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vidwat

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VIDWAT (विद्वत) in Sanskrit means: know, understand, find out, learn, ascertain, discover, and expound.

"Vidwat – The Indian Journal of Management", published by Dhruva College of Management, Hyderabad, reflects this array of meanings. It is a vehicle for a wide range of researchers from across the globe to bring their insights to B-Schools as well as practising managers.

"Vidwat - The Indian Journal of Management" is a biannual publication. Its objective is to encourage and publish applied research in all the functional areas of Management. It lays emphasis on management issues that are relevant to academicians and practicing managers.

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From the Editor's Desk

In this issue of Vidwat, as always, we have ventured to showcase quantitative as well as qualitative research in keeping with the academic community's shared expertise.

The opening article – 'Impact of Currency Futures on Spot Market Volatility: An Empirical Study' – dwells on the growth and development of any economy vis-a-vis federal foreign exchange policy. It is highly influenced by 1970s Foreign Exchange policy of Government of India allowing banks to trade foreign exchange among themselves.

The exchange rate volatility often leads to uncertainty in foreign exchange transactions. This uncertainty hampers international trade and therefore impedes economic growth. The author Dr Shailesh Rastogi tries to understand the impact of introduction of exchange-traded currency derivatives on the spot exchange rate volatility using GARCH (1, 1) model.

Brands, having grown to become an important and integral part of our lives, often follow the patterns of human lives. They are present in various facets of human existence and analogous to demographic styles. They give an assurance of quality and specific image and repeatedly help men to portray their unique status in the society. Prof Somnath Mukherjee and Dr S Shivani in their article titled 'Influencing the Human Elements: The Industrial Branding Rationale', make an attempt to illustrate models for consumer decision making in the context of industrial branding. At the same time, they also try to highlight the importance of human and psychological elements in decision making that are influenced by brands and profess branding in industrial markets a worthy initiative.

Marketing a product in a market that is characterized by cut throat competition has become tough task and marketers always try to push the products using various promotional tools, viz., advertising, sales promotion, public relation, referral marketing, etc. In the paper titled 'An Empirical Study on Sales Promotion Effectiveness Tools with Special Reference to Low Involvement Category in Rajasthan', Dr Pradeep Kautish tries to evaluate the effectiveness of sales promotional strategies, viz., coupon, price discount, free sample, bonus pack, and in-store display in the purchase of low involvement products by Indian consumers with special reference to Rajasthan.

India Inc. is witnessing a biotechnological revolution characterized by the rapid pace of discovery that impacts both fundamental and applied research. Located in Hyderabad, 'Genome Valley' is the first state-of-the-art biotech cluster in India for life science research, training and manufacturing activities and offers world class infrastructure. In the article titled 'Infrastructure Support for the Growth of Biotech Industry at Genome Valley, Hyderabad", Ms G Aruna Yagna Narayana and Prof R Nageswar Rao try to elucidate the relevance of various infrastructural facilities offered by government. At the same time, the authors also make an attempt to review government policy on capital investment for the biotech industry in order to provide insights to the policy makers for taking corrective steps.

Prof Deepti Srikanth in her review of Ramesh Vemuganti's book 'Moving Ahead of the Times' says that the messages given in the book are extremely applicable to our lives and enable individuals to learn from the mistakes of their past, assess their present, carve out a brighter future and stride confidently towards it. This book serves as a source of inspiration to a wide spectrum of readers, especially young corporate executives, entrepreneurs, professionals like doctors and lawyers, and even students and homemakers.

Teaching pedagogy at business schools has shifted from teaching-centric to learning-centric as business environment has become more complex and challenging than ever before. With the growing importance of academia across all walks of life, teachers of higher education are privileged to use various pedagogies 'coz today's management graduates need expertise and skills that will help them in meeting the professional challenges of the future. Prof Rajiv Gupta, in his review of the book 'Case Studies in Management: Contemporary Perspectives' highlights the importance of 'case method' of teaching at B-Schools across the globe.

Electronic marketing is a relatively new concept and crept into the business vocabulary in the late 1970s. With the advent and mass acceptance of Radio, Television, Mobile, World Wide Web; it has become the dominant marketing force ushering in a new dimension of marketing online where customer can buy products and services and one business house can interact and exchange something desired with another. Prof. Baseema Banoo Krkoska presents a bibliography that may help scholars to locate relevant literature in the area of electronic marketing.

As is our wont, in order to use the journal space productively-we've chosen fillers pertaining to "education" as our theme now.

Wishing you all, an enlivening and thought provoking experience.

Prof Kunal Gaurav
Director (Research & Publications) – DHRUVA
Editor – Vidwat

EDUCATION

Education is the manifestation of the perfection already in man….. not the amount of information put in your brain and run riots there, undigested all your life. We must have life-building, man-making, character-making, assimilation of ideas. Every individual is potentially divine, and this divinity can be manifested by controlling the nature both internally and externally.

– Swamy Vivekananda

Impact of Currency Futures on Spot Market Volatility: An Empirical Study

Dr Shailesh Rastogi

Although foreign exchange market is quite old in India the need of exchange traded currency derivatives was long awaited. In 2008 currency derivatives were allowed to be traded in the exchanges in India. The impact of derivatives trading on the spot market has always been an area of interest to academia and practitioners alike. This study is an attempt to find out the impact of introduction of exchange traded currency derivatives on the spot exchange rate volatility using GARCH (1, 1) model. Besides volatility, impact of introduction of currency derivatives on market efficiency of the spot exchange rate has also been studied in this paper.

Key Words: **Currency Futures, Market Efficiency, Volatility, Autocorrelation, Dummy Variable.**

Introduction

In India foreign exchange market was started in late 1970s by Government of India when banks were allowed to trade foreign exchange among themselves. The foreign exchange market had restrictions imposed by RBI which were lifted only in 1978. Foreign Exchange Dealers Association of India (FEDAI) which was established by banks in 1958 got operational for the purpose and regulated the market. Later in early 1990s India took major initiative to reform its economy which was an impetus for foreign exchange market too. Rather, the initiation of economic reforms was due to a crisis of balance of payments which finally got Indian fixed exchange rate mechanism converted into floating exchange rate system. During 1990s a series of steps were taken to reform the Indian foreign exchange system.

All this made the Indian foreign exchange system gradually market determined system. This resulted in achieving full Current Account Convertibility by 1994. The foreign exchange market has attained a distinction after liberalization in terms of liquidity, products and turnover. The average daily turnover in the foreign market increased from USD 36,944.7 million in 1996-97 to USD 4,71,333.4 million in 2008-091 in consonance with the increase in foreign exchange transactions. Despite all it was felt that the volatility and exchange rate fluctuation were quite high and became undesirable for not only policymakers for economic stability but also for exporters and importers, for price discovery and for current account balances. All this prompted RBI in 2007 to issue guidelines on the usage of currency derivatives in the OTC market and finally in August 2008, currency futures were allowed to be traded in exchanges in India and NSE became the first exchange in India to start the currency futures.

Literature Review

The introduction of currency futures markets enable the traders to transact in large volumes at much lower transaction costs relative to the cash market. This results in an increase in order flow to futures markets, reasons of which are unresolved on both theoretical and on empirical front. A future market has two contrasting effects:

- If the speculators observe a noisy but informative signal, the hedgers react to the noise in the speculative trades, producing an increase in volatility.
- The futures market improves risk sharing and therefore reduces price volatility.

Opponents of speculative trading activity have generally argued that increased trading in futures leads to unnecessary price volatility in the underlying cash

[1] Source: RBI website, www.rbi.org.in accessed on 10-07-2010

markets. Some researchers suggest that the participation of speculative traders in the systems that allow high degrees of leverage lowers the quality of the information in the market, e.g. Figlewski (1981) and Stein (1987). Cox (1976), among others, notes that uninformed traders could play a stabilizing role in the cash markets. Others question the role of future markets as representative of an institutional alternative for accurate price forecasting, e.g. Martin and Garcia (1981).

In contrast, models developed by Danthine (1978) argue that the futures markets improve market depth and reduce volatility because the cost to informed traders of responding to mispricing is reduced. Froot and Perold (1991) extend Kyle's (1985) model to show that market depth is increased by more rapid dissemination of market-wide information and the presence of market makers in the futures market in addition to the cash market. Ross (1989) assumes that there exists an economy that is devoid of arbitrage and proceeds to provide a condition under which the no-arbitrage situation will be sustained. It implies that the variance of the price change will be equal to the rate of information flow. The implication of this is that the volatility of the asset price will increase as the rate of information flow increases.

Thus, if futures increase the flow of information, then in the absence of arbitrage opportunity, the volatility of the spot price must change. It has also been suggested that the futures markets have become an important medium of price discovery in cash markets, e.g. Schwarz and Laatsch (1991). Several authors have argued that trading in derivatives markets improve the overall market's depth and information orientation, e.g. Powes (1970); enhance market efficiency, e.g. Stoll and Whaley (1988); increases market liquidity, e.g. Kwast (1986); and compresses cash market volatility, e.g. Danthine (1978), Bray (1981), and Kyle (1985). Questions pertaining to the impact of derivative trading activity on cash market volatility have been empirically addressed in two ways. First, researchers have attempted to establish the impact of derivatives trading on cash markets by comparing cash market volatilities during the pre and post-futures trading eras.

The majority of studies on this area suggests that speculative (derivatives) markets either add to the stability, or do not impact the volatility of cash markets e.g. Simpson and Ireland (1985), Edward (1988), Skinner (1989). Second, researchers have examined the relationship between speculative (derivative) trading activity and cash markets by directly evaluating the impact of futures trading activity on the behavior of cash market e.g. Samanta (2007). Edward (1988) and Bessembinder and Seguin (1992) provide evidence that futures trading activity improves the stability in equity indices. In case of currency futures the study of the relationship between futures trading and the variability of the underlying cash market is complicated by the nature of exchange rate movements. The exchange rates move like random walk but the changes do not, e.g. Meese and Rogoff (1983) and Manasanton (1986).

Under these conditions, the applicability of traditional volatility measures, such as the absolute change in prices, provides inconsistence estimates in the study of the trading-activity versus exchange rate-volatility relationship. A financial time series like this can not be modeled in the normal way. To model such time series, time varying volatility models is required. Engel (1982) first time proposed to incorporate time varying nature of volatility using ARCH process. The work of Engle (1982) was made better by Bollerslev (1986), who incorporated GARCH models to overcome some of the lacunas of ARCH models like overfitting and breach of non-negativity constraints. Many researchers have found GARCH family of models outperforming other models. Different researchers used different markets and different methods to communicate the same thing of applicability of GARCH family of models for modeling conditional volatility.

On US-based data the studies are Akgiray (1989), Pagan and Schwert (1980), Brails Ford and Faff (1996) and Brooks (1998). On Europe based data the study is Corhay and Rad (1994). On Asian Countries based data the study is Andersen and Bollserslev (1998). All the researchers have found that GARCH family of models provide more accurate forecast of volatility of returns of the financial assets. Out of three special features of financial time series data (leptokurtic distribution, volatility clustering and leverage effect) the leptokurtic and volatility clustering nature of the financial return data has been captured by GARCH models but asymmetric behavior has not been captured. To solve the issue Nelson (1991), Zakoian (1994) and GJR (1993) proposed EGARCH, TARCH and GJR models respectively which can capture these tendencies of asymmetric nature of financial data (Engle and Victor 1993) too.

Objectives

1. The first objective of the study is to find out whether the introduction of currency futures in India has impacted the volatility of spot foreign exchange market (Rs/$) or not.
2. The second objective of the study is to estimate the volatilities of spot foreign exchange (Rs/$) market for pre and post-future periods and compare for stability and depth of the spot foreign exchange market during both the periods.
3. The third objective of the study is to assess the impact of introduction of currency futures on the weak-form market efficiency of the spot foreign exchange (Rs/$) market in India.

Methodology

Linear structural models are unable to explain a number of important features common to financial data including leptokurtosis, volatility clustering and leverage effect. Besides that one of the key assumptions of the ordinary least square (OLS) method is that the error variance should be same throughout the sample (Homescedasticity). However findings of heteroscedasticity in stock returns are well documented (Fama 1965; Bollerslev 1986). The nature of the currency returns has been tested with the help of ARCH-LM test using E-Views 6 to verify the Heteroscedasticity present in the data for this study (Table-1). This justifies the use of ARCH/GARCH based model in this paper.

There are an infinite number of different types of non-linear models. However, only a small number of non-linear models have been found to be useful for modeling such financial series. The most popular non-linear financial models are the ARCH or GARCH models used for modeling and forecasting volatility. ARCH models explained leptokurtic and volatility clustering behavior of the financial data but have several limitations like violating the principal of parsimony and non-negativity. These problems were removed by GARCH models which are an extension over the ARCH models. The advantage of GARCH model is that it captures the tendency of volatility clustering therefore it enables to make the connection between information and volatility, since any change in the rate of information arrival to the market will change the volatility in the market. Thus unless information remains constant, which is hardly the case, volatility must be time varying, even on a daily basis.

The simplest but often useful GARCH process is the GARCH (1, 1) process which is also called the generic or vanilla GARCH model. We have used GARCH (1, 1) model because of simplicity. But GARCH (1,1) models is found to be an excellent model for a wide range of financial data (Bollerslev et al., 1992) and we have found that this suffice our purpose.

Let R_t be the rate of return of any asset from time t-1 to t using log differences and I_{t-1} be the information set at time t-1, then the conditional mean equation will be

$$R_t = E(R_t \mid I_t) + \epsilon_t \quad (1)$$

Where

$E(R_t \mid I_t)$ = Conditional expected value of R_t

ε_t = the error term at time 't'

Engel (1982) put forth that the conditional variance ht can be modeled as a function of the lagged ε_s.

$$h_t = \omega + \alpha_1 \epsilon^2_{t-1} + \alpha_2 \epsilon^2_{t-2} \ldots\ldots + \alpha_q \epsilon^2_{t-q} \quad (2)$$

Bollerslev (1986) generalized the ARCH (q) models to the GARCH (p,q) models

$$h_t = \omega + \alpha_1 \epsilon^2_{t-1} + \alpha_2 \epsilon^2_{t-2} \ldots\ldots + \alpha_q \epsilon^2_{t-q} + \beta_1 h_{t-1} + \beta_2 h_{t-2} + \ldots\ldots + \beta_p h_{t-p} \quad (3)$$

Where $\omega > 0, \alpha_1, \alpha_2 \ldots \alpha_q \geq 0, \beta_1, \beta_2 \ldots \beta_p \geq 0.$

The GARCH (p,q) process is defined above is stationary when

$$(\alpha_1 + \alpha_1 + \ldots\ldots\ldots \alpha_q) + (\beta_1 + \beta_1 + \ldots\ldots\ldots + \beta_1) < 1.$$

The same equation for GARCH(1,1) is

$$R_t = E(R_t \mid I_t) + \epsilon_t \quad (4a)$$

$$h_t = \omega + \alpha_1 \epsilon^2_{t-1} + \beta_1 h_{t-1} \quad (4b)$$

Where $\omega > 0, \alpha 1 \geq 0, \beta 1 \geq 0$ and the stationary condition for GARCH (1,1) is

$$\alpha_1 + \beta_1 < 1$$

Equation (4a) is conditional mean equation and equation (4b) is conditional variance equation (both for GARCH (1,1) process). To address the first objective of study we have introduced one dummy variable in the conditional variance equation (4b) thus it becomes equation (5).

$$h_t = \omega + \alpha_1 \epsilon^2_{t-1} + \beta_1 h_{t-1} + \gamma D \quad (5)$$

where D is a dummy variable taking the value of '0' before the currency future introduction and takes the value '1' after the introduction of the currency futures in India.

To address the second objective of study we have divided the sample into sub-sample-1 (covers pre-future period) and sub-sample-2 (covers after-future period). Further the separate GARCH models have been estimated for both the subsamples to study the change in the volatility.

The third objective has been addressed by checking on the efficiency effect by conducting a first order autocorrelation test. If a return series is following a random walk (Weak-form efficient market hypothesis), successive changes should be serially independent. Following previous studies (Fama, 1965), we tested change in the first order autocorrelation in the return series.We estimated a simple switching regression model with return series.The switching regression model took the following form

$$R_t=\beta^0+\rho R_{t-1}+\Phi D_t R_{t-1}+\varepsilon_t \quad (6)$$

where R_t is the natural log difference returns and D_t is the dummy variable which takes '0' value for duration before the introduction of currency futures in the Indian securities market and '1' after the introduction of the currency futures.

Data and Results

The data for the study has been collected from the RBI website (www.rbi.org.in). Currency futures were launched on NSE on 29 August 2008.The exchange rate data has been collected from 1 January 2005 to 31 May 2010.The data has been collected as the price of dollars in terms of rupees (Rs/$).

Table 1: ARCH-LM Test for Heteroscedasticity

Test Statistics	Test Value	p-value
F –Statistics	20.85	.00000*

*significant at 5% level of significance

Table 1 provides the results of the ARCH-LM test for testing of the heteroscedasticity of the currency return data. The null of Homescedasticity has been rejected (no evidence to accept the null) as p-value is less than .05.It means the daily return values of spot exchange rate (Rs/$) of the sample period is having Heteroscedasticity and therefore it is apt to use ARCH/GARCH models to study the conditional volatility of the said time series.

The results for objective one are as follows:

After running the conditional variance model (equation 5(b)) we get the following results. (*Values in parentheses are p-value of coefficients)

$$h_t=.000000398+.077\ \epsilon^2_{t-1})+.872h_{t-1}+.00000209\ D \quad (7)$$

(.0000)* (.0000) (.0000)

The coefficient of dummy variable D is significant at 5% level of significant as p-value is .0000. Therefore the result for this is interpreted that the introduction of currency derivatives has significantly impacted the Indian currency spot market in terms of conditional volatility (though, the value of coefficient is less but significant).

The results of second objective are as follows:

Table 2: Values of Coefficient of Conditional Variance Equation

S.No.	Coefficient	Pre-currency future Period	Post Currency future Period
1	A	.092	.099
2	B	.791	.874
3	α+ β	.883	.973

The value of (α+β) for the periods before and after the currency derivatives has shown an increase of 10.42% (from .883 during the pre-future period to .975, during post-future period) (Table-2).This implies that market of foreign exchange became more persistent and mature after the introduction of the currency derivatives and has shown more depth.

The result for third objective is as follows by running the regression model (6).

Table 3: Result of Switching Regression Model

Variable	β_0	P	Φ	adjusted R^2
Coefficient	.000031	.0560	-.0219	.000448
p-value	.7838	.2935	.778	

The autocorrelation coefficient is not significant as p-value for the coefficient is .2935 which is more than .05 (at 5% level of significance) therefore the time series for the sample period is coming out to be weak-form market efficient (Table-3). Because coefficient of dummy variable is also not significant (p-value is .778), this can be said that there is no significant change in the market efficiency of the exchange rate log return series before and after the introduction of currency futures in India too.

Conclusion

The conclusions of the study are as follows.

- The currency derivatives started in August 2008 in India has significantly impacted the volatility of the spot market of foreign exchange of dollars in terms of rupees (Rs/$).
- The presence of currency futures in the Indian foreign market has made the market more dynamic and persistent in terms of volatility where changes last longer during post-future period.
- The spot rate market of the exchange rate market of dollars in terms of rupees (Rs/$) has been found to be Weak-form efficient Moreover, weak-form market efficiency of spot foreign exchange market of

dollars in terms of rupees (Rs/$) has not shown any significant change after the introduction of currency futures market in India.

It can be concluded from this study that introduction of currency futures has positively impacted the foreign exchange market in terms of volatility. But it was unable to improve the market efficiency of the market. It implies that policy change of introduction of exchange traded currency future has been welcomed but there are grey areas also which need to be addressed to make the currency spot as well as futures market more market efficient for the betterment of hedgers, traders and market makers.

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EXPECTATION CRISIS

Expectations of social prestige and career advancement from an MBA degree are reaching a level of irrational exuberance as also promoters' expectations of earning easy money.

– Rahul Choudaha

Influencing the Human Elements: The Industrial Branding Rationale

Prof Somnath Mukherjee

Dr S Shivani

Brands have been developed by consumer companies but its role in industrial Markets is also highly relevant (Kotler, pfoertsch, 2006). As decisions become more complicated, rushed and time starved, the ability of a brand to simplify decision making and reduce risk is invaluable. (Keller, 2003) It has been observed that Industrial branding, both organizational and product provides distinct benefits to organizations like simplifying purchase process, improve buyer supplier relationship as also providing individual benefits etc. (Mudambi S.; Hunter et al).

Decision making in industrial purchases is different in terms of complexity and group involvement (Brierty and Reeder) The Decision Making Unit (DMU), in an industrial purchase is an interdepartmental group with people with differing levels of expertise influenced by different individual and organizational factors (Jagdish N Sheth). Purchase decisions are ultimately taken by individuals within the organization. While decisions are influenced by the rational factors in industrial purchases, the micro factors primarily the individual variables have been found to be significantly affecting decision making. The factors identified range from trying to reduce uncertainty and risk to maximize rewards offered by the organization. The decision making unit comprises of individuals and the individual factors cannot be played down.

Reasons and arguments are presented as to why branding would work in the context of an industrial purchase as in consumer marketing.In validating the stand, specific emphasis is given to the models of organizational buying proposed by Jagdish N Sheth, Yoram Wind and PK Ghosh by identifying the human and psychological elements in decision making that are influenced by brands and makes branding in industrial markets a worthy initiative.

Key Words: **Commoditization, Task & Non-Task Objectives, Decision Making Unit, Human Elements.**

Introduction

Traditionally brands have been used as a tool of differentiation even during the ancient times when it started as marks on pottery and brands were the means by which owners of livestock marked their animals to identify them. 'A brand is a product but one that adds other dimensions that differentiate it in some way from other products designed to satisfy the same need" (Keller, 2003).

These differences between products may be rational or tangible – related to product performance of the brand or more symbolic, emotional and intangible – related to what the brand represents. Apart from differentiation benefits, there are other distinct branding benefits that are put forward. Keller talks about many type of risk perceptions like functional, physical, financial, social, psychological etc. and further goes on to add that branding reduces the risk perception and helps in quicker decision making. Another dimension that he goes on to add is that as consumer lives become more complicated rushed and time starved, the ability of a brand is to simplify decision making and reduce risk is invaluable.

Industrial Brands

The general feeling that prevails regarding branding efforts is that its relevance is restricted to consumer brands. Such thoughts have been reflected in the arguments that have been put forward by Gregory,James R et al, 2007; who have observed that the consumer marketers' obsession with branding is evident and that Business-to-Business companies should also act with the same sense of purpose and seriousness as consumer marketing companies. One of the strongest arguments regarding industrial brands have been put forward by Kotler, Pfoertsch (2006), where they have argued that to accept that branding is only for consumer products is nothing short of a misconception. Though brands have been developed for consumer companies, it has found that its relevance in industrial markets and has been slowly but surely becoming relevant (Bendixen, Mike et al, 2004).

While there are numerous reasons for the adoption of branding in industrial markets two major reasons that have been identified are the growing commoditization in certain categories and the greater magnitude of online buying. Though industrial buying has traditionally been categorized as rational purchase, the influence of rationality declines with the increase in product similarity or commoditization (Ghosh, PK, 2006).

Whereas branding relevance in consumer markets has been validated numerous times through studies, there is no reason to assume that it is restricted to the consumer products as the factors that make it almost indispensable in consumer markets also play a significant role in industrial markets, at least some of them. The role ranges from attempts to differentiate both the product and its image in a commoditized market to influencing members of the buying centers. In Industrial markets there have been reported studies of successfully differentiating commodities. A case in point is the study conducted by Daniel H Mc Quiston in 2004. The case study of how the Finnish steel company Rautaruukki Oyj (RR) went about creating a brand identity for their RAEX LASER steel provides an excellent example of how an industrial firm can implement the four components of product, logistics, customer service, and company image to create a viable brand identity for their product.

In the industrial markets there is a growing importance of industrial buying and selling via the internet. With this growth in online purchasing there have emerged risks of several types in these kinds of purchases. The online buyers use cues like the brand to reduce the risks involved in purchase decisions (Hunter et al, 2004). In fact there are different type of risks or uncertainties that have been proposed, namely:

- Need uncertainty (a new or complex situation with unclear product or specification need)
- Technical uncertainty (probability of product failure)
- Market uncertainty (market stability, homogeneity and intensity)
- Acceptance uncertainty (involving organizational disagreements about whether the product is needed)
- Transaction uncertainty (related to terms and delivery schedule. (Hunter, et al, 2004; Cardozo, 1980)

Industrial branding can effectively reduce these uncertainties and simplify purchase. No matter whatever is the discipline in an industrial purchase, as industrial buying is getting time starved with an increase in commodities, increased online buying as well as information overload, the role of industrial branding in simplifying purchase is increasingly becoming relevant. It is getting vindicated that the human elements like perception, perceived risk etc do impact economic decisions. (Sheth, Jagdish N, 1973). This may be conscious, since the buyer knows he can't learn everything about every potential vendor, or it may be subconscious. He further adds that the initial response is an emotional one and though a lot of conscious and subconscious processing take place it is in the direction that has been provided by the initial emotional response and most of the times it is within the initial boundary that is drawn by the initial response.

Understanding the Buyers' Decision Making

Industrial buying adds new dimensions to the traditionally studied consumer buying process. Effective Industrial marketing strategy must begin with an understanding of Industrial buying by trying to understand the different type of buying situations that organizations encounter, the process that organizations go through in reaching purchasing decisions, how those decisions are affected by different members of the firm and the criteria they apply in making purchase decisions.

One of the popular conceptual models proposed by Robinson & wind, 1967) referred to as the buy grid model comes out with three distinct types of buying situations:

- New Task
- Modified Rebuy
- Straight Rebuy

Robinson and Wind (1967) stated that organization buying objectives are categorized as task oriented and non-task oriented. While the task oriented objectives focus on price, service, quality assurance, reciprocity etc.The Non task objectives focus on individual specific factors like greater status, promotions, salary increases, increased job security, social interaction etc. It is the non-task objectives that vindicate the non-rational dimension of the purchase.All this points to purchasing taking place with two sets of objectives – organizational and personal. However, when the actual purchase decision is made, it is made by the individuals and not the organizations. Though it is the organizational objective that sets the boundary, it is the personal risk and reward of the members of the decision making units that is likely to be the key factor(s).

Cardozo, Richard N (1980) says the firm's ability to penetrate the market depends on its ability to assist in problem solutions, to provide information to key decision makers and to work with customers through all phases of the purchasing situations.

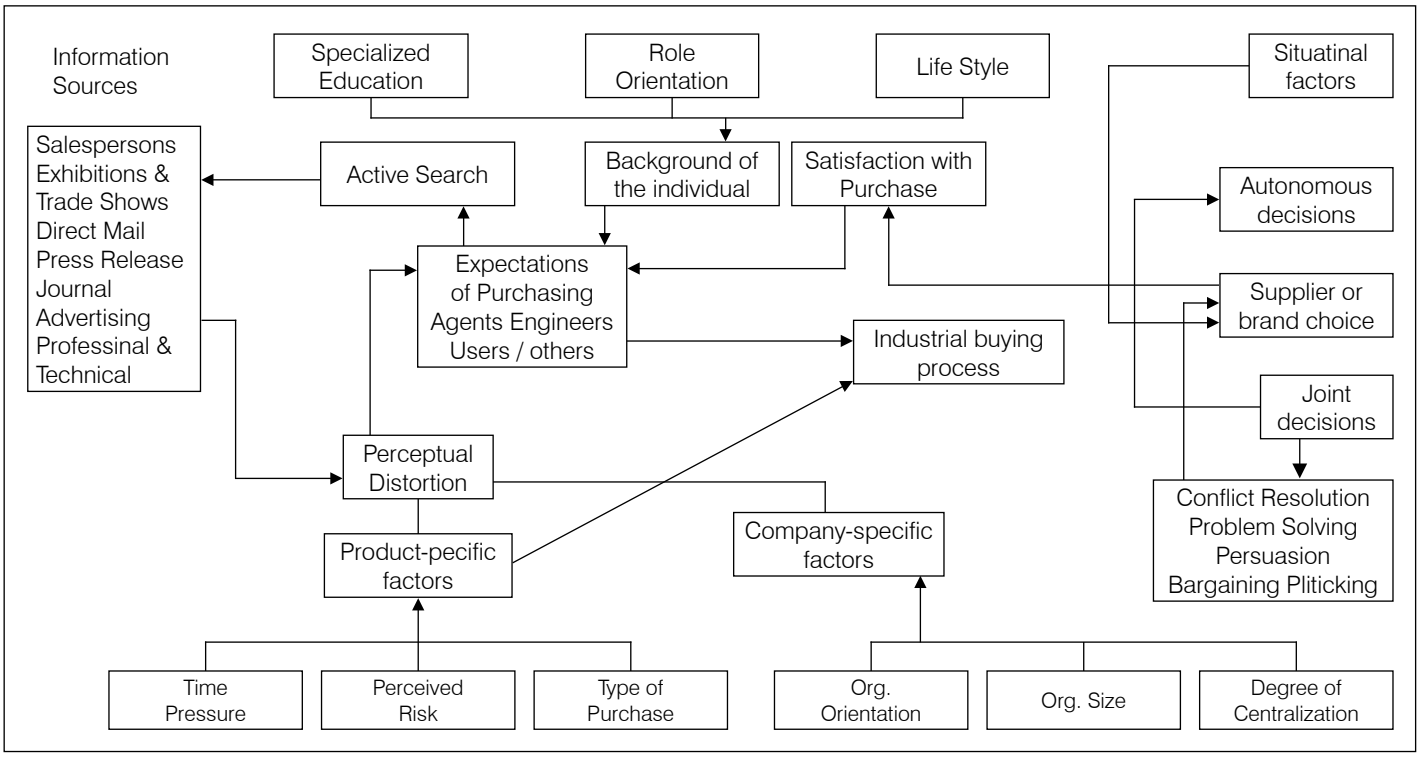
Robinson,Faris and Wind (1967) proposed taxonomy for industrial buying which was based on three dimensions – information needs, consideration of alternatives, and newness of the task.Through the framework the authors propose that in cases of new purchases when there is a higher risk perception there will be a greater desire to look for more alternatives part of a rational buying approach. In fact, many researchers have proposed that it can be the other way round, i.e., in these situations there could be shift towards reputed players or we can say branded entities. (Erin Anderson et al, 1987)

Peters and Venkatesan (1973) in the context of a risky new task have highlighted the personality factors of the individual decision makers which we state as the human elements and highly prone to be influenced by the non task objectives or branding.

Mathews and Wilson (1973) have also mentioned about the personality traits of purchasing agents as factor that influences purchase, again the human element.

A model of Industrial buyer behaviour given by Sheth, Jagdish N (1973) having widespread acceptance talks about the brand related factors like perception, perceived risk, and other human elements influencing Industrial purchase.

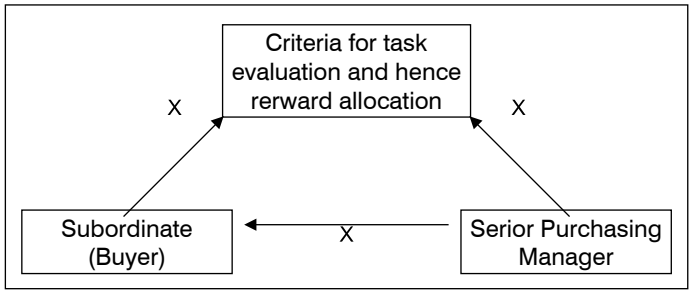
Chart 1: A Model of Industrial Buyer Behaviour Given by Jagdish N Sheth)



The model brings forward all the elements influencing industrial purchase like individual factors,organizational factors, situational factors to personal factors. The non task objectives and the psychological factors are as important as the functional and task objectives. While there is a lot of talk about Decision making units and joint decision making as part of industrial purchasing, the model as presented above apparently brings forward the individual and psychological factors ranging from specialized education, active search to perceptual distortions and satisfaction or dissatisfaction with purchase. The inherent relationship between satisfaction, perceptual distortion, active search etc and branding has been established time and again through numerous studies part of consumer branding.

Yoram Wind's (unpublished PhD Dissertation in 1966, Stanford University, USA) also talked of attitudinal variable, work specification variable and price. It used the R-B model (reward balance) to explain why buyers behave as they do (Ghosh, P.K., (2006).The R-B model hypothesizes that the buyers' behaviour can be judged to be influenced by his or her perception of the reward criteria and to be directed towards those alternative courses of action which are believed to satisfy these criteria, and hence, his or her actual rewards. It can be justifiably concluded that these are the similar psychological variables that were emphasized on by Jagdish Sheth as the ones that go on to be influenced by brands and the on task objectives put forward by Robinson and Wind 1967.

Chart 2: The General Form of Reward Balance Model



non-task objectives cited by Robinson and Wind (1967) have been matched by Ghosh, PK (2006) when he says, based on the reward balance model, buyers strive to maximize the positive feedback and minimize the negative feedback from actual users to the buyers' superiors. His model talks of Independent Variables, Intermediate Variables and Dependent Variables.

The product-specific factors part of his independent variables that influence buying decision are the type of the product, time pressure on the buyers for supplier selection and perceived risk of the buyers. Depending on the type of item, the time pressure on buyer for both supplier and item selection varies and depending on the extent of criticality of the industrial items to the buying firms operations, the risk perception of the buyer for both supplier and product selection is different.

Conclusion

Properly managed, an Industrial brand can realize the same advantages as a consumer brand because branding benefits remain nearly the same for individuals.With the emerging economies like India being flooded with a plethora of brands from different parts of the world and in turn with an increase in the number of options, the complexity in decision making is expected. Increasingly it is becoming difficult to differentiate products, and brands can purposefully differentiate a product (Sinclair and Seward'). There is an uncertainty and risk, both functional and psychological, associated with purchase (Cardozo et al, 2004) Brands can effectively fill up this gap, reduce uncertainty, risk and simplify decision making for members of the decision making units. Since decision making units in an industrial purchase also comprise of individuals the reasons for branding remains the same albeit with some modifications.

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TEACHING

Teaching is an art, not a science;
a duty, not a business;
a personality, not a voice;
an outright gift, not a calculated exchange

– Anonymous

An Empirical Study on Sales Promotion Effectiveness Tools with Special Reference to Low Involvement Category in Rajasthan

Dr Pradeep Kautish

Businesses today are continually looking for ways to improve the effectiveness and efficiency of their sales promotion efforts. Increasing pressure and scrutiny are promotional expenditures, viz., advertising, personal selling, public relations, and sales promotions because they have long been among the most challenging marketing costs to analyze or justify on a profit versus cost basis (Anderson et al., 1992).

Two conflicting developments are forcing marketing managers to rethink their promotional strategies. On one hand, the highly competitive market place compels marketers to increase their spending on the promotional mix. On the other hand, promotional expenditures are being examined closely by top management as one of the most promising areas left for cutting costs and increasing profits. This heightened scrutiny puts intense pressure on marketers to develop and implement promotional programs that can add value to their corporations within the constraints of tighter budgets.

The major thrust of this paper is to evaluate the effectiveness of sales promotional strategies namely, coupon, price discount, free sample, bonus pack, and in-store display in the purchase of low involvement products by Indian consumers with special reference to Rajasthan. The results show that price discounts, free samples, bonus packs, and in-store display are associated with product trial. Coupon does not have any significant effect on product trial. Details of the findings and their implications are discussed.

Key Words: **Promotional Tools, Low Involvement Product, Consumer Buying, Product Trial.**

Introduction

A large body of research on consumer responses to sales promotions (e.g., Bawa & Shoemaker, 1987 and 1989; Blattberg & Neslin, 1990; Leone & Srinivasan, 1996; Huff and Alden, 1998) has accumulated over the past few decades due to the growing importance of this marketing lever. However, too much stress on coupons at the expense of other equally important promotional tools, has created the need for more work to be done in the area of investigating (together with coupon) the effects of other sales promotional tools such as free sample, bonus pack, price discount, and in-store display on product trial and repurchase behavior, especially among Indian consumers, whose behavioral responses to promotional strategies are ill understood due largely to lack of research on them.

Moreover, research on the use of marketing tools in India is very scanty at best. And very little (if at all) is understood about the Indian customers and their purchase behaviors, especially with regard to how they respond to the various promotional strategies practiced by marketers. Since the bulk of the extant literature on these relationships till date remains the western perspective; there is an urgent need for research focusing on the Indian consumers and the Indian environment, which is unfamiliar to most readers. Since understanding the behavioral responses of Indian customers to sales promotion strategies is salient in customer management and in designing effective sales promotion strategies, important impetuses for this research are established.

To embark on this task, the research focuses on 'Low Involvement Products' (LIP), which are generally

believed to be more responsive to promotional tools than high involvement products. Low involvement products are that bought frequently and with a minimum of thought and effort because they are not of vital concern nor have any great impact on the consumer's lifestyle (www.marketingprofs.com).

Not all purchase decisions are equally important or psychologically involving for the consumer. People engage in a less extensive decision-making process, involving a less detailed search for information and comparison of alternatives, when buying low involvement goods and services than when purchasing high involvement items. Because of the differences in the decision-making process between low and high involvement products, and the high frequency of purchase of low involvement products, this study focuses on the low involvement products (LIP) in order to unveil promotional strategies that might be more effective in the Indian context.

Review of Literature

According to Shimp (2003), sales promotion refers to any incentive used by a manufacturer to induce the trade (wholesalers, retailers, or other channel members) and/or consumers to buy a brand and to encourage the sales force to aggressively sell it. Retailers also use promotional incentives to encourage desired behaviors from consumers. Sales promotion is more short-term oriented and capable of influencing behavior. Totten & Block (1994) stated that the term sales promotion refers to many kinds of selling incentives and techniques intended to produce immediate or short-term sales effects. Typical sales promotion includes coupons, samples, in-pack premiums, price-offs, displays, and so on. Coupons have been used to produce trial (Robinson & Carmack 1997).

According to Cook (2003), coupons are easily understood by the consumer and can be highly useful for trial purchase. Gilbert and Jackaria (2002) concurring to the popularity of coupon reported that coupon is ranked last as the promotional least widely used by consumers and least influence on product trial. Other studies (e.g. Peter & Olson 1996; Gardener & Trivedi 1998; Darks 2000; Fill 2002) have reported the importance of coupons as a sales tool. Price promotion does influence new product trial (Brand week, 1994). According to Ehrenberg et al (1994) short-term peaks in sales were due primarily to purchases made by occasional users of a brand rather than by new customers.

Furthermore, the study concluded that these occasional users, after taking advantage of the price reduction, would most likely return to their favorite brands in their portfolio rather than buy the promoted brand at full price. However, Shimp (2003) and Fill (2002) among other extant studies have documented a link between price promotion and product trial. With regard to free sample, another important promotional tool often used by firms, marketing managers recognize the importance of product trial and direct behavioral experience with a product; hence they often mail free samples of products to consumers so that consumers can try the products for themselves, rather than just hear about the products (Kardes, 1999).

However, Gilbert and Jackaria (2002) found that a free sample as a promotional offer had no significance on consumers' reported buying behavior, whereas Pramataris et al (2001), Fill (2002), and Shimp (2003), have shown otherwise. Factory bonus pack according to Lee (1963) is used to increase consumer trial of the brand. Larger package size and accompanying advertising of the offer tended to make the promotion noticeable (Gardener &Trivedi 1998). Since more of the product is included at no extra cost, consumers can be persuaded to buy the product if they feel it represents a deal that produces the greatest value for their money.

According to Gilbert and Jackaria (2002), packs with "buy-one-get-one-free" may not increase brand awareness before trial purchase because the customer will only come across the product once in the store (unlike samples or coupons), however, if the promotion is noticeable it will facilitate brand recognition and brand recall for future purchases. Since an additional amount is given for free, consumers may be persuaded to buy the product if they feel it represents a fair deal that provides value for money.

Ong et al (1997) found that consumers appeared to be slightly skeptical of the bonus pack offer, but somewhat more trusting of the price and quantity claimed. In other words, believability of the bonus pack offer was weak; however, they would likely buy one bottle and not buy more than one bottle they concluded. The report speculated that this happens because consumers suspect that manufacturers do raise prices slightly in conjunction with bonus pack offerings. Product trial involves actually trying or using a product (Kardes, 1999).

According to Peter and Olson (1996), trial ability refers to the degree to which a product can be tried on a limited basis or divided into small quantities for an inexpensive trial. Banks (2003) wrote that with sales promotion, brands have a chance to quickly affect consumer choice and behavior by adding value through an on-pack offer, by achieving incremental display or by encouraging trial via sampling and/ or couponing. According to Schindler (1998), a price promotion that is designed to evoke attributions of responsibility could be expected to appeal to consumers more than one that does not evoke such attributions, and thus have a greater ability to create product trial among consumers.

Wayne (2002) found a link between sales promotion and product trial. Chandon, et al (2000) indicated that sales promotion may be attractive to highly promotion prone consumers for reasons beyond price savings. These highly promotion prone consumers may switch brands to receive "special" deals that reflect and reinforce their smart shopper self-perception. They concluded that highly promotion prone consumers might try a new product that has promotion. Thomas (1993) argued that the magnitude of planned distribution and promotion expenditures (advertising, sales promotions, sales force, and so on) could affect initial trial of the brand.

Based on the issues and discussion raised above, the following hypotheses are generated for verification:

- H1: There is a significant positive relationship between coupon and product trial.
- H2: There is a significant positive relationship between price discount and product trial.
- H3: There is a significant positive relationship between free sample and product trial.
- H4: There is a significant positive relationship between bonus pack and product trial.
- H5: There is a significant positive relationship between in-store display and product trial.

All told, it is important to jog the readers mind that none of the extant literature cited above is about India. This observation corroborates one of the key impetuses for the conduct of this study, that is, the dearth of research on the Indian customers' behavioral responses to promotional tools, which has resulted in a poor understanding of the effectiveness of various promotional tools in the same context.

Research Methodology

In this study, five consumer promotion tools – coupons, discount, samples, bonus packs, and in-store display – were investigated for their impact on consumer purchase behavior. Items from Garretson and Burton's (2003) study of consumer proneness towards sales promotion were adapted in the measurement of proneness to coupon, price discount, free sample, bonus pack, and in-store display. Trial behaviors of consumers were measured with items adapted from Gilbert and Jackaria (2002). Questionnaire was used for the study.

The population of the study consists of consumers in Jaipur, Rajasthan, India. The sample points were supermarkets in the area. The survey instrument was self-administered to customers using a mall intercept technique. Some respondents who could not answer on the spot were given a copy of the questionnaire (to be answered at home) with a postage paid return envelope. A 5-point Likert Scale, ranging from 1 (strongly disagree) to 5 (strongly agree) was used for the construct's dimensions.

A total of 420 questionnaires were distributed and only 312 were returned, which represents a response rate of 74%. The multiple regression models were employed to predict the relationships in the construct. The regression assumptions with respect to autocorrelation (independent of residual), normality (residual is normally distributed), homoscedasticity of error terms, multi-collinearly and linearity of independent variables were verified before making any interpretation of the statistical results.

Research Results and Discussion

Demographic Profile

Out of the 312 usable questionnaires returned by the respondents, 59.6% were female respondents, and 40.4% were male. Various income levels (in Rajasthan, India) were represented, for example below 24,000 was 60.9%, 24,000-47,999.99 (29%), 48,000-71,999.99 (9%), and so on. Hindu consumers made up 51%, Muslims (22%), Sikhs (16%), and others (11%). The ages of the respondents were as follows: below 20 (13%), 20-39 (62.8%), 40-59 (22%), and 60 and above (2.2%).

The rate of married respondents was 46%, while singles represented the balance of 54%. With respect to education background, 50.6% had secondary school education and less, 26% had high school and diploma qualifications, and

the rest (23.4%) were degree and postgraduate degree holders. All these characteristics almost represent the demographic features of Rajasthan, India in statistical terms.

Psychometric Properties of the Instrument

Factor Analysis was performed on the questionnaire items in order to establish their suitability for performing the subsequent multivariate analyses. The results presented are based on parsimonious sets of variables, guided by conceptual and practical considerations, namely acceptance of factor loadings of 0.50 and above (Hair et al, 1998), and cross loadings mostly below 0.20. In very rare cases where cross loadings slightly exceeded 0.20, loadings were much higher than 0.50 to justify acceptance. The orthogonal rotation was employed for this analysis (Hair et al 1998). High communality values were recorded for each variable, indicating that the total amount of variance an original variable shares with all other variables included in the analysis is high.

Overall, the results in Table 1a and 1b show that the construct measures are valid. Put differently, the measures define the concept of study very well. Table 1 shows the factor loadings and cross-loadings, Eigenvalues, and Variance of the dimensions under examination. A total of 29 items loaded on 6 factors. Factors 1 to 5 contain items measuring free sample, bonus pack, price discount, in-store display, and coupon.

Five items were used in each case (save for Factor 4) for example:

- If a brand offers – (free sample / bonus pack / price discount / in-store display / coupon); that could be a reason for me to buy it.
- When I buy a brand that offers – (free sample / bonus pack / price discount / coupon), I feel I am getting a good buy.
- I have favorite brands, but most of the time I buy a brand that offers – (free sample / bonus pack / price discount / in-store display / coupon).
- One should try to buy a brand that offers – (free sample / bonus pack / price discount / in-store display / coupon).
- Compared to most people, I am more likely to buy brands that offer free – (free sample / bonus pack / price discount / in-store display / coupon).

Factor 4 has four items only, because of the omission of item 2, which is considered irrelevant with respect to in-store display. Factor 6 has five items measuring trial, for example, coupon enables me to buy a product, which I have not tried before, price discount makes me to buy a product, which I have not tried before, etc. Total variance explained is 66% and item loadings are quite high, hence, there is high validity for the constructs measures.

Although the observed patterns of item loadings were similar for both Varimax (adopted in this study) and Oblique rotation (alternative technique), providing grounds to assume that the instruments are consistent, the internal consistency of the instruments were further tested via reliability analyses. Cronbach's alpha test was used to ensure the reliability of the variables. For sales promotional tools, the results indicate acceptable values: coupon ("=0.81), price discount ("= 0.86), free sample ("= 0.87), bonus pack ("=0.88), and in-store display ("= 0.87). The Cronbach's alpha value for product trial is 0.81. Mean score for all dimensions are as follows: coupon (2.99), price discount (3.67), free sample (3.08), bonus pack (3.28), in-store display (2.84), and product trial (3.22).

Relationship Among Constructs

Table 3 shows the results of the regression analysis used to determine the relationship between the promotional strategies and product trial. Standardized beta coefficients are reported all through, as standardized regression coefficients allow for a direct comparison between coefficients as to their relative explanatory power of the dependent variable (Hair et al 1998). The above results show that coupon, price discount, free sample, bonus pack, and in-store display contribute significantly ($F = 25.22$; $p = 0.000$) and predict approximately 30% of the variations in product trial. The 30% explanation is considered good for a behavioral science research.

Further examination of the results shows that price discount ($t = 2.334$; $p = 0.020$), free sample ($t = 3.483$; $p = 0.001$), and in-store display ($t = 4.322$; $p = 0.000$) are significantly associated with product trial at 5% significance level. Bonus pack is moderately associated with product trial ($t = 1.900$; $p = 0.058$). Hence there is enough evidence to accept hypotheses 2, 3, 4 and 5. The results indicate that in-store display is the strongest predictor of product trial followed by free sample, price discount and bonus packs. There is no significant relationship between coupon and product trial ($t = 0.401$, $p = 0.69$) at 5% significance level, which leads to rejection of hypothesis 1.

Therefore, it is conclusive that coupon is not a strong determinant of product trial among the respondents. This may be because of the sparse use of coupon as a promotional strategy by marketers in India especially for Rajasthan. As a most rarely used promotional tool in India, many consumers may not be familiar with it compared to other promo-tools. The results of this study provide some useful information on the impact of the five promotional tools on consumer buying behavior (product trial). With respect to consumer proneness to sales promotions, the results show that in-store display plays a significant role in shaping consumer product trial reaction. Moreover, the results of this study show that free sample and price discount play significant roles in influencing consumer product trial behavior.

This finding is consistent with the views of Blackwell et al (2001). Another sales promotional tool that has important effect is bonus pack. Bonus pack is instrumental in increasing consumer trial of a brand, thus, the more of the product included at no extra cost, the greater the likelihood of consumers buying the product for trial. Although, the effect of bonus pack on product trial is lower than other promotional tools such as in-store display, free sample, and price discount, bonus pack remains a useful marketing tool.

Contrary to some earlier findings (e.g. Banks 2003; Blackwell et al 2001), coupon in this study does not have significant effect on product trial. This could be as a result of the respondents' poor familiarity with the use of coupons. In fact in Rajasthan, India, the use of coupons as a promotional strategy is not as common as the use of other promotional tools. Marketers in Rajasthan very seldom use coupons, resulting in the tool's unpopularity among Rajasthan, Indian consumers. Zajonc (1980) had earlier shown that exposure to a stimulus enhances a person's attitude toward it.

Control

The control procedures applied in this study include the following: (1) examination of the role of familiarity with each promotional tool on the impact (or lack of it) of the tool on product trial; and (2) examination of potential confounding effects of respondents' education and income levels. Firstly, to examine whether consumer familiarity with particular promotional tool is what explains its effectiveness, the study controlled for this factor. From the result in Table 4 below, it can be said that the weak impact of coupon on trial is attributable to the unfamiliarity of Indian customers with coupon. This may have resulted from the seldom use of this tool by marketers in India.

Further analysis confirms that familiarity is a key issue in coupon-trial relationship. Taking coupon use at below median and above median (inclusive), the corresponding values were assigned 1 and 2 respectively. Similarly, taking familiarity with coupon at below median and above median (inclusive), 0 and 1 were assigned. By plotting these dimensions, the resulting levels of product trial for different levels of coupon usage and familiarity with the tool inference can be drawn which can show that customers, who are familiar with coupon, increase product trial as more coupons are offered. In other words, the behavioral responses of highly coupon-familiar customers are greater than the responses of those who are not familiar with the tool.

Potential Confounding of Education and Income Divide

There are several important demographic variables that could potentially confound observed relationships depending on the nature of the study. These are level of education, age, gender, and income (Minton & Schneider 1980; Praeger 1986; Kite 1996; Morris & Venkatesh 2000). With respect to responding to promotional tools, the most important covariates are those whose inclusion might theoretically eliminate observed moderation effects, such as income and education. This is because high-income earners may be less interested in savings than their lower income counterpart; hence, they may be less responsive compared to the low-income group.

In addition, since education and income are positively correlated, similarly more educated consumers may be less responsive to promotional tools than their less educated counterpart. Thus, in this research it is necessary to evaluate and control for possible confounding effect of education and income. Before the control mechanism was applied, the two demographic variables, which originally had more than two groups, were recoded into two groups for ease of understanding. Thus, educational levels were re-grouped into non-graduates and graduates, and income into low-mid and high-income earners.

In order to introduce the recoded demographic dimensions into the regression model, dummy variables were created for the groups (Hair et al 1998). In creating the dummy variables, the first step was to determine the number of dummy variables, which is simply k - 1, where

k is the number of levels of the recoded variable. In this instance 1 (2 - 1) dummy variable was created as follows: non-graduate (0), graduate (1); and low-mid income (0), high-income (1). The results of the controlled hierarchical regression analyses are presented in Table 5 below. These results are compared with the uncontrolled results in Table 3 above. The results in Table 5 show that education and income levels are not confounds.

In all the cases, the demographic variables have no significant relationship with the dependent dimension. By introducing each demographic variable in the 2nd stage of the hierarchical regression, it was found (as shown in Table 5) that the significant impacts witnessed in the price discount-trial, sample-trial, bonus pack-trial, and display-trial relationships (see Table 3) remain significant, and the non-significant effect in the coupon-trial relationship remains insignificant after controlling for potential confounds. This shows that there is no confounding effect. If education or income is confounding the results, when controlled, the significant effects will become non-significant, and the non-significant effect will become significant.

Limitations of the Study and Future Research Imperatives

Like any empirical research, there are few limitations to this study. First, only one product category (low involvement products) was considered in this study leaving out high involvement products, which are somewhat noted for their poor responses to promotional tools. An interesting future research direction is to estimate the effectiveness of these promotional tools in high involvement product situations. Since some scholars believe that high involvement products are not as responsive as low involvement products to promotional tools, it is needful to verify this view in India.

This future research will help to increase present knowledge in this area by providing empirical support for or refuting the above supposition. Additionally, future research may take a comparative approach between the high and low involvement products to see if they equally or differentially respond to promo tools, and if the former is statistically less responsive than the latter in the Indian context.

There is still an urgent need to investigate the impact of other promotional tools on product trial because research in this area is still inconclusive. Beside the five promotional tools (i.e., coupon, price discount, free sample, bonus pack, and in-store display) that were examined in this study, future research may investigate other types of sales promotions (e.g., contests, refund) on product trial. In addition, studies that utilize data compiled by retailers that track buying and sales promotion participation habits across various tools will add much value since it is based on hard data rather than perceptions.

Discussion and Conclusions

This research has important implications on theory. The framework provides new insights into the understanding of sales promotional strategies and their impacts on Indian customers' behavioral responses in low involvement product setting. In addition, it helps to explain the role of familiarity with sales promotion tools. Indian consumers respond more too free sample, price discount, in-store display, and bonus pack than coupon. A plausible explanation for the weak influence of coupon is poor familiarity with the tool.

This research shows the linkages among various promotional tools and product trial, and thereby helps to better understand how Indian consumers respond to various promotional tools offered by marketers. This is an important contribution to the body of knowledge in this field and in India in Rajasthan particular, being one of the pioneer studies in this area. The results also have important implications for practitioners.

One of the major implications of this research is that firms can increase sales by offering the right promotional tools to attract trial customers. Therefore organizations should carefully plan their promotional strategies, and allocate promotional budget over the different promotion tools, giving preference to the more effective tools. Promotions that emphasize in-store display, free sample, price discount, and bonus pack are likely to be more effective than coupon.

Second, the findings indicate that in-store display proneness has the strongest effect on product trial compared to other sales promotional tools. Attractive in-store display practices are necessary to gain the greatest sales from product trial.

Third, (as shown in the results) bonus pack, free sample, and price discount significantly affect product trial, albeit the determinant power of bonus pack is the lowest among other promotional tools. Thus, one of the ways to improve the determinant power of bonus

pack is to keep a regular pack along side with a bonus pack on the shelves, in order to enable consumers to make comparison. Such opportunity for a comparative observation will help to enhance the credibility of the tool and consumers' confidence in it. With regard to free sample and price discount, sellers should continue to apply them because of their robust influences on product trial.

Fourth, the findings show that coupon have no significant effect on product trial. This is largely due to consumers' unfamiliarity with the tool. Thus, it is suggested that manufacturers and retailers should use more of coupons in their promotional efforts, with longer redemption period, prior to which they should create greater awareness of the benefits of coupons and how they could be redeemed. This will help ignorant customers to be better informed about coupons and their uses.

Another probable reason for the poor influence of coupon may be because coupons provide less shopping convenience benefits, requires more skill and effort than buying a product on sale. For example keeping the coupon and redeeming it before expiring date, searching for a product that has coupon, matching coupons with brands, etc can be cumbersome and time consuming. In the other hand, price discount, free sample, bonus pack, and in-store display can provide greater shopping convenience benefit.

Lastly, it is important to note that the outcome of this research, that is, the observed significant and non-significant relationships among the independent and dependent variables are not confounded by respondents' educational and income levels. In other words, these observations hold true, irrespective of the level of education or income of the respondents, hence the results are generically applicable to all income and educational groups.

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Table 1a: Factor Results for the Independent Dimensions Loadings and Cross Loadings

	F1	F2	F3	F4	F5	F6
F1 - Free Sample						
Free Sample 1	.731	.221	.152	.172	.079	.161
Free Sample 2	.742	.170	.189	.130	.130	.151
Free Sample 3	.716	.129	.205	.169	.107	.066
Free Sample 4	.746	.165	.158	.120	.138	.117
Free Sample 5	.757	.222	.172	.144	.088	.135
(Eigenvalue = 8.98; Variance = 30.95%)						
F2 - Bonus Pack						
Bonus Pack 1	.120	.801	.163	.062	.009	.124
Bonus Pack 2	.105	.848	.083	.013	.053	.102
Bonus Pack 3	.232	.703	.259	.114	.124	.087
Bonus Pack 4	.264	.710	.143	.127	.309	.064
Bonus Pack 5	.253	.734	.211	.156	.137	.073
(Eigenvalue = 2.76; Variance = 9.52%)						
F3 - Price Discount						
Price Discount 1	.147	.216	.706	.088	.102	.161
Price Discount 2	.132	.129	.726	-.049	.154	.184
Price Discount 3	.126	.174	.735	.088	.193	.062
Price Discount 4	.273	.065	.726	.081	.190	.018
Price Discount 5	.177	.204	.792	.091	.162	.016
(Eigenvalue = 2.18; Variance = 7.52%)						

Table 1b: Factor Results for the Independent Dimensions Loadings and Cross Loadings

	F1	F2	F3	F4	F5	F6
F4 - In-Store Display						
In-Store Display 1	.095	.112	.112	.760	.019	.087
In-Store Display 2	.213	.069	.066	.819	.062	.033
In-Store Display 3	.194	.073	.014	.789	.179	.153
In-Store Display 4	.203	.073	.049	.847	.128	.150
(Eigenvalue = 2.04; Variance = 7.03%)						
F5 – Coupon						
Coupon 1	.024	.098	.057	-.045	.729	.258
Coupon 2	.138	.119	.053	-.031	.726	.148
Coupon 3	.095	.052	.197	.212	.671	-.074
Coupon 4	.136	.126	.206	.137	.691	-.001
Coupon 5	.098	.065	.315	.169	.733	.000
(Eigenvalue = 1.67; Variance = 5.78%)						
F6 – Trial						
Trial 1	.085	.055	.121	.038	.253	.724
Trial 2	.124	.082	.149	.026	.057	.787
Trial 3	.233	.051	.044	.115	-.001	.782
Trial 4	.153	.172	.045	.212	.012	.731
Trial 5	-.095	.104	.047	.045	.022	.534
(Eigenvalue = 1.47; Variance = 5.08%)						
Total Variance = 66%						

Table 2: Descriptive and Reliability Analysis Results

Variables	No. of Items	Mean	S/D	Cronbach's Alpha Coefficient
Coupon	5	2.99	0.77	0.83
Price Discount	5	3.66	0.74	0.86
Free Sample	5	3.08	0.81	0.87
Bonus Pack	5	3.25	0.75	0.88
In-store Display	4	2.84	0.84	0.85
Product Trial	5	3.22	0.72	0.81

Table 3: Promotional Tools and Product Trial

Independent Variables	Beta Coefficients	t-value	t-value
Constant		5.932	0.000
Coupon	0.023	0.401	0.689
Price Discount	0.143	2.334	0.020
Free Sample	0.218	3.483	0.001
Bonus Pack	0.114	1.900	0.058
In-Store Display	0.234	4.322	0.000
R^2 = .29	4F = 25.218	Sig. F = .000	

Table 4: The Role of Familiarity on the Effectiveness of Tools

Variables	B	Sig.
Coupon*Familiarity	0.778	0.016
Price Discount* Familiarity	0.068	0.875
Sample* Familiarity	-0.28	476
Bonus Pack* Familiarity	-0.456	0.236
In-store Display* Familiarity	0.358	0.237
R^2	0.289	

Table 5: Testing for Potential Confounding of Demography

Interaction Terms with Education controlled	Dependent Variable – Trial	
	beta	p-value
Coupon	.041	.475
Price Discount	.138	.024
Sample	.237	.000
Bonus Pack	.098	.065
In-Store Display	.245	.000
Education	.075	.143
Interaction Terms with Income controlled	Dependent Variable – Trial	
	beta	p-value
Coupon	.022	.693
Price Discount	.145	.019
Sample	.223	.000
Bonus Pack	.112	.064
In-Store Display	.236	.000
Income	.029	.564

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Infrastructure Support for the Growth of Biotech Industry at Genome Valley, Hyderabad

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Genome Valley at Turkapally village in Shamirpet Mandal, Hyderabad, is the first biotech park in AP. It was inaugurated in 2001 and organizations are yet to reap the benefits of the entrepreneurial support systems created for the purpose. This study takes significance in the sense it is the first study on Genome Valley and the results can give useful insights to policymakers, scientists and the companies in the biotech industry.

Infrastructure support provided by State / Central Government of India for its biotech industry has been growing rapidly. The Government of AP is committed to the development of Genome Valley, a biotech park at Turkapally Village, about 50 km from Hyderabad. Genome Valley is spread over 800 sq km in Ranga Reddy and Medak districts. This paper focuses on infrastructure in terms of land, water, electricity, connectivity, availability of capital investment, biotech-ready human resources, R&D centers for testing, safety and security for the business of the biotech companies in Genome Valley. Views of scientists, managers and government officials are elicited through a questionnaire to determine the value drivers for the growth of biotech at Genome Valley. The results are encouraging and provide insights to policymakers, entrepreneurs and researchers towards solutions to create an investment-ready climate for the development of the biotech industry at Genome Valley.

Key Words: **Biotech, Genome Valley, Entrepreneurship, Support Systems, Infrastructure, Incubation.**

Introduction

The biotech revolution has been characterized by the rapid pace of discovery in the biological sciences, and a tremendous impact on both fundamental and applied research. Biotech is multidisciplinary encompassing microbiology, chemistry, biochemistry, genetics, molecular biology, immunology, cell and tissue culture and physiology, as well as engineering. Proponents around the world project a positive future in which biotech overcomes food shortages, improves the environment, heals or eliminates disease and leads to a prosperous and healthy society.

Genome Valley

The Government of AP has identified the biotech sector as one of the 'Engines of Growth' in its 'Vision 2020' document. The Government will leverage the existing strengths of the state for rapid commercialization of biotech to produce innovative biotech products and services in a wide range of areas. The Government recognizes the pioneering efforts made by a few entrepreneurs in setting up highly successful biotech companies, such as Shantha Biotechnics and Bharat Biotech, which have, in a very short span of time, gained worldwide recognition and put AP in the forefront of the biotech revolution in India.The Government envisages a very active role of the private sector in the development of the biotech industry.

The Government would act as a facilitator and a catalyst. It has felt the need for a well-defined policy to forge a Private-Public Partnership in the development of biotech in the State. It is expected that the large number of scientists from AP, who are at present engaged in research, academics or manufacturing in the field of

biotech in USA and other developed countries, will play a catalytic and enabling role in developing biotech in the State, given the right environment, as was the case with Information Technology.

Andhra Pradesh, especially Hyderabad, has several pioneers in the area of medical / human and animal healthcare. Biotech companies like Shanta Biotechnics, Bharat Biotech, Krebs Biotech, Biological E Ltd., Jupiter Biosciences and Dr. Reddy's Laboratories among others. This goes to prove the unique advantage of the State in the area of pharma-related biotechnology. The Government of AP, in collaboration with the Industrial Credit and Investment Corporation of India (ICICI) Limited, has set up a Knowledge Park near Hyderabad named as IKP.

The Government of AP has developed Genome Valley, which is India's first systematically developed R&D cluster with the largest concentration of biotech, biopharmaceutical and other life science companies. Spread over 800 sq km, Genome Valley has four prominent clusters at Shamirpet, Medchal, Uppal and Patancheru, located in and around Hyderabad. Genome Valley is a natural cluster for biotech research, training, collaboration and manufacturing activities. In particular, the State Government has allotted land for the development of the biotech cluster by SP Biotech at Turkapally Village, about 50 km from Hyderabad. It is also home to leading R&D parks such as Alexandria Knowledge Park, IKP Knowledge Park, Alexandria Center for Science & Innovation and APIIC Biotech SEZ among others.

A few prominent companies in the cluster include Actus Pharam, Advanta, Alexandria Biotech, Bharat Biotech, Biological Evans, Chem Bio, Clintox Bio Services, Dupont, Endoven Pharma, FABA, IKP Knowledge Park, Incozen, Management Life Sciences Private Limited, Naandi Foundation, Nektar Pharma, Dr. Reddy's Laboratories, SP Biotech, Shantha Biotech, Spinco, Unique Biotech Limited, Vivo BT, Vimta Labs and Zenotech among others. With the presence of these companies the cluster has emerged as a preferred destination for other small, medium and established enterprises.

Biotech Research Organizations In and Around Hyderabad

Pandit Jawaharlal Nehru, the then Prime Minister of India on 2 January 1954 formally opened the Indian Institute of Chemical Technology in Hyderabad. The following are the R&D organizations in and around Hyderabad, involved in research in biotechnology

- Indian Institute of Chemical Technology (IICT)
- International Crops Research Institute for Semi-Arid Tropics (ICRISAT)
- Centre for DNA Fingerprinting and Diagnostics (CDFD)
- Centre for Cellular and Molecular Biology(CCMB)
- Defence Research and Development Laboratories (DRDL)
- National Institute of Nutrition (NIN)
- National Geophysical Research Institute (NGRI)
- Hyderabad Central University (HCU)
- Acharya NG Ranga Agricultural University (ANGRAU)
- AP Horticultural University (APHU)
- Osmania University (OU)
- Jawaharlal Nehru Technological University (JNTU)

The Government organizations supporting the development of Genome Valley include Department of Biotech, Commissionerate of Industries, Government of AP, AP Industrial Infrastructure Corporation (APIIC), AP state Finance Corporation (APSFC), APITCO, Directorate of Oil Seeds and AP Pollution Control Board among others.

Biotech Policy of AP Government

The following are the salient features of Biotech Policy of Government of AP:

- Take up a detailed inventory of the bio-resources in the State with the help of universities, research institutions, NGOs and private agencies.
- Promote conservation of bio-diversity and sustainable exploitation of bio-resources.
- Create a congenial environment for encouraging R&D in biotech and allied fields through the development of infrastructure and through appropriate incentives and regulatory framework for research.
- Develop high quality infrastructure with the required support services for manufacturing units by setting up specialized biotech parks in various parts of the State.
- Provide special incentives to the biotech industry and related sectors.
- Focus on human resource development in the area.

- Create an enabling environment for the growth of the biotech industry, especially the simplification of procedures for getting clearances for the commercialization of new biotech products and for the use of laboratory animals for drug discovery.
- Develop bioinformatics, leveraging the State's existing strength in IT for the development of biotech.
- Facilitate the flow of venture capital funds and bank credit to biotech companies.
- Address issues such as Intellectual Property Rights, Biosafety, Bio-surveillance and Bio-ethics.

Literature Review

Over several decades there has been much interest in industrial localization of economic activities as a way to explain economic growth and increase innovation and competitiveness (B.Asheim, A.Isaksen (2002), M. Porter (1998)). Porter (2000) defined 'clusters' as "geographic concentrations of interconnected companies and institutions in a particular field." Such industrial agglomeration has been referred to in a number of different ways (M. Porter (1998), C. Crouch et. al (2004), A Scupola et al (2008), A Saxenian (1994), M Storper (1995)), Maryann P.Feldman, Johanna Francis (2009) felt that factors like pre-existing resources, entrepreneurship & incentives, and infrastructure provided by the Government have resulted in the formation of the Capitol Hill region biotech cluster in the US.

The effects of industrial agglomerations have been mainly explained by the interaction among the many actors located within a well-specified geographical region such as governmental organizations, universities, standards-setting agencies and trade associations (B. Lundvall, 1988). Factors explaining the growth and dynamism of regional industrial clusters include the presence of supportive local institutions, the availability of specialized suppliers and service providers, access to a qualified pool of workers, pressures from local competition (P.Almeida, B. Kogut 1999) and knowledge creation and learning processes within the region (H. Bathelt et al 2004, T. Ciarli, R. Rabellotti, 2007). In addition, tacit and explicit knowledge spillovers through formal and informal communication channels, indicators of a region's "social capital" are considered to be very important, especially in knowledge and research intensive clusters such as biotech (C.Steinfield et al 2008, 2010).

Nyerhovwo J. Tonukari (2004) concluded that biotech is now one of the hot areas driving the stock markets as well as a frontier of knowledge and job creation. A study by the UK Department of Trade and Industry (1999) observes that economic activity in the biotech industry tends to be heavily concentrated. Similar to pharmaceutical industry located in oxford and Cambridge, biotech industries in the US are located in California and the northeastern seaboard from Massachusetts to North Carolina. Nuria Mas (2009) found that in Catalonia (Spain), the biotech sector has the potential to affect sectors that represent 10% of the Catalan GDP and employ 9.3% of the Catalan workforce.

A study by Prevezer (1997) concluded that the main reason for geographic concentration of biotech industries is their dependence on the academic research carried out in particular locations. In the same vein, additional studies have shown that the positive externalities of academic research, particularly research on biotech, tend to be local (Audretsch 2001).

Following the economic liberalization of 1991, the Government of India is now promoting biotech parks to encourage growth of this emerging sector. The biotech parks are still in their infancy, with only a few operating parks. There are several upcoming biotech parks in different Indian states with support from the respective State Governments. The Government of India continues to play an important role in establishing technology parks. (Vaidyanathan, Geetha 2008). Regional Governments around the world hope to become significant players in the world biotech industry through their support for local clusters (Gilding, Michael, 2008).

India is promoted as the global hub of IT and ITES enabled services. Governments at both Central and State level have started to promote these sunrise sectors along with other areas like biotech, etc., in various manners by giving tax benefits, providing cheaper loans, upgrading infrastructure, etc. (Sabyasachi Ghosh, Tirthankar Das 2008). Infrastructure support provided by State / Central Government to India's biotech industry has been growing rapidly with the recent economic outburst. The country has the potential to revolutionize biopharmaceutical and healthcare sectors (Chiranjib Chakraborty and Govindasamy Agoramoorthy (2010).

Chen et al (1998) found that in many countries Biotech policies are in many respects similar and are of three

types: industrial policies, regulatory frameworks, and protection of intellectual property. Government-funded research, seed money, and tax credits are used within all of the countries studied, with the majority of support concentrated in R&D and capital investment, reflecting the knowledge and capital intensity of the industry. Tariffs, quotas, and other non-tariff barriers to trade are not widely used.

Research Questions

- Is the infrastructure support – in terms of land, water and electricity – provided by the Government of AP adequate?
- Is the investment made by the Central and State Government of AP for the development of biotech research organizations in and around Hyderabad beneficial to the growth and development of the biotech industry at Genome Valley?
- What is the availability of biotech-ready human resource?
- Are biotech research institutes in AP useful as testing centers for biotech companies in Genome Valley?
- Is the biotech industry safe and secure for business from political and communal issues in AP?

The Problem

While the AP Government's endeavor is to encourage the biotech industry, there is a need for studying the experiences of scientists, government officials, entrepreneurs and senior managers who have established / intend to establish their companies in Genome Valley, so that corrective steps can be taken for providing the appropriate entrepreneurial support systems for the growth of the biotech industry in AP.

Objectives

To answer the above research questions, the following objectives are identified:

- Study the infrastructure facilities like land, water and electricity provided at Genome Valley.
- Understand the government policy on capital investment for the biotech industry.
- Understand the availability of biotech ready human resource.
- Understand the availability of R&D testing centers for the biotech industry.
- Understand the availability of air, rail and road (domestic / international) connectivity.
- Understand if the biotech industry is safe and secure from the political environment in AP.
- Provide insights to the policymakers for taking corrective steps.

Hypotheses

To study the above objectives the following null hypotheses were framed and data collected to test the hypotheses.

- **$H_0$1:** There is no association between organization type and satisfaction level with reference to government policy on support for land.
- **$H_0$2:** There is no association between organization type and satisfaction level with reference to government policy on support for water.
- **$H_0$3:** There is no association between organization type and satisfaction level with reference to government policy on support for electricity.
- **$H_0$4:** There is no association between organization type and satisfaction level with reference to government policy on support for capital investment.
- **$H_0$5:** There is no association between satisfaction level regarding availability of biotech-ready human resource and type of organization.
- **$H_0$6:** There is no association between satisfaction level regarding availability of biotech R&D institutes & testing centers and type of biotech organization.
- **$H_0$7:** There is no association between satisfaction level regarding availability of connectivity (air, rail and road - domestic / international) and type of biotech organization.
- **$H_0$8:** There is no association between satisfaction level regarding safety and security for business from political and communal issues and type of biotech organization.

Research Methodology

The methodology used is cluster analysis and action research, because the AP State Government, private sector participants, venture capitalists and other stakeholders are still understanding each other's concerns. This study is aimed at understanding the differences of opinion on the support systems provided so that necessary steps can be taken to identify the gaps. Value drivers so

identified may be considered for implementation by all the stakeholders to foster growth and sustainability of the biotech industry at Genome Valley.

Scope of the Study

The scope of the study is limited to the understanding of the entrepreneurial support systems provided by the State Government in collaboration with the private sector like IKP Knowledge Park, SP Biotech and Alexandria at Genome Valley, and to elicit the views of the scientific community and entrepreneurs at Genome Valley.

Period of the Study

The survey was conducted during December 2009 – February 2010 at various biotech parks in Genome Valley situated in and around GHMC, Hyderabad.

Sample

Purposive sampling technique is used in this study because only specific people can give reliable information against the questionnaire. For example the sufficiency of the infrastructure, tariff on electricity, tariff on water, etc., are not known to all the employees in the organizations. When approached with the questionnaire the organizations authorized only concerned executives / scientists / Government officials to fill in the questionnaire so that the data collected is reliable. Entrepreneurial support systems providers like AP Industrial Infrastructure Corporation, SP Biotech, IKP Knowledge Park, etc., and R&D labs, universities and government organizations supporting the biotech cause are considered as samples. The respondents include scientists of different R&D organizations like ICRISAT, CCBM, NIN, IICT, etc. Faculty and research scholars in various universities working under Government-funded biotech projects and senior employees of biotech companies like Dr. Reddy's, Shantha Biotech, Bharat Biotech, Vimta Labs etc., and government officials associated with the biotech industry are also included.

The total sample size for this study is 246 (including 145 scientists, 64 senior employees of the cadre of vice presidents / chairpersons of biotech companies and 37 senior research scholars). Primary data to understand biotech investment-ready climate at Genome Valley is collected to study the objectives and hypotheses through a questionnaire to measure the opinion of the respondents. Some respondents chose not to answer certain questions and hence the number of respondents item-wise may vary from 232 to 246. According to the sample size calculator, any sample size of approximately 239 is valid with an error of 3%. Considering the validity the sample of either 232 or 246, it may be concluded that the results are reliable.

Collection of Data

Primary and secondary data was collected for the purpose of the study.

Primary Data

The necessary primary data was collected through administration of a questionnaire designed exclusively to address the needs of different stakeholders like bureaucrats, entrepreneurs, senior executives working in the biotech industry and scientists / professors from ICRISAT, CCMB, Osmania University (Department of Biotech), Acharya NG Ranga Agricultural University, JNTU, etc.

Secondary Data

The secondary data collected from journals and databases – private or public – are particularly useful to review literature. This helped in finding the research gaps and questions for designing the present study.

Statistical Analysis of Data

After collecting the primary data, the interpretation was done by using IBM-SPSS 19.0. The following statistical tools are used to test the hypotheses and results discussed. The paper presented is part of the research done on data collected on 37 items. The reliability scale for all variables and item-wise total statistics is presented below.

Cross tabs are also conducted for statistical analysis of data and results of only chi-square tests are reported in this paper, in order to maintain its brevity. Here organization type implies biotech companies, government organizations associated with the development of Genome Valley and R&D institutions researching in the field of biotech.

Table 2: Reliability Scale – All Variables

Cronbach's Alpha	N of Items
.917	37

Table 3: Item-Total Statistics

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Infra_Land	89.27	244.117	.506	.914
Infra_Water	89.19	244.938	.489	.915
Infra_Electricity	89.16	247.704	.415	.916
HR_Biotech	89.79	250.765	.311	.917
Investment Agency	89.95	245.673	.636	.914
R&D Testing	89.79	246.521	.492	.915
Transport	89.67	247.577	.407	.916
Security	89.95	250.024	.366	.916

Inference

Overall Alpha: Now that Cronbach's Alpha has been run for all the entrepreneurial support systems to check their reliability**,** we shall examine the results.The overall Alpha for the all items is 0.917 and for the items considered in this paper the Cronbach's Alpha if item is deleted lies between 0.914 and 0.917 (>0.5), which is very high, indicating strong internal consistency among the given items. Essentially this means that respondents who select high score for a particular entrepreneurial support tended to select high for others. Similarly, respondents who selected low scores for one item tended to select low scores for the other support systems as well.

Table 4: Results of Hypotheses Tested

Null Hypothesis	Chi-Square Test Result	Value	df	Asymp. Sig. (2-sided)
Support for land	Pearson Chi-Square	19.498[a]	6	.003
	Likelihood Ratio	18.999	6	.004
	N of Valid Cases	246		
Support for Electricity	Pearson Chi-Square	5.777[a]	6	0.449
	Likelihood Ratio	5.863	6	0.439
	N of Valid Cases	246		
Support for Water	Pearson Chi-Square	19.579[a]	6	0.003
	Likelihood Ratio	19.019	6	0.004
	N of Valid Cases	246		
Support for capital investment	Pearson Chi-Square	37.222[a]	6	0.000
	Likelihood Ratio	39.436	6	0.000
	N of Valid Cases	230		
Availability of biotech ready human resource	Pearson Chi-Square	42.389[a]	6	0.000
	Likelihood Ratio	43.189	6	0.000
	N of Valid Cases	232		
Availability of biotech R&D testing centers	Pearson Chi-Square	31.011[a]	6	0.000
	Likelihood Ratio	32.847	6	0.000
	N of Valid Cases	232		
Availability of connectivity (air, rail and road- domestic & international)	Pearson Chi-Square	46.578[a]	6	0.000
	Likelihood Ratio	50.517	6	0.000
	N of Valid Cases	229		
Security from political Issues	Pearson Chi-Square	42.860[a]	6	0.000
	Likelihood Ratio	45.650	6	0.000
	N of Valid Cases	227		

Results

With the Cronbach's Alpha above 0.9 we can conclude that the sample considered for the purpose of the study is reliable.The following table gives the summary of the hypotheses rejected / not rejected.

Table 5: Summary of the Hypotheses Rejected / Not Rejected

H_0	Null Hypothesis	Result
$H_0$1:	There is no association between organization type and satisfaction level with reference to government policy on support for land.	Rejected
$H_0$2:	There is no association between organization type and satisfaction level with reference to government policy on support for water.	Rejected
$H_0$3:	There is no association between organization type and satisfaction level with reference to government policy on support for electricity.	Not Rejected
$H_0$4:	There is no association between organization type and satisfaction level with reference to government policy on support for capital investment.	Rejected
$H_0$5:	There is no association between satisfaction level regarding availability of biotech ready human resource and type of organization.	Rejected
$H_0$6:	There is no association between satisfaction level regarding availability of biotech R&D institutes & testing centers and type of biotech organization.	Rejected
$H_0$7:	There is no association between satisfaction level regarding availability of connectivity (air, rail and road- domestic & international) and type of biotech organization.	Rejected
$H_0$8:	There is no association between satisfaction level regarding safety & security for business from political and communal issues and type of biotech organization.	Rejected

Except for electricity since chi-square is significant (sig. value is less than 0.05) for all other support systems. Hence the respective null hypotheses ($H_0$1 to $H_0$8 except $H_0$3) are rejected. Only with reference to electricity the null hypothesis is not rejected, implying there is no association between satisfaction level with reference to organization type and the electricity provided. Most of the respondents from the companies expressed their view that the current commercial rate on electricity for companies at R&D stage is not justified and expressed the need for Government intervention to provide subsidy on the electricity provided to the biotech R&D institutions in the private sector.

With reference to the rest of the variables, from the data on chi-square test and cross tabs calculated, there is a significant difference in the satisfaction levels between R&D employees, government employees and company employees and support for land, water, capital investment, availability of biotech ready human resource, availability of R&D testing centers, air, rail, road connectivity and safety and security for business from the political environment.

The results indicate that the Government is providing the infrastructure to the biotech industry as for any other industry. The industry sentiment of providing more incentives to biotech companies at R&D stage may be considered by the policymakers. This is mainly because of the risk in the R&D projects taken up by biotech companies. Since there is association between level of satisfaction regarding water and land and organization type, there is a need to take corrective steps / flexibility in policy to suit the requirements of different types of biotech companies. It was observed that during summer there is shortage of water and the companies are procuring water through tanks. Since there is association between availability of R&D testing centers and organization type, it is important that R&D institutions in and around Hyderabad take steps to offer their services to the biotech industry. Further, the alternate hypothesis "there is association between satisfaction level regarding safety & security for business from political and communal issues and type of biotech organization" is not rejected (accepted), it is necessary to have political stability in the State to encourage development and sustenance of the biotech industry in Genome Valley.

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BUSINESS

The business of business is business.

– Milton Friedman

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Mahindra and Mahindra's Acquisition of Ssangyong Motor Company

Dr Surajit Ghosh Dastidar

"Korea is one of the world's leading centres of automotive excellence and Ssangyong brings with it a rich legacy of R&D and innovation. Mahindra and Ssangyong will create synergy, which will make us significant global players."[1]

- Anand Mahindra (Vice Chairman and Managing Director, Mahindra and Mahindra Ltd).

Introduction

On 2 August 2010, Mahindra and Mahindra Ltd. (M&M), the flagship company of the USD 7.1 billion Mahindra group, entered into an agreement with the ailing Ssangyong Motor Company (SYMC) to acquire majority stake in SYMC. Details regarding the deal were not released officially. However, industry analysts estimated that the deal could be valued at USD 500-550 million. SYMC is the fifth-largest automaker in South Korea with a market value of USD 369 million. Speaking to journalists, Dr Pawan Goenka, President of M&M's Automotive and Farm Division said that if all goes through, the combined sales of the two companies would be in excess of USD 4 billion. He further said, "*We have looked at each and every benefit and concern and gathered every possible piece of information about the company…the potential upside is far higher than any risk we have taken.*"[2] M&M is expected to complete the acquisition in four months. "*If all goes well, it will be about four months before we are able to complete the acquisition*"[3] Goenka said.

The Mahindra group is one of the top 10 industrial houses in India and employs more than 1,00,000 people in India and overseas. The group has key presence in financial services, trade, retail and logistics, automotive components, information technology and infrastructure development. The US-based Reputation Institute recently ranked Mahindra among the top 10 Indian companies in its Global 200: The World's Best Corporate Reputations List. In 2010, M&M was also listed in the Credit Suisse Top 27 'Great Brands of Tomorrow', the only one of two Indian companies to be featured in the list along with leading global brands like Apple, Mercedes, Swatch, Facebook.com and Alibaba.com.

In the financial year ending 31 March 2010, M&M sold 2,86,713 vehicles in the domestic market, a growth of 30% over the previous year.[4] The company's domestic utility vehicles (UV) sales volume increased 41.7% to 1,50,726 units, as against growth of 20% for industry UV sales, thus increasing its already dominant market share to 55.3% over previous year's market share of 47.1%. (Refer Exhibit 1)

Background Note

M&M was initially founded in 1945 as Mahindra and Mohammad by JC Mahindra (Anand Mahindra's paternal grandfather), KC Mahindra (Anand Mahindra's grand uncle) and Ghulam Mohammad. After the partition of India in 1947, the company came to be known as Mahindra and Mahindra as Ghulam Mohammad migrated to Pakistan. The founders were driven by the idea of building the nation profitably. "*We were aligned side by side with the process of nation building. That is why we got into jeeps and tractors and not into consumer products,*"[5] recalled Keshub Mahindra, Chairman of M&M (the son of K. C. Mahindra). Initially the company imported and assembled Willys Jeep under license of Willys-Overland Motors (now part of Daimler-Chrysler Group). The company started manufacturing from the year 1954. The company went public in 1956.

In 1965, M&M started production of light commercial vehicles (LCV) from its plant located at Andhra Pradesh in South India. By that time, M&M had three manufacturing plants located in Maharashtra, an

[1] Mahindra and Mahindra signs MOU with Ssangyong Motor Company, www.mahindra.com, 23rd Aug, 2010
[2] Bhattacharya, Sindhu 'Mahindra and Mahindra to complete acquisition of Ssangyong in four months' – DNA, 25th Aug, 2010
[3] Mahindra to complete Ssangyong buy in 4 months, www.reuters.com, 25th Aug, 2010
[4] M&M Annual Report 2009-10
[5] Anand, M. 'Driving with the Nation' – Business Outlook, 20 Aug 2007

industrially developed state in western India. Two of these plants were located in Mumbai and Nasik that produced utility vehicles and the third one in Igatpuri produced engines.The company acquired International Tractor Company of India in 1977. The tractor brand "Mahindra" was established in 1982 after the agreement to use International Harvester brand expired.

The early 1990s was a period of turmoil at M&M as the company had to deal with a major recession and violent labour unrest. And by the mid-90s, as the country's auto sector was opened up to global manufacturers, most expected that the Indian companies would have to sell out or wind up. Anand Mahindra recalled the crisis situation "*We were already up the creek.*"[6] Amidst this turmoil, Anand Mahindra was appointed as deputy managing director of M&M. He began revamping the work culture at his company amidst stiff resistance. "*The unions were strong. They'd negotiated a workload, and if the workers finished everything in two hours, they'd spend the rest of the time sleeping or playing cards,*"[7] he said.

Bonuses that were traditionally given during the fall festival of Diwali were linked to productivity. In retaliation the workers started a demonstration at the Mumbai factory. Anand Mahindra and senior managers, including the head of manufacturing were 'gheraoed'[8] in their office. "*I said there were going to be no more free lunches…that change is going to happen*"[9] recalled Anand Mahindra. This led to increase in productivity. In 1994 the company was producing 125 engines a day with only 760 workers which earlier took 1,230 workers to manufacture 70 engines a day.

In the early 1990s M&M became the undisputed leader in the Indian UV market with a number of brands which included Pick-up, MaXX, CL, MM, Commander, Hard Top, LCV, Voyager, Alternative Fuel, Army, Three Wheeler and Export. However, this position was threatened when it began to face increased competition from its competitors Telco[10] and Toyota. In 1994 Telco launched a new UV model under the brand name 'Sumo'. 'Sumo' was designed to appeal to the urban market. In the next three years following its launch 'Sumo' sales rose to 1,00,000 units. However, during this period M&M could manage to sell only 26,321 units of its UV. Telco soon launched Sierra and Safari to cater to different segments of the UV market.

In 2000, Toyota entered into the UV segment with the launch of Qualis. Qualis was considered to be even better looking than 'Sumo'. Within two years of its launch, 50,000 units of Qualis were sold. M&M was fast losing its market share in the face of stiff competition from Telco and Toyota. M&M launched Bolero in 2000 to counter competition but it did not make much of an impact in the urban UV segment.

Rajesh Jejurikar, Vice President (Marketing), Automotive Sector, M&M recalled: "*The market was changing. From a controlled, supply driven market to a global, free for all one. From few brands to many. From little variety to large variety. New standards in quality, customer service, luxury, performance and reliability. M&M needed to work to its strengths and competencies. To find ways of side-stepping the MNC (multinational company) competition. We did not have the deep pockets that global majors did. The implication was that the project cost had to be optimised to a fraction of what world majors would spend. The other direction was to develop a product which would provide great value and hence very affordable.*"[11]

By the late 1990s, with the objective of strengthening its market share in the UV segment, M&M embarked on an ambitious project to create a word class vehicle. A 26-year old designer, Shyam Kumar, took the lead and put together a preliminary design of what would eventually become the Scorpio. The project was initially code named Scorpio. Nalin Mehta, General Manager, Marketing, Automotive Sector, M&M said "*When we were hunting for a name, the code name Scorpio itself came up as a popular choice. Hence we decided to call the final product Scorpio.*"[12] The team was given Rs. 30-crore[13] to start with. It eventually got the approval, even though the company had never attempted anything of that scale before.

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[6] 'Anand Mahindra's Great Global Dreams', www.rediff.com, 19 April 2006, (accessed 15 Aug 2010)
[7] 'Anand Mahindra's Great Global Dreams', www.rediff.com, 19 April 2006, (accessed 15 Aug 2010)
[8] Gherao meaning encirclement is a word originally from Bengali and is a typical South Asian way of protest. Usually, a group of people would surround a politician or a government building until their demands are met, or answers given.
[9] 'Anand Mahindra's Great Global Dreams', www.rediff.com, 19 April 2006, (accessed 15 Aug 2010)
[10] Tata Engineering and Locomotive Company (now Tata Motors) is one of the largest manufacturers of commercial vehicles in the world. Established in 1945 to manufacture steam locomotives, it diversified into automobiles in the 1950s.
[11] Jejurikar, Rajesh. 'The Making of Scorpio' – 'BMA Review', Mar-Apr 2003
[12] Iyer, Vibha. 'Scorpio: Nothing Else Will Do' 'Advanc'edge MBA', Dec 2004
[13] 1 crore = Rs 10 million

The Indian automobile market is divided into various segments – A segment (entry level small cars), B segment (semi luxurious cars), C segment (luxury cars) and D and E segments (super premium cars). Of these, the B and C segments were the fastest growing in the late 1990s. Therefore, it was decided to position Scorpio in the C segment, which covered the Rs 5,00,000 -8,00,000 (USD 11,000 – USD 18,000)[14] price range. The company also found that it was the segment in which customers were most likely to buy a UV instead of a car. Therefore, Scorpio competed with all the cars in the C segment, along with other UVs in the market. To meet the expectations of car buyers as well as SUV buyers, Scorpio was designed to fall between a passenger car and an SUV. This approach was called 'car plus', as it offered all the benefits of a car and the thrill of an SUV. (Refer Exhibit 2 and Exhibit 3).

Sanjay Yashroy, General Manager, Interface Communications, in charge of media strategies for Scorpio explained: "… *the positioning of the Scorpio was always 'car plus' and the attributes were international and it was all about aspirations, imagery, city, urban, etc. We always highlighted Scorpio as offering something more than what a car offered, more space, more comfort, more mileage etc. Another aspect of the communication strategy was to highlight the aspirational aspect. …. At that time, the car market was around 8 lakh[15], while the SUV market consisted of less than a lakh buyers. So we had to do something that would tickle the imagination of the buyer and entice him. We had to expand the existing market for SUVs.*"[16]

Scorpio was launched on June 20, 2002. Rajesh Jejurikar recalled: "*We set out with an objective to achieve a market share of 20% of the premium UV market in FY 2002-03. In just 9 months, we achieved a market share of 23% of the premium UV segment. We grew the segment by 51% for the period July '02 to Feb '03 (as against 14% pre launch of the Scorpio). 75% of our customers are car owners, with more than 50% owning cars like the Ford Ikon, Hyundai Accent, Honda City and Mitsubishi Lancer. The Scorpio has been very well received, by not just the market but also the auto expert fraternity. We received three "Car of the year awards" in the year of launch. We consider the "Car of the Year" awards by CNBC Autocar India, BS Motoring and BBC World's Wheels, a tribute to our innovative spirit. The success of Scorpio has also been written about in the internationally renowned automotive magazine, Automotive Industries. The article captures the key elements of the business model which made this project a success and also mentions that the "Big 3" in the US have something to learn from a successful Indian program.*"[17]

As Anand Mahindra himself said:

"*…it was also the catalyst that made the company move towards being world-class. Suddenly, we became aware that we could achieve great things.*"[18]

Dr. Pawan Goenka recalled: "*The launch of the Scorpio in 2002 signalled the coming of age of the automotive sector in India, and was a milestone for the country's automotive industry. The Scorpio redefined the SUV [Sport Utility Vehicle] space and continues to occupy a special place in the minds and hearts of more than 2,00,000 owners across the country.*"[19]

In the following years 2003-04, M&M started exporting its vehicles to countries like Italy, Uruguay, Russia, South Africa, Sri Lanka, Nepal, Bangladesh and Middle East. In 2010, the company plans to launch a two-door and four-door pickup truck in the US followed by a SUV next year. The pickup trucks will come with standard features like six-speed automatic transmissions, air-conditioning and similar state-of-the-art technology (Refer Exhibit 4 and Exhibit 5). Mahindra has partnered with Georgia based Global Vehicles Inc. to be the exclusive importer and distributor of Mahindra vehicles. It has built a complete marketing, sales and service organization including a dealer network of more than 340 dealers to support the launch and ongoing sales of Mahindra products in the US. The truck is currently sold in European, African and South American markets. When it arrives in the US, the 2.2 Litre, four cylinder vehicle is expected to be the first compact diesel truck in the US. However, this isn't M&M's first foray in the US market. M&M has sold more than 50,000 tractors in the past decade and is the currently the number four tractor seller in the US[20]. In 2010,

[14] Rs 1 = USD 45.16 on 15th Nov, 2010
[15] 1 lakh = 1,00,000
[16] Iyer, Vibha. 'Scorpio: Nothing Else Will Do' 'Advanc'edge MBA', Dec 2004
[17] Jejurikar, Rajesh. 'The Making of Scorpio', 'BMA Review', Mar-Apr 2003
[18] Tarun, Khann et al. 'Mahindra and Mahindra: Creating Scorpio', Harvard Business School, 22 Feb 2005
[19] 'Mahindra unveils the 'Scorpio Coffee Table Book', Mahindra Press Release, 6 Jan 2010
[20] Mahindra to Hit US Auto Market in 2010' – Mahindra Press Release

M&M became the world's largest tractor manufacturer in terms of the number of tractors sold.[21] (Refer Exhibit 6)

Ssangyong Motor Company (SYMC)

The origin of Ssangyong Motor Company (SYMC) can be traced back to two companies Ha Dong-hwan Motor Workshop and Dongbang Motor Co. In mid-1963, the two companies merged into Ha Dong-hwan Motor Company. Ha Dong-hwan Motor Company used to build jeeps, trucks and buses. In 1986, it was acquired by Ssangyong business group and the name was changed to Ssangyong Motor.

In 1991, it partnered with Dailmer-Benz to develop light commercial vehicles, diesel engines, luxury passenger cars and gasoline engines. In 1993, SYMC launched its SUV named Musso. It was followed soon with the launch of a new car Koranda. In 1997, SYMC launched the Chairman, a luxury passenger car. In late 2004, the Chinese auto major Shanghai Automotive Industry Corporation (SAIC) bought 51% stake in SYMC by paying USD 500 million. However, on Jan 9, 2009 SYMC filed for bankruptcy due to declining sales.

As of 2010, SYMC had its presence in three major sectors of the Korean automotive market that included passenger cars, SUV and recreational vehicles. In its product portfolio it had Rexton II, New Kyron and the Actyon in the SUV segment. In the sport utility truck (SUT) segment, it had Actyon Sports. In the passenger car segment and multi-production vehicle segment, it had Chairman W and Rodius/Stavic respectively. (Refer Exhibit 12).

SYMC's third quarter earnings results ending September 2010 showed the company's net profit reached KRW 68.8 billion (USD 61.3 million), compared with a loss of KRW 89.7 billion during the same period in 2009. Sales more than doubled to KRW 521 billion over the same period in 2009, and operating loss came down to KRW 24.9 billion from a loss of KRW 41.9 billion a year earlier. SYMC's sales figures for the month of October 2010 also showed signs of a turnaround. For the month, the company's sales figure rose 60.8% to a new monthly high for the year as exports more than doubled from a year earlier. The company sold 7,445 vehicles compared to 4,630 units in October 2009. Exports soared to 143.5% on-year to 4,491 units with domestic sales rising 6% to 2,954 units.

Strategic Rationale

Commenting on M&M global SUV strategy Anand Mahindra said:

"*We certainly want to be one of the top-rated makers of rugged and reliable SUVs. We want to be the next LandRover*"[22] He further said that "*This acquisition will provide us a tremendous opportunity to accelerate our progress towards our stated intention of becoming a globally-recognised player in the specific niche of utility vehicles,*"[23]

Ssangyong's has a strong product development expertise. This is evident from the fact that M&M developed three vehicle platforms: Commander, Scorpio and Xylo in the last two decades. In the same period, Ssangyong has developed seven SUV platforms which were tested and commercialised in developed markets. Dr. Pawan Goenka pointed out that "*Ssanyong has very strong competencies and capabilities in technology. We are committed to leverage this competency by investing in a new Ssangyong product portfolio to gain momentum in global markets,*"[24] Goenka further said "*Products from SsangYong will take off from where Scorpio leaves, so there is a fit for us there,*"[25]. Ssangyong vehicles are priced at Rs 12 lakh upwards, a level where M&M flagship product Scorpio price band ends. M&M also has plans of joint product development with Ssangyong in the areas of SUVs and crossover vehicles. Anand Mahindra said *"SsangYong has a lot of capability in engine development and we intend to exploit that. Currently, a gasoline engine is under development and that will be accessed by M&M too"*[26].

This acquisition will also give M&M access to the advanced R&D facility of Ssangyong which is considered to be the finest in South Korea. "*There are about 600-odd people working at the Ssangyong R&D facility. They have a very high quality centre, which is fully capable to carry out design and engineering aspects of*

[21] M&M Annual Report, 2009-10
[22] 'Anand Mahindra's Great Global Dream' – www.rediff.com, 16th Oct 2006 (accessed 15 Nov 2010)
[23] 'Mahindra and Mahindra eyes world SUV market' – www.dnaindia.com, 15th Aug 2010 (accessed 15th Nov 2010)
[24] 'An Essence of the Mahindra-Ssangyong story' – www.carazoo.com, 13th Aug 2010 (accessed 15th Nov 2010)
[25] 'M&M likely to share car platform with Ssangyong' – www.bankbazaar.com, 28th Aug 2010 (accessed 15th Nov 2010)
[26] 'M&M will have access to engine tech' – Economic Times, 13th Aug 2010

product development, besides testing,"[27] said an M&M source. Ssangyong also has a strong network of 1300 dealers spread across 98 countries."*The wide sales and distribution networks and complementary product lines will provide access to many overseas markets for both companies,*"[28] said Mahindra.

SYMC is strong in the SUV segment and has models like Rexton, Kyron and Actyon and sedan. Chairman Goenka said "*This acquisition gives us access to Rexton SUV, SsangYong's flagship brand, Actyon, the crossover, and Kryon, its mid-sized compact SUV. We will bring Rexton and Korando to India and it will be in the CKD (completely knocked down) form. We will also get access to the new product C2100 Korando, a five-seater compact SUV, which has a huge market potential,*"[29]

Outlook

Industry analysts are skeptical about M&M's acquisition of Ssangyong since a similar acquisition by Chinese auto major Shanghai Automotive Industry Corporation (SAIC) in 2004 turned out to be a failure. SAIC paid USD 500 million to acquire fifty one per cent stake in SYMC. But things didn't go well after that.

"In Ssangyong, it [SAIC] was buying a smaller company. And the acquired company was located in South Korea—next door, both geographically as well as culturally. Yet, look at the results: bitter disputes over Korean perceptions that SAIC was an exploitative owner, criminal investigations, very little value capture by SAIC, a collapse of Ssangyong into bankruptcy protection, and a complete wipeout of SAIC's investment."[30] As said by Anil K. Gupta, Ralph J. Tyser Professor of Strategy at Smith Business School, University of Maryland.

"To be sure, while 'it announces M&M's arrival on the global scene', it will be an uphill task for the Indian firm to unravel the challenges Ssangyong has been facing,"[31] said Mohit Arora, executive director at JD Power Asia Pacific Inc., Singapore.

However, Shishir Bajpai, senior vice president of equities business at IIFL Wealth Management is quite bullish about this acquisition. "The acquisition is definitely a strategic fit for Mahindra. It does not clash with its existing bouquet of products."[32] He further added that "Ssangyong buy makes a lot of sense for them. It is their step towards establishing a global footprint."[33]

Ssangyong has a retail network spread over 80 countries in all continents barring North America. "Once you decide to be a top player, make sure your footprints are there globally,"[34] said Abdul Majeed, auto practice leader, PricewaterhouseCoopers, on the significance of Mahindra's move.

Analysts say the acquisition of Ssangyong would make sense for M&M as the deal would give it access to Ssanyong's Rexton sport utility vehicle and the Chairman luxury sedan. M&M has been scouting for deals ever since it lost out to Tata Motors in the bidding for Jaguar Land Rover in 2008.

The same optimism was evident in the words of Surjit Arora, analyst at brokerage Prabhudas Lilladher, "If you look at M&M's utility vehicle exports, it's hardly anything. (The acquisition) would definitely be a good strategic fit."[35] "If we exclude the financials, it makes sense from the business perspective," said Joseph George, analyst at BNP Paribas Securities Pvt. Ltd. Both companies will save on product development and distribution expenses. "The synergy benefits will be easier to derive."[36] Arun Kekriwal of KRIS, said "*Mahindra has ventured in many areas and their track record so far shows they have been right with their decisions and timing.*"[37] (Refer Exhibit 11)**.** However, SAIC had a good track record, too. So, it will be interesting to see how M&M manages to integrate SAIC.

Exhibit 1

M&M Domestic Sales		F-08	F-09	F-10	F-09	F-10
Passenger Vehicles		1,29,849	1,9,799	1,56,058	-7.7%	30.3%
	Cars	25907	13423	5332	-48.2%	-60.3%
Light Commercial Vehicles	UVs	1,03,942	106346	150726	2.3%	41.7%
3 Wheelers		55222	55881	86217	1.2%	54.3%
2 Wheelers		33927	44533	44438	31.3%	-0.2%
		N/A	3014	70008	N/A	2,222.8%

(Source: M&M Annual Report 2009-10)

[27] 'M&M will have access to engine tech' – Economic Times, 13th Aug 2010
[28] 'SSangyong will go to India' – www.goauto.com.au, 13th Aug 2010 (accessed 15th Nov 2010)
[29] 'M&M will have access to engine tech' – Economic Times, 13th Aug 2010
[30] 'After Chinese Flop in Korea, Indian Rival Takes a Turn' – www.businessweek.com, 22nd Aug 2010 (accessed 15th Nov 2010)
[31] 'Mahindra set to buy Ssangyong' – www.livemint.com, 12th Aug 2010 (accessed 15th Nov 2010)
[32] Mahindra's Ssangyong acquisition: a good decision?, Reuters, 23 Aug, Mon 2010
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[34] 'Resurrection Buyouts' – www.outlookindia.com. 2nd Oct 2010 (accessed 15th Nov 2010)
[35] 'Mahindra and Mahindra's South Korean Lust' – www.wsj.com, 31st May 2010 (accessed 15th Nov 2010)
[36] 'Mahindra set to buy Ssangyong' – www.livemint.com, 12th Aug 2010 (accessed 15th Nov 2010)
[37] After Chinese Flop in Korea, Indian Rival Takes a Turn' – www.businessweek.com, 22nd Aug 2010 (accessed 15th Nov 2010)

Exhibit 2

Exhibit 3: Scorpio's Specifications

Scorpio was available in five colors – red, blue, silver, black, and green. Initially, it was introduced in three variants, one of petrol and two of diesel. The petrol version of the vehicle was named 'REV 116' while the diesel versions were called the Turbo 2.6 and Turbo 2.6 DX. The petrol version featured an electronic fuel management system that offered a torque of 18.7 kgm at 3800 rpm, with an output of 116 bhp at 5500 rpm, and allowed the vehicle to accelerate from 0 to 60 kmph in eight seconds. The vehicle could comfortably seat 7 to 8 persons. The diesel version offered a torque of 26 kgm at 1800 rpm with an output of 109 bhp at 3800 rpm. It could comfortably accommodate 7 to 9 people. Scorpio's specifications are listed below:

DESIGN & ENGINEERING	
Height	1916mm
Length	4475mm
Width	1774mm
Wheelbase	2680mm
Front track	1450mm
Rear track	1450mm
Ground clearance	180mm
Kerb weight	1910kg
INTERIORS, COMFORT & SPACE	
Rear seat legroom (min)	62cm
Rear seat legroom (max)	77cm
Rear seat headroom	98cm
Rear seat width	136.5cm

2609cc
109bhp
26.0kgm
2 per cyl, SOHC

ACCELERATION (in seconds)	
0-20kph	1.17
0-40kph	3.65
0-60kph	7.67
0-80kph	13.56
0-100kph	21.40
0-120kph	38.52
Top speed	140 kph

FUEL ECONOMY	
Highway (kpl)	10.8
City (kpl)	8.0

EQUIPMENT	
Exteriors	
Clear lens headlamps	Yes
Fog lamps	No
Sideview mirrors	Yes
Full wheelcaps	Yes

INTERIORS	
Power steering	Yes
Power windows	No
Central locking	Yes
Tilt steering	No
Tachometer	Yes
Alloy wheels	No
Electric mirrors	No
Stereo with four speakers	Yes
Rear seatbelts	Yes
Rear wash wipe	Yes
Digital clock	Yes
Seat back pockets	Yes
High-mounted stop lamp	No
Rear split seats	Yes
Warranty period	2 years or
Warranty mileage	50,000km
Price (Rs lakh ex-showroom, Mumbai)	6.57 (DX)

Note: Specifications may vary between versions
Adapted from www.indiacar.com

Exhibit 4

2010 Mahindra Two-Door Truck

Preliminary U.S. Specifications

The perfect blend of utility and comfort. This truck seats five in style but loses none of its rugged character. It's a workhorse that doubles as a showhorse. Features include:

POWERTRAIN/CHASSIS	
Engine	2.2L, four-cylinder common-rail diesel
Power	140 horsepower / 103 KW
Torque	320 Nm / 236 Lb-Ft
Drivetrain	Front Engine, 4WD / 2WD
Transmission	6-speed Automatic
Wheel base	119.7 inches
Ground Clearance	8.3 inches
Front Suspension	Independent Torsion Bar with Stabilizer Bar
Rear Suspension	Semi-elliptical Leaf Spring
Fuel Capacity	19 gallons
Towing	Braked and Unbraked Trailer
Wheel	16 x 6.5J
Tires	245/75 R 16
WEIGHTS	
Gross Vehicle Weight (Lbs)	6,945
Curb Weight (Lbs)	4wd – 4,400 / 2wd – 4,180
Payload (Lbs)	4wd – 2,545 / 2wd – 2,765
DIMENSIONS	
Loadbody (Inches)	90.2 x 59.8 x 21.7 (L x W x H)
Volume (Cu. Ft)	68
SAFETY	
Airbags	Front "Smart" Dual Stage
Brakes	Four-Wheel Disc with Four-Channel ABS
Handling	Electronic-Stability- Control System

Note:Specifications subject to change before introduction

(Source: www.mahindrana.com)

Exhibit 5

2010 Mahindra Four-Door Truck

Preliminary U.S. Specifications

The perfect blend of utility and comfort. This truck seats five in style but loses none of its rugged character. It's a workhorse that doubles as a showhorse. Features include:

POWERTRAIN/CHASSIS	
Engine	2.2L, four-cylinder common-rail diesel
Power	140 horsepower / 103 KW
Torque	320 Nm / 236 Lb-Ft
Drivetrain	Front Engine, 4WD / 2WD
Transmission	6-speed Automatic
Wheel base	119.7 inches
Ground Clearance	8.3 inches
Front Suspension	Independent Torsion Bar with Stabilizer Bar
Rear Suspension	Semi-elliptical Leaf Spring
Fuel Capacity	19 gallons
Towing	Braked and Unbraked Trailer
Wheel	16 x 6.5J
Tires	245/75 R 16
WEIGHTS	
Gross Vehicle Weight (Lbs)	6,945
Curb Weight (Lbs)	4wd – 4,532 / 2wd – 4,312
Payload (Lbs)	4wd – 2,413 / 2wd – 2,633
DIMENSIONS	
Loadbody (Inches)	58.6 x 59.8 x 21.7 (L x W x H)
Volume (Cu. Ft)	44
SAFETY	
Airbags	Front "Smart" Dual Stage
Brakes	Four-Wheel Disc with Four-Channel ABS
Handling	Electronic-Stability- Control System

Note:Specifications subject to change before introduction

(Source: www.mahindrana.com)

Exhibit 6

M&M Tractor Sales

M&M Domestic Sales	F-08	F-09	F-10	F-09	F-10
Tractors	99,042	1,20,202	1,75,196	21.4%	45.8%
Domestic	90,509	1,13,269	1,66,359	25.2%	46.9%
Exports	8,533	6933	8,837	-18.8%	27.5%

(Source: M&M Annual Report 2009-10)

Exhibit 7

The Top 20 Cards of 2009-10

Rank	Model	Make	Sales (units)	Growth
1	Alto	Maruti-Suzuki	2,35,212	10.65%
2	A10	Hyundai	1,49,242	40.67%
3	WagonR	Maruti-Suzuki	1,44,898	7.52%
4	Swift	Maruti-Suzuki	1,16,174	5.54%
5	Indica	Tata Motors	1,14,415	2.84%
6	Santro	Hyundai	86,272	-5.69%
7	Dzire	Maruti-Suzuki	83,601	34.94%
8	Armada/Bolero	M&M	73,393	31.26%
9	Ritz	Maruti-Suzuki	63,096	n.a.%
10	Indigo	Tata Motors	56,634	15.18%
11	Innova	Toyota	47,294	23.77%
12	City	Honda	45,028	18.02%
13	Spark	Chevrolet	42,295	30.03%
14	i20	Hyundai	42,128	743.91%
15	Estilo	Maruti-Suzuki	41,624	27.31%
16	Scorpio	M&M	37,554	24.87%
17	800	Maruti-Suzuki	33,028	-33.12%
18	A-Star	Maruti-Suzuki	32,186	51.14%
19	Nano	Tata Motors	30,350	na%
20	Xylo	M&M	28,558	427.78%
M&M, Mahindra & Mahindra, n.a. Not applicable				

Source J.D. Power and Associates

Exhibit 8

Share Price Trend for M&M

Exhibit 9: Mahindra and Mahindra's Timeline

1945	The company was established on 2nd October 1945 as Mahindra & Mohammed by Mahindra brothers in collaboration with Ghulam Mohammed.
1948	The Company was renamed Mahindra & Mahindra Limited (M&M) in 1948, when Ghulam Mohammed left for Pakistan to be its first Finance Minister.
1949	In 1949, the company began Jeep assembly.
1954	The company joined hands with Willys Overland Corporation in 1954 to assemble Jeep-type vehicles in India.
1969	The year 1969 was marked in the history of Mahindra & Mahindra as the company entered the world market with the export of utility vehicles and spare parts.
1975	Mahindra Engines developed an indigenous diesel engine for its vehicles to beat the fuel crisis in 1975.
1984	In 1984, Mahindra Hellenic Auto Industries S.A. was established in Greece to assemble and market utility vehicles in Europe.
1991	In 1991, the company introduced the Commander range of vehicles and the Armada range of vehicles was unveiled in 1993.
1996	The Mahindra Ford India Limited was established in 1996 to manufacture passenger cars.
1999	The largest online used vehicle website in India was launched by Mahindra Network Services in 1999.
2000	The company adopts a new logo in 2000.
2002	The Scorpio was launched in 2002. The Scorpio ushered in a new generation, world-class Sports Utility Vehicle (SUV) that redefined the SUV market and lived up to its positioning: 'Nothing else will do'.
2004	In 2004, the Bolero and Scorpio were launched in Latin American, Middle East and South African markets.
2005	Mahindra & Mahindra became the first Indian auto manufacturer to launch the Common Rail Diesel Engine (CRDe), offering it in the Scorpio in 2005. In the same year, Mahindra Renault Limited was established, which was a joint venture with Renault to manufacture and market Logan, a mid-sized sedan, in India.
2006	Mahindra Bolero won the title of 'UV Number 1' in 2006 and Mahindra & Mahindra displayed the Scorpio Hybrid at the Delhi Auto Expo along with 9 other prototype vehicles. In four years, Mahindra Scorpio crossed the one lakh production mark. The global launch of the Scorpio Pick-Up range was held in South Africa that indicates the company's global growth plans. Moreover, the Scorpio and the Bolero marched into Kenya in 2004, as part of Mahindra & Mahindra's globalisation drive. Renault and Mahindra signed a memorandum of understanding to establish a long-term strategic partnership in India to create a production capacity unit near Nashik. The Greenfield site has a production capacity of 500,000 units per year. Mahindra & Mahindra announced its plan to enter the United States with a Sports Utility Vehicle (SUV) and a pick-up vehicle by signing a distribution agreement with Global Vehicles USA Inc. for the import and distribution of Mahindra vehicles, parts and accessories.

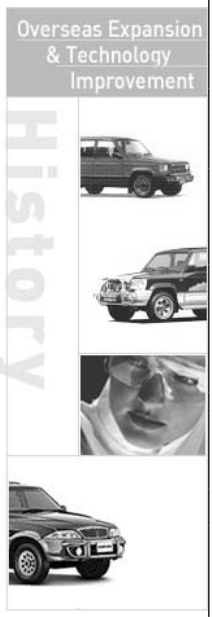
2007	The Logan was rolled out in 2007 from the Greenfield facility at Nashik. The Logan comes with a host of class-defying features at an aggressive price. The Logan was the highest selling sedan and Scorpio the highest selling SUV in July 2007. Mahindra & Mahindra Limited rolled out its 2 millionth vehicle in July 2007, achieving a significant sales milestone. Over the last decade itself, Mahindra has sold 1 million vehicles. Mahindra & Mahindra has been awarded the ISO/IEC 27001:2005 certificate. This completes the company's successful migration from BS 7799 to ISO 27001. The company received the certificate in New Delhi from Dr.SL Sarnot, Director General, STQC Directorate, Ministry of IT, Government of India. Mahindra & Mahindra was ranked second in the prestigious Most Trusted Car Company in India in a study conducted by TNS. Mahindra & Mahindra was ranked 22nd in Business India's annual survey of the country top companies - Super 100. Mahindra announced a landmark breakthrough in Indian alternate fuel technology by formally announcing its emphasis on bio-diesel and unveiled the bio-diesel Scorpio and Bolero DI vehicles for 100% real world usage trials.
2008	In 2008, the automobile maker launched the Environment Friendly Bolero Pik-Up CNG in Delhi. In the same year, Mahindra & Mahindra commenced its first CKD operations abroad and launched the Mahindra Scorpio in Egypt. The company acquired renowned Italian design house, Grafica Ricerca Design S.r.l (GRD) Italy in 2008.
2009	The Mahindra Xylo was launched on January 13 2009 and the new mighty muscular Scorpio was launched on March 6. One of the largest Indian automotive conglomerates, Mahindra & Mahindra has acquired plants in China and the United Kingdom. Moreover, it has three assembly plants in the USA.
2010	Mahindra and Mahindra became the largest tractor manufacturing company in the world. Mahindra & Mahindra is currently gearing up to sell the Scorpio SUV and pickup starting in December of 2009 in North America, through an independent distributor, Global Vehicles USA, based in Alpharetta, Georgia.

(Source: www.mahindra.com)

Exhibit 10: Ssangyong Motor Company's Timeline

Jan. 1954	Ha Dong-hwan Motor Workshop was established
Dec. 1962	Dongbang Motor Co., Ltd. was established
Dec. 1962	Company establishment was publicly notified
Jul. 1963	Two companies (Ha Dong-hwan Motor Workshop and Dongbang Motor Co., Ltd.) merged under a new name, Ha Dong-hwan Motor Co., Ltd
Dec. 1965	Awarded by the Minister of Transportation at Korea's Model Company Awards
May. 1966	Started exporting H7H R-66 bus to Brunei
May. 1967	Established partnership with Shinjin Motor Co., Ltd.
Aug. 1967	Became Korea's first exporter of large buses to Vietnam
Dec. 1972	Company was registered as a legal corporation
Apr. 1974	Co-established Shinjin jeep Motor Co., Ltd
May. 1974	Made a technical partnership contract with AMC
Oct. 1974	Developed hardtop, softtop jeeps
Sep. 1976	Began to produce a variety of special purpose vehicles
Jan. 1977	Assigned to be the professional fire engine manufacturer
Feb. 1977	Company name changed to Donga Motor Co., Ltd.
Feb. 1977	Developed 4, 5 and 6-passenger diesel jeep models
Dec. 1979	Completed the construction of Pyungtaek Plant
Mar. 1980	Assigned to be part of 'National Defense Industries'
May. 1981	Began selling taxi jeeps
Sep. 1981	Began selling snowplow jeeps
Mar. 1982	Developed dump trailers
Mar. 1983	Adopted 'Korando' trademark of Geohwa Co., Ltd.

Oct. 1984	Exported high-speed buses to Libya
Dec. 1984	Donga Motor took over Geohwa Co., Ltd.
Aug. 1985	Geohwa's Pusan Plant moved to Pyungtaek site
May. 1986	Exported 'Korando' to Japan
Nov. 1986	SsangYong Group participated in the management of Dong-A Motor
Feb. 1987	R&D Center was established in Pyungtaek Plant
Jun. 1987	Acquired 'PANTHER CAR Co., UK'
Feb. 1988	Exported 'Korando' to North Europe
Mar. 1988	Company name changed to SsangYong Motor Co., Ltd.
Dec. 1988	Introduced [Korando Family], a station wagon type vehicle
Dec. 1989	Promoted dump truck sales
Feb. 1990	'Korando' won the first place in the 10th Kypros Rally
Feb. 1991	Agreed to a strategic alliance with Mercedes Benz AG for developing light commercial vehicle
Jan. 1992	Began using the 'Three Harmonized Circle' emblem
Jun. 1992	Completed construction of 'R&D Center'
Jun. 1992	Exported 'Kallista'
Oct. 1992	Agreed to have a strategic alliance with Mercedes Benz AG for developing gasoline engine
Jan. 1993	Agreed to have a joint capital investment (5%) with Mercedes Benz AG
Feb. 1993	Agreed to have a technical alliance with Mercedes Benz AG for developing passenger car
Jul. 1993	Embarked on producing [Musso], a wagon type 4WD vehicle
Nov. 1993	Agreed to have a strategic alliance with Mercedes Benz AG for developing diesel engine



Apr. 1994	Completed 'the After-Sale Service Technical Center' in Taejon, Korea
Jun. 1994	Completed 'Changwon Engine Plant'
Aug. 1994	Produced [Korando New Family]
Jun. 1995	Completed 'Parts Logistics Center' in Choenan, Korea
Jul. 1995	Produced [Istana (MB100)], light commercial vehicle
Jun. 1996	Acquired ISO certification for all models for the first time in Korea
Jul. 1996	Introduced [New Korando]
Oct. 1997	Launched [Chairman], luxury sedan
Jan. 1998	Merged with the Daewoo Group
Jun. 1998	Released [New Musso]
Jun. 1999	Introduced '7-passenger model' of [New Musso]
Dec. 1999	Undergone corporate restructuring program
Jan. 2000	Established independent sales network
Mar. 2000	Released the models of 'Chairman [CM500] and [CM400]'
Apr. 2000	Became independent from the Daewoo Group
Apr. 2000	Released 2000 model year of [Korando]
Oct. 2000	[Korando] awarded as the winner of 'Energy Winner 2001 Award'

Exhibit 11

FAST TRACK M&M'S RECENT ACQUISITIONS		
Jiangling Tractors, China	2004	tractors
Stokes Group, UK	2006	forging
Punjab Tractors, India	2007	tractors
Jeco Holding, Germany	2007	forging
Schoneweiss, Germany	2007	forging
Yueda Yancheng Tractor, China	2008	tractors
Europe Engines Engineering, Italy	2008	two-wheeler design
Kinetic Engineering, India	2008	two-wheelers
Satyam, India	2009	software
Reva Car Company, India	2010	electric cars

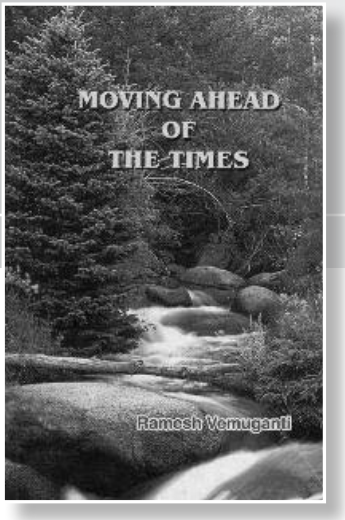
Dr Surajit Ghosh Dastidar (sghoshdastidar@gmail.com) is an Assistant Professor, Department of Operations & IT at IBS, Hyderabad. He did his Masters in Business Management from Department of Business Management, Calcutta University in 2001. He received his PhD from ICFAI University, Dehradun in 2010. He was a Visiting Research Scholar at the College of Business, University of Toledo, USA during 2006-07. He was awarded at the RK Srivastava Case Competition for his case 'Oracle's Acquisition of i-flex'. He has published in journals such as Journal of Statistical Software, International Journal of Applied Strategic Management and Management Case Study Journal, among others. He was also awarded the 'Young Management Researcher' Award for the year 2010 by AIMS International.

Book Review 1

Moving Ahead of the Times

Ramesh Vemuganti

Reviewer: Prof Deepti Srikanth



Price: Rs 90

"The secret of health for both mind and body is not to mourn for the past, worry about the future, but to live in the present moment wisely and earnestly."

– Gautam Buddha

When Charles Darwin used Herbert Spencer's famous phrase 'Survival of the Fittest', little might he have thought that it would emerge as the guiding mantra for the competitive and ambitious contemporary generation. Following a never ending quest of success, professional and personal, the modern day man has, knowingly or unknowingly, overlooked and forgotten the simple truths of life. Having turned the pursuit to happiness into a tiring, cut-throat ordeal, overpowered by the feelings of envy and constant comparisons, man has ended up gifting himself a continuous state of discontent, restlessness and a bundle of worries.

An experienced marketing executive, an undaunted entrepreneur and most importantly a passionate management educator, Ramesh Vemuganti forces his readers to pause and reflect over some simple facts which have been pushed to the background in the day-to-day struggle for survival. What started as a daily dose of gyaan by the way of SMSes to a select group of people has today metamorphosed into a book making its way into the hands, hearts and lives of many.

'Moving Ahead of the Times' is indeed a splendid work by Ramesh Vemuganti. It's acclaimed as a daily work kit encapsulating extremely refreshing and motivating lessons. Verily, it can be regarded as a 'mini Bible' for managers and entrepreneurs. It is like a powerful career-oriented message to the younger generation and holds good for all types of professionals.

The 100 messages in the book are a reflection of Ramesh's incisive thinking. He has carefully selected these messages directed across various age groups with the sole purpose of making one stop and take stock of how one is leading his/her life.

His lessons to living a happy and fulfilling life are easy to relate to. Ramesh presents real life examples to drive his point home. The simplicity of the language coupled with relatable examples makes it extremely easy for the reader to understand the basic essence of the book. At no point does the reader feel sermonized.

The book starts with a simple yet extremely vital lesson, 'Let Bygones be Bygones'. Using historical epics as a source of inspiration, the author encourages his readers to have a focused and firm Manasthithi irrespective of the constantly changing Sthithis (conditions) and Paristhithis (circumstances).

He has quoted very famous writers, philosophers, industrialists, etc. For example, on page 64 and page 65, Noble Laureate George Bernard Shaw and Rabbi Pinhas and on page100 Sir Henry Ford serve as role models to the reader.

It is suggested that had the author give the relevant references of the various sources it would be still more appreciated and will authenticate the information to the reader. No doubt the narrative showcases that the author is well read and that is the reality .Otherwise one cannot get such power-packed language and such an excellent conveyance.

This is perhaps the debutant attempt and it's earnestly hoped that Ramesh will indulge in much more constructive, everlasting and evergreen activity of prolific writing.

On Technology Management itself he can perhaps attempt more such books. Different technologies have different approaches. Perhaps the same product has more than one or two technologies. In that case the

approaches are also different. Many parameters are involved for an efficient management right from product production to its consumption. Technologies is getting out dated very fast. In that case how to handle is a million-dollar question. But the effort is worth making and he is well entrenched in that subject already.

The beauty of this book lies in the subtle yet stark realities of life that one chooses to overlook in the fast paced lives that. 'Moving Ahead of the Times' is really magical and for sure, enables the readers to go to the next level. It is great to see this book getting such rave reviews, especially from people like Mr SV Nathan, Regional Talent Director for Deloitte US firms in India.

Author's Profile

Ramesh Vemuganti is the President, Hyderabad Management Association. He did his schooling from St. Paul's High School, Hyderguda and Intermediate from Nrupatunga Jr College, Hyderabad. A B.Tech (ECE) from JNTU and MBA (Marketing) from OU, Ramesh was a school topper and State rank holder in Intermediate. He is currently the CEO of Chanakya Consulting, offering consultancy / training in Selling, Effective Communication, Attitudinal Change, Customer Handling, Inter-Personal Skills, Technology Management and Productivity. He has around 23 years experience in Sales & Marketing companies like PSI Data Systems, Indotronix, Unicorp, Modi Group, Business Link Products and Services. He is the only HMA member invited by DMA. Ramesh is an avid singer who also takes interest in charity.

Reviewer's Profile

Prof Deepti Srikanth (deeptsrikanth@dhruvacollege.net) is an MBA (HR) and a college topper and gold medalist during her Bachelor's degree from GGSIPU, New Delhi. She has been working in the field of education and management research for nearly 4 years. During this period, she has authored and published 25 management case studies which are available on the website of the European Case Clearing House. She has also developed video-based management case studies and cases for OB and HR curriculum. She is associated with Dhruva College of Management, Hyderabad as a Visiting Faculty in the area of Human Resource Management.

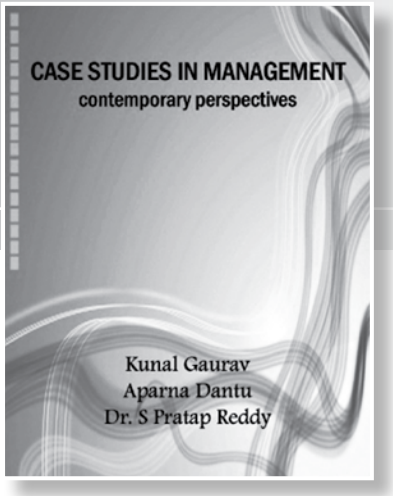
> **WORDS**
>
> Never underestimate the power of words to heal and reconcile relationships.
>
> **– H Jack Brown Jr**

Book Review 2

Case Studies in Management: Contemporary Perspectives

Edited by: Kunal Gaurav, Aparna Dantu and Dr S Pratap Reddy

Reviewer: Prof Rajiv Gupta



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Year of Publication: 2011
Price: Rs 490

"I am always ready to learn although I do not always like being taught."
– Winston Churchill

Teaching pedagogy in B-Schools has metamorphosed from teaching-centric means to learning-centric contrivance as business has become more complex than ever before, and it cannot be taught only by lecturing, the oldest and most popular way of teaching.

Against this backdrop, the case method of teaching has become an indispensable tool for management teaching in B-Schools across the world. The case method of teaching often encourages students to actively participate in classroom discussion and teachers play a vital role in advancing and directing the discussion. The case method of teaching is based on the viewpoint of professional education combining knowledge directly with action.

Case studies are famous for their decision dilemmas which stimulate management students to understand and analyze complex and unforeseen business challenges which help them flourish as effective leader-managers in the future. A good case is more than just a description. Typically, a case is a narrative of certain factual situations in an organization, often involving a decision issue, a challenge, an opportunity, or a problem. One of the greatest advantages of the case method of teaching is that it brings real-life business situations into the classroom in an intense form and thereby provides an opportunity to the students to add value to their own learning.

This book is a collection of case studies showcasing the embroidery of business ranging from marketing management to human resource management to strategic management at one place, so that it can be referred to by management teachers, students and practitioners in furtherance of their understanding of various managerial concepts. The various case studies in this book are intended for general discussion rather than effective handling of a business situation.

This book is worth reading for management teachers, researchers, management consultants and management students in order to gain an insight into what makes an organization best in its efficiency and effectiveness, coupled with an understanding about how to build an organization to remain competitive forever.

Reviewers' Profiles

Prof Rajiv Gupta (rajivgupta@nicmar.ac.in) is an alumnus of BITS (Pilani) and Associate Professor with National Institute of Construction Management And Research (NICMAR). Earlier, as an entrepreneur industrialist he started and successfully managed several manufacturing units in the SME sector. His current areas of research are: improving enterprise productivity, human capital and national infrastructure development. He has published several papers and case studies in his area of research and interest.

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