The intensity of the rivalry depends on the following factors

- Number of competitors
- Rate of industry growth
- Intermittent industry overcapacity
- Exit barriers
- Diversity of competitors
- Informational complexity and asymmetry
- Brand equity
- Fixed cost allocation per value added
- Level of advertising expense

In Indian telecom industry the revenues have grown by 21% in FY2006. Most of this growth has been captured by four operators - Bharti Airtel Ltd., Reliance Communications Ltd. (RCL), Bharat Sanchar Nigam Ltd. (BSNL) and Hutchison Essar Ltd. (Hutch Essar), which collectively accounted for over 75% of industry mobile subscribers in FY06. Exit barriers in this industry are very high. All the players are well established and financially strong. That is the reason why this industry has become highly competitive. Every player is concentrating to increase their market share by intensive marketing and improving the product differentiation.

[< TOP >](#)

2. SWOT Analysis

Strength

- Bharati Airtel is one of the leader in the Indian telecom industry and is backed by the well established Bharati Enterprise.
- It is having the well diversified business like mobile service, FWP service, satellite services, Managed Data & Internet Services, Managed e-Business Services, Broadband Service.
- The Company also has an information technology alliance with IBM for its group-wide information technology requirements and with Nortel for call center technology requirements.
- The mobile services group provides GSM mobile services across India in 23 telecom circles, while the B&T business group provides broadband & telephone services in 90 cities.
- Bharti Airtel among the top 10 best performing companies in the world according to BusinessWeek IT 100 list.

Weakness

- Bharati Airtel not explored the rural areas from where it can get the large chunk of customers.
- Prices of services provided by Bharati Airtel are not competitive with the PSUs like BSNL and MTNL.

Opportunities

- India's 21.59 million-line telephone network is one of the largest in the world and the 3rd largest among emerging economies (after China and Republic of Korea). Given the low telephone penetration rate - 2.2 per 100 people of population, which is much below the global average, India offers vast scope for growth. It is therefore not surprising that India has one of the fastest growing telecommunication systems in the world with system size (total connections) growing at an average of more than 20 percent over the last 4 years.
- The usage of internet in India is growing rapidly and it provides a huge growth potential.
- The global telecom industry is growing rapidly. The company is having the better opportunity to expand its operations.

Threats

- The industry is growing rapidly world wide but the level of competition is very high. The existence of giants is again the cause of concern. The company faces the threat of losing the market share because of the entry of the new giant or the new global players.
- The company is also facing the threat from the consolidation in the industry.
- The company also facing the threat from the technology innovations. If some new and cheaper technology comes in the market the company may lose the market share.
- This industry requires high quality of services, large number of outlets and product differentiation. Failure in any of these departments may lead to loss of market share.

[< TOP >](#)

3. For the valuation of the company we will have to consider the bonus adjusted EPS. Therefore, we will exclude the effect of bonus issue.

EPS

05 8.08

06 11.91

Growth rate: 47.40%

Yield on T bill = $(100-98.24/98.24)*(365/91)$

= 7.19%

Required rate = $7.19+18.81 = 26\%$

Year	EPS	DPS	Present value
2006	11.910	–	–
2007	17.555	3.511	–
2008	25.877	5.175	4.107
2009	38.142	7.628	4.805
2010	54.513	10.903	5.450
2011	75.467	15.093	5.988
2012	101.096	20.219	6.367
2013	130.899	26.180	6.542+817.693*
2014	163.624	32.725	–
Total			Rs.850.953

*Terminal Value = $32.72/(0.26-0.25)$

= 3272

PV of terminal value = $3272/1.26^6 = \text{Rs. } 817.693$

Annualized return = $(850.953/360)^{12/9} - 1 = 214.87\%$

[< TOP >](#)

4.

12 day EMA

Exponent= $2/12 = 0.17$

Date	Price	EMA for previous day	I - II	III*0.17	EMA=II+IV
	I	II	III	IV	V
7-Dec-06	637.90	–	–	–	630.21
8-Dec-06	634.40	630.21	4.19	0.71	630.92
11-Dec-06	606.85	630.92	-24.07	-4.09	626.83
12-Dec-06	575.95	626.83	-50.88	-8.65	618.18
13-Dec-06	598.00	618.18	-20.18	-3.43	614.75
14-Dec-06	610.40	614.75	-4.35	-0.74	614.01
15-Dec-06	615.95	614.01	1.94	0.33	614.34
18-Dec-06	619.25	614.34	4.91	0.83	615.17
19-Dec-06	605.50	615.17	-9.67	-1.64	613.53
20-Dec-06	604.70	613.53	-8.83	-1.50	612.03
21-Dec-06	611.75	612.03	-0.28	-0.05	611.98
22-Dec-06	614.90	611.98	2.92	0.50	612.48
26-Dec-06	624.35	612.48	11.87	2.02	614.50
27-Dec-06	631.30	614.50	16.80	2.86	617.35
28-Dec-06	630.70	617.35	13.35	2.27	619.62
29-Dec-06	629.95	619.62	10.33	1.76	621.38

26 day EMA

Exponent = $2/26 = 0.08$

Date	Price	EMA for previous day	I - II	III*0.08	EMA=II+IV
	I	II	III	IV	V
7-Dec-06	637.90	–	–	–	591.85
8-Dec-06	634.40	591.85	42.55	3.40	595.25
11-Dec-06	606.85	595.25	11.60	0.93	596.18
12-Dec-06	575.95	596.18	-20.23	-1.62	594.56
13-Dec-06	598.00	594.56	3.44	0.28	594.84
14-Dec-06	610.40	594.84	15.56	1.25	596.08
15-Dec-06	615.95	596.08	19.87	1.59	597.67
18-Dec-06	619.25	597.67	21.58	1.73	599.40
19-Dec-06	605.50	599.40	6.10	0.49	599.88
20-Dec-06	604.70	599.88	4.82	0.39	600.27
21-Dec-06	611.75	600.27	11.48	0.92	601.19
22-Dec-06	614.90	601.19	13.71	1.10	602.29
26-Dec-06	624.35	602.29	22.06	1.77	604.05
27-Dec-06	631.30	604.05	27.25	2.18	606.23
28-Dec-06	630.70	606.23	24.47	1.96	608.19
29-Dec-06	629.95	608.19	21.76	1.74	609.93

	12 day EMA	26 day EMA	MACD
7-Dec-06	630.21	591.85	38.36
8-Dec-06	630.92	595.25	35.67
11-Dec-06	626.83	596.18	30.65
12-Dec-06	618.18	594.56	23.62
13-Dec-06	614.75	594.84	19.91
14-Dec-06	614.01	596.08	17.93
15-Dec-06	614.34	597.67	16.67
18-Dec-06	615.17	599.4	15.78
19-Dec-06	613.53	599.88	13.64
20-Dec-06	612.03	600.27	11.76
21-Dec-06	611.98	601.19	10.79
22-Dec-06	612.48	602.29	10.19
26-Dec-06	614.50	604.05	10.45
27-Dec-06	617.35	606.23	11.12
28-Dec-06	619.62	608.19	11.43
29-Dec-06	621.38	609.93	11.45

MACD measures the difference between two moving averages. A positive MACD indicates that the 12-day EMA is trading above the 26-day EMA. A negative MACD indicates that the 12-day EMA is trading below the 26-day EMA. If MACD is positive and rising, then the gap between the 12-day EMA and the 26-day EMA is widening. This indicates that the rate-of-change of the faster moving average is higher than the rate-of-change for the slower moving average. Positive momentum is increasing and this would be considered bullish. If MACD is negative and declining further, then the negative gap between the faster moving average and the slower moving average is expanding. Downward momentum is accelerating and this would be considered bearish. MACD centerline crossovers occur when the faster moving average crosses the slower moving average. In case of Bharti Airtel we can see that from 7th December to 26th December the gap is positive but it is decreasing which shows the slow down in the momentum. From 27th December the gap has started to increase but the increase is not significant.

[< TOP >](#)

5. ROC is a momentum indicator that measures velocity and also leads the price action.

Rate of Change, ROC, can be very useful; because it is a leading indicator (ROC changes direction before the underlying price). ROC is sometimes also referred to as Price Rate of Change (PROC).

- ROC is a price momentum or velocity indicator.
- A rising ROC indicates a bullish increasing momentum
- A falling ROC indicates a bearish decreasing momentum
- ROC should always be used in conjunction with reversal signals on the price chart.

The ROC displays the amount prices have changed over the given time period as an oscillator. When the wave is above the equilibrium line, the market price is higher than it was at the start of the ROC time period. The higher the wave, the greater the change. When the wave sinks below the equilibrium line into a trough, the lower it goes, the lower the market is in comparison to the previous price. As the wave starts coming up from the bottom of a trough, in a rising ROC, this indicates expanding momentum (considered bullish). Conversely, a falling ROC is considered bearish.

Comparing the ROC's of different time spans improves the accuracy of the analysis. A 12 month period is usually the most reliable for long term trends and 3 or 6 month period works well for intermediate trends. As mentioned previously, a 10 or 12-day ROC is a good short term indicator, oscillating in a fairly regular cycle.

The lower the ROC, the more undersold the market and the more likely a recovery. Although the opposite may hold true in that the higher the ROC, the more overbought the market, both extremes can indicate the formation of a sideways channel.

Point A:

At this point we can see that the ROC is increasing and this change is confirmed by the change in the price of the company. Before this point the price and the ROC both were falling but just before this point the ROC started to increase which says that the bullish trend may come ahead and this has been confirmed by increase the price at this point. Therefore at this point one should buy the shares of the company.

Point B:

Before this point we can see that the price was increasing but ROC has already started to decrease which shows the reversal in the trend or weakness in the market and the same thing has been confirmed by the price at point B. therefore this point is a sell alert because price breaks the uptrend after the ROC.

[< TOP >](#)

Section E: Caselets

Caselet 1

6. Margin trading is a high-risk strategy that allows you to buy more stock than you would be able to normally and can yield a huge profit if executed correctly.

Buying on margin means to borrow money from a broker (similar to a loan) to purchase stock.

The investor can take position in the market by paying an initial margin of 50 per cent (your own money), while the broker could finance the balance 50 per cent.

The broker can lend from his own resources or can borrow from banks, non-banking finance companies and other qualified lenders such as insurance companies.

However, the broker can only borrow up to five times his net worth.

The broker cannot use the funds from other clients or individuals.

Sebi has stipulated that only corporate brokers with a net worth of more than Rs 3 crore (Rs 30 million) can carry out margin trading on behalf of their clients.

How does margin trading work?

Opening a separate account: To trade on margin, one needs to open a margin account. This is different from the regular cash account in which you trade using the money in the account.

The broker will be required to obtain your signature to open this margin account. The margin account may be part of your standard account opening agreement or may be a completely separate agreement.

Let us look at how margin trading works.

Say you wish to buy 500 Reliance Industries shares but do not have the entire finance upfront. You could do the trade through margin trading, wherein you would bring in 50 per cent as the initial margin (through your own funds) and the broker would provide the balance 50 per cent funds.

In this same case, if you feel that the Reliance Industries stock has a potential to provide 25 per cent returns, you could buy more, by equally bringing in more money and borrowing the balance from the broker.

There are some key issues that have to be kept in mind while opting for margin trading.

- First, when you sell the stock in a margin account, the proceeds go to your broker against the repayment of the loan, until it is fully paid.

The stocks are kept as collateral for the loan taken and remain in the broker's possession.

- Secondly, the investor has to keep a minimum amount of equity (as maintenance margin) in the margin account, which can range from 25-40 per cent.

This balance must be maintained before the broker forces you to deposit more funds or sell stock to pay off your loan.

Note: If the value of the security or stock falls and the margin falls below 40 per cent, then the amount (as margin) will have to be increased again.

A broker will make a 'margin call' if one or more of the securities you have bought (with borrowed

money) decreases in value past this point.

The investor will then have to pay the margin on a T+1 basis, i.e., the cheque would have to be paid to the broker the next day.

In case the margin falls below 30 per cent, then the broker -- without intimating you - could also sell the stock in the market.

In the case of higher profits, the interest on the loan taken will have to be paid. The interest charges are applied to your account unless you decide to make payments.

These interest charges in current market conditions are high and differ from broker to broker.

Over time, your debt level increases as interest charges accrue against you.

"Currently these interest charges are very high, as this system has been relatively unregulated. In the new system, the interest charges could come down. Further, we expect demand for margin trading to be high considering the investor interest in the stock markets," a dealer in the investment division of a state development bank said, on condition of anonymity.

[< TOP >](#)

7. There are clear benefits from margin trading, offering you leverage for your trade. If the scrip you have bought moves up, one can make handsome gains.

On the flip side, a fall in prices would mean shoring up the maintenance margin (bringing in more money) or liquidating the stock.

Further, interest has to be paid on the sums borrowed. Hence, one could actually stand to lose more money than originally invested.

Leading BSE institutional brokerage firms like KJMC Capital Markets and ULJK Securities say that margin trading would benefit the high net worth individuals more than retail investors.

The retail investor must keep from jumping into margin trading immediately due to the following factors:

- Any financial and trading system in Indian market conditions will need some time to settle down. There will be hiccups and possibly changes in the margin trading system, as required.
- Margin trading is a high-risk strategy. You stand to make higher profits, but might also lose heavily, if the market conditions move against you.
- Indulge in margin trading only if you have 'risk capital'. Risk capital is surplus money set aside, which the investor can afford to lose.
- Buying on margin should be used for short-term investments. The longer you hold an investment, the greater a return you need, to break even. If you hold an investment on margin for a long period of time, the odds that you will make a profit are stacked against you.

[< TOP >](#)

Caselet 2

8. The effective implementation of any model with an income approach requires a reasonable estimate of the expected future benefit stream as well as an appropriate rate at which to discount the benefit stream. In a discounting model, a projection of income is estimated for a finite period, followed by a terminal value calculation that assumes a constant income growth rate from that point into perpetuity. The income stream is converted to present value by applying an appropriate discount rate. In a capitalization model, a representative level of income is capitalized into perpetuity at a capitalization rate determined by the difference between the appropriate discount rate and a constant, sustainable level of growth (i.e., a price-to-earnings multiple). The primary difference between discounting and capitalizing is the level of discretion afforded in controlling the growth of the income stream. In any case, reasonable growth assumptions and an appropriate discount rate are imperative for effective valuation.

The income and asset-based approaches to valuation have relative strengths as well as obvious limitations. For example, the income approach allows for specific and direct estimation of future benefits to the owners, which is consistent with the theory of value. On the other hand, if the estimation of future benefits is directly based on historical income, the precision of the estimate will depend heavily on the persistence embodied in the historical income measure and on the growth assumptions incorporated into

the model. If, for example, current or historical income contains large transitory components, the relationship between historical and future income may be distorted. In addition, to the extent an inappropriate discount rate is utilized, value estimates will be adversely affected.

[< TOP >](#)

9. Relative valuation is quick and easy, perhaps. But because it's based on nothing more than casual observations of multiples, it can easily go awry.

Consider this: a well-known company surprises the market with exceedingly strong earnings. Its share price deservedly takes a big leap. In fact, the firm's valuation goes up so much that its shares are soon trading at P/E multiples dramatically higher than those of other industry players. Soon investors ask themselves whether the multiples of other industry players look cheap against those of the first company. After all, these firms are in the same industry, aren't they? If the first company is now selling for so many times more than its earnings, then other companies should trade at comparable levels, right? Not necessarily. Companies can trade on multiples lower than those of their peers for all kinds of reasons. Sure, sometimes it's because the market has yet to spot the company's true value, which means the firm represents a buying opportunity. Other times, however, investors are better off staying away. How often does an investor identify a company that seems really cheap, only to discover that the company and its business is teetering on the verge of collapse?

Investors need to be cautious of stocks that are proclaimed to be "inexpensive". More often than not, the argument for buying a supposed undervalued stock isn't that the company has a strong balance sheet, excellent products or a competitive advantage. Trouble is, the company might look undervalued because it's trading in an overvalued sector.

Multiples are based on the possibility that the market may presently be making a comparative analysis error, whether overvaluation or undervaluation. A relative value trap is a company that looks like a bargain compared to its peers, but is not. Investors can get so caught up on multiples that they fail to spot fundamental problems with the balance sheet, historical valuations and most importantly, the business plan.

[< TOP >](#)

Caselet 3

10. Following parameters should be taken into picture before one constructs a stock index:

- **Liquidity** – Liquidity of stocks as measured by the "impact cost" criterion which determines the cost faced when actually trading the index. For example if the current market price of a stock is Rs.200 and a trader purchases it at Rs.202 (due to involved transaction costs) then the market impact cost is 1% and the stock is considered highly liquid for lower impact cost.
- **Diversification** – Diversification, by putting stocks of various sectors that reflect the economy, is used to cancel out stock noise which is essentially the individual stock fluctuations and to reduce investor's risks. An index must thus have a balanced representation of all sectors.
- **Optimum size** - More stocks lead to greater diversification but the limiting factor is the size of the index. Increasing number of stocks in an index from 10 to say 30 gives a sharp reduction in risks, but increasing the number beyond a point does very little in risk reduction. Further it might lead to addition of illiquid stocks. For example, the optimal size for BSE Sensex is 30.
- **Market Capitalization:** The index should include primarily the stocks of companies that have significant market capitalization with respect to the index such that any major change in the price of the stock is reflected in the index. For example in BSE 30 Index, the scrip must have a minimum of 0.5% of the market capitalization of the Index.
- **Averaging** - Every stock primarily moves for two reasons: The news about the company and the news about the country. An ideal index is affected only by the latter, that is the news of the economy and the effect of the former is knocked out by proper averaging.

[< TOP >](#)

11. At NSE the impact cost is measured in the following manner:

- Impact cost is computed for an order size of Rs.5 lakh per security.
- For the purpose of computation of impact cost, four snapshots at different times are taken everyday from the order book in the capital market segment for all securities.
- Impact cost is the percentage price movement caused by an order size of Rs.5 lakh from the average of the best bid and offer price in each order book snapshot.
- The closing price of the last day of the six month period is reckoned to determine the order size for the purpose of impact cost computation.
- Impact cost is calculated separately for the buy side and the sell side, in each order book snapshot, for the past 6 months.
- Where sufficient number of shares are not available on either the buy side or the sell side in a snapshot, the impact cost for such observations is given a penal value of 5%.
- The buy side impact cost (or sell side impact cost) is the simple average of the buy side impact cost (or sell side impact cost) computed for all the snapshot observations in the past 6 months.
- Impact cost reckoned for the purpose of all computations is the mean of such buy side impact cost and sell side impact cost.

[< TOP >](#)

[< TOP OF THE DOCUMENT >](#)