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A. ARTICLES /CASES

1. INTRINSIC VALUE AND THE STOCK MARKET

Dr. Prasanna Chandra

Given the roller- coaster ride of the stock market during the last two decades or so, people are wondering whether valuation theories can offer explanation for the dramatic swings in stock prices. Some even argue that the stock market has a life of its own, divorced from the realities of profitability, growth, and risk. Are DCF valuations and market values decoupled? Do emotions reign supreme in the stock market?

I don't think so for short periods, market values may diverge from fundamental values, but in the long run there is a remarkable convergence between the two. As Benjamin Graham insightfully remarked decades ago, "In the short run the market is a voting machine, but in the long run it is a weighing machine**."**

Market Value Tracks Return on Invested Capital and Growth

Return on invested capital (ROIC) and growth are the major drivers of value in the capital market. Empirical evidence suggests that:

- The underlying performance of companies is reflected in the valuation levels of the market as a whole.
- Companies with higher ROIC and growth, as long as ROIC exceeds the cost of capital, command higher values in the stock market.
- Changes in investor expectation strongly influence TSR (total shareholder return) in the short-term (say less than three years). In the long-run (say 10 years and more), however, higher ROIC and growth lead to higher TSR.

Market Reflects Substance, Not Form

Many managers believe that the stock market is influenced by reported financial results. Hence they argue that a company must paint a picture of steady earnings growth and cover any deficiency by resorting to creative accounting .As a Wall Street Journal editorial put it: "A lot of executives apparently believe that if they figure out a way to boost reported earnings their stock price will go up even if the higher earnings do not represent an underlying economic change." Empirical evidence on market efficiency, however, strongly supports the view that the market is very intelligent in penetrating through the veil of accounting reports and seeing a company's underlying economic performance. Hence, efforts to artificially inflate reported earnings or creatively manage the bottom line are futile.

Since the market is driven by long-term economic fundamentals, managers should not be unduly concerned about how new accounting rules (relating to options, mergers, goodwill, foreign exchange , and so on)will affect their share prices, as these do not have any bearing on their underlying economics. Further, managers should not obsess about bonus issuance, stock splits, or listing in more developed markets, as these actions do not change the economic fundamentals of the business.

Emotions and Market Mispricing

Although the stock market is generally efficient, it is prone to commit mistakes, given the extraordinary difficulties in divining the future. Occasionally the market displays high irrationality causing a substantial discrepancy between intrinsic value and market price. In market parlance it is called bubble time. Bubbies are often associated with the development of an exciting new technology or the emergence of a business opportunity. As Robert Shiller, author of the seminal work *Irrational Exuberance*, has noted, a bubble forms when there is a "positive feedback loop." A rise in the price of an asset encourages more and more people to buy it which in turn fuels further price rise and induces more and more people to join the bandwagon. The mechanism resembles a Ponzi mechanism, where more and more gullible (foolish) investors must be found to buy the assets from whose who joined the game earlier. Eventually, however, the bubble bursts as one run outs of fools.

Just the way a price rise may encourage more people to buy, a price fall may induce more people to sell and this in turn may prod more and more people to sell, there by triggering a sharp fall. Eventually, however value- conscious investors will step in and arrest the price fall.

While there is a lot of substance in the argument of behavioralists, empirical evidence, particularly for the U.S. and European stock markets, suggests that in the vast majority of cases, mispricings do not last very long. While market wide deviations are typically corrected in less than three years, company- specific deviations are corrected when barriers to trading are removed and market imperfections are sorted out.

A Model of the Market

There is a vast body of literature focused on investor behaviour and market pricing. The general view is that market prices tend to gyrate around intrinsic value.

A simple yet insightful model assumes that two types of investors trade in the market viz., informed investors and noise investors. *Informed investors* estimate intrinsic value based on fundamental analysis. Of course, all informed investors have their own estimates based on the information they access and the analysis they do. Some may estimate the value at 100, others at 120, and still others at 140, thus resulting not in a single point but a range of Rs. 100 to Rs.140 for the intrinsic value. Taking into account the margin of error and transaction costs, they will buy(sell) only when the stock price is less (more) than say 10 percent of their estimated intrinsic value. *Noise traders* hardly bother about intrinsic value. They trade on the basis of some news that may not really be material. For example, they may buy a stock when it rises by 5 percent or sell a stock when it falls by 5 percent.

To understand what happens to the market price as a result of the interaction of intrinsic value investors and noise traders, let us say the price of the share is Rs 70. Informed investors start buying shares because they assess the worth to be Rs. 100 to Rs .140. Their actions push the share price up. When noise traders see the share price going up, they too start purchasing. This imparts further buoyancy to the share price and attracts more noise traders, as they don't want to be left behind. As the share price moves upward, the informed investors become less interested. At Rs. 90, the most pessimistic of them stop buying, and at Rs.110, they begin to sell, convinced that the shares are overvalued. As the price goes up further, more informed investors curtail their purchases and begin to sell. Once the price crosses 150, all informed investors turn sellers. This exerts a downward pressure on price. On observing this, some noise traders also begin to sell, thereby reinforcing the downward pressure. As more and more noise traders become sellers, the downward momentum is accelerated. It, however, slows down as informed investors begin to buy and at Rs 90, all informed investors turn buyers. Finally, the decline in downward momentum induces noise traders to buy as well and this stops the price decline.

2. CADMIN PHARMA

Dr. Prasanna Chandra

Cadmin Pharma is a multinational pharmaceutical company headquartered in Hyderabad. The company has three state-of-the-art manufacturing facilities in Hyderabad, Baddi, and Gangtok and a new facility coming up in Dahej SEZ. The company has an excellent track record of exports through 15 subsidiaries, the principal ones being in Brazil, Germany, Russia, and the U.S. Cadmin has a large R&D centre in Hyderabad with over 700 scientific personnel engaged in development and discovery research.

The company's strategy for emerging markets is to piggy-ride on the generic product portfolio developed for the large regulated market (EU, US, and Brazil) and market these products either through front end marketing with own field force or through distributors. The company has identified Indonesia as an attractive market to enter.

Indonesia has a population of 242 million and an ethical pharmaceutical market valued at USD 2.5 billion, growing at a rate of 12 percent There are 212 companies operating in the Indonesian pharmaceutical market. Out of this, 31 are innovator companies with a market share of 32 percent. Indonesian and other generic companies have a market share of 68 percent (in value).

Cadmin Pharma is primarily planning to enter into the therapeutic areas of Cardiovascular, Diabetology, and Central Nervous System, its areas of competitive strength. The market for these areas has grown at a CAGR of 9 percent and 16 percent in units and value terms.

As per Indonesian law, the company needs to have a local manufacturing facility for getting marketing authorizations. Hence, the company has considered it appropriate to acquire a company having a local manufacturing facility. Such an acquisition will help the company fast track the submission of relevant dossiers and consequent marketing of the products. Presently, Indonesia permits foreign direct investment up to 75 percent of equity. Hence, the remaining 25 percent will have to be held by Indonesian investors.

Cadmin Pharma, after actively exploring acquisition opportunities over one year, ha s identified a target Indonesian company viz., PT AMIDCO DJAJA Pharmaceuticals (AMIDCO) which has a manufacturing facility in Indonesia. AMIDCO is engaged in production and sales of generic pharmaceuticals in Indonesia.

AMIDCO was set up in 1967 by Mr. Hamid and his family which presently holds 100 percent of the paid-up equity capital of IDR 31,500,000,000 (equivalent to 3,433,500 USD). AMIDCO has 171 employees with a manufacturing facility spread over 5100 square metres. Its area of land, including manufacturing facility, is 11400 square metres. AMIDCO's plant has the local FDA approval.

Proposed Ownership and Capital Investment

Presently, Indonesia permits foreign direct investment up to 75 percent of equity. The remaining 25 percent must be held by a local entity. It is proposed to acquire 100 percent equity of AMIDCO from Mr.Hamid and his family. 75 percent of equity will be acquired by Cadmin Pharma and the balance 25 percent of equity will be held by a yet-to-be-identified local entity. Once Indonesian laws permit 100 percent FDI by a foreign entity in pharmaceutical sector, Cadmin Pharma will take the necessary steps to step up its stake.

Cadmin Pharma will invest additional funds by way of equity and debt for expansion and modernization of existing plant, acquisition of additional land, and working capital. The expansion and modernization of the plant to its quality standards will cost USD 16.2 million and the purchase of additional 6000 metres of adjoining land will cost USD 1.65 million.

The business plan is as follows:

- Complete legal and other formalities in about six months' time.
- Submit dossiers from January 2013 which require an approval time of 18 to 24 months.
- Upgrade and expand the plant in about 2 years with a capacity of 750 million tablets per year.
- Increase the marketing field force to 300 representatives initially and expand it to 600 in 5 years.

Financial Projections

Based on this plan, Cadmin Pharma has developed the cash flow projections as shown in Exhibit 1.

The free cash flow is expected to grow at the rate of 6 percent per year after the 10th year.

Exhibit 1
Cash Flow Projections

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
	FY 12-13	*FY 13-14*	*FY 14-15*	*FY 15-16*	*FY 16-17*	*FY 17-18*	*FY 18-19*	*FY 19-20*	*FY 20-21*	*FY 21-22*	*FY 22-23*
Sales	-	0	0	0	12,690	19,989	29,487	39,078	46,839	54,840	63,876
COGS	-	(0)	(0)	(0)	(2,742)	(4,107)	(6,060)	(7,854)	(9,399)	(10,293)	(13,002)
Contribution	-	0	0	0	9,948	15,882	23,427	31,224	37,440	43,917	50,874
Marketing exp		(558)	(441)	(3,414)	(9,303)	(14,370)	(17,391)	(21,693)	(25,593)	(29,424)	(33,315)
Admin exp	-	(0)	(0)	(0)	(222)	(351)	(576)	(786)	(933)	(1,086)	(1,257)
R&D exp [Exhibit batch+Dev]			sss(453)	(2,640)	(1,650)	(1,710)	(1,263)	-	-	-	-
Tax									(237)	(2,586)	(3,249)
Working capital			(0)	(0)	(4,824)	(2,727)	(3,582)	(3,546)	(2,649)	(2,913)	(3,369)
Add: depreciation				117	162	198	282	351	417	486	567
Construction/ Additional land cost	(2,460)	(4,893)	(1,632)	(408)	(408)	(408)	(408)	(408)	(408)	(408)	(408)
Free cash flow	(2,460)	(5,451)	(2,526)	(6,345)	(6,297)	(3,486)	489	5,142	8,037	7,986	10,147
Present value factor at 16%	1.00	0.862	0.743	0.641	0.552	0.476	0.410	0.354	0.305	0.263	0.227

Valuation

What is the maximum price that can be paid for this acquisition if the discount rate is 16 percent?

While the free cash flow (FCF) grows in an uneven manner over the 10 year period, it is expected to grow at a constant rate of 6 percent beyond 10 years. So we can regard 10 years as the explicit forecast period (or planning period).

The DCF value of the acquisition is :

DCF value of acquisition = Present value of FCF during the 10 yr planning period + Present value of terminal value

Present value of FCF during the 10 year planning period = -2460(1.00) – 5451(0.862) – 2526(0.743) – 6345(0.641) – 6297(0.552) – 3486(0.476) + 489(0.410) + 5142(0.354) + 8037(0.305) + 7986(0.263) + 10147(0.227)

= - Rs. 9364 lakhs

Present value of terminal value = {10147(1.06)/[0.16-0.06]} x {1/(1.16)10}

= Rs.24415 lakhs

So,

DCF value of acquisition = -9364 + 24415 = Rs.15051 lakhs

3. MEASURING R&D PRODUCTIVITY

Dr. Prasanna Chandra

How does a company figure out the kind of return it's getting on R&D? Is the company better at R&D than its competitors? How much should it invest in R&D? What can it do to improve the effectiveness of its investments?

A new metric for R&D productivity, which Anne Marie Knott calls research quotient or RQ, can help answer these questions better.

While a precise estimation of RQ calls for examining thousands of simultaneously using fairly histicated sop software, a crude estimate of a single firm's RQ can be obtained by running a regression using historical data on revenues, spending on PP&E (property, plant, and equipment), employment, and research.

For measuring the productivity of R&D investment start with the well-known economic formula for measuring the productivity of capital and labour.

$$Y = K^{\propto} L^{\beta}$$

In the above equation, Y, K, and L represent revenues, capital, and labour respectively. The exponents $\propto$ (alpha) and β (beta) reflect the productivity of capital and labour. More specifically, they measure the percentage increase in a firm's revenues resulting from 1 percent increase in capital (alpha) or labour (beta)

The RQ method expands the above model to include another input, R&D (R)

$$Y = K^{\propto} L^{\beta} R^{\gamma}$$

To calculate the RQ gather several year's data on revenues, annual expenditures on PP&E (property, plant and equipment), labour, and R&D, convert the data into logs, and run the regression analysis. When you run the regression analysis, you get the productivity of capital, labour and R&D. Finally, rescale the exponent number relative to the mean of all companies in a given universe (say, US traded firms or Indian traded firms, or whatever) and calculate an index number (Thus, an RQ of 100 denotes the average R&D exponent across all firms). This helps in comparing R&D productivity across firms and tracking changes in the same.

B.SNIPPETS

1. The Coming Together of Software and Hardware

For a long time, building hardware was considered to be a dirty, complicated low margin activity below the dignity of software companies. A la Microsoft, writing a few brilliant algorithms and selling them over and over to rake huge profits was considered to be the smartest thing. Apple's phenomenonal success over the past decade has reinstated the value of hardware. By controlling all aspects of product-physical equipment, design, software, and an online service - to connect everything, Apple has churned out iconic products year after year. As Steve Jobs predicted in 2007, "People make their own hardware."

Taking a cue from Apple, Oracle bought Sun Microsystems, Amazon launched e-book reader Kindle, Microsoft introduced Windows powered Surface Tablet, and Google came up with Android-powered Nexus 7 tablet. Highlighting this trend, Steve Ballmer of Microsoft said, "We believe that any intersection between human and machine can be made better when all aspects of the experience- hardware and software- are considered and working together."

2. EVA in Practice

Hindustan Lever (now Hindustan Unilever) switched to EVA in the mid -1990s. As V.K.Vishwanathan, its then financial controller, put it: "That involved a big change. When it was introduced, it was not introduced by the accountants but by the businesses themselves. We felt that the best way to implement the system was to get the businesses to buy into it. Therefore, with it came both focus and acceptability. There are other non- financial measures, but among the financial measures, this is now the single most important financial performance measure that we use today."[1]

Mahindra and Mahindra too has been an early adopter of EVA on the Indian scene. At Mahindra and Mahindra the initiative was taken by the treasury department which educated technical people on return on capital employed (ROCE) and EVA. As Arun Nanda, the then Executive Director of Mahindra and Mahindra, commented in 1998. "We needed to educate non- financial people on the financial implication of business. Previously, say about 20 years ago, the person who found that a machine tool was not working would say, 'Let's change it. But now you see engineers sitting down and doing EVA calculations to see that it is going to work out".

3. The Dubious Logic of Global Megamergers

1990s onwards, we have witnessed unprecedented global mergers in which many pricey cross border deals have been done on the assumption that industries inevitably become more concentrated. This idea has a long established pedigree going back to more than 100 years. Marx wrote "One capitalist always kills many." Bruce Henderson of BCG argued that "A stable competitive market never has more than three significant competitors." Jack Welch believed that a company had to be No.1 or No.2 to prosper. In the 1990s, Mercer Management Consulting popularized the plight of the silver medalist and argued that companies are either number one or they're nobody.

The basic assumption underlying these views is the global economy is a winner-take-all economy. The empirical evidence, however, is not consistent with this assumption. Globalising industries, however, seemed to be marked by steady decreases in concentration.

4. Similarities between Investing and Sports

As Howard Marks argues, there are a lot of similarities between investing and sports

- *Bothe are competitive*: Some win and some lose and the distinction between the winners and the losers is clear.
- *Both are quantitative:* The results of investment and sports are expressed in quantitative terms.
- *Both are meritocratic:* While luck plays a role in the short run, in the long run better investors and players have a superior track record.
- *Both are team oriented:* In sports, as well as investments, an effective group can achieve more than an individual.
- *Both are satisfying and enjoyable:* Investors as well sportspersons seem to enjoy the game, of course much more so when they win.

C.WIT AND WISDOM

1. Humour

- A highly accomplished Latin American political leader, who was childless, was being interviewed by a political journalist in New York. The journalist asked, "How are things?". The leader said, "Everything is fine, except that there is a small problem in the family. "The journalist enquired, "If I am not curious, can we know the nature of the family problem?". The leader said, "Nothing much. It is simply that my wife is unbearable. "puzzled at this, the journalist asked, "Can you clarify what you mean?" . The leader said, "What I mean is that my wife is inconceivable" Intrigued at this reply the journalist asked, "Sir, I still did not get it. Can you kindly elaborate?". Probing deep into the mysteries of English Language, the leader replied, "Don't bother about that. It is just that my wife is impregnable".
- Bernard Baruch, the legendary investor, was famous for throwing parties which were attended by celebrities from different walks of life. A journalist asked him, "How do you manage the seating arrangement when so many VIPs come". Baruch replied, "I don't bother about it even a bit because those who matter do not mind and those who mind do not matter".

2. Wise Saws

- What makes men and rivers crooked is following the line of least resistance.
- Status symbols are getting harder to come by. Fortunately, good manners are most distinguishing.

3. Perspective

Planning on the Left Side and Managing on the Right

Why are some people so smart & so dull at the same time, so capable of mastering certain mental activities and so incapable of mastering others? Why is it that some of most creative thinkers cannot comprehend a balance sheet and some accountants have no sense of product design? Why do some brilliant management scientists have no ability to handle organizational politics while some of the most politically adept individuals cannot seem to understand the simplest elements of science? In the left hemisphere of most people's brains (left handers largely excepted) the logical thinking processes are found. It seems that the mode of operation of the brain's left hemisphere is linear; it processes information sequentially, one after another, in an ordered way. Perhaps the most obvious linear faculty is language. In sharp contrast, the right hemisphere is specialized for simultaneous processing that it operates in more holistic, relational way. Perhaps its most obvious faculty is comprehension of visual images. Emotion may be a right hemisphere function.