

Question Paper

Security Analysis – II : January 2002

Part D : Case Study (50 Points)

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

1. Perform industry life cycle analysis on the Indian Pharmaceutical industry.
(5 points)
2. Perform Michael Porter Analysis of the Indian Pharmaceutical industry.
(11 points)
3. Perform SWOT Analysis of Wockhardt.
(8 points)
4. Carry out fund flow analysis on cash basis for the one year period ended December, 2000.
(7 points)
5. Analyse the price pattern from the daily data of the share prices of Wockhardt for October 2001.
(6 points)
6. Calculate the intrinsic value of the share of Wockhardt as on December 31, 2001 by applying the model given below and comment on whether the share is rightly priced in the market.
$$V = (0.65 \times P_{P/E}) + (0.10 \times BVPS) + (0.25 \times P_{DDM})$$

Where:

$P_{P/E}$ = The price as per the P/E multiple which is given by the model:
 $P/E = 8.5 + 1.5EG + 0.067 DP$
EG is earnings growth, DP is dividend payout. Both are in percentage calculated from historical data.

P_{DDM} = The price as per the dividend discount model assuming a above normal growth of 25% for 3 years after 2000, and a growth of 20% for the next 2 years and the normal growth rate thereafter.

BVPS = Book value per share on the valuation date.

(Assume a risk free rate of 8.5%, market risk premium of 9% and the beta of Wockhardt stock is 0.87).

(13 points)

INTRODUCTION TO THE PHARMACEUTICAL INDUSTRY

Pharmaceuticals

Pharmaceuticals are medicinally effective chemicals, which are converted to dosage forms suitable for patients to imbibe. In its basic chemical form, pharmaceuticals are called bulk drugs and the final dosage forms are known as formulations.

Usage of pharmaceuticals is governed by the underlying medical science. The four primary medical sciences are as under:

- Allopathic or modern medicine has gained global popularity.
- Ayurveda, an ancient Indian science, mainly uses herbal remedies.
- Unani, having Chinese origin, is prevalent in South East Asia.
- Homeopathy, founded by a German physician, was fairly popular in the early 19th century.

The above case is prepared only for the purpose of examination and not to illustrate either effective or ineffective performance of the company. The case contains real information adapted and combined with other information to generate discussion or analysis on the desired topics.

World-over, the pharmaceuticals industry is focused on Allopathic, the most modern medical science. Other modes of medical treatment such as Homeopathy, Ayurveda and Unani are more prevalent in third world countries.

Bulk Drugs

Bulk drugs are medicinally effective chemicals. They are derived from 4 types of intermediates (raw materials), namely

- Plant derivatives (herbal products)
- Animal derivatives e.g. Insulin extracted from bovine pancreas
- Synthetic chemicals
- Biogenetic (human) derivatives e.g. Human insulin

Bulk drug discovery requires intensive and expensive research. So new drugs are patented by the innovator to ensure commercial gains on his R&D investment. When a drug goes off patent it becomes generic. Bulk drugs can be broadly categorized as

- Under patent
- Generic or off patent.

A patent provides exclusivity of manufacturing/ licensing to the discoverer i.e. patent holder for a stipulated time period.

Formulations

Doctors, post-diagnosis to cure a disease or disorder in the patient primarily prescribes formulations. To prevent misuse/ incorrect administration, most formulations are disbursed by pharmacies only under medical prescription and these are called ethical products. However, some formulations such as pain balms, health tonics etc can also be purchased by users directly. These are called over-the-counter (OTC) products.

Formulations can be categorized as per the route of administration to patients, viz.

- Oral i.e. tablets, syrups, capsules, powders etc taken internally.
- Topical i.e. ointments, creams, liquids, aerosols that are applied on the skin.
- Parenterals ie sterile solutions injected in an intravenous or intramuscular fashion.
- Others such as eye-drops, pessaries, surgical dressings etc.

Manufacturing Process

Bulk drugs are prepared by appropriate chemical reactions of natural/ synthetic intermediates under controlled conditions. Formulations manufacture is a batch mixing process. Right dosage of the bulk drug (active ingredient) is compounded with compatible substances, to make the formulation palatable. Packed as per the physical form - bottles (for liquids), blister strips (for tablets/ capsules) or ampoules (for powders), each formulation pack has the expiry date and storage instructions printed on it. Stringent quality control is exercised at all stages.

Therapeutic Segments

For ease of prescription, bulk drugs and their formulations are classified as per their end use i.e. therapeutic effectiveness against a particular disease or ailment. For e.g. medicines are categorised as anti-ulcer, anti-tuberculosis etc. The major therapeutic categories and the key drugs therein are detailed later.

Research, Patents & WTO

The importance of R&D, patents in the global pharma Industry and the changes in patent laws to be enforced under WTO are detailed here under:

i. Research Driven Industry

Pharmaceuticals industry is driven by a global need to conquer disease. Medicines are developed to treat new diseases or improve upon the existing treatment. An in-depth understanding of human physiology and disease mechanism is a pre-requisite to pharma R&D. To facilitate research, companies usually concentrate on select therapeutic areas such as anti-ulcer, anti-cancer etc. Major diseases for which new drugs are continuously being researched globally are AIDS, Alzheimer's disease, arthritis (rheumatism), cancer, depression, diabetes, heart disease, osteoporosis and stroke.

ii. Basic vs Process R&D

Basic research deals with discovery/ invention of a new medicinally effective chemical. Process R&D is basically reverse engineering of a molecule through slight process modifications.

Basic research is both time and cost intensive. Hundreds of molecules need to be analysed to determine possible effectiveness. Following such laboratory testing, actual clinical trials are then carried out to determine the drug's efficacy on patients. The process thus requires around 12-15 years and costs US\$350-400mn per new chemical entity (NCE). Process R&D is far easier and costs are negligible compared to basic research.

iii. **Patents**

Patents are a vital aspect of the global pharma industry. Patent protection is essential to spur basic R&D and make it commercially viable. But, only the developed nations endorse product patents. Most third world countries have patent laws but enforcement is totally lax. Some developing nations like India, Egypt and Argentina allow only process patent registration.

A researcher undertakes patent registration once a molecule shows some promise of therapeutic effectiveness. Patent life counter starts running from the day the patent application is made. The patent office then starts the process of establishing that the molecule is unique. The steps involved are:

- Within 18 months of filing the application, a brief write up of the molecular structure and its therapeutic utility is published as a public document.
- Patent office thereby invites objections, if any, from third parties eg competitors.
- Objections received are conveyed to the applicant who has a chance to defend or modify his claim to originality.
- The modified claims are republished and once again objections are invited.
- Once the patent office is satisfied about the applicant's claim, it grants the patent.

iv. **New Drug Approval (NDA)**

Prior to launching its products in any country, a pharma company undertakes patent registration to protect its own interests. To protect the interests of the consumers, it is necessary that the product be approved by the drug authorities in that country. Mostly the process for seeking approval is initiated alongside the patent registration process. An NDA (New Drug Application) is filed with the drug authorities - such as FDA in US or Drug Controller in India, detailing the new molecules' therapeutic properties. Then, clinical trials are carried out in 3 stages.

- Animal toxicity (Testing on animals).
- Trials on a few select volunteers.
- Trials on a larger scale in hospitals/ institutions.

Drug authorities approval has to be taken at each stage and only when all three trial stages are successfully completed can the product be launched.

v. **Global Price Variations...**

Drug prices vary from country to country for a number of reasons including patent regulations, government controls, income differences, currency exchange fluctuations etc.

Patent regulation: Patents provide the innovator exclusivity of manufacture over the life of the patent. To maximise gains, pharmaceutical companies charge high premium on their under patent products. As patent laws are stringent only in the developed nations, accordingly formulation prices too are much higher in these markets.

Government control: Due to lax of patent laws in developing countries, local players are able to infringe upon the original patent holder's rights without payment of royalty. Hence, the cost of manufacture of reverse engineered pharmaceuticals is significantly reduced. To prevent undue profiteering by local pharmaceutical companies, the Governments in such countries often impose price controls on popularly used drugs and formulations.

Income disparity: In developing nations with low per capita income and low standard of living, pharma MNCs are faced with the choice of either selling products at artificially low prices or denying patients the benefits of the drugs.

...Its impact

- Due to fear of piracy and low product prices in third world countries, most MNCs are reluctant to introduce their top-of-the-line products in these places. So, patients in these countries compulsorily lose out on better treatment options.
- Majority of the MNCs' conduct research on those diseases that affect the population in developed nations while tropical diseases get low priority.

- Wide variations in pharma prices between developed and developing nations have resulted in increasing resistance to runaway healthcare costs in the developed nations, especially USA.
- Developing nations that impose price controls reduce the competitiveness of pharma companies in these countries. Price & volume controls provide few incentives for innovation.

vi. **WTO**

Due to pressure from the developed countries, across the world uniformity in patent laws is being implemented under WTO (World Trade Organization - earlier GATT i.e. General Agreement on Tariffs & Trade). Presently, different countries have different patent types and life period. WTO has decided upon a product patent life of 20 years in all countries. However, to ensure a smooth transition and provide local players in the developing countries, ample time for gearing themselves, a moratorium upto the year 2005/AD has been provided. So, new products ie drugs introduced after this date will have to be accorded product patent protection even in countries like India or Argentina. However, existing pharmaceuticals and new products that will be introduced in the interim period will all continue to be reverse engineered in nations which do not have product patent laws.

Global Scenario

The global pharma industry, its evolution, size, composition, players are discussed hereunder:

i. **Origin**

Quinine extracted from the Cinchona tree bark was used to treat malaria way back in the year 1619. But, Sir Alexander Flemming's discovery of Penicillin in 1929 can be considered the real foundation of modern pharmaceuticals research. Next major breakthrough came in 1932 with the synthesis of Sulphonamides in Germany by Klarer and Mietzsch. The 15 year period between 1938 and 1953 became known as the age of antibiotics, due to unprecedented number of new anti-infectant agents introduced during the period. Antibiotics and Vaccines have played a major role in near eradication of 6 major diseases, namely Influenza/ Pneumonia, Tuberculosis, Syphilis, Diphtheria, Whooping Cough and Measles.

Benefit to mankind : Between 1920 and 1960, the death rate, due to disease, in a year fell from 12,120 nos. per million persons to 8,800 nos. per million persons. Every 4 years since 1965, one additional year has been added to life expectancy at birth due to advances in pharma R&D. Presently, in USA, the average life expectancy is over 75 years. As antibiotics enabled people to survive more advanced ages, researchers focussed on cell biochemistry to find cures for more complex chronic diseases. Drug researchers are now targeting to cure the underlying causes of diseases that are rooted in the human molecular structure.

ii. **Growth**

Rising population, new disease incidence or resurgence of certain diseases spurs the growth. Therapeutic usage of pharmaceuticals varies across the globe. Hypertension and cardiac diseases are more prominent in developed countries while infectious diseases like typhoid, tuberculosis etc are largely prevalent in developing nations.

iii. **Global Consolidation**

Pressure on drug prices has made global pharmaceutical MNCs resort to mergers and alliances in a bid to reduce R&D duplication & costs besides increase reach so as to spread research expenditure over a larger base. The trend is expected to continue. The total number of alliances increased from 120 in 1986 to nearly 400 in 1994. These alliances often allow pharmaceutical companies to draw upon others' research expertise, bring products to market more rapidly and more effectively and commercialize products. The 4 mega mergers in the global pharmaceuticals industry in the last 5 years have been Glaxo-Wellcome, Hoechst-Marion-Merrell Dow-Roussel, Ciba-Sandoz (to form Novartis) and Hoechst Marion Roussel-Rhone Poulenc (to form Aventis). More recently the global pharmaceutical industry has witnessed fresh round of mergers – Glaxo has agreed to merge with SmithKline Beecham, Pfizer with Warner Lambert, Hoechst with Rhone Poulenc. When two MNCs announce a merger or strategic alliance, their global operations have to be consolidated. In each country, the parent companies' affiliates/ subsidiaries in turn undertake a merger or strategic alliance, as the case may be. The entire process, across the world, takes 1 to 2 years.

iv. **Indian Scenario**

The evolution and critical aspects of the Indian pharma industry, major factors affecting players' profitability and future prospects are discussed hereunder:

a. **Backdrop**

In the 50 years since independence, the Indian pharmaceuticals industry has evolved significantly. Initially, the MNCs had a near monopoly. They imported and marketed formulations in India, mainly low cost generics for the masses and also a few specialties, life saving, high priced products. With the Government increasing pressure against imports of finished products, the MNCs set up formulating

units and continued importing the bulk drugs. In the '60s, the Indian Government laid the foundation of the domestic pharmaceuticals industry by promoting Hindustan Antibiotics Ltd (HAL) and Indian Drugs and Pharmaceuticals Ltd (IDPL) for manufacture of bulk drugs. However, MNCs maintained a lead due to the backing of their global R&D. High cost for basic research deterred local players (in the private sector).

b. 1970 - A Revolutionary Year

- The Indian Patent Act (IPA) was introduced. This has been one of the single most important factors to spur the domestic pharmaceutical industry. Under the IPA (Refer Annexure 1), substances used in foods and pharmaceuticals could not be granted product patents. Only process patents were allowed for a period of 5 years from date of patent grant or 7 years from date of filing for patent, whichever was earlier. Process modifications to develop MNCs bulk drugs was far easier for the local players and there was an influx of domestic manufacturers, who first started making bulk drugs and then progressed to formulations. For local players a wide possible portfolio mix was possible while the MNCs were constrained to their parent company's product range. With the IPA, cost of local manufacture reduced, so also, absence of royalty payments on reverse engineered drugs.
- Drugs Price Control Order (DPCO) was also introduced in 1970 by the Indian Government. The DPCO effectively put a ceiling on prices of certain mass-usage bulk drugs and their formulations so as to prevent any undue profiteering. This further deterred the MNCs as selling their products at much lower prices in India meant global repercussions and possible uproar in their home countries. So MNCs curtailed new product launches, giving further scope to Indian players.
- FERA (Late 70's) : MNCs were compelled to reduce holding in their Indian ventures to 40%, else comply with export obligations to retain a maximum 51% stake. As a result some MNCs curtailed the scope of their operations. This further strengthened the position of the local pharmaceutical companies.

c. **Present Scenario**

Over 20,000 registered pharmaceutical manufacturers exist in the country. The market share of MNCs has fallen from 75% in 1971 to around 35% in the Indian pharmaceuticals market, while the share of Indian companies has increased from 20% in 1971 to nearly 65%. PSUs have almost lost out completely.

The sector has undergone several policy as well as attitudinal changes over the past two years. It was one of the major beneficiaries from the budget proposals. Some of the positive steps taken were:

- Pharmaceutical industry is recognized as knowledge based industry. The government has plans to increase the investment in research and development.
- Rationalization of excise duty and reduction in interest rates in export financing.
- Additional deductions under Income Tax laws for R&D expenses.
- Foreign direct investments permit upto 74% through automatic route.
- Setting up two high levels committees to review the drug policy for strengthening R&D capabilities and reducing the price control regime.
- Besides, the Indian Parliament has enacted the required changes in the Indian Patent Act 1970 (IPR) regarding mailbox arrangement and exclusive marketing rights (EMR).

d. **Emerging Trends:**

- Increased focus on R&D : Major domestic players namely Ranbaxy, Dr Reddy's Labs, Cipla, Nicholas Piramal and Wockhardt are aggressively investing in R&D. Dr Reddy's Labs and Ranbaxy have already discovered one new chemical entity (NCE) and are in Phase II and Phase I of the clinical trail respectively.
- Marketing tie-ups: Domestic players and MNCs have entered into marketing arrangements to increase market penetration and further strengthen positions in respective therapeutic segments. Ranbaxy has tied up with Cipla, Glaxo and Hoechst Marion for products in specific therapeutic segment. Similarly Hoechst Marion has tied up with Nicholas Piramal.
- Product rationalization/ brand acquisition/ company acquisition: Most of the top pharmaceutical companies are consolidating their position in the domestic market either through product rationalization brand acquisition or company acquisition. Hoechst, Glaxo, Wockhardt and Ranbaxy have cut down their product portfolio in order to be more focussed. Similarly companies such as Sun Pharma, Nicholas Piramal and Dr Reddy's Labs have opted for brand/ company acquisition to increase the therapeutic reach and market penetration.

e. Drugs Price Control Order (DPCO)

DPCO controls the domestic prices of major bulk drugs and their formulations with an aim to provide patients with medicines at affordable prices. DPCO ascertains, as per Drug Policy guidelines, the bulk drugs (and their formulations) to be kept under price control. Under DPCO, a bulk drug and formulation are as follows:

- Bulk drug means any pharmaceutical-chemical, biological or plant product including its salts, derivatives etc used as such or as an ingredient in any formulation.
- Formulation means any medicine processed out of or containing one or more bulk drug or drugs for internal or external use or for diagnosis, treatment, mitigation or prevention of disease in human beings or animals, but shall not include any medicine included in any bonafide Ayurvedic, Homeopathic or Unani system of medicine.

Thus, DPCO is applicable only to allopathic drugs. Ceiling prices for the DPCO bulk drugs and formulations are notified by the Government authorities and periodically revised. DPCO came into existence in 1970 thereafter revised in 1979, 1987 and 1995.

In case of formulations, retail prices of controlled products were decided by applying the concept of MAPE (Maximum Allowable Postmanufacturing Expenses) which is akin to a mark-up on ex-factory costs provided to cover all selling and distribution costs including trade margins. The pricing formula was as under:

Retail price*	=	$(MC+CC+PM+PC) \times (1+MAPE/100) + \text{Excise duty, where}$
MC	=	Material Cost including bulk drug and excipients
CC	=	Conversion cost, as per the dosage form
PM	=	Cost of Packing Material (suitable to dosage form)
PC	=	Packaging Charges

** This was not Maximum Retail Price (MRP) of the formulation. Local Taxes were added at time of sale. This practice still continues.*

WOCKHARDT LIFE SCIENCES LTD.

Wockhardt after the de-merger of Wockhardt Life sciences is a now a pure pharmaceuticals company with presence in Pain & Inflammation, Anti-infective, Cough syrups, Corticosteroids and medical nutrition. The top three products account for 51% of the sales. It currently has five brands in the list of ORG Top-250 Brands – Spasmo Proxyvon, Proxyvon, Zedex, Decdan and Wokadine.

The US\$300bn global pharmaceutical industry is research driven. New drug R&D cost being prohibitive, it is limited to pharmaceutical MNCs in developed nations where product patents are enforced. High prices of under-patent drugs are causing a shift to generics, especially in USA and European markets. So, to spread their R&D costs over a larger base, Pharma MNCs are consolidating through mergers/ alliances. Historically, India has recognized only process patents. Under WTO, as per TRIPs agreement India too has to enforce product patents latest by year 2005 AD.

In the Rs130bn Indian pharma sector, prices of over 60% of the drugs/ formulations are Government controlled (through DPCO). In the domestic bulk drugs market, low entry barriers have resulted in over capacity and price wars. So, major players are focussing on formulations, where brand image and distribution network act as entry barriers. Most players are increasing their overseas marketing/manufacturing network in order to enhance exports (under patent drugs to third world countries and generics to developed nations). In anticipation of WTO, MNCs are strengthening their ranks in India - either setting up new 100% subsidiaries or marketing tie-ups with major domestic players. Large local players are consolidating through brand acquisitions, co-marketing/ contract manufacturing tie-ups with MNCs etc.

Wockhardt has consolidated its position in the domestic market with the acquisition of Merind. The Company is aggressively increasing its global network through new JVs/ subsidiaries to spur overseas sales. Wockhardt has also gone through a de-merger exercise after which it has become a pure pharmaceutical company and other capital-intensive businesses were transferred to Wockhardt Life Sciences (WLS).

The company was established as Wockhardt Pvt. Ltd. in 1973. Starting with marketing of formulations, it later took up manufacturing. In 1984, it merged two synergistic companies, one making bulk drugs and the other making dietetic foods. In 1985, it became a public company under the banner Wockhardt Limited. In 1989 Wockhardt entered the healthcare segment with - *Wockhardt medical centre* - in Calcutta. In 1990 it set up a Super Speciality hospital in Bangalore - *Wockhardt Hospital & Heart Institute*.

In Dec '92 Wockhardt came out with its maiden public issue of Rs673mn. In Feb '94, it raised US\$75m by a GDR issue, the first Indian pharmaceuticals company to do so. In 1996 Wockhardt acquired R R Medi Pharma, a listed company manufacturing IV fluids to increase its presence in the IV Fluid market. R R Medi Pharma was subsequently renamed Wockhardt Healthcare. In 1997 it set up facility in Chandigarh at a cost of Rs420mn to manufacture Medical Nutrition.

In Feb 1998 Wockhardt acquired the UK based Wallis Laboratories for a sum of \$5mn. Once again in Feb 1998 it bought over Merind limited from Tatas at a price of Rs260/share. In 1999 it set up another Super Speciality hospital in Calcutta – *Wockhardt Hospital & kidney Institute*. Last year as part of restructuring Wockhardt de-merged the Hospital & Healthcare, IV fluids & Agri business into separate company named Wockhardt Life Sciences. With this Wockhardt has become a pure Pharmaceuticals company with interests in Pharmaceuticals & Veterinary.

Plant locations	Products
Chikalthana, Maharashtra	Fermentation plant
Waluj, Maharashtra	Parenterals, Fermentation, Pesticides
Daman	Formulations
Sarsini, Punjab	Nutrients
Alathur, Tamilnadu	Parenterals
Ankleshwar, Gujarat	Bulk drugs

Business

Wockhardt's F12/99 sales consist of formulations (55%) and bulk drugs (14%). Other businesses are Parenterals (12%), Agro Products (14%) etc. Exports contributed 16% of sales. With the de-merger all the businesses have been brought under two entities Wockhardt Ltd. & Wockhardt Life Sciences.

WOCKHARDT LIMITED

- **Pharmaceuticals**

Wockhardt concentrates on formulations in the domestic market and bulk drugs in export markets. Its main formulations, as percentage of domestic retail sales, are as under. DPCO coverage is 20%.

- **New Brand Introductions**

Wockhardt has launched 11 new products (including brand extensions) in last 18 months. The major launch in formulation business was of *Kefstar* range - a broad-spectrum cephalosporin in both oral and injectible forms.

- **Merger of Wockhardt Veterinary with Wockhardt**

From Jan 2000 Wockhardt and Wockhardt Veterinary have been merged. This will result in dilution of Rs12mn in equity of Wockhardt. While Wockhardt veterinary had sales of. Rs200mn and net profit of Rs20mn, the combined business with sales of Rs500mn will be the fifth largest animal health business in India with market share of 8.5%. The merger will result in expanded market coverage and a presence in most of the therapeutic groups in cattle and poultry segments.

- **Medical Nutrition**

- o The recently set up facility at Chandigarh caters to its requirements of nutrition products. In the clinical nutrition segment, Wockhardt has launched a series of products, *Nutrocal* (general purpose), *Nutrocal DM* (diabetics), *Nutriprot* (TB, cancer, trauma), *Nutrenal* (hemodialysis) and *Nutrenal CRF* (renal failure).
- o In paediatric nutrition, Wockhardt has a range of infant-dietary products including *First Food* – a milk-based infant nutrition product, breast milk substitutes, formula for lactose intolerance and infantile diarrhoea, formula for low birth weight infants and various types of weaning foods.
- o One of the major steps of this division has been to rope in top dieticians from all over India to form the "Star Dieticians Club". This Club will provide suggestions to patients seeking dietary consultancy and address their specific needs.

- **International Business**

1. *Exports:* Wockhardt's international business grossed over Rs1bn sales. Most of the exports comprise of bulk drugs. Major exports market are USA and Europe, contributing 60% of total export, while Russia, Africa, Asian countries accounting the rest. Wockhardt has spread its global network with subsidiaries in USA/ Europe & JVs in China, Saudi Arabia, and Egypt. During the year, supply contract was signed with Merck, Mexico while Eisai of Japan approved Wockhardt for vitamin B12 supply. Wockhardt has a marketing arrangement with Ferring of Norway to market OTC and generic products of the former in the Nordic region. Wockhardt has commenced marketing of Spasgan in Russia, currently being sourced from a contract manufacturer in Indonesia. With Supreme Court allowing Wockhardt to manufacture Spasgan in India, the manufacturing base will be relocated to a Wockhardt facility.
2. *Wallis Laboratories:* Wockhardt's UK subsidiary, Wallis Laboratories has turned around by posting sales of \$17.8mn and profits of \$0.94mn. Wallis is likely to continue on this high growth path and is expected to post sales of \$21mn and profits of \$1.5mn for FY 06/00. It is expected to launch 16 new products in the years 2000 and 2001. Efforts have also been initiated to further broaden the customer base as also strengthen relationship with existing customers like Tesco, Unichem, Asda, etc.
3. *JV with Sidmak Laboratories:* During FY 12/99 Wockhardt entered into a joint venture with Sidmak Laboratories, US, for marketing of 15 Wockhardt products till year 2003. All the products will carry the name of both Wockhardt & Sidmak.

- **Research & Development**

Wockhardt filed five Drug Masters File (DMF) - *Azithromycin Dihydrate, Famotidine, Omeprazole, Felodipine & Fluoxetine* with US FDA. Overall, Wockhardt has now 11 DMF approvals. Wockhardt also received approval for three bulk actives – *Dextropropoxyphene, Captopril & Dextromethorphan* from European Medicine Evaluating Agency (EMEA). In ANDAs Wockhardt has filed for Enalapril tablets with US FDA. It already has ANDA approvals for *Niacin, Captopril & Ranitidine*.

- **Biotech Research**

Wockhardt launched Hepatitis B vaccine in Feb'00 and r-Erythropoietin is expected to be launched in Q4, 2000. Five other biotech products are in pipeline that will subsequently be launched. Wockhardt has developed capabilities in all major expression systems in the field of recombinant biotechnology research:

Yeast cell (Hansenula Polymorpha)
Mammalian cell (Chinese Hamster Ovary)
Bacterial cell (E-Coli)
Monoclonal anti-bodies

- **Merind Integration**

With Wockhardt acquiring 97% equity of Merind it became its subsidiary. For FY 06/99 Merind reported sales of Rs1912mn & loss of Rs268mn. Merind discontinued marginal brands in the Merind portfolio & exited from loss-making diagnostic business. This resulted in loss of Rs300mn in topline. It reduced the employee strength from 1440 to 920 through various VRS and employee separation schemes. This resulted in outflow of Rs221mn, one of the main reasons for loss made by Merind. Among other things there was a total integration of the corporate functions like finance, personnel & HRD, supply chain, legal, purchase and IT with those of Wockhardt. Merind distribution system was brought in line with the cost efficient Wockhardt system based on C&F agents.

WOCKHARDT LIFE SCIENCES

- **Agro Products**

The division has been re-christened as *Biostadt AgriSciences* with a focus on environmental & aqua product range. *The division has two mega brands in Biozyme (Growth promoter) & Halt (bio-pesticide)*. Other brands include Stop, Roko & Krush. Among new launches was *Easum* (Weaning food), a combination of rice and lentil. It has plans to launch six more products in coming months.

- **Parenterals**

Wockhardt has maintained its leadership position in branded IV fluids segment. In FY 12/99, sales were at Rs1108mn. But the segment continued to witness intense competition with prices 40% below the DPCO

prices. Wockhardt has launched the new Form-Fill-Seal (FFS) technology, which eliminates human contact resulting in superior product quality as compared to that made using glass bottles.

Merger of WHL with WLS: A merger has been announced of WHS with WLS resulting in the consolidation of fluid business under one entity. The combined entity will be a leader in the Fluid business. The merger ratio has been 1share of WLS for 5 shares of WHL.

- **Hospitals**

In hospitals Wockhardt plans to concentrate on super-specialty hospital business. It currently has two hospitals - Wockhardt Hospital and Heart Institute (WHHI), Bangalore & Wockhardt's Hospital and Kidney Institute (WHKI) based in Calcutta. The Bangalore hospital was recently accredited with ISO 9002 certification, the first super-specialty cardiac hospital in India to receive it. Among future plans include building a Super-Speciality at the vacant land in Mumbai.

Wockhardt offices have shifted to Bandra Kurla complex building in February 2000

Wockhardt's corporate offices, previously housed in various locations in Mumbai, shifted into Wockhardt Towers (ownership with WLS), the company's new office premises at Mumbai's Bandra-Kurla Complex in February 2000. This has provided Wockhardt's various corporate functions with the opportunity to operate from a single office, thus improving organizational synergies. The excess space has been sold to Enron for a sum of Rs1.25bn thereby improving the asset productivity of WLS.

FINANCIAL STATEMENTS

Profit & loss account (Rs mn)

Period ended	06/97	06/98	12/99	12/00
No. of months	12	12	18	12
Gross Sales	2,950.5	4,035.0	8,624.7	5,583.0
Excise Duty	(118.0)	(157.5)	(287.2)	(377.6)
Net sales	2,832.5	3,877.5	8,337.5	5,205.4
Other income	153.7	80.8	105.7	30.8
Total income	2,986.2	3,958.3	8,443.2	5,236.2
Raw materials	997.0	1,239.1	2,604.0	1,089.5
Stock adjustment (Inc)/ Dec	(107.4)	(72.7)	(66.0)	(113.3)
Purchase of finished goods	351.4	745.8	1,693.5	1,683.0
Cost of material	1,241.0	1,912.3	4,231.4	2,659.3
Employee cost	225.6	269.1	596.5	390.4
Power & fuel	74.1	81.7	161.5	74.7
Advertising/ promotion/ public	157.5	204.8	434.2	309.3
Freight & forwarding	43.0	63.3	182.2	197.7
Other expenses	462.0	563.4	1,173.7	602.0
Cost of sales	2,203.3	3,094.5	6,779.5	4,233.4
PBIDT	783.0	863.9	1,663.7	1,002.8
Interest & finance charges	-	-	259.7	135.4
PBDT	783.0	863.9	1,404.0	867.4
Depreciation	101.7	128.1	245.8	97.3
PBT	681.2	735.7	1,158.2	770.2
Provision for taxation	60.0	27.9	42.5	54.3
Extraordinary items/ Prior year adj.	(5.1)	(1.0)	(71.6)	-
Adjusted PAT	616.1	706.9	1,044.1	715.9
Dividend payout	193.3	235.1	397.0	257.3
Forex inflow	674.0	821.5	1,383.3	1,216.9
Forex outflow	485.6	859.4	1,144.3	619.7
Book value of quoted investments	198.4	153.7	152.9	-
Market value of quoted investments	293.0	107.2	208.3	-
Investment in affiliate/ subsidiary	376.7	698.2	1,684.1	720.9
Contingent liabilities	1,630.5	2,118.4	840.8	467.8

Balance sheet (Rs mn)

Period ended	06/97	06/98	12/99	12/00
No. of months	12	12	18	12
SOURCES OF FUNDS				
Equity capital (Face value Rs.10)	350.6	350.6	350.6	362.6
Preference capital	295.0	400.0	595.0	200.0
Share premium account	2,727.5	2,727.5	2,727.5	-
Revaluation reserve	26.6	25.7	24.3	-
Profit & Loss/ General reserve	2,222.6	2,617.1	2,980.8	1,702.9
Other reserves	9.1	50.0	247.7	349.5
Reserves and surplus	4,985.7	5,420.3	5,980.3	2,052.4
Net worth	5,631.4	6,170.9	6,925.9	2,615.0
Secured loans	793.5	1,874.6	2,231.1	917.0
Unsecured loans	126.0	604.8	496.9	712.2
Total debt	919.5	2,479.4	2,728.0	1,629.2
Capital employed	6,550.8	8,650.2	9,653.9	4,244.2
APPLICATION OF FUNDS				
Gross block	2,241.2	3,040.6	5,659.3	2,073.6
Accumulated depreciation	(403.9)	(528.8)	(771.1)	(403.9)
Capital work in progress	1,552.4	1,737.9	674.0	57.1
Total fixed assets	3,389.8	4,249.7	5,562.2	1,726.8
Investments	680.4	969.4	2,123.1	811.4
Inventories	680.4	791.3	820.8	711.3
Sundry debtors	581.7	760.4	1,453.0	924.9
Cash & bank balance	131.9	1,390.4	114.6	781.1
Total loans & advances	1,726.8	1,202.6	646.1	735.1
Sundry creditors/ Acceptances	(428.7)	(594.5)	(674.8)	(729.6)
Other liabilities	(116.5)	(214.8)	(500.2)	(86.4)
Provisions	(287.9)	(364.8)	(404.3)	(171.8)
Net current assets	2,287.8	2,970.4	1,455.1	1,706.0
Miscellaneous expenses	192.8	460.7	513.4	-
Capital deployed	6,550.8	8,650.2	9,653.9	4,244.2

Yearly Share Price Data of Wockhardt on BSE.

Date	Open (Rs.)	High (Rs.)	Low (Rs.)	Close (Rs.)	No. of Shares	No. of Trades	Net T/O (Rs.)
Year 2000	586.00	586.00	402.00	417.00	104130	6	43,476,435.00
Year 2001	480.00	480.00	325.00	406.60	1450477	50064	586,710,279.00

Monthly Share Price Data of Wockhardt on BSE

Date	Open (Rs.)	High (Rs.)	Low (Rs.)	Close (Rs.)	No. of Shares	No. of Trades	Net T/O (Rs.)
July '01	374.4	376.5	325	349.05	166422	1049	59,950,770.00
Aug'01	360	395	332	377	105718	3497	38,646,691.00
Sept'01	377.5	451.8	354.05	384.45	616970	26937	252,175,998.00
Oct'01	384	427	375.05	407.35	446550	17820	181,826,331.00
Nov'01	407.5	418	405.15	408.3	41973	1637	296,399,931.00
Dec'01	438.0	512	438.0	480.80	370799	9348	176,812,946.00

Daily Share Price Data of Wockhardt on BSE in October 2001

Date	Open (Rs.)	High (Rs.)	Low (Rs.)	Close (Rs.)	No. of Shares	No. of Trades	Net T/O (Rs.)
1-Oct	384	384	379.4	379.9	1797	129	684,249.00
3-Oct	381	386.7	379.25	384.65	3659	152	1,400,753.00
4-Oct	385	387.4	375.05	380.6	12097	176	4,603,904.00
5-Oct	380.5	402	379	398	19488	995	7,667,809.00
8-Oct	392	410	380	392.55	53447	2244	21,373,804.00
9-Oct	396	400.9	395.4	395.95	10014	624	3,987,974.00
10-Oct	396	400	395	396	9485	444	3,780,494.00
11-Oct	396.25	400	394.25	395.55	6613	321	2,633,850.00
12-Oct	395.5	401	392.2	398.95	55498	1083	22,139,442.00
15-Oct	400	400	396	399.2	9425	428	3,761,453.00
16-Oct	399	422.7	399	411.1	82156	3144	34,021,358.00
17-Oct	412	426	412	413.85	31584	1659	13,234,743.00
18-Oct	413.5	422.7	412.5	417.45	19840	1053	8,303,586.00
19-Oct	417.75	423	415	416.55	7228	521	3,037,757.00
22-Oct	417.5	425	417.5	420.4	12997	477	5,477,620.00
23-Oct	421	427	416.5	419	10192	586	4,289,657.00
24-Oct	419.25	427	411.6	413.15	11368	557	4,788,028.00
25-Oct	414.25	414.25	406	408.05	9800	419	4,017,738.00
29-Oct	409	414.65	395.1	396.3	11145	526	4,512,728.00
30-Oct	396.5	421.85	395	409	58742	1665	24,020,696.00
31-Oct	409	416.5	405	407.35	9975	617	4,088,688.00

END OF PART D

Part E : Caselets (50 Points)

- This part consists of questions with serial number 6 - 13.
- Answer **all** questions.
- Points are indicated against each question.
- Do not spend more than 80 - 90 minutes on Part E.

Caselet 1

Read the following caselet carefully and answer the following questions:

7. The EBITDA as a tool for valuation sounds interesting for loss making firms, even though it has its flaws. What alternative approaches do you suggest for valuing stocks of loss making firms?

(7 points)

8. What are the pit falls of using EBITDA for valuation? Explain.

(7 points)

Using EBITDA (earnings before interest, taxes, depreciation, and amortization) in financial analysis may be dangerous to your career prospects. It's one of the most flawed concepts to be adopted by the financial community.

Finance professional rightly focus on cash flows. Valuations are based on the present value of future cash flows. Standard discounted cash flow valuation techniques taught in all finance and MBA programs have stood the test of time. They have served us well.

Many investors and security analysts have also focused on price/earnings (P/E) ratios. The assumption is that if Company "A" is now earning \$2.00 per share and the stock is \$30.00, then the 15 P/E ratio can: i) be compared to other stocks and ii) used to forecast future stock prices. To use a P/E ratio for comparative purposes, assume Company "A" is in the auto parts business. All its competitions are selling at P/E ratios between 13 and 17. Thus you might reasonably conclude that the stock is fairly priced on a current basis. Using a P/E ratio for forecasting purposes is simple: If the stock is likely to earn \$2.40 a share next year, it would be expected to sell for about \$36 a share ($15 \times 2.40 = 36$), assuming the P/E ratio holds constant.

So, cash flow and price/earnings analyses are two tools with which financial professionals are familiar. They work. But now we have detected an intruder on our financial radar: The rapid approach of EBITDA is closing fast on cash flow and price/earnings. It's time to shoot the enemy out of the sky before we suffer another defeat.

How EBITDA is Being Used

"EBITDA is being used by security analysts because its "answers" appear more attractive. For example, if a company has \$4. If the stock is in a popular field such as media, it might sell today for a P/E of 35x earnings, or \$140 per share. But substitute EBITDA for earnings per share, and you could easily get \$7 per share or \$7 mn overall. Then, using the same current price of the stock, the EBITDA multiple is a seemingly much more reasonable 140 (i.e. 20×7).

A second use of EBITDA in financial analysis is in start-up firms that are probably operating at a loss (think Internet). Many of these firms took on a lot of debt and had high goodwill amortization. The company can be compared to all the other Internet firms on an EBITDA basis. Few analyst like to compare companies on a "price/loss ratio."

A third use of EBITDA is valuation based solely on operating results. EBITDA, whether actual or budget, is easy to calculate: Take net income and add back all taxes, interest, depreciation, and amortization, if any. Then apply an appropriate EBITDA multiple, and you have an instant valuation. Conceptually, this is no different from valuing a company based on a P/E ratio. Yet investment bankers, who are paid to successfully sell a company, want to focus on today, not on a more speculative tomorrow.

A fourth use of EBITDA is to assume that it somehow is "available" for corporate uses. Assumptions, either explicitly or implicitly, are made that the purchase price of a company at 5x in five years because of the assumption that these operating funds will be available during the next five years to pay off the loans incurred to buy the business.

Caselet 2

Read the following caselet carefully and answer the following questions:

9. Describe the advantages of rolling settlements over the earlier system of periodical settlement. (6 points)
10. How did the different settlement cycles on different stock exchanges permit price manipulations? Explain. (6 points)
11. What are the major reforms that have been undertaken as a result of the series of scams that have struck the Indian stock market? Describe them. (7 points)

Markets thrive on sentiment particularly the stock exchange, which is nothing but a pressure-cooker of emotions and biases making the best bet. Perhaps that was why the capital market received the maximum attention and freedom when Dr Manmohan Singh decided the country had had enough of socialist growth.

The immediate result of his radical measures was a change in sentiment. It altered the way people looked at the country, both from within and without. Everything had a flavour of the market place. This change in sentiment and approach was perhaps the single-most defining restructuring achieved by the reforms.

When entrepreneurs realised they could get a much higher not necessarily fair price for equity, they flooded the primary market with new issues. What followed was a boom hitherto not seen in the country. When in 1992 the Bombay Stock Exchange Sensitive Index crossed the 4000-mark in 1992, it had more than doubled in less than a year.

The absence of big money and integration with other markets was the root cause of the scam. Operators found a way to route idle money from the banking system to the stock market to fuel its voracious appetite.

In spite of the initial setback, however, the integration with the global markets continued. Indian companies were allowed to raise funds abroad through Global Depository Receipts and American Depository Receipts. Market players began setting their sights higher, such as the New York Stock Exchange and Nasdaq. Over the next few years, the market got institutionalised with the entry of a number of mutual funds and foreign institutional investors (FIIs) that brought tonnes of money into the market.

It was perhaps the shift from a unique market to a common market that threw up opportunities, both for scrupulous as well as unscrupulous operators.

While the intensity and nature of trading have increased, and the transaction costs have fallen, the market is still plagued with numerous problems. There has been a recurrence of systemic crises over the years the securities scam of 1992, the MS Shoes scandal of 1994, the vanishing NBFCs in 1994-1996, the CRB fiasco of 1997, the stock price manipulation in 1998, the dismissal of the BSE President, Mr Anand Rathi, and the scam of 2001, leading to the arrest of the broker, Ketan Parekh.

However, over the years, reforms in the equity market have not just produced scams and manipulators, but also brought the country on a par with many a developed market on several counts. Today, India boasts of a variety of products, including stock futures an instrument launched only by select markets.

The introduction of rolling settlement was the final step in the direction of modernising the stock market. Though it has not adversely affected volumes, unless electronic fund transfer is made available, the volumes may not increase.

Marketmen feel that SEBI and the RBI should quickly evolve a mechanism that would seamlessly link the depositories to the payment system through the clearing corporation to ensure delivery-based payment. We need to move to T+3 and then to T+1 from the present T+5. The Internet is the new medium, not only for information but also for trading in securities, but it has not yet taken off, a broker said.

Today, the stock market is looking up after a prolonged slump. After the telecom-media-technology bubble burst early this year, stocks have started rising only now. Like at the beginning of every rally, sceptics have started asking how long?

But one thing is certain. Over the decade, the downside of sentiment has risen. The series of crises have probably helped, as the market has bounced back after each one of them.

Caselet 3

Read the following caselet carefully and answer the following questions:

12. Discuss the key factors that can be used by investors for the assessment of stocks.

(6 points)

13. “Simply put, investment risk entails the probability of losing money, and the pain associated with the loss”. Elucidate.

(5 points)

14. The caselet suggests that depending on others for investment analysis is risky. Do you agree? Justify.

(6 points)

Knowing how safe (or risky) a stock is can make the difference between making you a winner or loser as an investor.

I received a thing in the mail the other day called the “Hot Stocks Review”. Phrases like “may even double again in the next twelve months” and “could have you crowing all the way to the bank” riveted my greedy eyes. Never one to pass up great investment opportunities, I decided to look into these “Hot Stocks.” The blurb gave an 800 number to call for more information, but I prefer to do my own research.

The first thing I did was check my Vector Vest database of over 7,000 stocks. Only two of the 29 stocks recommended the “Hot Stocks Review” were covered by VectorVest.

This was not too surprising since only eight of the 29 stocks are traded on American stock exchanges. Both of the stocks covered by VectorVest had a below average Safety rating. Neither had a Buy recommendation. I found the same two stocks in Investors Alliance’s Stock Market Databank of over 5,000 stocks. One had a two diamond management rating, the other had a one diamond rating. Both stocks had the same comments on “Things to Review before Investing.”

These were: Obviously, if one were to invest in any of these stocks they would have to believe the promotional material touting the stocks, or use the information sent by the companies. There are two problems here. First, it takes a lot of time and effort to analyze a company’s financial statement, and I wasn’t sure I wanted to do this even for the eight stocks traded on NASDAQ. Second, the investment caveats cited in company literature and prospectuses are designed more to protect the seller than the buyer. Of course, the publication featuring the “Hot Stocks Review” included the usual disclaimers that “all investments carry risks,” and made it clear that “the publisher nor anyone else involved would be liable for any investment decision resulting from their recommendations.” That’s fine, but how does one get a handle on finding out how risky a stock is anyway?

Simply put, investment risk entails the probability of losing money, and the gain associated with the loss.

END OF PART E

END OF QUESTION PAPER

Suggested Answers

Security Analysis – II : January 2002

Part D : Case Study

1. The foundation of modern pharmaceuticals research was laid with the discovery of Penicillin in 1929. However, in India the pharmaceuticals sector evolved significantly after Independence. Initially, the MNC had near monopoly. 1970 has been a watershed year for pharmaceutical Industry in India because of the following

- Indian Patent Act (IPA),
- Drug Price Control Order (DPCO),
- Foreign Exchange Regulation Act (FERA)

As a result of above the market share of domestic player which at present are numbering to 20,000 has gone up to 65% leaving the rest with multinationals. Two of Indian companies need special mention of getting global reputation for their R&D and quality are Ranbaxy and Dr Reddy's Lab.

Pharmaceuticals is one of the industries which does not experience the business cycle as global need to conquer disease is eternal. It is a continuous growth industry, immune to economic recession and commodity cycles. Therefore, if we are to do an industry life cycle analysis on the Indian Pharmaceuticals, then the stage this industry will be put in is: **the expansion stage**.

As per the characteristics of expansion stage the survivors from the pioneering stage are identifiable. They continue to grow and prosper, but the rate of growth is more moderate than before. The industry is improving their product and lowering their prices as well. They are more stable and solid and they attract considerable investment funds. The investors are more willing to invest in this industry its potential has been demonstrated.

2. **Michael Porter** Analysis of the Indian Pharmaceutical Industry:

Threat of entry:

- It is high due to lax patent laws.
- Economies of scale are low as the cost of manufacture of reverse engineered product is significantly less thereby making the threat of entry high.
- Product differentiation is not available for bulk drugs nor is the customer brand loyalties resulting in high threat to entry.

Intensity of Rivalry among Existing players:

- There are 20,000 big and small players in the Indian Pharmaceutical Industry which indicates high level of competition & rivalry.
- As more and more products move from patented to generic category rivalry is going to intensify.

Bargaining Power of Buyers

- Bargaining power of the buyers as a group is low
- For companies producing bulk drugs the buyers are the companies producing formulations which do exercise some bargaining power.

Bargaining Power of Suppliers

- The raw material is chemicals in form of active ingredients and compatible substances and packaging materials whose suppliers exercise little bargaining power.
- Pharmaceuticals is an industry where the companies are heavily based on discovery of new molecules and the commercial exploitation of the same. Therefore, the research organization developing molecules can bargain with the manufacturing companies to the benefit of the former.

Threat of substitute product:

The pharmaceutical industry is primarily allopathic. The alternative approaches are as under:

- Ayurveda, an ancient Indian Science which uses herbal remedies
- Unani, having Chinese origin
- Homeopathy, founded by a German Physician

In comparison to the above Allopathy is the most modern medical science and little threat only is perceived from other methods of treatment.

3. SWOT analysis of Wockhardt:

Strengths:

- The company has 5 brands in the list of ORG Top-250 Brands-Spasmo, Proxyvon, Zedex, Decdan and Wokadine. The company has the presence in Pain & inflammation, Anti-infective, Cough syrups, Corticosteroids and medical nutrition.
- Wockhardt has consolidated its position in the domestic market with the acquisition of Merind
- The company has also resorted to aggressively expanding global network through JVs/ subsidiaries to spur overseas sales.
- Wockhardt has also carried restructuring exercise thereby becoming pure pharmaceutical company to focus the energy on medicine.

Weaknesses

- Though the company has varied product range only three products account for 51% of the sales.
- More than 50% of Wockhardt's sales consists of formulations and DPCO coverage is high at 20%.
- Because of demerger size of the balance sheet has shrunk by more than 50% in Dec,2000 over previous year thereby reducing leveraging capacity of Wockhardt significantly.
- The new subsidiary, Merind has posted a loss of Rs268 mn just in the subsequent year of acquisition.

Opportunities

- The company is operating in continuous growth industry therefore growth opportunity is immense.
- Newer researches in human genome, genetics and biotech may lead to exponential growth in the industry from which the company may benefit.

Threats

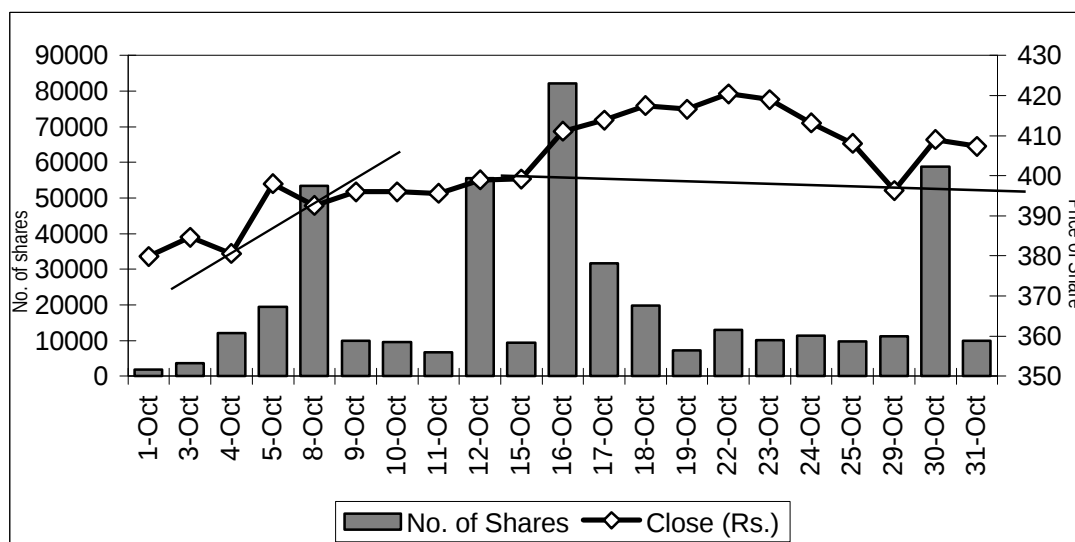
- The government stand on Intellectual Property Rights (IPR) and signing of WTO agreement means changing of Indian Patent Act by protecting product patent from 2005 instead of process patent at present. It will result in the companies being deprived of the production right of patented products even if they improve or change the manufacturing process.
- Increased focus on R&D poses the challenge to the existing players to continuously research and come out with the new molecules to remain in the fray
- The giants of the field are entering into marketing tie-ups for increased marketing penetration and further strengthen position in respective therapeutic segment. Wockhardt will have to also enter into such agreement lest it will be left behind in sales growth.
- Though the company has adopted the route of Brand acquisition and company acquisition for faster growth but in future Brand rationalization will also be required quite frequently for competing and focused growth.

4.

(Rs. in mn)

	Funds from operating activities	
a.	Pre tax income from operation (770.2 – 30.8)	739.40
b.	Depreciation	97.30
c.	Miscellaneous Expenses /written off	513.40
d.	Other income	30.80
e.	Tax	-54.30
f.	Cash profits (a + b + c + d + e)	1,326.60
	(Inc)/Dec in trade working capital	
	-Inventories	109.50
	-Sundry debtors	528.10
	-Sundry creditors	54.80
	-Others liabilities & provisions	-646.30
g.	Net adjustment due to working capital	46.10
h.	Total cash flow from Operating activities(f + g)	1,372.70
i.	(Inc)/Dec in fixed assets [(5562.2– (1726.8 + 97.3)]	3,738.10
j.	(Inc)/Dec in investments	1,311.70
k.	(Inc)/Dec in loans & advances	-89.00
l.	Total cashflow from Investing activities(i + j + k)	4,960.80
m.	Inc/(Dec) in total debt	-1,098.80
n.	Inc/(Dec) in Net worth	- 4,310.90
p.	Dividends	-257.30
q.	Financing activities(m + n + p + q)	- 5,667.00
r.	Cash generated/(utilized) (h + l + q)	666.5
s.	Cash at start of the year	114.60
t.	Cash at end of the year	781.1

5.



- From the available date two clear formations of Head and Shoulders is shown in the graph.
- On the 22nd October the price was 420.40 which is the highest with volume of 12997.
- The resistance level series to be at 396 as the share had touched that level and grow up again.
- The volume after contracting has again risen up showing that the price is going to rise in the future.
- The rise in price is also coupled with rise in volume on 30th October confirming the support at 396.

6. Required rate of return on Wockhardt stock is = $8.5 + 0.87 \times 9 = 16.33\%$

i. **Price as per P/E model:**

$$P/E = 8.5 + 1.5 EG + 0.067 DP$$

	Adjusted PAT (E) (Rs.mn)	Dividend payout (Rs.mn)	Number of shares (mn)	EPS (Rs.)
06/97	616.1	193.3	35.06	17.57
06/98	706.9	235.1	35.06	20.16
12/99	1044.1	397.0	35.06	29.78
12/00	715.9	257.3	36.26	19.74

Growth in earnings (i.e., PAT)

$$EG \text{ i.e. } g = \left(\frac{715.9}{616.1} \right)^{1/3.5} - 1 = 4.38\%$$

$$\text{Dividend payout ratio} = \frac{193.3 + 235.1 + 397.0 + 257.3}{616.1 + 706.9 + 1044.1 + 715.9} = 0.3512 \text{ i.e. } 35.12\%$$

$$P/E \text{ as on } 31.12.2001 = 8.5 + 1.5 \times 4.38 + 0.067 \times 35.12 = 17.42$$

Assuming the number of outstanding share does not change expected EPS a year hence i.e. at the end of 2002 = $19.74 \times (1.0438)^2 = 21.51$

$$\text{Hence, } P_{P/E} \text{ at on } 31.12.2001 = P/E \times \text{Expected EPS a year hence } 17.42 \times 21.51 = \text{Rs.}374.70$$

ii. **Price as per BVPS**

$$\text{BVPS as on } 31/12/2000 = \frac{2615.0}{36.26} = 72.12$$

Sustainable growth rate = $RONW \times (1 - b)$ where b is payout ratio.

$$\begin{aligned} \text{Average RONW} &= \frac{616.1 + 706.9 + 1044.1 + 715.9}{5631.4 + 6170.9 + 6925.9 + 2615.0} \times (1 - 0.3512) \\ &= 0.1444 \times 0.6488 = 0.0937 \text{ or } 9.37\% \end{aligned}$$

Therefore, approximate BVPS as on 31.12.2001 = $72.12 \times (1.0937) = \text{Rs.}78.88$

iii. **Price as per DDM**

$$\text{Dividend per share as on } 31.12.2000 = \frac{257.3}{36.26} = 7.096$$

Year	Dividend*	PVIF @ 16.33%	PV of Dividend
2002	$7.096 \times 1.25 \times 1.25 = 11.0875$	0.8596	9.5308
2003	$10.218 \times 1.25 = 13.8593$	0.7390	10.2402
2004	$12.262 \times 1.20 = 16.6313$	0.6352	10.5642
2005	$14.101 \times 1.20 = 19.9575$	0.5460	10.8968
			Sub total 41.2338 i.e., 41.23

*Assuming the dividend is paid at the end of the calendar year.

$$\text{Value of share at the end of 2005} = \frac{19.9575 \times 1.0937}{0.1633 - 0.0937} = \text{Rs.}313.61$$

$$\begin{aligned} \text{Present value of share as on } 31.12.2001 &= 313.61 \times 0.5460 \\ &= \text{Rs.}171.23 \end{aligned}$$

$$\text{Hence, total value of share as per DDM as on } 31.12.2001 = 41.23 + 171.23 = \text{Rs.}212.46$$

Therefore, the intrinsic value of share using given mode,

$$\begin{aligned} V &= 0.65 \times P_{P/E} + 0.1 \times BVPS + 0.25 \times P_{DDM} \\ &= 0.65 \times 374.7 + 0.1 \times 78.88 + 0.25 \times 212.46 \\ &= 304.56 \end{aligned}$$

The market data indicates the share price as Rs.480.80 at the end of December 2001. Therefore, the share price is highly overpriced.

Part E: Caselets

Caselet 1

7. It is not necessary to depend on questionable ratios like EBITDA just because the firm is making losses. The following three approaches may be used for valuation of loss making firms:
- Normalize the earnings: This approach is useful when the current earnings being negative is considered a temporary aberration. Therefore, the current earnings can be replaced by a “normalized earnings” which is used in the place of the actual earnings. The earnings can then be used to calculate the cash earning per share
 - Use revenues and margins: The second approach is to use the revenue of the firm, which can never be negative, and to apply the earnings margin to the projected revenues. The earnings may turn positive in course of time and the margins may reach a steady state. Then, the valuation can be based on the earnings.
 - Reduce leverage: This approach is useful when the earnings turn negative due to too much debt. In such a situation, an estimate of the optimal level of debt for the company is made. Thus, an estimate of the time period over which the firm will be able to reach this optimal level of debt is also made, considering adjustments like postponement of capital expenditures and using cash relating to amortizations to repay debt etc. Finally, the net earnings of the firm at the optimal level of debt are estimated.
 - Others: Like Price/Sales ratio, number of clicks, time to eyeballs are some of other methods to value shares of internet firm.
8. Some logical flaws of EBITDA are:
- Company with outstanding debt either pays the interest or is forced into bankruptcy if a company is running at a profit, it either pays taxes or faces IRS at court. Interest and taxes, therefore, represent a priority that must be paid virtually before anything else. EBITDA is not a measure of discretionary cash flow.
 - EBITDA adds back the depreciation expense from previously capitalized assets. The actual accounting entry truly is a non-cash” charge. But how many companies can go forward without making new a capital expenditures? EBITDA doesn’t handle this.
 - Likewise amortization of previously acquired intangibles such as goodwill is a non cash charge. But what if the company makes new investments in intangible like patents or acquires new businesses that guarantee goodwill? EBITDA does not handle this.

Caselet 2

9. Internationally, the Rolling Settlements have been accepted as the best method of settling trades. The group of 30 (a group to identify the best international practices of securities clearing and settlements) way back in 1989 had recommended that settlement of trades at Stock Exchanges should take place on T+5 on Rolling Settlements basis and subsequently the same should be settled on T+3 and then to T+1 basis. Therefore, Rolling Settlements in any capital markets represent the best international practice as well.
- In Rolling Settlements, 3 or 5 denote after how many days the trades done on T day will be settled.
- Since, in the Rolling Settlements, the trades are settled earlier than in account period settlement, the settlement risk involved is lower. The reason for this could be that in weekly settlements, the cumulative position built up over various days is consolidated, netted and settled on a single day. This may result in higher deliveries to be settled for the trades done during the week. Since, in Rolling Settlements, trades of a particular day are settled distinctly from the trades on any other day, the settlement of such traded position is spread over various days, thereby reducing the settlement risk. Moreover, the sellers and buyers get the monies and securities for their sale and purchase transactions respectively earlier than in Account Period settlements. This also achieves international best practice for settling trades.
10. Investors can trade in two different markets with different settlement cycles. For the moment, let us consider the two major markets – the BSE and the NSE. An investor can enter a position on Wednesday at the start of the settlement on the NSE and close the position on Monday before the settlement date on the NSE.

At the time of closing the position on the NSE, the investor can open an identical position on the BSE on Monday (which happens to be the start of the settlement on the BSE) and close it on Wednesday. This dynamic allocation strategy can be used to ensure that a position is always maintained. Hence, the investor is actually holding a portfolio without ever having to close it.

Given that on an average, the movements in the BSE and the NSE are near – perfectly correlated, the returns to the investor are not likely to fluctuate widely. This strategy, however results in more transaction cost and fails under the system of rolling settlement.

11. Some of the major reforms carried out in late nineties in secondary market is as under:

- i. Introduction of screen based trading which brought the much needed transparency
- ii. Introduction of dematerialization of shares and promulgation of Depository Act which solved the problems of bad delivery and helped in shortening of trading cycle. Further abolition of stamp duty for trading through depositories has brought down the transaction cost.
- iii. Special sessions for odd lot dealings have been introduced.
- iv. Corporate membership has been introduced subject to certain conditions. This has brought professionalism in stock broking.
- v. Abolition of badla and introduction of compulsory rolling settlement in sensex scrips as well as 176 'A' group scrips. This has avoided unnecessary heating up of stocks and reduced their volatility.
- vi. Introduction of trading in derivatives. This has given impetus to much needed liquidity which had dried up after abolition of badla. Further the derivative products i.e. option and futures on stocks and index can be used also to hedge the risk of investors and operators.
- vii. Demutualisation of stock exchange is next in the line where the deliberations are taking place to separate the ownership and management to bring in more professionalism and transparency in the stock exchange operations.

Caselet 3

12. A good number of factors are required to be looked into for the assessment of stocks. Some of the key factors are as under:

- a. Earnings Consistency: The largest risk that shareholders house is that the company fails to asset earnings expectations. Experienced investors know that the moment of truth comes every quarter for every publicly traded company. Therefore, the single most important factor in assessing stock safety is in qualifying are probability that quarterly earnings will meet investor's expectations. If a company has a well established record of consistent earnings performance, it is much more likely to meet the markets expectations.
- b. Company size: It is generally true that the stocks of large companies are safer than those of smaller companies. Size not nearly as important to an equity investor as knowing where the company's earnings are heading.
- c. Price behaviour: Analyze the absolute price behaviour. Absolute price behaviour not only provides an unequivocal measure of volatility but also allows one to assess risk in relation to the stock's price history. Since all things tend to move toward a means, stocks which are above their price moving averages are more likely to move up. Therefore, a stock which has moved well above its price moving averages is risk is than one which has moved well below its price moving average.
- d. Longevity: All other factors being equal, there's less risk in dealing with a company with a long track record than one which is brand new.
- e. Dividend History: A company doesn't have to pay a dividend to have a very safe stock. But if it does pay a dividend, it must maintain it or increase the dividend without exception. A cut is dividend is an black eye for any company, and reflects poorly on its management and stock safety.
- f. Debt/Equity Ratio: Beware of companies with excessive debt. Don't be fooled by the line about valuing a company based upon its cash flows. A company that can't report positive earnings after interest and for a payments is in big trouble no matter how you slice it. Safe stocks belongs to companies with low debt /equity ratios.

13. Simply put, investment risk entails the probability of losing money, and the pain associated with the loss. Each one of us needs to know how much money we can afford to lose on any single investment. We may be very comfortable, for example, with buying a lottery ticket even though the uncertainty is extremely high because we buy a ticket just a few rupees worth at a time. Buying stocks, however, is a lot different; We are investing our hard earned money by sacrificing the present consumption as well as assured return under debt instrument. Therefore, with the fall in market price of stock not only our principal is eroded we feel the pinch much more as we had selected stock out of the different other alternative investment avenues.
14. A person mostly depends on secondary information for two reasons: Time and cost. Own research is time consuming and may entail cost . Further, one may not have requisite knowledge and skills to carry out the analysis by self.

The stock market thrive on sentiments and timing is crucial. The rat race by the investors is quite evident and most of investors take investment decision based on secondary information. However, the blind dependence on others results into the sundry mails taking the gullible investors for a ride as in the caselet the mail received by the author promises astronomical returns of doubling the amount in next twelve months.

Our research provides the much needed restrain on the temptations. Rightly the author finds only 2 out of recommended list of 29 scrips find the place in investment grade scrips.

The above underscores the need to take advice from reputed investment analysts only as well as to take up own research albeit a small one before taking up investment decision and suffering the pain of loss later.