

# SKYLINE BUSINESS JOURNAL

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# SKYLINE BUSINESS JOURNAL

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## **EDITORIAL**

This issue of Skyline Business Journal has eight research papers covering a wide range of management issues. It is heartening to receive a steady flow of papers for publication indicating that the journal has been able to generate interest amongst scholars. It has been our sincere endeavour to maintain good academic standards to attract quality research which has practical implications.

A paper in this issue of SBJ on 'Performance of Mutual Funds' is a good example of analysis of a complex but very topical subject and the discussion explores the efficacy of mutual funds and stock markets for an ordinary investor. 'Work Family Conflict' has been an important concern especially for women and a paper in this issue analyses its implications with the help of statistical tools. Another paper discusses 'Effective conflict management in family managed businesses' providing useful insights. Application of ROCI-II measurement tool for comparing five styles of conflict management makes the study interesting. A 'Mathematical approach for Evaluation of Crisis and its Management' uses Boolean algebra to provide a model for calculating the impulsive Crisis & its recovery as well as departmental crisis & its loss estimation, in yet another paper. A paper included in the issue on 'Tourism and Climate Change' aims at exploring some of the possible ways to reduce the greenhouse gas emissions from the environment and provides insight as to how the tourism sector can use them to improve functioning. 'Capital Knowledge' and 'Life style as core Segmentation Area' are a few other papers included in the issue.

With the launch of MBA finance & MBA marketing during fall 2008 Skyline University College has achieved yet another milestone. The business journal is a reflection of scholarly pursuits of the University College along with its commitment to enrich the academia with significant contributions.

SBJ will continue to pursue its objectives with your support,

**Dr. Amitabh Upadhya**  
Editor-in-Chief



# Capital Knowledge

## The Role of Planning and Portfolios in Materials for Teaching and Control

Rashad Al-Saed, Abdulrahman Al-Juboori, P.Rajmohan

### *Abstract:*

*The portfolio concept was initially developed within the learning knowledge and now constitutes an important planning tool to ensure an overall strategic perspective on the flow of materials in the teaching process. This paper contends that this concept is also relevant to the capital knowledge, and describes the development of portfolios methods to manage the flow of materials from subjects area with goal and objectives to installation onsite, and its application to a Al-Zaytoonah University of Jordan & Applied Science University, The Colleges of Economics and Administrative Sciences Project. The case study evidence suggests that the focal point of portfolios concepts are the interfaces between parties, and exchange of information, and development across project organisational boundaries based on partnering-type arrangements. The management of the flow materials from the portfolio point of view also requires early planning of selection of materials, and in more detail, than is required in the traditional approach to materials procurement.*

**Keywords:** capital knowledge, planning, portfolio, materials flow

### 1.0 Introduction

Materials delivery to JIT is a critical, a productivity-related aspect which demands the introduction of a carefully developed system of monitoring and control as early as possible

### 2.0 Definition and scope of portfolios

The supply of building materials of capital knowledge (CK) and components to JIT are fraught with obstacles that can have a significant affect on level of productivity. Building materials of Capital Knowledge often require large storage of knowledge capacity, which is rarely available on most sites (Robert, 1994). Storage of knowledge facilities are usually temporary structures or compounds and conditions in which the materials are kept often leads to damage from ingress of knowledge and movement of students, culture and equipment of learning (Bain, 1997).

Unless stringent quality control systems are followed, materials not meeting specifications may arrive on site and may have to be returned to the fabrication capital knowledge works, thus halting production and in the worst cases leading to plan delays.

The varying workload of the capital knowledge and its consequential disruptive effect on the material supply position often creates supply "bottle-necks" that make a planned flow of materials difficult if not impossible. Storage of knowledge has to be related to the sequence of assignment to ensure the minimum of movement and handling.

This paper examines the key issue of material supply planning and portfolios, and how may benefit the capital knowledge. The first part provides a background to the planning and portfolios concepts. In the second part an example is given of the application of portfolio concepts to the Al-Zaytoonah University of Jordan & Applied Science University, The Colleges of Economics and Administrative Sciences-Department of Business Administration as a building materials of Capital Knowledge process.

This includes a description of the implementation process, the problems encountered, and the roles of the participants in the application of portfolio arrangement.

Planning and Portfolios are such as art of moving, lodging and supplying troops and equipment, (Cohen, 1976, 1978, 1994). As stated, portfolios would appear to be limited to the military (Cooper, 1979). It was only with the onset of the Industrial Revolution that the concept of portfolios extended beyond its military context. In business, in education, portfolio activities commonly involve movement and storage of knowledge for the purpose of having the desired object of flow at the right place at the right time (Daly & Worrell, 1993). Transfer and distribution are cornerstone of portfolio and its most visible manifestation

### 2.1 Portfolios in the workplace

Learning knowledge portfolios were originally developed as internal process, but with the increasing distribution of referencing processes the focus today is much on external portfolios and synchronisation between parties in the supply-lesson chain. In this context, Al-Juboori et al. (1997) identified two different portfolio principles: portfolio by planning. The main difference between the two is that by planning, the foreseen consumption is calculated and materials ordered and delivered accordingly, whereas by consumption storage of knowledge is refilled when a certain minimum level is reached. For a number of years, most portfolios have been based on other on of two principles only. Today a two-level approach seems to be preferred: a planning approach at the overall level and consumption approach at the day-to-day operational level (Knowles, 1975, 1990).

A special form of portfolios by consumption is Just-In-Time (JIT) materials management, where emphasis is also placed on overall planning undertaken by management together with day-to-day operations carried out in the workplace (Ibid-1997).

JIT portfolios were developed by the Japanese automobile manufacture Toyota as an essential part of their production system. The basis of system is the absolute elimination of waste. Two pillars support Toyota's production system: Just-In-Time and Automation (or automation with a human touch) closer co-operation between suppliers and a zero-error quality management system are also important elements of the Toyota approach. (Cohen, 1994).

It is these principles, notably JIT-adapted for the knowledge building process forms the basis of the portfolio concept presented in this report, as with the Toyota production system building knowledge portfolios aim at the reduction of the outcomes through the elimination of waste.

## 2.2 Portfolios in the Teaching Process

Material teachers' and whole-paper student's portfolios are similar to those found in teaching and whole learning activities. In particular, they can be considered as belonging to such assessment and to operate in a similar manner. In the capital knowledge, portfolios activities are dictated by tutors and learners, who are aim to minimise the outcomes of module to site without considering handling outcomes. These practices are often overlooked contracting by PLPCs (Personnel Learning Plan using Learning Contracts) to their detriment.

In capital knowledge, portfolio principles are rarely applied on systematic basis. For most materials read, the planning of deliveries is undertaken on ad-hoc basis.

This can lead not only, frequent delays and loss of time but also to additional outcomes associated with express deliveries. Reading materials at the lowest possible learns is another strategy favoured by students' "contractor's module assignments" PLPCs that would be done between student and module leaders, that as I called is just like "contractor's procurement department" - "assignment department", particularly if student discounts are offered for bulk reads.

As delivery of materials is seldom scheduled, as part of the building knowledge process each delivery becomes unforeseen event added to the general disorder on sit. The result is interruption to the work schedule, extra handling, breakage and loss, in addition to the requirement for extra storage of knowledge capacity. In selecting a method of packaging, the knowledge storage on site, movement to the lesson class or workplace, are all aspects to be considered (Krantz, 1995).

The section below describes how portfolios concepts were adopted and applied a capital knowledge project in Al-Zaytoonah University of Jordan & Applied Science University, The Colleges of Economics and Administrative Sciences- Department of Business Administration.

## 3.0 Description of Capital Knowledge project

The 'project' described in this study relates to Department of Business Administration Modules. This comprised the first stage of the teaching of Marketing Strategy, Corporate Strategy and Strategic Management of 160 page -subject module facilities. Dean has overall responsibility for provision of

social teaching process. There are specific rules governing teaching reads, In this case teaching in that department could not exceed certain predefined load.

Both module elements and traditional material were not used in the Business Administration department. The degree of prefabrication as well as the general standard of the project and quality of the materials was typical of teaching process; (Mezoff, Cohen & Bradford, 1979), the total traditional business Administration modules was proximately more than 19 case study and total references, and assignment by PLPCs. But, the programme duration was ended through four years.

## 4.0 Tendering Procedure and Design Process

In the case publicly funded teaching practice project it is obligatory to use an open tendering process to ensure the most work bids. However, an exemption to this rule was made for the college of Economics and Administrative Sciences project. This was because the project was of an experimental nature. Apart from the main students in department, the material's tutor, and the sub-management sciences and strategy involved in implementation of the portfolio model, all other parties were appointed on a lesions plan tender basis.

The college programme produced the concept design in collaboration with the department. Modules and materials are produced concerning with department's modules, that working designs was then produced by materials and cases, as a guide for student day/evening-time studies to the learning a plan, and to some extent in collaboration with main programme director and students. The main programme director and the students were actively involved in the planning and design process.

The aim was to implement a "buildability" approach during the design phase. Striving for buildability was a vital part of the portfolio concept. The materials and portfolio methods were chosen/designed to minimise 'production', transferring and wastage on site; for example, the project management model was designed to match the standard dimensions of module study material (Miller, 1990).

The first phase of portfolio experiment focussed on two specific sub-modules: strategic analysis such as setting objective, strategic position, development strategies. etc.. Students were met on lunch break and a 'buildability' material was implemented on them. These materials were approved by the programme direction and they do not form the part of the portfolio model. The total number of students who were administered with buildability' material is 30 comprising students from management and sub-modules studies.

## 5.0 Development of the Portfolio Concept

The portfolio concept was developed in to improve organisation on -JIT as well as the course process as a whole. At an early stage, the programme identified the need to organise the process and to plan the flow of materials from references to installation on-site in a more efficient manner. An important element of the portfolio model was the formation of a part-

nering arrangement between the project participants.

The development of the concept was inspired by a number of studies undertaken in Iraq, UK, Finland... These studies indicated that low levels of productivity were the result of poor planning and portfolio (Al-Juboori. 2004). Through the course period adding further identified a number of problems in the Department of Business this including:

- Delay on site, wastage and breakage's of materials together with unnecessary length of time wasted in teaching practice period and student were a common experience; Administration (Miller,1991).
- A teaching material site was the worst possible portfolio facility, nevertheless very vulnerable teaching materials are quite often supplied in full loads exposed to the elements and pilling (Naumes, 1993).
- Materials handling techniques were not taken in to account during the design phase (Obert, 1982).

Having identified the problem areas, a detailed plan of action was developed for the teaching of the project development. The portfolios concept would not only be a materials management tool to read the right quantity of materials at the lowest time, but to read the right quantity of materials including all module area to get it delivered, to the right location on-sit and Just-In-Time for installation.

Deliveries of materials would be co-ordinated by the programme according to an agreed portfolio approach, students and We would be responsible for arranging simplification and

- Planning for site activities;
- Deliveries of materials to site;
- Number of changes to the detailed design;
- Re-work during the sources of students in construction stage of capital knowledge; and
- Site working conditions.

To facilitate improvements during the construction phase of capital knowledge of the study a number of practical measures were adapted. These included

- Limitation on the transferring of materials within the site boundary of topic;
- Avoidance of 'stock paper' on site;
- Avoidance of wastage of materials;
- Avoidance of missing deliveries and returned assignment; and
- Decrease damage during course.

Portfolio management tools	Description
'Materials Teachership'	What and how, why, who; responsible for managing organisation, during the course process
Supply Plan	Supply plan indicates the proposed delivery dates of units for the whole teaching planning. This plan is specified by materials 'teachership' with each students
Request Schedule	A detailed version of the supply plan covering a three level period. The schedule of draws up by the students in 'teachership' with each student.
Unloading Plans	These plans indicated where daily supplies (units) would be delivered to on-site
Assessment Specification	An assessment is package of materials required for one working operation within one assignment at one module on the course site. The whole course was divided into units. Individual sub-teacher specified the content of each unit. The materials suppliers in conjunction with the materials co-ordinator specified a unit plan.

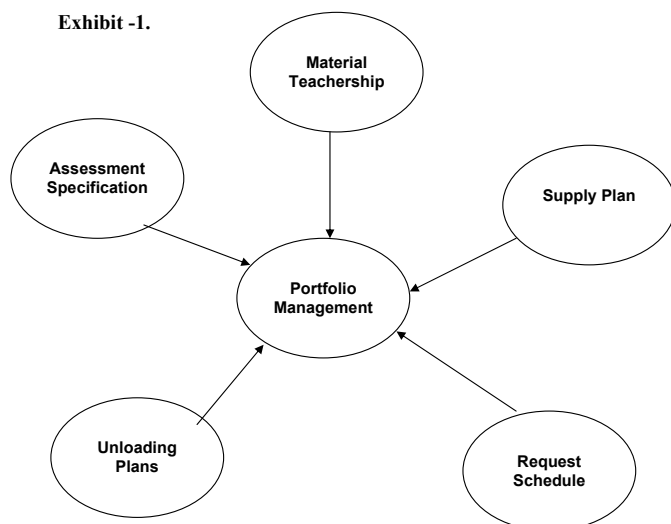
The description of the components of the portfolio management tools are provided in table -1 relevant to the model provided in Exhibit-I.

**Table 1 Components of portfolio management concepts**  
**6.0 Planning Process**

The key individual responsible for materials control during the applying for a teaching was identified as the 'material co-ordinator'. The whole teaching period was divided into lectures. The content of each lecture was specified by module leader, met the students, and lecture plan by the materials students in conjunction with the 'co-ordinator' in the same module is programme director.

A number specified each lecture in the supply plan by its contents, by its student and also by module leader at the receiving end (Pendse, 1985). The contents of each lecture were specified either by its figure number or by type of material (Putzel, 1992). The lecture plan stated the time required for delivery, the method of transferring of knowledge and equipment required for delivery, together with details of packaging.

**Exhibit -1.**



managing the information,(O'Brien& Buono, 1996). Based on these issues reported the model of portfolio management tool is developed as a part of this exercise and is shown in Exhibit-1

### 5.1 Practical use of the Portfolios Concepts

The portfolio concept was developed to improve a number of aspects of an assignment and teaching process. The programme identified several criteria for consideration. These included:

The supply plan included a description of the module and details of their proposed delivery date. This allowed student to place orders with lecturers at an early stage. Because the amount of storage of knowledge space required be reduced, students were able to pack lectures into ready-to- use packages in accordance with the lecture plans. The student had details of orders in advance of delivered to site lesson, however, were not delivered to sit until they were requested by the materials co-operator (Raab, 1997).

This was undertaken two weeks before the scheduled time of delivery or on the actual day of delivery if amendments were made to the module schedule. The portfolio model allowed the programme director to change the supply plan according to progress on site.

## 7.0 Merial flow control process

During the teaching practice phase, weekly material control meetings were held between the site department team, the students face-to-face and the material programme director. During these meetings weekly forecasts were broken down to identify daily material requirements according to the material plan. This was undertaken to identify the precise requirements two weeks in advance, and whether corrective action would be necessary in the third phase.

The request schedule was therefore a sliding window in the supply plan, where material supplies three phases in advance were identified, supplies two weeks ahead were probable and supplies in coming phase were requested (Rice, 1958).

The request schedules were supplemented by unloading plans indicating where daily supplies would be delivered to on-sit. This allowed the student to load lecture into the lecture ready for study delivery and in correct sequence (Rice, 1965).. At the same time, equipment required for unloading was identified as well as details of any special conditions on sit on that particular day.

## 8.0 Overall assessment of teaching project

Compared to a traditional approach to material design and teaching practice, timing savings were made throughout the duration of Faculty Project. Table 2 shows the effect of portfolios planning on total teaching practice times.

In spit of extra reads associated with the portfolios concept, including additional measurements and the use of “micro-reading and teaching”, total savings amounted (10 per cent) of teaching practice times during the first phase of the experiment. Savings were achieved through a reduction in materials wastage and breakage’s and early (Rioch, 1985) completion of the teaching practice. These calculations were undertaken by PLPCs design-Table Time. The methods of data collection are described below.

**Table 2 Effects of the portfolios planning on total teaching timings**

	Factor A Timing savings (%)	Factor B Extra time incurred (%)
Reduction in wastage and breakage's	8	
Reduction in working days	5	
Materials co-ordinator		1
Micro-reading and teaching		1.5
Measurement		0.5
Sub-Total (%)	13	3
Total timesaving (%), Factor (A-B)_		10

The materials co-ordinator kept a diary throughout the duration of the teaching process. This included a record of all information deliveries to sit categorised by sub-co-ordinate or we can say that (sub-lecturer). The key element of the evaluation process was the registration of unforeseen ‘incident’ relating to material deliveries. This information was collected by ‘co-ordinator’. The ‘incident’ record was divided into two categories: who was responsible for incident? What action had to be taken and whom? The times of each ‘incident’ were then calculated by the co-ordinator in conjunction with sub-contractor and students. Opinions on the use of portfolio approach varied from one faculty to another, but were generally favourable. Sub-contractors expressed their approval for portfolios planning, even through they felt that the ‘materials co-ordinator’ was an unnecessary link between the subcontractor and the materials teacher (Rogers, 1969). The subcontractors were more used to have direct contacts with teachers: without their working practice towards a more planned and less ad-hoc approach (Salzberger-Wittenberg& Osborne, 1983). While management subcontractor and programme director expressed their approval for portfolio planning, the students of basic management material (i.e. materials and lessons plan) were more critical of the approach. One reason given was the need to increase the number of student’s an introduction of the strategic management (case study and Financial analysis for case study) to sit due to the types of lessons and Just-In-Time requirement. All parties found the lesson plans and delivery plans very useful, but emphasised that these lesson plans tools should be kept as simple as possible and user-friendly.

Involvement in the portfolio concept was purely voluntary. Several subcontractors opted out of the process from the outlet of the teaching practice project. This led to a number of problems during the teaching practice phase. For example, when written the materials of Marketing and given to Module leader I have seen a large quantity of marketing materials it was delivered and insulation in bulk and offloaded in a careless manner very close to scaffolding where work was in progress (Senge,1990). This cased a considerable amount of disruption on site. Furthermore, while remaking insulation in bulk made an initial saving, this was offset by due to wastage. The capital knowledge illustrates what appears to be a common but so problematic procurement strategy. Sub contractors traditionally acquire materials and components from teachers and students at the lowest possible teach (Spencer, 1995), without careful consideration of the times associated with handling and production on-site: what savings may be made initially are OFFSET by traditional work during the teaching process (Tang, 1993). Therefore, any alternative



strategy must be based on ‘‘HOLISTIC’’ view of assignment and the planning and control of material deliveries.

## 9.0 Conclusion

This work has described the portfolio concept and development of portfolio concepts to manage the flow of materials from the teachers to installation on-site, including its application to a teaching process and project of department. The advantages of using portfolio measurements on the teaching process project and whole assignment in the contact phases with our internationalisation process of capital knowledge were recognised by all participants. The requirement for a high quality products, and overall savings were provided by a process of planning sit activities based on a strategy to ensure that materials were handled, transferred and kept as little as possible. It saves 10 per cent when compared to a similar traditional project. This success was not only based on integrative approach to materials control, but also on the ‘new’ (non-traditional) roles adopted by the participate during the PLPCs design and teaching practice phases of the study. The primary focus of the portfolio concept in teaching is to improve co-ordination and communication between study participants during the PLPCs design and teaching phases, particular in the materials flow control process. The module study evidence suggests that the focal points of portfolios are the interface between the boundaries based on partnering-type arrangements. The portfolio approach involves a new role for the materials students; including early involvement in the PLPCs design phase and overall responsibility for flow of information relating to materials. Communications between materials suppliers and recipients should such that details regarding transferring, eventual sit location, order of information delivery, labelling and packaging sizes should be available to all those involved.

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# EVALUATION OF CRISES AND ITS MANAGEMENT

Vis-à-vis

## A MATHEMATICAL APPROACH

Sachin Kumar Srivastava, Manoj Dixit

### Abstract:

*Crisis / Impulsive crisis is the combination of different losses & adverse situations. Adverse situation may hamper the output of the organization or can stop the production system. Every organization has planned to avoid crisis situation for very initial stage. If we are manage to calculate the crisis / impulsive crisis or crisis in department and also be able to calculate the recovery after the crisis then we will be able to analyze the impact of crisis under different situation. The article attempts to provide a model for calculating the impulsive crisis & its recovery as well as the departmental crisis & its loss estimation with the help of Boolean algebra.*

**Key words:** Crisis, Impulsive Crisis, Departmental Crisis, Crisis Evaluation, Loss Estimation Due to Crisis.

### INTRODUCTION:

Crisis literally means an “emergency” or “urgency”. Crisis is also defined as “such events which act as a turning point for better or worse”<sup>1</sup>.

The word crisis comes from the Greek word ‘Krisis’ which means differentiation or decision<sup>1</sup>. Although in legal spheres the term was used to describe the differentiation between just and unjust, the meaning varied when used in medical, political and economical context.

The late US President John F. Kennedy noted, “When written in Chinese, the word crisis is composed of two characters - one represents danger and the other represents opportunity”<sup>2</sup>.

Many researchers and scholars over the years have tried to define crisis and crisis situation. While Pauchant and Mitroff<sup>3</sup> believe that a crisis is a “disruption that physically affects a system as a whole and threatens its basic assumptions, its subjective sense of self, and its existential core”; Fink (1986), Kash and Darling (1998)<sup>4</sup> add that a crisis is referred to as an unplanned event emerging from the internal or external environment of an organisation, region or country which can disrupt operations, threaten people physically and mentally, and endanger the viability of entities no longer able to cope with the situation using normal managerial producers. Dirk Glaesser tries to understand ‘as a dangerous and extraordinary situation in which a decision must be made under time pressure. He further states that crisis is seen as a critical change in important variables that endanger or destroy either parts of or the entire system’<sup>5</sup>.

Selbst<sup>1</sup> on the other hand, defines a crisis as “any action of failure to act that interferes with an organisation’s ongoing functions, the acceptable attainment of its objectives, its viability or survival, or that has a detrimental personal effect as perceived by the majority of its employees, clients or constituents.”

Faulkner<sup>6</sup> observed that in the above definition of crisis Selbst (1978) has mentioned two things- first there has been inaction on the part of the organisation. Secondly, the crisis has a negative effect. But we need to remember that most of the crisis hitting the Tourism Sector is not due to the organisational inaction but it occurs “all of a sudden”, “unexpectedly”. At times there is momentary inaction on the part of the

organisation when some new and totally unexpected crisis happens like 9/11 or Tsunami.

John M Penrose<sup>7</sup> also talks about perception of a crisis. He states that the perception of crises may ultimately affect crisis outcomes. Furthermore, the perception of a crisis as an opportunity or a threat may also have significant implications. Crises are not inherently good or bad; they are merely perceived by most as bad.

Booth<sup>8</sup> describes crisis as “a situation faced by an individual, group or organisation which they are unable to cope with by the use of normal routine procedures and in which stress is created by sudden change.”

According to David Beirman<sup>9</sup>, “A crisis is a situation requiring radical management action in response to events beyond the internal control of the organisation, necessitating urgent adoption of marketing and operational practices to restore the confidence of employees, associated enterprises and consumers in the viability of the destination.”

J. Spengler<sup>11</sup> suggested that “A crisis is an emergency or significant critical event that must be planned for proactively and can often be dealt with by the affected organisation.”

If talking about crisis in very narrow sense and with natural feelings it also called “Impulsive Crisis”<sup>12</sup>.

“Crises” can also be described as the possible but unexpected result of management failures that are concerned with the future course of events set in motion by human action or inaction precipitating the event. Events of this type include the Foot and Mouth outbreak on UK farms in 2001, the Chernobyl Disaster and the Exxon Valdez oil tanker wreck<sup>13</sup>. Examples of crises that may occur at some point in the future include:

- The impact of AIDS particularly in Sub-Saharan Africa and potentially in the Indian subcontinent and the Russian Federation;
- An increase in militant religious fundamentalism;
- Nuclear war in Asia;
- Financial meltdowns including global recession; and
- Terrorism employed to achieve political or religious objectives”<sup>12</sup>.

Although we are talking about crisis and tourism now, the concept of crisis research is prevalent in other sectors. As Glaesser states in his book, Crisis was a term initially used with national economics. The various approaches within crisis research can be seen in the following diagram given by Glaesser<sup>13</sup>

	System Oriented Approaches	Decision oriented Approaches
<b>Individual Models</b>	<p>Medicine: Turning point is the decision between life and death during the course of an illness</p> <p>Psychology: Perception of an occurrence or situation as an intolerable difficulty which exceeds a person's resources and coping mechanisms. Failure of behavioural patterns Danger of identity loss</p>	Individual cognitive problem solving qualities of decision makers in crisis situation
<b>Collective models</b>	<p>Social sciences Crises as phenomena of societies endangered national interest during conflict due to a threatening escalation towards war (e.g. Cuban crisis)</p> <p>Crisis as phenomena of societal subsystems: Politics real changes to the patterns of political relations (e.g. coup. revolution) Economy exogenous economic shocks, phases of down ward trends in the economic cycle.</p>	Collective decision behaviour in crisis situations

Source: Board on Linde (1994)

Glaesser<sup>14</sup> defines crisis as an undesired, extraordinary, often unexpected and timely limited process with ambivalent development possibilities. It demands immediate decisions and counter measures in order to influence the further development again positively for the organisation (destination) and to limit negative consequences as much as possible.

A crisis situation is determined by evaluating the seriousness of the occurring negative events, which threaten, weaken or destroy competitive advantages or important goals of the organisation.

Term crisis is often used along with disaster. There have been many attempts to define both separately as different entities whereas at times they have been used collectively or may be as synonymous.

## 1: CRISIS / IMPULSIVE CRISIS IN AN ORGANISATION<sup>17</sup>:

The word 'Impulsive' means proceeding from natural feeling or impulse without external stimulus and if we talk in terms of organization then the discussion of crisis is done and its recovery is required to be made, then the important parameter is to identify the damage shape of the crisis. That is called 'Impulsive crises'. This study is limited to impulsive crisis only.

When the damage due to crisis has taken place, it is essential to evaluate the amount of the total damage. The recovery will need to know the value of damage and the new state of the working of an organization. Siomkos, George (1992)<sup>15</sup> describes that recovery of the damage done by the crisis is

exponential in terms of time and money.

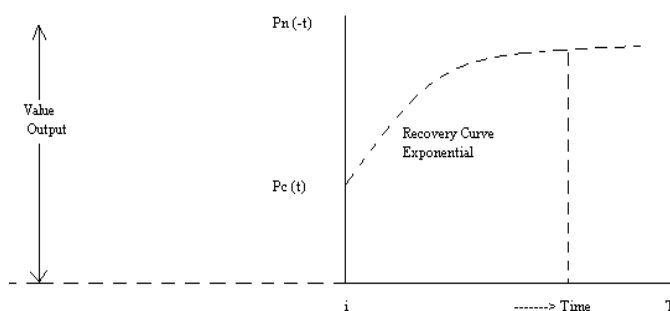
## 2: IMPULSIVE CRISIS AND ITS EVALUATION: -

The impulsive crisis damages suddenly, and brings down the production or its money value from its normal value to new low value. Followings some are the major causes for the impulsive crisis<sup>19</sup>:

- Outbreaks in the organization.
- Employees' sabotage/terrorist attack.
- Fire explosions and chemical spills.
- Sudden drop in revenue/ Market rate of the shares.
- Shortage in raw materials/oils/fuel.
- Natural disaster.

The impact of above happening does impulsive crisis and let the value of organization produce at any time  $t$  is  $P_n(t)$ . Consider the crisis occurs at any time say  $t$ , then the value at time  $[-\Delta] = P_n(t)$ . After the crisis, the value at time  $[+\Delta] = P_c(t)$ . The fall of the value of the organization output is shown in figure-1.

Figure- (1) Happening of crisis & instantaneous application of remedial recovery



## RECOVERY CURVE FROM CRISIS<sup>10, 21</sup>:

The recovery curve is determined by applying analogy of charging of condenser. The value of the output of the organization between time  $\Delta$  and  $T$  is expressed by the equation:

$$P_c(t) = [ \{ P_n(\Delta) - P_c(\Delta) \} * (1 - e^{-t/k}) ] \quad \dots\dots (2)$$

Where,

$P_c(t)$  = value of organization after the crisis at any time  $t$ , where  $\Delta < t < T$ .

$P_c(\Delta)$  = the organization value at the instance of maximum damage.

$P_n(t)$  = the normal value of the organization before the occurrence of the crisis.

$K$  = crisis recovery constant

The recovery crisis constant is important parameter to get rid of the damage of the crisis. This depends on many factors such as<sup>24</sup>:

- Money employed to replace damage it ever and for paying charges of repairs if any.
- Skilled people carrying out the repair job if any
- Items availability to replace the broken item.
- Availability of cranes etc for picking and fitting

5. M/c shops , welding , shaping, cutting , machinery etc if required
6. Fast supply of raw materials
7. Alternative electricity supply

All these factors decide the value of crisis recovery constant. In general if the value of 'k' is small, then recovery from the crisis will be fast. Then we can say that the crisis management time is inversely proportional to the value of k.

Crisis Management Time  $\propto (1/k)$

..... (3)

The above proportionality leads to;

1. Management is excellent if  $0 < k < 0.5$  .....(3.1)
2. Management is good if  $0.5 < k < 1$  .....(3.2)
3. Management is average if  $1 < k < 5$  .....(3.3)
4. Management is poor if  $5 < k$  .....(3.4)

#### 4: ESTIMATION OF DAMAGE DUE TO CRISIS 27, 28:

There are two possibilities to estimate the damage when crisis recovery is exponential and the recovery process is envisaged in equation (2). The first case when recovery starts just after the happening of impulsive crisis, the other case will be when there is some constant delay in starting of recovery .The damage due to either case is studied as;

4.1: When recovery starts immediately after the crisis:

The figure-2 shows graphically the damage caused by impulsive crisis and immediately starts of exponential recovery.

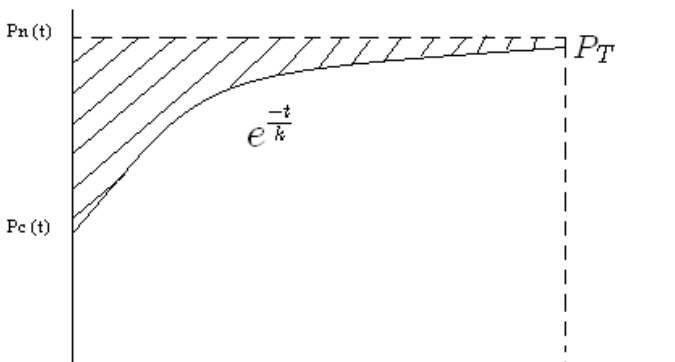


Figure- (2) Shaded area describes the damage.

The hatched area will be the damage caused by the crisis up to time T. Let damage is denoted by Di, then

$$(Damage)D_i = P_n(t) * T - [P_n(t) - P_c(t)] * \int_0^T [1 - e^{-t/k}] dt \quad \dots\dots(4)$$

Where, Pn(t), Pc(t), T and k are known then the damage can be computed.

\* This computation has been done by an example in case study portion.

4.2: Estimation of Damage when recovery starts after

delay:

The graphical representation with delay recovery from the damage due to crisis is shown in figure (3).

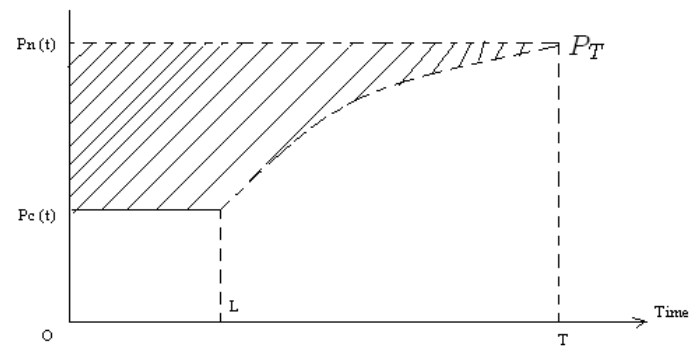


Figure- (3) Shaded area describes damage due to delay in start of recovery

The damage with L time starting late the recovery due to crisis is let given by DL. Then DL is given by the following expression:

$$DL = [P_n(t) - P_c(t)] * L + \{P_n(t)[T - L] - (P_n(t) - P_c(t)) * \int_L^T [1 - e^{-t/k}] - (T - L) * P_c(t)\} \quad \dots\dots(5)$$

We hereby plan to compute the damage.

\* This computation has been done by an example in case study portion.

\*\*The output values of the organization after remedial services provided,

$$Pr(t) = P_c(t) + [P_n(t) - P_c(t)] * [1 - e^{-t/k}]$$

5: Example:

For the following given data in an organization: Calculate-

(1) Output value at different times.

(2) Total damage due to crisis.

- Normal output per unit time  $= P_n(t) = 750(\text{Lac.})$
- Fall in output due to crisis  $= P_c(t) = 350(\text{Lac.})$
- Delay in providing recovery service  $= L = 5(\text{Unit time})$
- Let the value of recovery constant  $k = (.5 \text{ to } 2.5)$

Solution:

The output values of the organization after remedial services provided

$$\begin{aligned} &= Pr(t) = P_c(t) + [P_n(t) - P_c(t)] * [1 - e^{-t/k}] \\ &= 350 + [750 - 350] * [1 - e^{-t/k}] \\ &= 350 + 400 * [1 - e^{-t/k}] \\ &= 750 - 400e^{-t/k} \end{aligned}$$

Let, k = .5, 1.0, 1.5, 2.0, 2.5

The, value calculated for Pr(t) are tabulated in the following tables

**Solution:**

The output values of the organization after remedial services provided

$$\begin{aligned}
 &= P_r(t) = P_c(t) + [P_n(t) - P_c(t)] * [1 - e^{-t/k}] \\
 &= 350 + [750 - 350] * [1 - e^{-t/k}] \\
 &= 350 + 400 * [1 - e^{-t/k}] \\
 &= 750 - 400e^{-t/k}
 \end{aligned}$$

Let,  $k = .5, 1.0, 1.5, 2.0, 2.5$

The, value calculated for  $P_r(t)$  are tabulated in the following tables

**Table 1:  $k = .5$** 

S. No.	t	$P_r(t) = 750 - 400e^{-t/k}$
1	0.5	602.88
2	1.0	695.86
3	1.5	730.08
4	2.0	742.68
5	2.5	747.31
6	3.0	749.01
7	3.5	749.64
8	4.0	749.86
9	4.5	749.95
10	5.0	749.98

**Table 2:  $k = 1.0$** 

S. No.	t	$P_r(t) = 750 - 400e^{-t/k}$
1	0.5	507.39
2	1.0	602.85
3	1.5	660.74
4	2.0	695.87
5	2.5	717.16
6	3.0	730.09
7	3.5	737.92
8	4.0	742.67
9	4.5	745.55
10	5.0	747.30

**Table 3:  $k=1.5$** 

S. No.	t	$P_r(t) = 750 - 400e^{-t/k}$
1	0.5	462.44
2	1.0	543.25
3	1.5	602.84
4	2.0	644.20
5	2.5	673.94
6	3.0	695.86
7	3.5	711.08
8	4.0	722.02
9	4.5	730.08
10	5.0	735.68

**Table 4:  $k = 2.0$** 

S.No.	t	$P_r(t) = 750 - 400e^{-t/k}$
1	0.5	438.48
2	1.0	507.38
3	1.5	561.05
4	2.0	602.84
5	2.5	635.39
6	3.0	660.74
7	3.5	680.49
8	4.0	695.86
9	4.5	707.84
10	5.0	717.16

**Table 5:  $k = 2.5$** 

S.No.	t	$P_r(t) = 750 - 400e^{-t/k}$
1	0.5	422.50
2	1.0	481.87
3	1.5	530.47
4	2.0	570.27
5	2.5	602.84
6	3.0	629.52
7	3.5	651.36
8	4.0	669.24
9	4.5	683.88
10	5.0	695.86

## A STUDY ON CRISIS ANALYSIS BASED ON CRISIS IN DEPARTMENTS OF AN INDUSTRY

1. Total Crisis based on Crisis in Departments with the help of Boolean algebra<sup>22, 25</sup>:

Whenever we talk of management the essential need is to quantify the cause, which becomes the reason of crisis. If this cause is replaced or reinforce the crisis is over.

The main constituents/ Departments of any organization are<sup>26, 29</sup>:-

- Human Resource department
- Marketing department
- Production department
- Information Technology department

If crisis occurs in any department, the situation may as given below-

- Human Resource Crisis = Hc
- Marketing Crisis = Mc
- Production Crisis = Pc
- Information Technology Crisis = I-c

If we consider these as variables, then they assume values either ONE or ZERO, representing whether crisis representing whether crisis exist or not.

If we calculate the departmental crisis with the help of BOOLEAN ALGEBRA, we can calculate the total crisis. If the study carried out mathematically, then these can be a theorem stating the situation of the organization given as below.

**THEOREM**: - If there exist a crisis in any constituent, the entire system suffered with crisis.

**Proof**: - Let the constituent variables are represented as,

- Human Resource Crisis = Hc
- Marketing Crisis = Mc
- Production Crisis = Pc
- Information Technology Crisis = I-c

The possible crisis evaluation using BOOLEAN ALGEBRA can be given as,

$$\text{Crisis 'C'} = H\bar{c} + Mc + Pc + Ic + Hc.Mc + Hc.Pc + Hc.Ic + Mc.Pc + Mc.Ic + Pc.Ic + Hc.Pc.Ic + Hc.Mc.Ic + Mc.Pc.Ic + Mc.Hc.Pc.Ic \dots (1)$$

In the Equation (1), Plus Sign (+) represents OR & Dot Sign (.) represents AND of BOOLEAN ALGEBRA. Whenever a crisis occurs in any variables the value of the variables is ONE, otherwise it is ZERO.

If C = 1, Means there is a crisis in the system. Hence we have to find the value of 'C' equal to ONE. If & if any variables is equal to ONE,

Consider that Hc = 1. This makes the equation.

$$C = 1 + Mc + Pc + Ic + 1.Mc + 1.Pc + 1.Ic + Mc.Pc + Mc.Ic + Pc.Ic + 1.Pc.Ic + 1.Mc.Ic + Mc.Pc.Ic + Mc.1.Pc.Ic.$$

$$C = 1 + Mc + Pc + Ic + Mc.Pc + Mc.Ic + Pc.Ic + Mc.Pc.Ic$$

[In Boolean algebra A.A =

A]

And in Boolean algebra

$$1 + X = 1$$

$$\text{Where, } X = 0$$

$$\text{Or } X = 1$$

Then,

$$\begin{aligned} C &= 1 + Mc [1 + Pc + Ic + Pc.Ic] + Pc [1 + Ic] + Ic \\ &= 1 + [Mc + Pc + Ic] \\ &= 1 \\ C &= 1 \end{aligned}$$

- If crisis occurs in two departments like Hc & Pc.

$$\begin{aligned} C &= 1 + 1 + Mc + Ic + Mc + 1 + Ic + Mc + Mc.Ic + Ic + Mc + \\ &+ Ic + Mc.Ic + Mc.Ic \\ &= 1 + [Mc + Ic] \\ &= 1 + X \end{aligned}$$

Where, X = [Mc + Ic]

$$= 1$$

$$C = 1$$

The 'C' again equal to ONE it means there is a crisis in the organisation.

When ever there is any crisis in any constituent of the system. It will lead to a crisis on whole. It can be seen that crisis always causes a loss, which can be evaluated as given in next section.

2. Loss Estimation due to Crisis <sup>23,30</sup>:

It is a lifetime of crisis, which affects the loss of the system. A short duration crisis leads to affordable loss while long duration crisis makes the system. A short duration crisis leads to affordable loss while long duration crisis makes the system sick & many time losses becomes so heavy who leaves no alternatives accept to close the organization 2, 3. The leading example in India, Uttar Pradesh particularly is 'UPTRON LTD.' which has been closed recently.

Following describes losses of organization as given below-

1. We here by consider that the organization was in crisis for number of days equal to 'm' days.

2. The production losses for 'm' days if the rate per unit is 'x' and quantity produced is 'y'.

$$= x.y.m$$

3. 'm' days employs are paid the salary loss. If per day payment of employs comes out to the 'z'.

$$\text{Salary loss} = m.z$$

4. The electricity and water payment. If it is 'w', then the loss will be

$$= w.m$$

5. If rent / space loss. The entire organization unnecessary occupied the space

Without doing any work. This will amount rent loss 'v' Rs / day.

$$= v.m$$

6. Security loss, the organization has to pay per day extra for security say equal to Rs 's' / day.

$$= s.m$$

7. Unforeseen losses are = k.

The total loss due to crisis will be the summation of all these and will be expressed as.

$$z + w + v + s)] + k \quad \text{Total Loss} = [m(x.y + \text{western"} \text{ } 2001$$

Where, m = number of days.  
& k = unforeseen losses.

## 6: CONCLUSION

The sudden occurrence of crisis termed impulsive crisis has been studied. A mathematical model in terms time and money are developed for the estimation of damage loss of the organization for instantaneously start of recovery and the recovery starting late. The results of case studies are tabulated in the study. The study will proved guidelines for the quantities estimation of any crisis in any organization.

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# PERFORMANCE OF MUTUAL FUNDS IN INDIA

A K Sarkar, Shailesh Rastogi

## *Abstract:*

*Presence of mutual funds provides the expertise of professional managers to a common investor, which ensures high returns with low risk. But, performance of mutual funds always remains a perplexing issue for both academia and investors alike. This study is an attempt to explore the performance of the mutual funds in India.*

**Keywords:** Performance, Return, Mutual Fund Schemes, Variability, India, Stock Market

## 1. INTRODUCTION

Mutual Funds have initiated a new era in the arena of personal finance, bringing the common man closer to the stock markets. Uncertain returns and numerous stock exchange issues dissuaded the common man from the stock markets. A common investor wishes to maximize his returns but views the securities market skeptically because of the vagaries of the market. Mutual funds offer a good solution to solve this paradox, by bridging the gap between the common investor and stock exchange.

Mutual Fund industry in India has witnessed tremendous growth (13.4 %, Source: [www.finance.indiamart.com](http://www.finance.indiamart.com)). Unit Trust of India (UTI) was established in 1963 by an Act of Parliament. The first scheme launched by UTI was Unit Scheme 1964. Entry of non-UTI mutual funds, SBI Mutual Fund was then followed by Canbank Mutual Fund (Dec 87), Punjab National Bank Mutual Fund (Aug 89), Indian Bank Mutual Fund (Nov 89), Bank of India (Jun 90), Bank of Baroda Mutual Fund (Oct 92), LIC in 1989 and GIC in 1990. Entry of private sector funds in 1993 unleashed in the Indian mutual fund industry empowered the Indian Investors with more options. The erstwhile Kothari Pioneer (now merged with Franklin Templeton) was the first private sector mutual fund registered in July 1993. The industry now functions under the SEBI (Mutual Fund) Regulations 1996. The number of mutual fund houses increased with time which included the new entries of many foreign mutual funds despite several mergers and acquisitions witnessed by the mutual funds industry. At the end of 2007, there were 35 mutual fund houses, which manage assets of more than Rs.3263 billion under 755 schemes. (Source: [www.amfiindia.com](http://www.amfiindia.com))

### 1.1. Objective of the Study

Stock market exhibits unpredictable moves giving shocks to those concerned with it. In the first quarter of 2008, the stock market in India plummeted and showed the steep fall. Though, later it showed marginal recovery, but owing to extraneous factors like crude oil prices and inflation nothing substantial could be recovered.

It is easy to move in the direction of the tide but more difficult to move in the opposite direction. This aptly fits into the situation of rise and fall in the stock market. The performance of mutual funds looks normal as long as the market

gives positive and high growth returns, but no sooner than the market falls the real test of time comes to the fore for the mutual funds. At the time of fall only those fund managers who have actually done their job well achieve above average returns. This issue of performance becomes much more acute with different categories of the mutual funds having different objectives of investments. This study attempts to evaluate the relative performance of different categories of Mutual Fund and index (Nifty) during the rise and fall of the market.

### 1.2. Literature Review

Literature on the performance on mutual funds is enormous. The different dimensions used in the study of the performance of mutual funds basically revolve around three factors. First, funds specific factors related with the market efficiency of the market, second, active portfolio management and third, the performance measurement factors. The initial work on the mutual fund performance hovers around the issue that the returns are in harmony with the notion that active fund management could not provide more returns than the risk-adjusted index returns which was initially given by Jensen (1967). Later on it was reiterated in some other works by Malliel (1995) and Carhart (1997). These findings were later violated and led to the contradiction with the premise of market efficiency by the studies done by Ippolito (1993), Ibbotson (1994), Volkman and Wohar (1995) and Wermers (2000).

Besides, there were some unconventional studies also which concluded some other results. Sharpe (1996) gave the conclusion that low expense gives higher returns supported by Hook (1966), and contradicted by Dellva & Olson (1998). Some studies were also done to relate the turnover of the portfolio and return of the portfolio by Malkiel (1995), and Carhart (1997). The results were mixed regarding the relationship between turnover and returns given by Wermers (2000).

It was observed that the conclusions were lacking unanimity and the results have often been contradicting with one another. Moreover, the results were localized and sometimes country specific. Most of the studies are still of US mutual funds industry and less number of studies have been done of other countries.

This study is localized in the sense we have taken only the Indian mutual funds into consideration. The study is important because India happens to be the second largest growing

economy of the world (Wilson 2003). It is pertinent that this would have a major impact on the overall learning about the mutual funds, their evaluation and assessment all over the world.

### 1.3. Research Methodology

The mutual fund schemes have been divided into four categories in our study.

- Debt Funds
- Balanced Funds
- ELSS
- Equity Funds

These four categories are clearly defined and do not overlap with each other. In each category five randomly selected mutual funds schemes have been taken on the basis of performance, representation of the category and availability of data. Besides the mutual funds the market index, S&P CNX Nifty has also been used in the study. The evaluation of performance of mutual funds and index is done on three parameters

- Returns
- Variability
- Consistency.

Monthly returns have been calculated for the comparison of returns in the following manner.

C<sub>Pt</sub>=Closing Price at time 't'

C<sub>Pt-1</sub>=Closing Price at time 't-1'

The 't' represents a particular date of a month and 't-1' means that particular date but of previous month. One way ANOVA has been calculated to find out the difference in the mean returns of all the four categories of the mutual funds and Nifty. The variability in data is being compared with the help of standard deviation and coefficient of variation. Consistency in return is being taken care of by five-point summary which includes minimum, first quartile, median, third quartile and maximum. The five point summary of all the categories of the mutual funds and index has been depicted well with the help of box-plot which gives the pictorial view of the distribution.

### 1.4. Data

The data source was online database provided by AMFI (The Association of Mutual Funds of India). The data of last three years has been collected (from September 2005 to August 2008) of all the Mutual Fund schemes. NAV (Net Asset Values) have been taken for the sake of simplicity and availability of the data. The official website of NSE has been used to take the monthly values of the index S&P CNX Nifty of the same duration.

### 1.5. Hypothesis

The study has following hypotheses.

Hypothesis 1: Equity funds have performed better than all the other categories of mutual funds

Hypothesis 2: Equity funds have highest variability of returns among all the categories.

Hypothesis 3: Debt funds have performed below all the other categories of mutual funds.

Hypothesis 4: Debt funds are the safest in terms of variability of the returns.

Hypothesis 5: The performance as well as risk of the balanced mutual funds is moderate as compared to all the other categories of the mutual funds.

## 2. DATA ANALYSIS

As expected the average monthly returns are found to be the highest on the equity funds but coefficient of variation is highest on the debt category (which is beyond expectation) (Table-1). The debt funds have performed as expected, except its variation. Balanced funds have also performed as per the expectation, somewhere in between debt and equity funds. Coefficient of variation has been the least on ELSS. ELSS can thus be considered as the safest option among all the categories of mutual funds.

**Table: 1 Descriptive**

	Mean	Std. Deviation	Coefficient of Variation (%)
Balanced Funds	.0136	.06026	22.56
Debt Funds	.0065	.01509	43.07
ELSS	.0102	.08969	11.37
Equity Funds	.0246	.08100	30.37
S&P NIFTY	.0213	.07041	30.25

Table-2 gives the impression that the values of monthly returns of different categories of mutual funds and the index are marginally significantly different as the value of F-Statistics and p- value are 1.893 and .075 respectively.

**Table: 2 ANOVA**

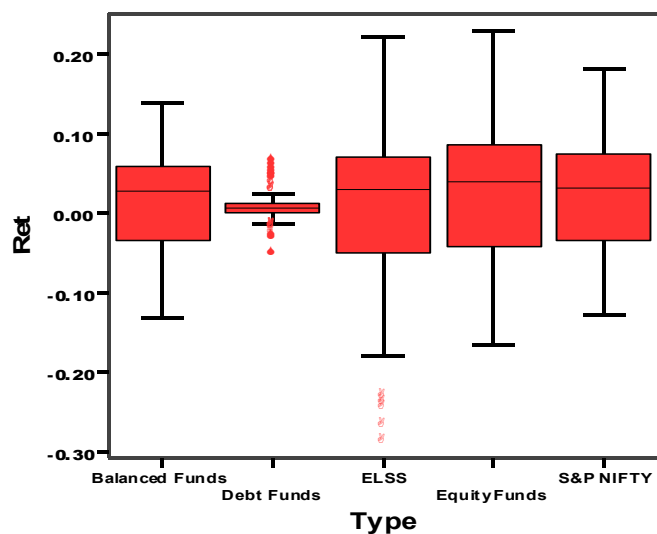
	Sum of Squares	Degree of freedom	Mean Square	F	p-value
Between Groups	.035	4	.009	1.893	.075
Within Groups	3.479	751	.005		
Total	3.514	755			

The output given in the table-3 corroborates the result given by ANOVA. The monthly returns of the balanced mutual funds are not significantly different from any other category of the mutual funds. The debt funds are found to be having significantly different results as compared to the equity funds. The debt funds have insignificantly different results from any other category of the mutual funds. The ELSS has significantly different relationship with only the equity funds and with all the other category funds it has got insignificantly different relationship. Surprisingly, with Nifty all the categories of mutual funds have the insignificantly different results. (table-3

**Table-3 Multiple Comparisons**

(I) Type	(J) Type	Mean Difference (I-J)	Std. Error	p-value
Balanced Funds	Debt Funds	.00717	.00717	.318
	ELSS	.00342	.00717	.634
	Equity Funds	-.01100	.00717	.126
	S&P NIFTY	-.00766	.01243	.538
Debt Funds	Balanced Funds	-.00717	.00717	.318
	ELSS	-.00374	.00717	.602
	Equity Funds	-.01817(*)	.00717	.012
	S&P NIFTY	-.01482	.01243	.233
ELSS	Balanced Funds	-.00342	.00717	.634
	Debt Funds	.00374	.00717	.602
	Equity Funds	-.01442(*)	.00717	.045
	S&P NIFTY	-.01108	.01243	.373
Equity Funds	Balanced Funds	.01100	.00717	.126
	Debt Funds	.01817(*)	.00717	.012
	ELSS	.01442(*)	.00717	.045
	S&P NIFTY	.00335	.01243	.788
S&P NIFTY	Balanced Funds	.00766	.01243	.538
	Debt Funds	.01482	.01243	.233
	ELSS	.01108	.01243	.373
	Equity Funds	-.00335	.01243	.788

\* The mean difference is significant at the .05 level.



### 3. RESULTS

The analysis of ANOVA (table-1) has the marginally significant p-value (.075) of the F-statistics which rejects the hypothesis that the results of all the categories of mutual funds and of Nifty are same. But out of ten possible combinations of all the categories of mutual funds and index, only three combinations had the significantly different returns. This defines the logic behind such marginally significant result of ANOVA. The average returns of equity fund (median and mean) are maximum among all the other categories of mutual funds and Nifty. The returns of equity funds are significantly different from the debt funds and ELSS. Though, the returns from equity funds are not significantly different from balanced funds and Nifty. It could be concluded that the returns of equity funds are ahead of other categories of mutual funds and Nifty and is significantly different. This proves that the hypothesis first is correct that is, the equity funds have performed better than all the other categories of mutual funds and Nifty.

Equity funds do not have the highest variability which is second to the debt funds. The in-depth analysis of returns of debt

fund makes the issue clear because of the presence of some of the outliers in the returns of the debt funds. This has made the coefficient of variation of the debt funds quite high even more than the coefficient of variation of the equity funds. Despite all this, we found sufficient evidence to reject the hypothesis two that the variability of equity funds is maximum.

The hypothesis three, that the performance of debt fund is the lowest proves to be correct. The returns are the lowest but variability was unexpectedly the highest among all the categories and index returns. But such variations were well understandable with the help of box-plot (Figure 1), where debt funds have some outliers, which gave such high values of the coefficient of variation. Therefore, no other conclusive result could have been drawn regarding hypothesis four except rejecting it.

The fifth hypotheses that the balanced funds have moderate level of returns and also have moderate level of variability, holds true.

Hypotheses two and four were rejected and one, three and five did not have the sufficient evidence to reject them.

### 4. CONCLUDING OBSERVATIONS

The following conclusions could be drawn from the study.

- Different categories of the mutual funds, debt funds, equity funds, balanced funds ELSS and Nifty have performed differently during the period of study.
- Debt funds did have the lowest returns among all the other mutual funds categories and index under study. Variability wise debt funds showed significant variation from the expectation. The debt funds, contrary to the expectation, showed highest variation during the period of the study.
- Equity funds have given the highest returns during the period of study irrespective of the market conditions. It was found that equity funds fared well during the rise as well as fall of the market.
- Balanced funds had been moderate and balanced in both returns and variability of the returns.

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# Depression - An Indication of Work- family Conflict among Academic Women Employees.

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## Abstract:

*This study deals with the relationship and the effect of the demographic profile (namely age, no of children / dependents, education and designation) with depression. Data was collected from university teaching faculty with the sample size of 123. Questionnaires were distributed and statistical analysis was carried out on the collected data. Results prove that depression exists among all age groups, of no of children, educational background, no of dependents with significant differences.*

**Keywords:** Depression, Demographic profile

## Introduction:

An individual's life is filled with emotional fluctuations. When these ups and downs are long lasting and interfere with the individual's ability to function normally we may say that the person is suffering from a serious psychological problem, namely depression. Depression may be called as a whole body illness, involving both physical and mental aspect.

Researchers have proved for long time that women are subjected to higher degree of depression than men. The factors that contribute to the above phenomenon include reproductive, hormonal, gender and other biological factors.

Role Conflict arises when there are more than one role, conflict between or among of several roles results in Role Conflict. (Pearlin 1983). The study is concerned with the relationship of Depression and work family conflict (roles between work and family domains). This includes major responsibilities at home and at work.

Employment pressures in the work domain and care for the children, elderly and other dependents in the family domains are often highly demanding and invariably incompatible with each other. (Chisholm 199; Hallman & Joseph 1999).

## Review of Literature:

Work life balance centre has conducted 24/7 survey which came out with an alarming high increase in the depression symptoms for women in stressful working environment. This increase rose to 49% in 2005/06 from 40 % in 2004 /05.

Work and family roles strains the psychological well being of women (Davis & McAlphine 1918), resulting in role conflict. Study conducted by Allen (2000) states that this conflict results in dissatisfaction, depression and bad physical health. In another community study of women with higher educational attainment, having child / children and maternal role were to be selected to study work family conflict among employed women. . Stress is linked to depression in women (Googins 191) and also to physical distress such as insomnia, changes in appetite, tension related aches and pains (Guelzow, Bird & Koball 1991). In addition, several studies have already demonstrated the detrimental effects of work-family conflict on psychological distress and depression, demonstrating that increased conflict is associated with decreased psychological health (e.g., Beatty, 1996; Frone, 2000; Frone, Russell,

& Cooper, 1991; Kinnunen & Mauno, 1998; Major, Klein, & Ehrhart, 2002; Stephens et al., 1997; Thomas & Ganster, 1995). For example, Thomas and Ganster (1995) found that individuals with child-care responsibilities experienced more depression as their overall work-family conflict increased.

Contrarily in a study conducted by Kannai showed that work-family conflict was not at all significantly selected to depression. However most of the studies did not have information on demographic profile which includes Age. No of children, educational qualification and its effect on depression taking into consideration the role of work family conflict.

University employees tend to undergo greater dissatisfaction with work family interface than corporate employees because colleges and university lag far behind industry in adopting family friendly policies. (Thompson & Kline 1999/2000). Academic faculty enjoys high levels of autonomy and flexibility at the cost of ambiguous criteria for success and unfinished work load for ever (Bailyn 1993. Gapa & MacDermid 1977).

## Objectives of the study:

- To study the difference in the level of depression among various demographic factors of respondents.
- To study the relationship between work life conflict and depression. and
- To find out the impact of work life conflict on the level of depression

## Method

Questionnaires were distributed to university teaching faculty under convenience sampling method. Nearly two hundred respondents were targeted at the population size of 620 employees the women faculty constituted nearly four hundred and odd out of which two hundred plus were married. Out of two hundred questionnaires distributed One hundred and forty five were collected of which only 124 was in a useful condition with the required filled in data.

The survey was anonymous and the privacy of the participants was guaranteed.

Symptoms of depression were evaluated using (CES\_D) scale Centre for epidemiologic studies depression scale. This is a twenty item self reporting questionnaire which has been

tested, standardized and being widely used for measuring symptoms of depression in population. Respondents were asked to rate on a 4 point scale ranging from 0-3 how often they experienced each of the various depression symptoms

Sixteen of the symptoms are worded negatively and other four are positively put to avoid the possibility of a patterned response set. . The CES-D is being reported to have a high internal consistency with co-efficient alpha ranging from 0 .673 to 0.861. The statements are categorized into Physical, Social, Emotional and Behavioral Depressions based on the nature of the content.

Work Family Conflict Scale was made use of to collect data from the respondents This standard set of questions consists of eighteen statements covering positive and negative statements that represent family to work conflict and work to family conflict. To test the reliability of scale, Cronbach's alpha is calculated which shows high reliability with the value of 0.772.

#### Demographic Profile of the Respondents

<u>Age</u>	<u>Marital Status</u>	<u>Number of Children</u>
20-29 = 84	Single/divorced - 33	1 --- 48
30-39 = 30	Married --- 90	2 -- 18
40-49 = 3		0 --- 57
50-59 = 6		
<u>Designation</u>		
Professor—3		
Assistant Professor----21		
Lecturer-----99		

Analysis:

Analysis of variance shows there is significant difference among the different depressions and the age groups. Age groups and Depression.

ANOVA

Table: 1

Factors		Sum of Squares	df	Mean Square	F	Sig.
Physical depression	Between Groups	24.392	3	8.131	2.151	.078
	Within Groups	307.071	119	2.580		
	Total	331.463	122			
Social depression	Between Groups	11.415	3	3.805	1.065	.367
	Within Groups	425.121	119	3.572		
	Total	436.537	122			
Emotional depression	Between Groups	57.949	3	19.316	2.521	.065
	Within Groups	508.393	119	4.272		
	Total	566.341	122			
Behavioral depression	Between Groups	69.372	3	23.124	2.396	.072
	Within Groups	1148.336	119	9.650		
	Total	1217.707	122			

In the given ANOVA depression is categorized as Physical, Social, Emotional, and Behavioral Depressions. The above table depicts that there is no significant difference between different age group of respondents at five percent significant level. It explains that because of age the level of depression does not vary. However the difference in case of social depression is less comparing to the difference level in other type of depressions that is evident from the lowest F value for social depression.

#### **Number of children and Depression:**

For finding out whether there is any significant difference between various segments of respondents based on number of children, the ANOVA test has been applied. The respondents are classified into three categories .

Table: 2  
ANOVA

Factor		Sum of Squares	df	Mean Square	F	Sig.
Total Depression	Between Groups	263.904	2	131.952	2.972	.055
	Within Groups	5328.681	120	44.406		
	Total	5592.585	122			
Physical depression	Between Groups	14.950	2	7.475	2.834	.063
	Within Groups	316.513	120	2.638		
	Total	331.463	122			
Social depression	Between Groups	9.773	2	4.887	1.374	.257
	Within Groups	426.763	120	3.556		
	Total	436.537	122			
Emotional depression	Between Groups	11.763	2	5.881	1.273	.284
	Within Groups	554.579	120	4.621		
	Total	566.341	122			
Behavioral depression	Between Groups	120.395	2	60.197	6.583	.002
	Within Groups	1097.313	120	9.144		
	Total	1217.707	122			

It is inferred from the above table that except behavioral depression, there is no variation between different respondents group based on children. It shows that physical, social and emotional depressions are not depending on number of children the respondents have. At the same time the behavioral depression differs significantly between respondents with number of children. To ascertain how it varies, Duncan post hoc method is applied.

Behavioral depression			
Duncan			
		Subset for alpha = 0.05	
Number of children	N	1	2
0	18	3.6667	
1	48	4.1875	
2	57		6.0000
Sig.		.493	1.000

The Duncan post hoc result reveals that respondents with a child and respondents without child belong to same category in terms of Behavioral level while respondents with two children falls in to other category. Besides, the mean value explains that those who have two children are with more behavioral depression than other two segments. Though with one child and no child categories are not significantly different, the former has scored more than the later in terms of behavioral depression level. Hence, the behavioral depression seems to increase with number of children.

Education:

Table : 3

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Total Depression	Between Groups	111.228	1	111.228	2.455	.120
	Within Groups	5481.357	121	45.300		
	Total	5592.585	122			
Physical depression	Between Groups	.906	1	.906	.332	.566
	Within Groups	330.557	121	2.732		
	Total	331.463	122			
Social depression	Between Groups	8.479	1	8.479	2.397	.124
	Within Groups	428.057	121	3.538		
	Total	436.537	122			
Emotional depression	Between Groups	11.541	1	11.541	2.517	.115
	Within Groups	554.800	121	4.585		
	Total	566.341	122			
Behavioral depression	Between Groups	10.793	1	10.793	1.082	.300
	Within Groups	1206.914	121	9.974		
	Total	1217.707	122			

In the study of variance among the educational category it is evident from the analysis that there is no significant variation on the level of depression for the various categories of educational level.

Number of Dependents:

Table : 4

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Physical depression	Between Groups	65.770	4	16.442	7.302	.000
	Within Groups	265.694	118	2.252		
	Total	331.463	122			
Social depression	Between Groups	42.162	4	10.541	3.154	.017
	Within Groups	394.374	118	3.342		
	Total	436.537	122			
Emotional depression	Between Groups	67.827	4	16.957	4.014	.004
	Within Groups	498.515	118	4.225		
	Total	566.341	122			
Behavioural depression	Between Groups	303.673	4	75.918	9.801	.000
	Within Groups	914.034	118	7.746		
	Total	1217.707	122			

The analysis of variance with the No of dependents and the depression levels show that there are significant differences within the categories. The values signify that all the four different types of depressions vary significantly among one another. To make it more evident how the depression varies with the number of dependents The Duncan post hoc is administered.

Table:4.1

Physical depression			
Duncan			
Number of dependents	N	Subset for alpha = 0.05	
		1	2
2	33	.7273	
1	39	.7692	
4	12	1.5000	
3	15	1.6000	
5	24		2.6250
Sig.		.094	1.000

The Duncan post hoc shows that that the respondents who have one , two, three, and four dependents differ significantly with the respondents with five dependents in the Physical Depression. However there is some variations in the first category but since the values are negligible it can be grouped into one and nullified.

Table:4.2

Social depression			
Duncan			
Number of dependents	N	Subset for alpha = 0.05	
		1	2
4	33	.4545	
5	39	1.4615	1.4615
1	24		1.7500
3	15		2.0000
2	12		2.0000
Sig.		.083	.402

The Duncan posthoc for the number of dependents on Social depression depicts that there is significant difference between the two categories of one, two and three dependents and four and five dependents respectively. However the respondents with five dependents fall into both the categories signifying not much variation in the Social depression.

Table : 4.3

Emotional depression			
Duncan			
Number of dependents	N	Subset for alpha = 0.05	
		1	2
3	15	2.2000	
2	33	2.4545	
1	39	2.6923	
4	12	3.0000	
5	24		4.3750
Sig.		.266	1.000

The Duncan post hoc for Emotional depression with the Number of dependents show a significant difference between the respondents with one, two, three, and four dependents and the respondents with five dependents. Though there is slight variation in the former category the Emotional depression is not prominent.

Table : 4.4

Behavioral depression				
Duncan				
Number of dependents	N	Subset for alpha = 0.05		
		1	2	3
1	33	3.3636		
2	15	3.6000		
3	39	4.7692	4.7692	
4	12		6.2500	6.2500
5	24			7.6250
Sig.		.133	.094	.119

And for the no of dependents which includes children, non earning adults and parents there is significant variation in the behavioral depression. Respondents with one, two and three dependents, respondents with three and four dependents and the respondents with four and five dependents fall into separate categories respectively significantly differing in behavioral depression. However the respondents with three dependents do not vary in its behavioral depression with the second category similarly respondents with four dependents show no significant variation in behavioral depression within the second and the third category.

Analysis of variance shows that there are significant differences in the Social, Emotional, and Behavioral Depression. However the F values signify that Emotional depression have the highest variation followed by Social and Behavioral Depression.

Table : 5

ANOVA						
Variable		Sum of Squares	df	Mean Square	F	Sig.
Total Depression	Between Groups	458.897	2	229.449	5.363	.006
	Within Groups	5133.688	120	42.781		
Physical Depression	Total	5592.585	122			
	Between Groups	5.178	2	2.589	.952	.389
	Within Groups	326.286	120	2.719		
Social Depression	Total	331.463	122			
	Between Groups	25.705	2	12.853	3.754	.026
	Within Groups	410.831	120	3.424		
	Total	436.537	122			
Emotional Depression	Between Groups	51.796	2	25.898	6.040	.003
	Within Groups	514.545	120	4.288		
	Total	566.341	122			
Behavioral Depression	Between Groups	64.590	2	32.295	3.361	.038
	Within Groups	1153.117	120	9.609		
	Total	1217.707	122			

Table : 5.1

Social depression			
Duncan			
Designation	N	Subset for alpha = 0.05	
		1	2
Professor	3	.0000	
Assistant Professors	21	1.2121	1.2121
Lecturers	99		2.2857
Sig.		.202	.258

The Duncan post hoc for the three different designations on Social depression shows significant difference and divides into two categories. However the assistant professor category respondents show no difference in the social depression within the two categories.

Table : 5.2

Emotional depression			
Duncan			
Designation	N	Subset for alpha = 0.05	
		1	2
Professor	3	.0000	
Lecturers	99		2.7879
Assistant Professors	21		4.0000
Sig.		1.000	.254

As far as emotional depression is concerned, it is evident from the above table that lecturers and assistant professors have more depression than professors. It may be because of age factor that professors are matured enough to balance their emotions. But mean value of emotional depression for assistant professors is greater than that of lecturers which is resulting from family pressures.



Table : 5.3

Behavioral depression Duncan			
Designation	N	Subset for alpha = 0.05	
		1	2
Professor	3	1.0000	
Lecturers	99		4.8788
Assistant professors	21		5.8571
Sig.		1.000	.538

The result of Duncan post hoc table for behavioral depression exhibits the same pattern like the result of emotional depression. Assistant professors and lecturers fall in to one set and professors in to another set. Professors have comparatively less behavioral depression than other two designations that is apparent in mean values from the above table.

### Correlation of depression and work Life Conflict

It is learnt from review of literature that one of causes for depression is role conflict of a person. The bivariate correlation is adopted to understand the level and direction of relationship between role conflict and various types of depression as well as the relationship within types of depression.

Table : 6

Variable	WF	FW	TDP	Physical depression	Social depression	Emotional depression	Behavioural depression
WF	1						
FW	.323**	1					
TDP	.279**	.023	1				
Physical depression	.145	.074	.686**	1			
Social depression	.166	.082	.749**	.470**	1		
Emotional depression	.363**	.068	.716**	.283**	.447**	1	
Behavioral depression	.177	.091	.848**	.475**	.456**	.437**	1

\*\*Correlation is significant at .01level (2 tailed)

The relationship between types of depression is highly significant and positive. The output from correlation table confirms that all types of depressions are interrelated. With reference to the relationship between work family conflict, family work conflict and types of depression, only work family conflict has significant and positive relation with total depression and emotional depression.

### Regression

To measure the level of impact of role conflict on depression, the simple linear regression model is used. The total depression is taken as dependent variable and both work to family conflict and family to work conflict as dependent variables.

Table : 7

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.288 <sup>a</sup>	.083	.068	6.53720
a. Predictors: (Constant), fw, wf				
b. Dependent Variable: total depression				

The adjusted R square value means that only 6.8 percent of depression is explained by role conflict this is very less in terms of influence.

Table : 7.1

Coefficients					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	46.556	3.312		.000
	wf	.464	.141	.303	.001
	fw	.073	.090	.075	.420
a. Dependent Variable: total depression					

$$\text{Total depression} = 46.556 + 0.303WF + 0.075FW$$

The regression coefficient table exposes the level of influence made by work to family conflict and family to work conflict. It confirms the correlation result as the degree of impact of work to family conflict on total depression of respondents is higher than that of family to work conflict. Moreover coefficient of work to family is significant whereas coefficient of family to work conflict is not so.

### Findings:

The findings of the study reveals that there is no significant difference between the different age groups and people do not differ in their depression levels because of the age as the factor.

The Number of children does not affect the depression types except behavioral depression. The Physical, Social, and Emotional do not depend on the number of children. Infact there is some variation in the behavioral depression among the respondents with no children and one child and with those with two and more children. It is evident from the study that there is no significant variation among the respondents in their depression belonging to various educational categories.

The number of dependents as a factor taken for study reveals there is significant difference in each category of depression. Those who have found to have five dependents which can be stated as the non earning member of the family and less than that which includes one, two, three, and four dependents do have an impact on the Physical depression, Social Depression, Emotional and Behavioral depressions.

It has been observed that there is significant difference in the types of depression among the designation levels. The professor grade seems to differ from the lecturer category with assistant professor sharing both the components in the Social Depression. As far as Emotional and Behavioral Depression is concerned the lecturers and the assistant Professor do not differ much but together they differ from the Professor category.

It has been identified that there is positive and very high correlation among the different types of depression and between the work life conflict and depression. Moreover the work to family conflict is having a higher impact on total depression than family to work.

## Conclusion:

Thus the present study proved that the different antecedents of demographic profile like age, designation. No of dependents was significantly related to depressive symptoms. The findings from this study are useful to practitioners in a variety of ways. For instance, interventions to lessen employees' work-family conflict may reduce their depressive symptoms. Moreover, programs focusing on identifying ways not only to decrease inter role conflict but also to improve the positive spillover between work and family may benefit employees who exhibit depressive symptoms. Second, our findings highlight the need for organizational policies and programs designed to assist employees in managing their multiple work and family role demands. By implementing alternative work schedules, providing more flexibility in work schedules, and providing more dependent-care assistance, to name just a few mechanisms, employee work-family conflict may decrease, leading to decreased levels of depressive symptoms reported in the workplace. Future research is needed to examine the potential for beneficial effects of these family-friendly policies and programs on work-family positive spillover, as research suggests that the resultant decreases in depression have positive effects on employee attitudes and behaviors (Johnson & Indvik, 1997), and thus have a positive impact on organizational. This research study is confined to one organization and may not hold true for the entire industry. The respondents and the study are restricted to Indian context only. The analysis is based on the responses given and genuinity of the responses is not tested and the study is time bound and may not hold true for ever.

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## Appendix:

### Centre for Epidemiologic studies Depression Scale

0 - Most or all the times 5-7 days a week

1 - Occasionally or a moderate amount of time 3-4 days a week

2 - Some or little of the time 1-2 days a week

3 - Rarely or once of the time less than once week

Statements	0	1	2	3
I was bothered by things that usually don't bother me				
I felt that everything I did was an effort				
I felt I was just as good as other people				
I had trouble keeping my mind on what I was doing				
I felt sad				
I felt fearful				
I felt lonely				
I had crying spells				
I talked less than usual				
My sleep was restless				
I enjoyed life				
I felt that I could not shake off the blues even with the help of my family				
I thought my life had been a failure				
I was happy				
I could not get going				
I felt hopeful about the future				
People were unfriendly				
I did not feel like eating my appetite was poor				
I felt depressed				
I felt that people disliked me				

Work Family Conflict Scale	My work keeps me from my family activities more than I would like.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	The time I must devote to my job keeps me from participating equally in household responsibilities and activities.					
	I have to miss family activities due to the amount of time I must spend on work responsibilities.					
	The time I spend on family responsibilities often interfere with my work responsibilities.					
	The time I spend with my family often causes me not to spend time in activities at work that could be helpful to my career.					
	I have to miss work activities due to the amount of time I must spend on family responsibilities.					
	When I get home from work I am often too frazzled to participate in family activities /responsibilities					
	I am often so emotionally drained when I get home from work that it prevents me from contributing to my family.					
	Due to all the pressures at work sometimes when I come home I am too stressed to do the things I enjoy.					
	Due to stress at home I am often preoccupied with family matters at work.					
	Because I am often stressed from family responsibilities I have a hard time concentrating on my work.					
	Tension and anxiety from my family life often weakens my ability to do my job.					
	The problem solving behaviors I use in my job are not effective in resolving problems at home.					
	Behavior that is effective and necessary for me at work would be counter productive at home.					
	The behavior I perform that make me effective at work do not help me to be a better parent and spouse.					
	The behavior that work for me at home do not seem to be effective at work.					
	Behavior that is effective and necessary for me at home would be counter productive at work.					
	The problem solving behavior that works for me at home does not seem to be useful at work.					

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# Tourism and Climate Change – An Exploratory Study of the business opportunities

Mohit Vij

## Abstract:

*The issue of environment and Greenhouse gas (GHG) emissions is being given its due importance by many countries, especially the ones which signed on Kyoto treaty in 1997, and agreed to reduce their collective green house gas emissions by 5.2% from the level that was in 1990. Evidently, most of these countries are popular tourism destinations contributing significantly to greenhouse gas (GHG) emissions through their tourism activities, the road transportation being the major one. Thus the drive to reduce emissions will affect decisions in many concerned businesses including tourism industry. Investment decisions taken today will have long-term impacts on emissions for decades to come. The present study aims at exploring some of the possible ways to reduce the greenhouse gas emissions from the environment and provides insight as to how the tourism sector can use them to improve functioning. Out of thirty emission abatement methods presented by McKinsey in its report, five are explored and evaluated on twelve business factors including Porter's five forces. This study provides reasonable findings to gauge business potential of selected emission abatement methods from the investment point of view and also paves way for future researches in this area.*

**Key words:** Climate change, green house gas emission, emission abatement, Porter's five forces

## Tourism and Climate Change – An Exploratory Study of the business opportunities

### Background

Anthropogenic climate change is caused by greenhouse gasses emitted into the atmosphere, primarily through the burning of fossil fuels. Carbon dioxide (CO<sub>2</sub>) is the most important greenhouse gas, accounting for an estimated 60% of the warming caused by emissions of greenhouse gas emissions. "According to UNWTO-UNEP-WMO (2008), emissions from tourism, including transports, accommodation and activities (excluding the energy used for constructions and facilities for example) account for about 5% of global CO<sub>2</sub> emissions. However, other greenhouse gases also make significant contributions to global warming. In the tourism sector, this is particularly relevant for emissions from aviation. In 2005, tourism's contribution to global warming was estimated to contribute between 5% and 14% to the overall warming caused by human emissions of greenhouse gases. Of the 5% of the global total of CO<sub>2</sub> emissions contributed by tourism, transport generates around 75%, with air transport alone accounting for 54% to 75% of the total (UNWTO-UNEP-WMO 2008). The projections revealed by UNWTO indicate that in terms of the number of trips made, global tourism will grow by 179%, while guest nights will grow by 156%. Passenger kilometers traveled will rise by 222%, while CO<sub>2</sub> emissions will increase at somewhat lower levels (152%) due to efficiency improvements. The share of aviation-related emissions will grow from 40% in 2005 to 52% by 2035. Tourism's contribution to global warming including all greenhouse gasses will be even larger, with an expected increase in radiative forcing of up to 188%, most of this once again caused by aviation." (Simpson, 2008)

### International Efforts to adapt and mitigate the impacts

Apparently, the response of the tourism community to the challenge of climate change has visibly increased over the last few years. The World Tourism Organization (UNWTO), together with the World Meteorological Organization (WMO),

the United Nations Environment Programme (UNEP), and the United Nations Convention to Combat Desertification (UNCCD), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Government of Tunisia hosted the First International Conference on Climate Change and Tourism in Djerba, Tunisia in 2003. The conference aimed to develop awareness among government administrations, the tourism industry and other tourism stakeholders, highlighting both current, and anticipated climate change impacts affecting tourism destinations and the need to carefully consider the consequences of climate change mitigation policies on tourism as well as the responsibility of the tourism sector to be a part of the solution by reducing its greenhouse gas emissions.

Subsequent workshops supported by the European Science Foundation (ESF) (Milan 2003), the North Atlantic Treaty Organization (NATO) (Warsaw 2003), the European Forum on Integrated Environmental Assessment (EFIEA) (Genoa 2004), and the Experts on Climate Change and Tourism group (eCLAT) (Netherlands 2006, Paris 2007), further contributed to the development of collaborative research and practical case studies by a network of international tourism stakeholders and scientists. Following the first International Conference on Climate Change and Tourism in 2003, the WMO and UNWTO took steps to strengthen the working arrangement that had been in force between these agencies since 1992. In particular, WMO's Commission for Climatology, at its fourteenth session (Beijing, China, November 2005) established a new Expert Team on Climate and Tourism, which has contributed to the knowledge base and the partnerships to support sustainable development of the tourism industry. In March 2007, UNWTO, UNEP and WMO commissioned a review report on tourism and climate change, including impacts and adaptation, changes in tourism demand patterns, emissions from tourism, and mitigation policies and measures.

### Business Opportunities

In striving to do no harm to the environment, there are potential cost savings which can be realized by big businesses in

implementing the use of energy- efficient equipments which in turn ease strain on the national electricity utility and places less reliance on coal-generated power. Also, in showing a commitment to environmental concerns by leading from the top and becoming an agent for change, a positive reputation is built, which can do much to gain consumer trust and to advance the business. Apart from showing environmental responsibility, a company's corporate image can be significantly boosted, and a company implementing eco-sensitivity ahead of imposing policy and regulation could be rewarded by socially conscious shareholders and consumers. Last but not the least, the corporate in many countries are also bound to control the emissions due to Kyoto climate-change protocol which legally whereby all the participating nations commit themselves to tackling the issue of global warming and reduce greenhouse gas emissions. The target agreed upon at the summit is an average reduction of 5.2% from 1990 levels by the year 2012.

## Objectives

The objective of this study is to identify and analyze the selected GHG abatement methods as presented by McKinsey in its global cost curve which is being used as major reference for this research. The selection of these abatement methods is done on the basis of their viability and potential in reducing the tourism environmental impacts. Subsequently, an effort is made to conduct a macro level strategic analysis of how these technologies could be translated into potential business. The analysis is done from both perspectives – an external view to establish a new venture in one of these areas as well as an internal view by considering new technologies that could positively reduce the GHG emissions by being more energy efficient than that of existing ones for an organization.

## Research Methodology

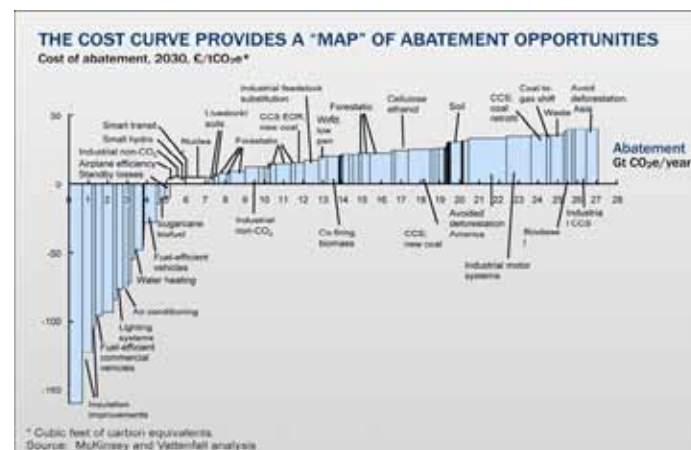
McKinsey in its report recommended that certain measures to restrain costs be considered to ensure strict technical standards and rules for the energy efficiency of buildings and vehicles; to establish stable long-term incentives to encourage power producers and industrial companies to develop and deploy GHG efficient technologies; to provide incentives and support to improve the cost efficiency of selected key technologies, including carbon capture and storage (CCS), and finally, to ensure that the potential in forestry and agriculture is addressed effectively, primarily in developing countries (Mc Kinsey, 2007).

In the present study, an attempt is made to adopt a comprehensive and coherent approach for the analysis with a standard template that is used for all business opportunities. The template included basic twelve factors including Porter's five forces viz. geographical prominence, industry rivalry, barriers to entry, threat of substitutes, bargaining power of buyers, bargaining power of suppliers, government regulations, stage in life cycle, opportunities, and abatement potential (CO2 saved, costs), energy efficiency obtained from the technology, and government recognition & support.

Each of these 12 factors were deeply analyzed for every

abatement technology and scaled on a range from "High", "Moderate" to "Low". For instance if "threat of substitutes" for sugarcane bio-fuel is "Moderate", it means that there are a few other available fuels that can easily take its place. Efforts are made to justify the scaling with facts and figures, nevertheless, in some cases the analyses could be perceived as subjective and be seen in relative terms. Furthermore, it has been taken care of that proper references are included for further investigation and details. The sources of information to conduct the analysis include intensive searches on Google and other search engines on internet.

**Figure 1 The Cost Curve Provides a "MAP" of Abatement Opportunities**



## Findings and Inferences

### Lighting systems – CFL lighting

In the hotel sector, there are some basic measures that can be taken to reduce energy needs for lighting. The most cost-effective measure is to use daylight to the largest extent possible, for instance by controlling vegetation growth and including aspects of illumination in the overall design of the hotel. Other low-cost measures include energy-saving lighting systems and motion detectors in floors and common areas. Energy efficient light bulbs have a far longer lifetime than conventional light bulbs (up to ten times longer). For instance, Compact fluorescent lamps (CFL) are four times more efficient and last up to 10 times longer than incandescent lamps. A 22 watt CFL produced similar light as a 100 watt incandescent lamp and uses 50 - 80% lesser energy (Eartheasy.com, 2009). Currently CFLs only account for 6% of the total lighting market and represent a minor share of light production in the residential sector but it is a fast growing industry with the rising demand for energy efficient lighting due to increasing awareness and legislative support (OECD, 2006). Due to the extensive experience with incandescent lamps, shifting away from this technology seems more difficult in OECD countries than in developing countries where such technological path dependency is more limited (ADB New Release 2008).

Table 1 Business Factors for CFL Lighting

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**Table 1 Business Factors for CFL Lighting**

<b>Geographical prominence</b>	Global market for screw-based CFLs was around 1.6 billion lamps in 2006 of which four-fifths were made in China. CFL sales in 2003 in China are estimated at 355 million units, representing over 30% of the global market. Other big markets are Europe and US.
<b>Industry Rivalry: Competitors</b>	<b>High:</b> Concentrated in China with around 1000 manufacturers (1997). Voluntary agreement between key players like GE, Philips, Orpat, Osram and Halonix to produce higher quality products would create more differentiation (ADB New Release 2008). Growing innovation from Taiwanese suppliers with features like dimming capability, air purifying functions, adjustable base size.
<b>Barriers to entry</b>	<b>Moderate:</b> Purchase price are perceived high: even though it has decreased over the time, customer still do not have clear information about the product and fail to forecast benefits. Consumers who tried earlier version of CFLs do not trust the technology (Bertoldi, 2007). Reluctance from governments to create regulatory incentives. (Global environment Facility, 2007)
<b>Threat of Substitutes</b>	<b>Moderate:</b> Conventional Incandescent lights, light emitting diodes (LED market is still very small), Fluorescent tubes. Recent increase in the use of halogen lamps as low voltage lamps, reflector lamps, and double ended high wattage lamps (Bertoldi, 2007).
<b>Bargaining Power of Buyers</b>	<b>High:</b> Due to a large number of manufacturers in mainland china, globally buyers have higher bargaining power. But prices of higher quality CFLs may raise due to higher prices of raw materials but Chinese suppliers wouldn't rise beyond 5% to remain competitive. Utility subsidies would also cap the prices for end users by 40-50% (Global Sources 2007).
<b>Bargaining Power Suppliers</b>	<b>Low:</b> Prices of raw material are rising but there is large number of suppliers. Quality and RoHS compliances for raw materials have decreased their bargaining power.
<b>Govt. Regulations</b>	Lack of subsidized prices in Europe, while some rebates available in NA. Countries like brazil offer rebates and have policies to offer low interest loans for investment in energy saving project (OECD, 2006).
<b>Stage in life cycle</b>	In use with innovation and standardization in process
<b>Opportunities</b>	Awareness among utilities may create regulatory usage policies implying large demand.
<b>Abatement potential (CO<sub>2</sub> saved, costs)</b>	Average abatement cost(2030): -90 EUR/t CO <sub>2</sub> e Total abatement opportunity (2030): 0.2 GtCO <sub>2</sub> e (Vatenfall, 2007).
<b>Energy efficiency</b>	<b>High:</b> CFL are four times more efficient and last up to 10 times longer than incandescent lamps. A 22 watt CFL produced similar light as a 100 watt incandescent lamp and uses 50 - 80% lesser

	energy. (Eartheasy.com, 2009)
<b>Government Recognition &amp; Support</b>	<b>Moderate:</b> Regulations are not yet in place for use of CFL but are predicted to be mandated soon by several countries like US. There are already standards in place for building energy consumption and even there are existing incentives and rebates in few countries like Brazil (OECD 2006, p.6). It is particularly recognized by some governments as a source of reducing GHG emissions.

### Water heating – Solar water heating

A solar water heater captures sun's renewable energy to heat water which significantly reduces the amount of fuel used and also the emissions of harmful greenhouse gases (Solahart.com 2008). Globally, the industry started growing in early 1970s and went through different stages of innovation. The cumulative installed capacity of solar water heating systems grew 14% from 110 million m<sup>2</sup> in 2004 (77 GWth) to 125 million m<sup>2</sup> in 2005 (88 GWth) (E. Martinot, 2006). Usually Solar Water Heating Systems use solar energy as the primary source of heating water and use electric, natural gas, propane as an auxiliary heating source.

**Table 2 Business Factors for Solar water heating**

<b>Geographical prominence</b>	Top 5 countries in solar water heating capacity: China, Germany, Turkey, India and Austria (Eric. Martinot, 2006).
<b>Industry Rivalry: Competitors</b>	<b>High:</b> China has the largest share in solar water heating industry with over 1000 manufacturers of which 100 can be considered competitive. The industry is quite fragmented and quality of products is a differentiator (Robert, 2007). Testing compliances and quality certifications like Gold star in China is becoming a differentiating factor (Z. Lou, 2007). Some of the global and Chinese key players are US Flying Hot Water, Changzhou Zhuohua, Solahart Australia, Shandong Huangming, Shandong Linuo, Beijing Tsinghua, Jiangsu Huayang, Jiangsu Sunshore and Tianpu.
<b>Barriers to entry</b>	<b>Moderate:</b> High upfront and transaction costs (information, procurement, installation works) implying long payback times. It is not yet perceived as a standard option for heating due to low awareness, especially among the decision makers which could mean more investments in marketing. There is also a lack of skilled installers.
<b>Threat of Substitutes</b>	<b>Low:</b> Latest water heating technologies such as pump water heaters, GeoExchange systems may pose threat. Decreasing threat from conventional technologies with rise of fuel prices.
<b>Bargaining Power of Buyers</b>	<b>Moderate:</b> As the demand is far higher than the capacity, the initial costs of installation are still high for end users, but rising competition is a balancing this.
<b>Bargaining Power Suppliers</b>	<b>Low:</b> Raw material supplier market is highly concentrated fragmented. <i>Limited information available on Chinese raw material market.</i>
<b>Govt. Regulations</b>	Initial subsidies, tax relief and low interest loans for installation offered in several countries. Countries like India, Korea, China and Spain have established regulations to increase the usage of solar hot water (E. Martinot, 2008). China has long-term goals for solar hot water (150 million m <sup>2</sup> by 2010 and 300 million m <sup>2</sup> by 2020 from 100 million m <sup>2</sup> in 2006).
<b>Stage in life cycle</b>	Currently in use. Suitable for domestic and industrial use. Its recent growth in China and the rise in global power demand still make this industry a growing sector.
<b>Opportunities</b>	Costs can be driven less with economies of scale through investment in China and India. O&M costs are also lower when compared to conventional technologies.

<b>Abatement potential (CO<sub>2</sub> saved, costs)</b>	Abatement cost for commercial sector: -104Eur/TCO <sub>2</sub> , residential: -62Eur/TCO <sub>2</sub> . Potential: 0.1 GT CO <sub>2</sub> (commercial) 0.2 Gt CO <sub>2</sub> (residential) (Levine, 2007).
<b>Energy efficiency</b>	<b>Moderate:</b> Solar water heating can be used in commercial or industrial premises as an economic alternative to conventional furnace / electric heating. Thus it can reduce the operational costs.
<b>Government Recognition &amp; Support</b>	<b>High:</b> Initial subsidies, tax relief and low interest loans for installation offered in several countries. Countries like India, Korea, China and Spain have established regulations to increase the usage of solar hot water (Eric Martinot, 2008).

## Sugarcane Bio-fuel

Bio-fuels derived from the tropical crops such as sugar cane and palm oil are far more cost-effective than bio-fuels from other feed-stocks, including the target prices for cellulose ethanol. Profitability can be enhanced at the plant level by incorporating complementary products such as electricity cogeneration, yeast, and CO<sub>2</sub>. By comparison, U.S. corn-based ethanol costs from stand-alone ethanol plants is currently between \$1.70 and \$2.00 depending on the underlying cost of corn, which has recently exceeded \$3.00 per bushel, or \$1.10/gallon of ethanol. Similarly, the fully amortized cost per gallon to produce bio-diesel from vertically integrated Palm and Jathropa oil production and processing projects is estimated to be \$1.25 per gallon. This is in contrast to the raw cost of the primary US bio-diesel feedstock, soybean oil, which is currently in the range of \$2/gallon (Agland Investment Services, 2006).

**Table 3 Business Factors for Sugarcane Bio-fuel**

<b>Geographical prominence (countries/continents)</b>	About 30 countries currently either have active bio-fuel programs or will have soon.  1. US for domestic production and use. 2. Brazil for domestic and exports. Most FDI in bio-fuels in comes from the United States and Japan. 3. EU produces a lot but still looks for imports (due to ambitious targets) 4. India & China in addition to domestic production, are also investing in Africa, Philippines and other low cost locations (Phil, 2006).
<b>Industry Competitors</b>	<b>Low:</b> Monsanto, Syngenta, Ciba, Clariant and DuPont.  Monsanto is working with Votorantim conglomerate which owns CanaVialis, world leader in the field of sugarcane genetics, and sugarcane genomics company Allelyx.  Syngenta, Monsanto's major European competitor has access to inedible sugarcane strains with ultra-high cellulose content developed by the Celunol biotechnology. In February 2008 Verenum headquartered in Cambridge, Massachusetts, received a grant from the U.S. Department of Energy to develop cellulose ethanol (Carmelo, 2008).
<b>Barriers to entry</b>	<b>Moderate</b> due to high processing costs and unclear policies e.g. lack of agreed list of duty free tropical products. According to analysts even the new rules (e.g. Doha agreement) will not offer significant new trading opportunities (WTO, 2006).
<b>Threat of Substitutes</b>	<b>Moderate</b> : Bio-diesel from palm oil in Indonesia and Malaysia as well as from oil-rich, inedible plants such as jatropha and pongamia in India; and bio-ethanol from sugarcane in Mozambique and in several Latin American countries, such as Honduras, Nicaragua and Panama
<b>Bargaining Power of Buyers</b>	<b>Low</b> because of few available options and increasing pressure from government regulations.
<b>Bargaining Power of Suppliers</b>	<b>Moderate</b> because bio-fuel production is essentially labour intensive and fragmented industry. Low switching costs. (Keiser S., 2005)
<b>Govt regulations</b>	<b>High</b> as it touches four areas of policy: energy, environment, agriculture and rural development. These areas, in turn, are strongly shaped by international trade and investment rules, trade barriers, and tax policy, all of which generate significant policy distortions in both the agriculture



	and energy sectors. <sup>1</sup> Tax exemptions are common but not consistent across EU member states; some countries, such as Sweden and Spain, exempt bio-fuels from excise taxes altogether, while others (France, Ireland, the Netherlands and some others) grant only limited exemptions for bio-fuels. (Sophia Murpfy, 2007)
<b>Stage in life cycle</b>	Although assessments of the global economic potential of bio-fuels have just begun, current bio-fuel policies could, according to some estimates, lead to a fivefold increase of the share of bio-fuels in global transport energy consumption – from just over 1 percent today to 5 to 6 percent by 2020 (World Bank, 2008).
<b>CO<sub>2</sub> saved</b>	Sugarcane-based bio-ethanol saves between 80 and 90 percent of GHG emissions per mile while bio-diesel from soybeans can save 40 percent. (P. Hazell, 2007) In general, bio-fuels from grains have lower performance, reducing carbon emissions by 10 to 30 percent per mile or, in some cases, even producing higher emissions than fossil fuels.
<b>Opportunities</b>	Considering the raise in petroleum prices, bio-fuel is gaining acceptance in all countries. For instance the EU plan calls for bio-fuels to be used in at least 10 percent of fuels used in transport in the 27-nation bloc by 2020. However, the laws for bio-fuel export-import have to be taken care of. Sugarcane bio-fuel business opportunity could be thought for countries like India where the fuel consumption and price are increasing along with sugarcane supply exceeding demand.
<b>Abatement potential (CO<sub>2</sub> saved, costs)</b>	It estimated that sugarcane ethanol created up to 70 percent fewer greenhouse gases than fossil fuels, whereas maize -- most used in the United States -- permitted a reduction of only 13 percent (AFP 2008).
<b>Energy efficiency</b>	<b>High:</b> Producing sugarcane bio-fuel takes \$1 in comparison to \$3.08 for gasoline and \$2.79 diesel.
<b>Government Recognition &amp; Support</b>	<b>Depends on the country.</b> Brazil for domestic and exports. Most FDI in bio-fuels comes from the United States and Japan (Phil, 2006).

### Fuel efficient Airplanes – Fiber optic based Sensor Technology

According to UNWTO 2008 report, after labour, fuel represents the largest cost component in airlines operations. Air transport accounts for an estimated 40 % of the tourism contribution of CO<sub>2</sub> (and about two-thirds of the total GHG impact). Unfortunately, there are only few ways by which airplane fuel consumption can be reduced. International Air transportation Authority (IATA) is working with air navigation service providers (ANSPs), air traffic controllers (ATCs), airlines and other key stakeholders to improve the fuel efficiency. Its initiatives include “Save 1 Minute” per flight through

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<sup>1</sup> U.S. spends an estimated US\$ 39 billion per year on oil and gas subsidies, compared with US\$ 8 billion on coal, US\$ 9 billion on nuclear energy, US\$ 6 billion on ethanol and US\$ 6 billion on other forms of renewable energy.

better airspace design, procedures and management; Route Optimization by opening new more direct flight routes and re-aligning them; improvements to ground, departure & arrival traffic and refining the existing operating procedures (IATA, 2009). As far as business opportunity is concerned, it seems to be in the area of “Fiber optic based Sensor Technology”, which is still in its infancy stage and being evaluated by NASA. (NASA, 2008) The weight reduction that fiber optic sensors would make possible could reduce operating costs and improve fuel efficiency. The development also opens up new opportunities and applications that would not be achievable with conventional technology. For example, the new sensors could enable adaptive wing-shape control. If the shape of the wing can be changed in flight, then the efficiency and performance of the aircraft can be improved, from takeoff and landing to cruising and maneuvering (Kate Greene, 2008).

**Table 4 Business Factors for Fiber based Sensor Technology**

<b>Geographical prominence</b>	Being an emerging area, a lot depends on publications & patents. Interestingly, the major publication work in the field has taken place in the United States and the United Kingdom. However, Japanese organizations accounted for less than 10% of technical publications; they accounted for about 31% of patents and are the largest contributors (WTECH, 1996).
<b>Industry Rivalry: Competitors</b>	<b>High:</b> <i>USA</i> - Agilent Technologies, Inc., Blue Road Research Inc., CompuDyne Corporation, Davidson Instruments Inc., Halliburton Company, Honeywell Sensing and Control, Intelligent Fiber Optics Systems, KVH Industries, Inc, Micron Optics, Inc., NxtPhase, T&D Corporation, Northrop Grumman Navigation Systems Division, Ocean Optics, Inc. Optrand, Inc. Photonics Laboratories, Inc., Prime Photonics™, Schlumberger Limited Tubel Technologies, Inc. <i>The United Kingdom</i> - Sabeus Sensor Systems Sensornet Ltd. <i>The Netherlands</i> - Avantes B.V., Switzerland - Baumer Electric AG <i>Canada</i> - C-Chip Technologies Corporation, EXFO, Fiber Optic System, FISO Technologies, <i>France</i> - Highwave Optical Technologies <i>Japan</i> - Hitachi Cable Ltd.
<b>Barriers to entry</b>	<b>Moderate:</b> Patents, High costs in Research & Development.
<b>Threat of Substitutes</b>	<b>Low:</b> There is not any competitive technology except for other ways to save fuel such as better airspace design, procedures and management, route optimization, improvements to ground, departure & arrival traffic and refining the existing operating procedures.
<b>Bargaining Power of Buyers</b>	<b>Moderate:</b> Due to intense market competition in fiber optic companies.
<b>Bargaining Power of Suppliers</b>	Not much information available
<b>Govt. Regulations</b>	The technology is being testified by NASA. No specific regulations so far.
<b>Stage in life cycle</b>	<b>Nascent Stage</b> - The technology is not even launched and being tested on unmanned aircraft by NASA.
<b>Opportunities</b>	If approved, the new technology could not only substantially reduce the fuel consumption but also enable adaptive wing-shape control.
<b>Abatement potential (CO<sub>2</sub> saved, costs)</b>	According to a report – “Overall, the total annual distance covered by the global civil aircraft fleet was forecast to grow by 149% from 2002 to 2030, with the seat-kilometres forecast to grow by 229%. The case with the most technological advance (that with \$100/tonne CO <sub>2</sub> cost) was forecast to produce 22% less CO <sub>2</sub> in 2030 than the case without the extra incentives. However, even this case was forecast to produce nearly twice as much CO <sub>2</sub> in 2030 as in 2002.” (Gareth Horton, 2006).
<b>Energy efficiency</b>	<b>Moderate:</b> Cost 10cents kWh <sup>1</sup> , no CO <sub>2</sub> is generated.
<b>Government Recognition &amp; Support</b>	<b>Low:</b> The environmental incentives are large but it is regulatory constraints that are limiting small hydro's development making it unfeasible (European Commission 2009).

## Wind power

Wind energy is a significant power source being safe, clean and abundant. Wind power is one of the few energy supply technologies that possess the maturity and a global potential to deliver deep cuts in fuel usage and GHG emissions. It is the fastest growing energy source in the world with an average annual growth rate of more than 26 % since 1990. World's wind energy

generating capacity in 2005 stood at over 59 GW. GWEC estimates that the wind industry is capable of becoming a dynamic and innovative 80 billion euro (67 billion USD) annual business by 2020. Wind power installed worldwide could be increased from 59 GW in 2005 to 1,000 GW by 2020 and could supply 12 % of global electricity needs. (GWEC 2009)

**Table 5 Business Factors for Wind Power Energy**

<b>Geographical prominence</b>	Countries with the highest installed capacity: Germany, Spain, USA, India and Denmark. Other countries like Italy, UK, Netherlands, China, Japan and Portugal growing. Canada also is predicted to be among the fastest growing.
<b>Industry Rivalry: Competitors</b>	<b>Moderate:</b> Key players are Vestas, Enercon, GE, Gamesa, Clipper, Suzlon, Siemens, REpower Systems AG & Nordex. Globally the market is more on an oligopolistic framework although concentrated in some countries. With rising demand, competition has moved from project-driven, national agreements to multi-year frame agreements spanning several regions. There has been rising product size segmentation (Senosiain, 2001).
<b>Barriers to entry</b>	<b>High</b> Absence of proven technology, limited subsidies from government and dependence on governmental policies. Vertical integration of existing players. Rising steel costs (Efiong, 2007).
<b>Threat of Substitutes</b>	<b>Moderate</b> Threat from conventional power sources like coal, gas is less due to decreasing costs in wind power generation due to technology innovation and economies of scale. Rising threat from alternate sources like solar, hydro, biomass etc. (Alternate Energy 2008)
<b>Bargaining Power of Buyers</b>	<b>Low:</b> The key customers are large independent power producers and utilities who are ready for long term agreements with significant advance payments due to rising demand which signals a low buyer's power (Efiong, 2007).
<b>Bargaining Power of Suppliers</b>	<b>High:</b> With supply chain management becoming a competition driver, relationships between OEMs and suppliers is becoming crucial due to rising demand and bargaining power of these suppliers does seem high currently. There have been few entrants in supply chain and as there is large number of components used, few suppliers have been able to remain highly profitable (Efiong, 2007).
<b>Govt. Regulations</b>	In Europe Feed-in tariffs exist in most countries making utilities obliged to connect renewable energy plants to the electric grid and similar policies exist in countries like US and India. There are Green certificates in some countries which obliges consumers to buy a certain amount of energy produced by renewable sources. Federal government in Canada has in place Wind Power Production incentives, funding and tax benefits (Senosiain, 2001).
<b>Stage in life cycle</b>	Considered fairly mature with steady improvements in technology.
<b>Opportunities</b>	Rising demand and fast paced growth. Growing need to reduce GHG emissions.
<b>Abatement potential (CO<sub>2</sub> saved, costs)</b>	Estimated abatement cost(2030) : 22 EUR/tCO <sub>2</sub> e Abatement potential(2030) : 485 Mt CO <sub>2</sub> e (McKinsey, 2007)
<b>Energy efficiency</b>	<b>High:</b> Wind power is considered at par with coal power in terms of cost. Currently Coal power cost is estimated to be 4.8 - 5.5 Cents/kW-h while wind power cost is 4 - 6 Cents/kWh. Cost of producing wind power is predicted to become even lesser with low O&M costs. (Pure Energy

	Systems, 2009)
<b>Government Recognition &amp; Support</b>	<b>High:</b> Feed-in tariffs exist in some European countries making utilities obliged to connect renewable energy plants to the electric grid and similar policies exist in countries like India and US (some US states have rebate programs for wind energy). Green certificates in some countries oblige consumers to buy a certain amount of energy produced by renewable sources. Canadian Federal government offers Wind Power Production incentives, funding & tax benefits (Senosiain, 2001).

## Conclusion

The relevance of climate change to tourism is not inconceivable. Climate change is already influencing decision making within the tourism sector, including tourists, forward looking tourism businesses and investors, and international tourism organizations. The climate change mitigation potential is thought to be relatively high in the tourism sector because efforts to lower energy consumption and GHG emissions in the sector are still largely in their infancy (UNWTO, 2007). The usage of solar water heating, wind power energy and CFL lighting is presently observed in the hospitality industry whereas the application of fiber optical sensor technology and bio fuel in the transportation sector remains a widely unexplored area. The investors are advised to critically assess these potential technologies before making an effort to commercialize them. Also irrespective of the levels of maturity of these technologies, which may differ in various countries, profitability from any of such businesses cannot be expected without government support and assistance. Last but not the least, the business environment for these mitigation technologies is highly dynamic in nature hence, it is imperative that the investors keep a track of new developments in the market.

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# Anti-Piracy strategies adopted by companies in China: a comparison between multinational corporation and small and medium-sized enterprise

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## **Abstract:**

*Piracy, though a global phenomenon, is most rampant in China. Hence, it is prudent for companies to proactively design anti-piracy strategies to protect their intellectual properties. This paper demonstrates the strategic solutions obtained by companies in China taking the cases of the Walt Disney and Grand Smart, a Chinese licensee of Disney. A comparative analysis of anti-piracy strategies of the large multinational corporation (MNC) Disney and those of the relatively smaller local firm, Grand Smart is conducted through secondary research. Findings reflect that Disney's strategies, to avert third party copying and licensee overrun, are mainly formal and proactive in nature. Contrarily, Grand Smart, having limited resource and power, apart from complying with licensors' formal anti-piracy strategies, mainly applies informal solutions. Notwithstanding these differences of formal or informal strategies, both companies consciously apply some kind of solutions to combat with piracy, which is also recommended for other companies operating in China regardless of their sizes.*

**Keywords:** piracy; anti-piracy strategy; China; Walt Disney; licensee; intellectual properties; MNCs; multinational corporation; SMEs; small and medium-sized enterprise.

## **1. Introduction**

Intellectual property (IP) has been a subject of study for academics and practitioners for 100 years, within which piracy has attracted continual attention. However, piracy emerged as critical international business issue since rise of the phenomenon during mid-80s (World Intellectual Property Organization [WIPO], 2004). Yang, Sonmez, & Bosworth (2004) defines piracy as 'unauthorized use or reproduction of another's work'. Whereas, counterfeiting, a type of piracy, means 'deliberate attempt to precise duplication of goods with the intention of deceiving customers' (McDonald & Roberts, 1994). Counterfeited and pirated goods account 5%-7% of world trade volume. Piracy is most dominant in industries like, software, music, books, pharmaceuticals, spare-parts, toys and branded cloths, perfumes, footwear etc (WIPO, 2004). This phenomenon causes loss of US\$12-\$15 million/year to US industries (WIPO, 2004). Among 90 countries accused for piracy, China is regarded as 'the International Capital of Piracy' and appeared on "USTR Priority Watch List" in 1992 and 1995 (Yang et al., 2004). In 2004, \$134million worth of Chinese counterfeited goods was seized by US Customs, accounting two-thirds of their annual IP seizures (Clark, 2005). Two factors are responsible for piracy at epidemic-level in China; Firstly, Inadequate enforcement of IP laws and secondly, the collectivist culture of China (Yang, 2005). Chinese IP law has many loopholes which can be exploited by infringers. Additionally, the enforcement is influenced by bureaucracy and corruption (Prendergast, Cheun, & Phau, 2002). Even judges who do not take bribes may rule in favour of a local pirate factory over a foreign IP rights holder in order to save Chinese jobs (McKinsey, 2003). Moreover, China, with a strong history of government censorship and control over ideas, and its distinct lack of private property rights, looked upon intellectual property as a collective good owned by the state. China wrote their first intellectual property laws in the beginning of the 20th century under pressure by foreign governments. They have added and improved these laws only at the pressure of foreign governments. Thus, it can be surmised that significant problems will erupt when two

such opposing viewpoints clash (International Piracy, Technology, and Intellectual Property [IPTIP], n/d). Despite, no western company can ignore the potential of Chinese market with a population of 1.3bn and GDP growth-rate of 7.8%-especially when western market for licensing is saturated whereas that of China is boosting (Bashford, 2003). Being aware of the prevailing condition of piracy and in contrast, the promise of Chinese market, it is critical for multinational corporations (MNCs) to design appropriate anti-piracy strategies to exploit the latter and simultaneously, deal intelligently with the former.

Therefore, this paper sheds light on the anti-piracy strategies adopted by MNCs in China conducting secondary research taking case of The Walt Disney and GrandSmart, one of Disney's Chinese licensees. Particularly, through comparative analysis of these two companies, the paper also aims to focus the difference of anti-piracy strategies of MNCs and local companies which are relatively smaller.

## **2. Piracy in China**

Disney is one of the major IP-oriented firms of world possessing IP assets worth 86% of its market capitalisation (Yang, 2006a). Disney is divided into four major business segments; studio-entertainment, park and resorts, consumer products and media-networks (Walt Disney, 2005). Currently, Disney has 100 licensees in China covering different consumer goods (Walt Disney, 2005). Grand Smart, based in Hong-Kong while manufacturing in China, is working for Disney since 1991. Their portfolio of Disney characters includes Mickey Mouse, Winne-the-Pooh, Princess and Toy-Story for which they produce product-lines like toys, handbags, kids' furniture, bathroom accessories, gift and collectibles, stationary etc. (Grand Smart, 2009). Therefore, the scope of the paper is limited to the IP aspects i.e. trademark and copyright, related to consumer products of Disney which Grand Smart produces.

After opening of Hong-Kong Disneyland, manufacture and distribution of counterfeited Disney products in China

have boosted notably. Fake Disney wristwatch is available for US\$9 and Mickey-Vampire toy for US\$3.70 which are one-third of original prices. Recently, officers seized about 37,500 infringed Disney toys, stationery and handbags worth US\$193,100. Sellers usually mix original products with fake ones for evading customs (Associated Press [AP], 2005). Hence, 'slavish-copying', meaning reproduction of low-quality goods through exact imitation of trademark, design, fabric and colours (Yang et al., 2004), is one of Disney's major concerns in China. This activity is also a concern for Grand Smart as it affects the businesses of licensees as well. Hence, their Marketing Manager commented, 'we are very worried about the counterfeit problems as it affects our business' (Lim, 2005). Figure-1 reflects, in China, Disney consumer products have medium risk to be victim of piracy, however, enjoy favourable legal protection (Walt Disney, 2005).

Moreover, licensed producers in China are also accused for exceeding stipulated production limit and unofficially selling and even exporting those at low price (this phenomenon is known as 'licensee overrun') (Yang et al., 2004). Additionally, licensees are also found to be involved with IP-leakage of licensors. For instance, within four months of forming three joint-ventures by Yamaha in 1990, they discovered five out-of six Yamaha motorcycles sold in China are counterfeited as their Chinese partners sold its technology to counterfeiters and rivals (Parloff, 2006). Therefore, along with third-party infringement, Disney's concerns include licensing-overrun and leakage of company secret by Chinese licensees.

Being pressured by foreign investors, Government of China has improved IP law, which, however, still lacks specificity and hence, stress the need for interpretation. However, Chinese government is developing stringent IP laws, establishing national anti-counterfeiting agencies to coordinate efforts between 14 agencies to evade piracy (Prendergast et al., 2002). In 2003, the Chinese authorities imposed fines of \$30 million on people caught violating patents; trade marks and copyright (Clark, 2005). Although judicial enforcement of China has improved recently, it is still infected by bureaucracy and corruption and thus out-of-court settlement is the most favoured option (Yang, 2006b) and also encouraged by government. Therefore, it is prudent for companies, even large MNCs, to avoid litigation and have anti-piracy strategies. Hence, to prevent above forms of piracy proactively both Disney and Grand Smart have strategic solutions.

### **3. Reasons of piracy and anti-piracy strategies adopted by companies**

Consumers' ethical-attitude and purchase intention towards non-deceptive pirated goods is the most vigorously studied topic within the area of piracy (Rahim, Rahman, & Seyal, 2000; Phau, Prendergast, & Chuen, 2001). Most researchers found price benefits gained from purchase of pirated goods supersede consumers' moral values (Ang, Cheung, Lim, & Tambyah, 2001; Prendergast et al., 2002). Bauer (1960) first suggested perceived-risk associated with products affects consumers' ethical-attitude towards pirated goods. Tan (2002) argued that when perceived-risk of financial loss, product performance, public exposure and loss of reputation are high;

consumers' purchase-intention towards pirated products is negative. Ang et al. (2001) found association of demographic-factors with purchase-intention e.g. low income, less educated and young consumers have positive-attitude towards pirated goods. Wang, Zhang, Zang, & Ouyang (2005) in their study about Chinese consumers' attitude towards pirated software found that personality factors like, value-consciousness and social factors like, collectivism and novelty-seeking has positive effect on attitude towards piracy. Most consumers perceive that branded products charge unjustifiably high price. Furthermore, they found consumers do not realize that purchasing pirated product is illegal and likewise other researchers (Phau et al., 2001; Prendergast et al., 2002; Ang et al., 2001), recommended companies for consumer education. Prendergast et al., (2002), based on their findings recommended some anti-piracy strategies for policy makers like, prosecuting buyers to discourage willingness, arranging consumer education campaigns etc. For manufacturers they recommended to focus on quality than price-based competition; introduce holograms, magnetic-codes; educate customers of real distributors, piracy consequences; encourage distributors to contain original products; restrict distribution at pirated-prone locations and finally, promote the embarrassment of getting caught with pirated products.

Studies consulting strategic solutions to piracy, especially in China, are limited. McDonald and Roberts (1994) suggests effective IP protection in Asia-Pacific require combined efforts of police, customs and also private investigative organizations. Hence, MNCs like, Laura-Ashley, Cartier and Revlon all maintain extensive networks with state authorities, lawyers and private firms. Papadopoulos (2004) studied the relationship between legitimate product pricing, copyright law enforcement and formation of black markets for pirated products taking sound-record companies as case. He argued that ineffective enforcement of law, monopoly distribution and high price differential between pirated and original goods are responsible for piracy- especially in developing nations where consumers are value-conscious. Therefore, he suggested record companies to lobby government for proper enforcement of law, reduce price differential between original and fake records and ensure wide distribution. Seadle (2006) conducted secondary research examining anti-piracy strategies of Recording Industry Association of America (RIAA). RIAA mainly adapts reactive-strategies that are assisting record companies in criminal trials, initiating civil litigation and mediating for damage compensation outside court. However, RIAA also organise campaign to educate citizens against music piracy. Another example of proactive anti-piracy strategy is that of Software Publishers' Association, as they, part of consumer campaign, published a manual for university authorities with five solutions to prevent software piracy (Software Publishers' Association [SPA], 1998).

Yang et al. (2004) categorised anti-piracy strategies as three different approaches; proactive, defensive and network approach. Proactive approaches include 'Budweiser strategy' suggesting technological solution i.e. sophisticated labelling, packaging; 'Contractual Surveillance' focusing formal contractual agreement with partners; 'Coca-cola Strategy' focusing penetration pricing allowing no gap for piracy; and

‘Microsoft Strategy’ stressing constant monitoring of market for locating piracy. Defensive approaches include ‘Commercial Settlement’ focusing seeking commercial compensation and ‘Acquiring Strategy’ suggesting acquisition of infringing companies and convert them to licensee. Finally, network approaches include ‘DuPont Strategy’ focusing IP reapplication with persuasive evidence; ‘Manchester United (MU) Strategy’ indicating networking with other victim or non-victim companies; ‘Government Hand’ focusing networking with state authorities for enforcement and ‘Consumer Campaign’ suggesting educating consumers against piracy. Nevertheless, these strategies, mainly adapted by big MNCs, may not be applicable for relatively smaller local firms considering they have limited resources, lobbying power on

government and also fear of bad publicity. Kitching and Blackburn (1999) found that SMEs prefer informal to formal anti-piracy strategies. Their defensive strategies include threatening infringers about legal action and out-of-court settlement through compensation. Only 19% of their respondent SMEs applied litigation and the rest had out-of-court settlement through threat with/without compensation. Their proactive strategies include maintaining trust-relationship with customers and suppliers, practiced by 75.9% respondents; providing IP information to selected staffs, practiced by 47.5% respondents; membership of associations, practiced by 27.7% respondents etc.

Anti-piracy strategies found and/or recommended by different researchers are summarised in Table-1

**Table-I: Summary of anti-piracy strategies recommended and/or found by researchers**

Literature	Found and/or recommended anti-piracy strategies
McDonald and Roberts (1994)	<ul style="list-style-type: none"> <li>• Maintain extensive network with state authorities, lawyers and private investigation agencies</li> <li>• Consumer education against piracy</li> </ul>
Seadle (2006)	<ul style="list-style-type: none"> <li>• Litigation and compensation</li> <li>• Consumer Education against piracy</li> </ul>
Papadopoulos (2004)	<ul style="list-style-type: none"> <li>• Lobby government for tightening enforcement</li> <li>• Reduce price differential between original and pirated products</li> <li>• Distribute as widely as possible</li> <li>• Offer price discounts, especially by monopoly distributors</li> </ul>
Kitching and Blackburn (1999)	<ul style="list-style-type: none"> <li>• SMEs maintain trust-based relationship with suppliers and distributors</li> <li>• SMEs threaten infringers for litigation</li> <li>• SMEs adapts out-of-court settlement with/without compensation</li> </ul>
Yang et al. (2004)	<ul style="list-style-type: none"> <li>• Proactive approaches: <ul style="list-style-type: none"> <li>- Budweiser Strategy: sophisticated technology</li> <li>- Contractual Surveillance: Tight contractual obligation</li> <li>- Coca-cola Strategy: Penetration pricing</li> <li>- Microsoft Strategy: Constant monitoring of market</li> </ul> </li> <li>• Networking approaches: <ul style="list-style-type: none"> <li>- DuPont Strategy: Persuasive reapplication</li> <li>- MU Strategy: Maintain network with other companies</li> <li>- Government Hand: Maintain network with state authorities</li> <li>- Consumer Campaign: Education against piracy</li> </ul> </li> <li>• Defensive approaches: <ul style="list-style-type: none"> <li>- Commercial Settlement: Seek compensation</li> <li>- Acquiring Strategy: Acquiring infringing company and converting to licensee.</li> </ul> </li> </ul>
Wang, et al. (2005)	<ul style="list-style-type: none"> <li>• Educating consumers on <ul style="list-style-type: none"> <li>- how to identify fake products</li> <li>- consequence of piracy on society and economy</li> <li>- purchasing fake products have ethical dilemma as well</li> </ul> </li> </ul>
Phau et al. (2001)	<ul style="list-style-type: none"> <li>• Consumer education</li> </ul>
Prendergast et al. (2002)	<ul style="list-style-type: none"> <li>• Focus on product quality than price based competition.</li> <li>• Introduce holograms, magnetic codes, and special links to enable consumers to differentiate fake from original.</li> <li>• To educate customers of real distributors, consequences of piracy.</li> <li>• Motivate distributors to contain original products</li> <li>• Restrict distribution at pirated prone locations.</li> <li>• Promoting the embarrassment of getting caught with pirated products.</li> </ul>
Tan (2002)	<ul style="list-style-type: none"> <li>• Promoting the embarrassment that producing/selling/buying infringed product can cause</li> </ul>
Ang et al. (2001)	<ul style="list-style-type: none"> <li>• Consumer education</li> </ul>



Grand Smart being a local company it is relatively smaller than large MNCs like Disney, Microsoft in terms of resource and power and hence can be categorized as SME. This raises the question whether these anti-piracy strategies are applicable for smaller local companies as well. Therefore, the paper aims to compare anti-piracy strategies of Disney and Grand Smart within the frameworks of Yang et al. (2004) and Kitching and Blackburn (1999).

#### **4. Comparative analysis of anti-piracy strategies: Disney vs. Grand Smart**

To combat with slavish-copying and licensing-override, Disney has introduced 3D-holographic label, which is supplied by themselves to licensees to put on every consumer goods (Lim, 2005). This technological solution to piracy reflects that they are complying with 'Budweiser Strategy'. However, this strategy may not threaten proficient infringers. Consequently, Disney's Head of Consumer Products commented, "The holograms are incredibly difficult to copy but I'm hesitant to say anything's impossible in China" (Lee, 2006). Hence, they require application of other strategies as well. Therefore, they comply with 'Microsoft Strategy', though not as extensively as Microsoft, through maintaining close contact with retailers to monitor their activities and also through making licensees conduct market inspections on behalf of Disney (AP, 2005). Moreover, to prevent licensing-override and IP-leakage by licensees, they ensure tight contractual relationship with them which reflect application of 'Contractual Surveillance' strategy. Before entering into any collaboration they analyse the biography of potential partners to identify any record of infringement (Walt Disney, 2009). Furthermore, to motivate licensees and maintain long-term trust relationship with them, Disney rewards licensees' loyal efforts and thus reduces possibility of unfaithful activities by them. For instance, Walt-Disney provided Grand Smart, for their valued service Asia-Pacific's Licensee of the Year Award in 1995, 2003 and 2004 (Grand Smart, 2009). Another proactive strategy of the company is to make their products available on as many different platforms as possible. They make their content locally relevant and available to as many people as possible (Staggs, Bird, Cheung, Jain, & Ozkan, 2007). Hence, in China, Disney is expanding from more than 4,000 retail corners currently to 6,000 by 2009, most of which are directed by licensees in China (Swanson, 2007).

Besides above proactive approaches, Disney has adapted some networking approaches. Disney maintains extensive network with Hong-Kong Customs and mainland Chinese authorities to ensure support from them. Recently, Customs has conducted raid in Dongmen Market, Shenzhen, China, where fake Disney products are usually sold (AP, 2005). Chinese governments' recent proposal to open Disneyland in Mainland has given bargaining power to Disney which also ensured more support from state authorities (Lee, 2006). This strategy also creates publicity and awareness against piracy and simultaneously, complements creating brand awareness which is also Disney's current strategic vision in China (Walt Disney, 2005). However, maintaining such relationship is bureaucratic and time-consuming. Another networking approach of Disney includes adaptation of 'MU Strategy'.

Consequently, Disney is a member of Quality Brands Protection Committee (QBPC) which cooperatively works with Chinese government to ensure IP protection to its member MNCs (QBPC, 2009).

Disney's anti-piracy strategies mainly reflect proactive rather than reactive/defensive approaches presented in Yang et al. (2004). Actually, seeking compensation for damage from small pirates will add little value to this entertainment giant's finance. Another defensive approach that is 'Acquisition Strategy' might also not appeared viable option for Disney as it requires huge investment.

In contrast, for Grand Smart, conducting business mainly as licensee, it is critical to comply with anti-piracy strategies of licensors. For instance, they put holograms, supplied by Disney, Mattel, on respective consumer goods (Grand Smart, 2009) and thus comply with licensors' 'Budweiser Strategy'. Moreover, on behalf of Disney they arrange frequent inspections to local markets and report counterfeiting activities to Disney (AP, 2005) and thus comply with Disney's 'Microsoft Strategy'. Apart from this, all other anti-piracy strategies of Grand Smart are mainly informal. For instance, unlike Disney they may not maintain extensive network with government but ensure trust-relationship with retailers to prevent infringement activities in their distribution network (Grand Smart, 2009). Moreover, to maintain harmonious relationship with Disney they are committed to offer valued service. Such motive emphasise their intention to avoid occurrence of licensing-override or IP-leakage, which is proved through the awards presented by Disney to them. Figure-2 reflects the comparative analysis of both companies' anti-piracy strategies.

#### **5. Conclusion**

##### **5.1. Key Findings**

Findings of comparative analysis reflect that Disney adopted a combination of proactive and network approaches involving more than one strategy from each category. Proactive approaches include introducing 3D-holographic label to prevent both third-party copying and licensing-override and monitoring of market using licensees to identify infringement. Moreover, they use tight contract and harness long-term relationship with licensees to prevent licensing-override. Disney's networking approaches include maintaining network with government and membership of QBPC to maintain network with other victim MNCs. Contrarily, apart from complying with licensors' formal strategies, Grand Smart, being local company with less resource and power, mainly relies on trust-based relationship with licensors and distributors to avoid licensing-override and prevent infringement respectively. This strategy also complements Chinese culture where trust or Guanji is highly valued in case of business (Yang, 2005).

##### **5.2. Recommendations**

The literature review suggests that Chinese consumers lack awareness about the consequence of piracy and believe that sellers are only responsible for piracy not consumers. This

stresses the importance of educating them about the impact of piracy on society and economy and also about the fact that encouraging piracy has ethical dilemma as well. Notably, Disney does not emphasise consumer campaigning in China. Previously, Chinese governments' restriction on set-up of foreign channels prevented Disney to reach mass-market which is essential for such campaign. However, recently, government approved 49% ownership of Chinese TV firms by foreign channels (Buck, 2004). Disney can utilise these Channels, viewed by 475million households (Walt Disney, 2005), to create awareness against purchase of fake Disney products. Moreover, using fear-appeal, as suggested in Pendergast et al. (2002), they can promote the embarrassment that may cause if consumers get caught purchasing or using pirated products. Such campaign will ensure brand awareness which may further encourage consumers to buy original products. Moreover, instead of acquisition or seeking compensation Disney, as defensive strategy, can make infringers apologise publicly which is perceived as highly insulting in Chinese society and thus discourage infringement.

### 5.3. Managerial implications

This paper shows that to protect valuable brands from pirates and sustain in China, depending merely on law and enforcement is not enough rather managers of MNCs should proactively develop anti-piracy strategies. Local companies, especially those who mainly depend on licensing, should also apply some sort of formal and/or informal strategic solutions

to eradicate piracy.

### 5.4. Limitations and further research direction

The findings of this paper are not based on empirical evidence and thus have limited validity and reliability. Indeed, studies consisting empirical data on this issue are scarce indicating the need for further research. Moreover, as per the literature review most researchers studied anti-piracy strategies of large organizations or multinational corporations. Researches reflecting the same for small and medium sized local companies are limited and those reflecting comparison of MNCs and SMEs are even rare. Therefore, this could be another area for further study.

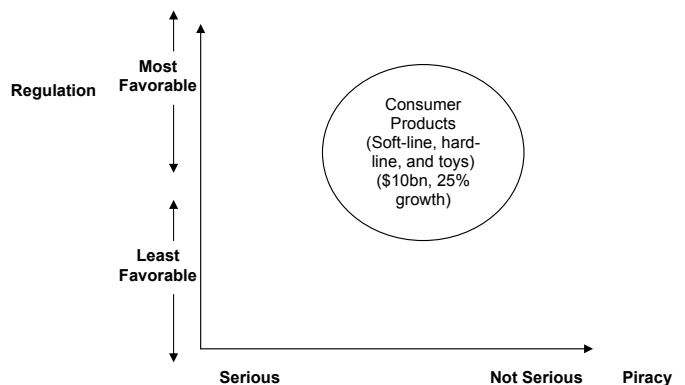


Figure-1: Risk of consumer products of Disney in China  
Source: The Walt Disney (2005), p.7

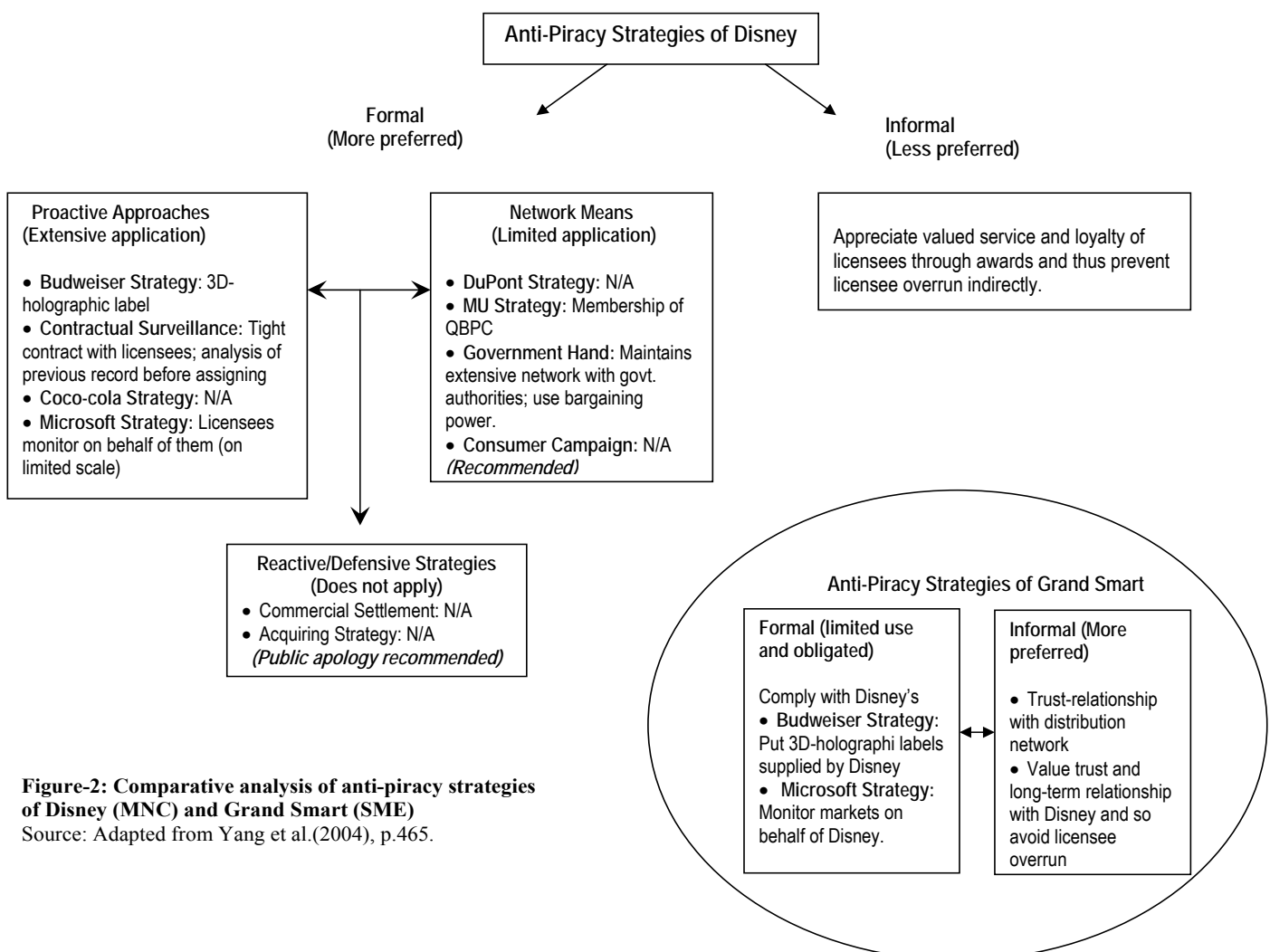


Figure-2: Comparative analysis of anti-piracy strategies of Disney (MNC) and Grand Smart (SME)  
Source: Adapted from Yang et al.(2004), p.465.

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## Notes

Grand Smart is also licensee of other international entertainment companies like, Mattel, Warner Brothers etc (Grand Smart, 2009).

For instance, Article-56 of Trademark Law of China stipulates that innocent infringer shall not receive punishment but does not define the term 'innocent-infringer'. Such gap can give opportunity to infringers to use as self-defence.

Article-53 stipulates that in case of any valid complain of infringement, the administrative authority will stop any infringing

act, destroy the infringing goods and machineries used for their production. It also states that parties shall first try to solve the dispute through consultation and if failed, can file litigation (Trademark Law of People's Republic of China).

In China, Microsoft continuously identifies companies those use pirated software and managed to convert all the pirate companies into license-holding customers. In one case, it compelled the offending company to take out advertisements in Chinese newspapers admitting it was using pirated software, but was now using the genuine article (McKinsey, 2003).

The QBPC, which held its official Chinese launch on March 2, 2000, is registered under the China Association of Enterprises with Foreign Investment (CAEFI). The QBPC is comprised of more than 140 multinational companies concerned with the impact of counterfeiting and membership continues to grow. The QBPC mission is 'to work cooperatively with the Chinese Central and local governments, local industry, and other organizations to make positive contributions to intellectual property protection in the People's Republic of China.' (QBPC, 2009)

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# Effective Conflict Management in Family Managed Businesses: A Case Study in the Indian Diaspora

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*Abstract:*

*This study examines the application of Rahim Organizational Conflict Inventory-II (ROCI-II), one of the most popular instruments used to measure five styles of handling interpersonal conflict in organizational setup, for owner-managers of Indian family-owned-and-managed businesses. The construct of five factorially independent scales, i.e. conflict handling styles (integrating, obliging, dominating, avoiding, and compromising) have been applied in the organizations at various levels. This study attempts to explore the suitability of ROCI-II instrument in the family business context, by assessing the styles obtained from a sample of 124 owner-managers of family businesses and comparing them with the instrument's five styles. The instrument comprises 28 variables on a 5-point Likert scale. The findings of factor analysis of the primary data of 28 variables are compared with the ROCI-II scales, comprising 5 conflict management styles. After conducting a Wilcoxon Test it is confirmed that the ROCI-II scales fit well with the family business owner-managers in allocating the 28 variables into 5 factors, which are similar to the 5 conflict management styles and the difference between them is insignificant.*

**Keywords:** Conflict, Management style, Family managed business.

## Introduction

Conflict is pervasive in organizations. It is an “interactive state” manifested in disagreement, differences, or incompatibility, within or between individuals and groups (Rahim, 1985).

The term conflict is ambiguous. In the conflict literature, definitions of “conflict” are divergent, having fundamentally different sets of explanatory variables. Conflict by capturing its essence as “a struggle over values and claims to scarce status, power, and resources in which the aims of the opponents are to neutralize, injure, or eliminate their rivals” (Coser, 1956). Conflict is defined conceptually as a “breakdown in the standard mechanisms of decision making,” i.e. as a malfunction of the system (March and Simon, 1958). Conflict's omnipresence and importance of conflict management has been acknowledged in diverse fields including psychology, communication, organizational behavior and marketing (Deutsch 1990; Pondy 1967; Pruitt and Rubin 1986; Putnam and Poole 1987; Thomas 1976, 1992b; Wall and Callister, 1995).

Conflict seems to be one of the distinct characteristics of family businesses (the terminology used for “family owned-and-managed businesses throughout this discussion). Highly publicized family disputes and volatile family conflicts that have destroyed families and business may be the reasons for such a reputation (Levinson, 1971; Sorenson, 1999). Family businesses are the most prevalent form of business through all of history, and occupy a leading role in the economic and social life of all the free market economies. However, only recently the subject of family business has been recognized and given importance by the academicians, scholars, practitioners and owners of family businesses (Wortman, 1995). Scholarly literature on family business conflict, draws upon the research on organizational conflict. Extant research on conflict and its management in family business comprise case descriptions and theoretical articles, but data-based studies are sparse (Harvey & Evans, 1994; Levinson, 1971; Kaye, 1991).

Studies on the management of organizational conflict has taken two directions: one is to measure the “amount of conflict”

at various levels and to explore the sources of such conflicts, and another is to relate the “styles of handling interpersonal conflict” of the participants and their effects on quality of problem solution or attainment of social system objectives (Rahim, 1985). The distinction between the two approaches is essential for a proper understanding of the nature of conflict management. Our focus of the research paper is on the styles of handling interpersonal conflict, also described as conflict-handling modes or strategies of managing conflict (Robbins, 1978; Thomas 1976).

The purpose of this study is to examine the applicability of one of the most popular instruments to measure the styles of handling interpersonal conflict in organizational setting, Rahim Organizational Conflict Inventory-II (ROCI-II), for owner-managers of family businesses. This study evaluates the instrument for its suitability in the milieu of Indian family business, for the participants that are owners and also function as managers. Family businesses differ distinctly from non-family owned and managed businesses. The study elaborates on conflict and management, distinctiveness of family business, and ROCI-II. For investigation, factor analysis is conducted for the primary data and the resultant factors are compared with the original construct of five styles of handling conflict. A Wilcoxon Test is conducted to confirm that the ROCI-II scales fit in the family business context.

## Organizational Conflict

Definitions of conflict are diverse. Kilmann and Thomas (1974) observe the diversity in conflict definitions as: “conflict” as a condition of objective incompatibility between values and goals (Bernard, 1951), and as the behavior of deliberately interfering with another's goal achievement (Schmidt et al, 1972). Conflict behavior is explained in terms of objective conflict of interest (Axelrod, 1970), personal styles (Blake and Mouton, 1964), reactions to threats (Deutsch and Krauss, 1962), and cognitive distortions (Osgood, 1961). Wall & Callister (1995) comment that conflict is generally held as a process in which one party perceives that its interests are

being opposed or negatively affected by another party. Conflict is also looked at in two basic ways: the medical model, which assumes that conflict is like a disease, the less there is, the better; and another is frictional model which assumes that interaction naturally leads to conflict, and it is to be expected and managed constructively (Roark and Wilkinson, 1979).

In last few decades the complexities of managing organizations and the people within those organizations has increased with the increased prevalence of conflict in organizations (Konovsky and McDonald, 1989). The extant research on organizational conflict constitutes a large body of literature (Thompson, 1990; Tjosvold, 1991). In early and middle of twentieth century, researchers treated conflict as a general social phenomenon, with implications for the understanding of conflict within and between organizations (Boulding, 1962; Coser, 1956; Schelling, 1961). Organizational conflict has assumed an important role in general theories of management and organizational behavior, and has been the focus of numerous empirical studies of organization. Guetzkow and Gyr (1954) propose that two types of conflicts, "affective" and "substantive" predominantly exist in the organizations. Affective conflict refers to conflict in interpersonal relations, whereas substantive conflict involves the group's task. Pondy (1967) comments that conflict may not necessarily be functional or dysfunctional. The effects of conflicts must be evaluated relative to some set of values such as productivity, stability, adaptability as organizational values.

### **Family Business and Conflict**

Everyone has to cope with numerous and varied conflicts may be at the individual level or the organizational level, or in the family business. Family businesses are different from other kinds of businesses because they combine the family and the business, the two overlapping subsystems. The conceptual model depicted in two circles in Figure 1, indicates that each of these subsystems or "circles" has its own needs and goals, norms, membership rules, value structures, and organizational structures (Beckhard and Dyer, 1983; Lansberg, 1983). Families are governed by equality, inclusiveness, and caring feelings. Businesses are governed by meritocracy, selectivity, and critical analysis.

Donnelly (1964) defines the family business as "one which has been closely identified with at least two generations of a family and when this link has had a mutual influence on company policy and on the interests and objectives of the family". Neubauer and Lank (1998) define a family business as "a proprietorship, partnership, corporation or any form of business association where voting control is in the hands of a given family". The definitions of family business express the unique characteristics that differentiate them from non-family managed businesses such as: (1) the controlling ownership lies in the hands of a given family, (2) the family has an influence on the firm's decision making, and (3) the members of the controlling block-holder i.e. the family members, are bonded by family ties (Gersick et al., 1997; Hoy & Verser, 1994; Lansberg, 1999; Taguiri & Davis, 1996)

Although family businesses are pervasive, their life expectancy is a significant area of research. As observed from an 'evolutionary' perspective: "30% of family businesses make it to the second generation, 10-15% make it to the third generation and 3-5% make it to the fourth generation," it is crucial to understand the interdependencies between family and business systems, ownership and management and the forces that make strategic decisions and execution more complex (Aronoff, 1999). Family businesses have a complex set of problems that are not completely addressed by classical management theories (Davis and Stern, 1980) One of the major causes of shortened life cycle of the family businesses is family conflict. The overlap of the two subsystems, the family and the business lead to fundamental differences and create opportunities for conflict in decision-making regarding employment, compensation, inheritance, reinvestment, and so on. When decisions like these are not resolved effectively over a period of time, conflict mounts and the result can destroy both the family and the business.

### **Conflict Management**

In a survey, reported that managers spend a full 20% of their time dealing with conflict (Thomas and Schmidt, 1976). Successful managers have found to be spending more time managing conflict than unsuccessful managers. It is therefore no surprise that the researchers have investigated various ways to treat organizational conflict. Organizations of various sizes and functions report conflict management training to be of considerable importance to their employees (Shockley-Zalabak, 1984). In order to respond to the demand for skills training, several scholars have attempted to identify the most successful conflict management strategies (Burke, 1970; Deatsch, 1973; Kilmann & Thomas, 1977; Putnam & Wilson, 1982, Rahim and Bonoma, 1979; Hall, 1969). Some researchers have suggested total elimination of conflict as the best way to handle conflict, where as others have suggested that the conflict may have some value (Janis, 1972; Robbins, 1978) and that organization should manage rather than eliminate conflict. An absence of conflict in organizations may be perceived as a sign that no activity is taking place or that conflict is being suppressed. The positive consequences of conflict are noted by several researchers (Assael, 1969; Janis, 1972) If the organizational conflict is left uncontrolled, it may have dysfunctional effects. When conflicts in the organizations are dealt early when there are mere signals of needed change seldom, they seldom reach an intolerable or destructive level. However, the longer conflicts are suppressed or ignored, the greater the possibility of them becoming destructive (Roark and Wilkinson, 1979). "Conflict management can require intervention to reduce conflict if there is too much, or intervention to promote conflict if there is too little" (Brown, 1983)

Management of organizational conflict involves the diagnosis of and intervention in conflict at intrapersonal, interpersonal, intragroup, and intergroup levels (Rahim 1985). Most recommendations for organizational conflicts still relate to conflict resolution, reduction, or minimization. However, organizational conflict must not necessarily be reduced or eliminated, but managed. The differences between resolution

and management of conflict is more than semantic (Boulding, 1968; Robbins, 1978). Reduction or elimination of conflict is termed as conflict resolution, whereas the management of conflict does not necessarily imply reduction in the amount of conflict.

For family businesses, as family and business are entwined as an entity, family norms for resolving conflict set the tone for conflict management norms in the business in two ways. First, the founder or the owner usually establishes norms for interaction in the business (Sonnenfeld and Spence, 1989). He considers the business as an extension of his dreams, vision, and aspirations. His values and practices become norms for the organization. These norms include how decisions are made and conflicts are resolved (Dyer, 1986; Ket de Vries, 1993). Second, family norms have even more influence when multiple family members work in the business (Kaye, 1991). If family manages conflict through proactive problem-solving approach, it may provide the basis for positive problem-solving orientation in the business, especially needed for succession planning and transition between generations (Dunn, 1995, Lansberg & Astrachan, 1994, Seymore, 1993). In contrast, arguable and non-agreeable conflict management norms within the family may encourage contention within the business. Nepotism and different coalitions with employees to promote personal agenda are such examples. Scholars and researchers therefore agree that managing conflict is important to the success of a family business (Dyer, 1994; Harvey & Evans, 1995; Kaye, 1991; Ward, 1987)

### **Styles of Handling Interpersonal Conflict**

Much conflict research and theory has focused on conflict resolution leading to reduction or termination of conflict (Brett, 1984; Brown, 1992; Thomas, 1992). A number of conflict interventions and resolution tactics have been designed to eliminate conflict before it occurs. Conflict management, on the other hand, emphasizes organizational learning to maximize the constructive aspects of conflict while minimizing its detrimental consequences.

Research on conflict management styles of handling interpersonal conflict, also described as conflict-handling modes or conflict strategies, is substantial (Blake & Mouton, 1964; Rahim, 1983a; Rahim & Psenicka, 1984; Thomas, 1992). Blake and Mouton (1964) conceptualized a two-dimensional model of handling interpersonal conflict based on concern for people and concern for the production of others. These two dimensions frame five styles of conflict management – forcing, confrontation, compromise, withdrawal, and smoothing – each differing in its location along one or both dimensions. Thomas (1976) reinterpreted and extended these modes. Rahim (1983), and Rahim and Bonoma (1979) differentiated the styles of handling interpersonal conflicts into two dimensions, concern for self and concern for others, which has become one of the most popular concept of conflict management styles.

Discussions on conflict strategies typically stem from administering and interpreting a conflict style instrument (Shockley-Zalabak, 1984). The two dimensions - concern for self-interests and concern for the other party or the relationship

- have been incorporated into a variety of questionnaires, the best known of which are Thomas-Kilmann (1974) Conflict MODE instrument, Hall's (1969) Conflict Management Survey (CMS), and Rahim's (1983a) Organizational Conflict Inventory-II (ROCI-II). These instruments reflect different assumptions about effectiveness and about the situational nature of conflict management preferences. Some of the instruments focus on the measurement of ways in which people react to conflict situations (Kilmann & Thomas, 1977; Rahim, 1983a), others focus on evaluation of communication and interpersonal strategies, or ways of coping with interpersonal conflict within the family (Putnam and Wilson, 1982).

### **The Rahim Organizational Conflict Inventory-II (ROCI-II)**

In a complex organization, the members may get number of constraints imposed on them that can affect their styles of handling interpersonal conflict. One of the major constraints may be the hierarchical relationship between organizational members. Rahim (1986b) investigated that the styles of handling interpersonal conflict of an organizational member are affected by his or her referent role as supervisor, subordinate, or peer. Previous studies have dealt with subordinates and superiors (Musser, 1982), but Rahim's study was the first published investigation of the styles of conflict management used by managers with all three parties – superiors, subordinates, and peers. Rahim (1985) posits an effective management of organizational conflict involves diagnosis and intervention. This combination of diagnostic and intervention approaches to organizational conflicts contributes to the uniqueness of the ROCI-II instrument.

The ROCI-II is one of the more recently developed instruments and noted for its emphasis on individual predispositions, its belief in maintaining a balance in the amount of conflict in the organization, and its concern for effectiveness in managing conflicts. The conceptual framework of ROCI-II is in alignment with the objective of this study to measure conflict management styles of owner-managers of Indian family businesses. ROCI-II is found to be the most appropriate instrument with its two dimensional construct relevant to family businesses. In family business, the family members are bound by familial ties and also represent hierarchical structure among themselves as managers and decision makers. In ROCI-II, the first dimension indicates the degree (high or low) to which a person attempts to satisfy his or her concern. The second dimension explains the degree (high or low) to which a person wants to satisfy the concern of others. Therefore these dimensions appear to be suitable for family business context similar to the organizational context. Figure 2 depicts a two-dimensional model of styles of handling interpersonal conflicts. Combination of the two dimensions results in five specific styles of handling conflict, as explained below:

1. Integrating: high concern for self and others. This involves openness, exchange of information, and examination of differences to reach an effective solution acceptable to both parties. It is associated with problem solving which may lead to creative solutions.
2. Obliging: low concern for self and high concern for others. This style is associated with attempting to play down

the differences and emphasizing commonalities to satisfy the concern of the other party.

3. Dominating: high concern for self and low concern for others. This style has been identified with win-lose orientation or with forcing behavior to win one's position.

4. Avoiding: low concern for self and others. It is associated with withdrawal, buck-passing, or sidestepping situations. An avoiding person fails to satisfy his or her own concern as well as the concern of the other party.

5. Compromising: intermediate in concern for self and others. It involves give-and-take whereby both parties give up something to make a mutually acceptable decision.

### **Assessing the ROCI-II**

Context of the conflict is a critical variable in assessing conflict management behaviors.

The ROCI-II scale is assessed here for its conceptual and theoretical development and the instrument is discussed below.

### **Conceptualization of Conflict Dispositions**

The ROCI-II is associated with a comprehensive model for diagnosing organizational conflict that links the concept of conflict styles to other important organizational variables. (Rahim, 1985, 1986a; Rahim & Bonoma, 1979). According to Rahim (1985, 1986a), through indexing the amount of conflict at various levels of the organization, an estimation of how close the organization is to the moderate degree of conflict required for an optimum level of organization effectiveness can be made. By analyzing the conflict-handling styles of organizational members, information about the appropriateness and effectiveness of each style for particular situation can be obtained. The ultimate advantage in investigating both the amount of conflict and style of conflict management is that "effectiveness can be maximized if a moderate amount of conflict is maintained and organizational members use different styles of conflict depending on situations" (Rahim, 1986a).

### **Role of Communication**

Rahim (1985) posits an effective management of organizational conflict involves diagnosis and intervention. A combination of diagnostic and intervention approaches to organizational conflicts contributes to the uniqueness of the ROCI-II model. In addition, an examination of the structural and behavioral approaches to intervention (Rahim, 1986a) reveals the role of communication in organizational conflict (Weider-Hatfield, 1988). Rahim's approach to conflict styles as a behavioral intervention treats communication in conflict from the perceptions or cognitive abilities of the members. Styles are treated as orientation towards conflict and sets of strategies and tactics for achieving a variety of goals. Such an approach is reflective of the psychological perspective of communication in interpersonal conflict (Putnam & Poole, 1987).

### **Instrument Development**

The ROCI-II (Rahim, 1983a) was designed on the basis of lengthy and repeated feedback from the subjects and factor

analyses of various sets of items. The conceptualization and operationalization of the constructs of the five styles of handling interpersonal conflict in ROCI-II were developed on the basis of literature and data in the United States.

The ROCI-II (Rahim, 1985) instrument contains three forms for measuring the self-report of the styles of handling conflict of an organizational member with his or her superior(s) (Form A), subordinates (Form B), and peers (Form C). The instrument uses a 5-point Likert scale to measure the amount of conflict at the three levels and the five styles of handling interpersonal conflict. The items range from strongly agree to strongly disagree, the higher the score, the greater the proportion of use of the conflict style (Weider-Hatfield, 1988). The five styles derived from the two dimensions are labeled integrating (IN), collaboration; obliging (OB), accommodating; dominating (DO), competing; avoiding (AV), withdrawal; and compromising (CO). The instrument contains 28 items (7 for IN, 6 for OB, 5 for DO, 6 for AV, and 4 for CO). Each form has same items, differ only in reference to conflict with a boss, subordinates, or peers (Rahim, 1983a).

### **Psychometric Properties of the ROCI-II**

The ROCI-II is used in the conflict management workshops and training programs. It has been compared with and assessed by other researchers for its internal reliability, predictive validity and factor structure of the items. The results, as reported by the author (Rahim, 1983a), and other researchers (Weider-Hatfield, 1988; King & Miles, 1990) are discussed below.

#### **Reliability**

The most frequently reported reliability estimates on ROCI-II questionnaire are Cronbach alpha coefficients of internal consistency. Rahim (1983a) has reported Cronbach alpha coefficients for five styles between .70 and .80. Nunnally (1978) has suggested a minimum standard of .80 for internal consistency, however Rahim (1983a) argues that these estimates are as satisfactory as those for other conflict instruments. The test-retest results over a period of one week, showed moderate to good evidence of reliability for all subscales except compromise.

#### **Factor Structure**

Although there is evidence (Rahim, 1983a, 1983b) that the ROCI-II assesses five conflict styles, other studies have shown mixed response. Separate factor analyses by Rahim (1983a, 1983b) using a sample of 1,219 managers, splitting the sample into two groups, and using four rotation methods, yielded almost identical five-factor structures. Table 1 depicts the final factor loadings of five styles. Correlations among the unweighted scale scores for the five factors were less than  $r = .33$ .

Patrick (1987) conducted factor analysis of 539 student responses to ROCI-II and showed general support for the five factors. However, other research (Eschelman, 1982; Richardson & Hammock, 1987) has not clearly replicated Rahim's



factor structure. The results suggest from both the factor analyses and correlations among the five styles, that the instrument might be assessing three, not five, factors such as: dominating (DO), which appears to be a unique dimension, integrating (IN), which combines the items of both, integrating and compromising (CO) scales, and avoiding (AV), which combines items from both, avoiding and obliging (OB) scales. Correlations among the five subscales ranged from -.42 to .77, with three of the interscale correlations exceeding .60.

Weider-Hatfield (1988) notes that the analyses of the factor structure and correlations among the five subscales provide mixed support for the presence of five factors. Also, the high correlations among the scores raise the question whether similar subscales are measuring the same artifact. More research is needed with confirmatory factor analysis and other cluster techniques to find out about the overlapping variance among the related subscales.

### **Content Validity**

Two major standards for ensuring the content validity of the test items, as suggested by Nunnally (1978) are, item representativeness and sensible scale construction (Weider-Hatfield, 1988). Rahim's approach in selecting items seems careful and methodical. In the self-administered instrument, the items are worded in a manner that facilitates ease in understanding and completing the instrument.

### **Construct Validity**

Carmines & Zeller (1979) report that Rahim's measure of conflict styles is related to similar and communication-related theoretical constructs. Researchers (Hodges, 1987; Richardson & Hammock, 1987; Young, 1985) have found significant positive relationships between dominating scores and tolerance for conflict, dominating scores and respondents' self-reports of engaging in assertive behavior, positive relationship between integrating and noble-self orientation; significant negative relationship between tolerance for conflict and both avoiding and obliging, integrating and rhetorical sensitivity. As a whole, these studies present convincing evidence that Rahim's five conflict styles are linked to other relevant constructs in the conflict domain (Weider-Hatfield, 1988).

### **Predictive validity**

The ROCI-II is assumed to predict conflict management behavior, although it is not specified by Rahim the behavior his instrument is intended to predict. Till date, the research done on effectiveness of the ROCI-II in predicting conflict behavior is meager. Most studies focus on respondents' propensity to behave and their perceptions of the behaviors they employ. As a result, "perceptions of message behaviors are substituted for the actual communication of a style" (Putnam & Poole, 1987). Womack (1988) notes that predictive validity is the most difficult standard for any self-report instrument to meet. For ROCI-II, additional research to demonstrate predictive validity is needed.

## **The Method**

Primary data selection, administration, and analysis are detailed below.

### **The Instrument**

As mentioned earlier, the objective of this study is to apply the ROCI-II instrument in Indian family business context and assess its appropriateness in finding the five styles of conflict management for the family business owner-managers. As ROCI-II was used for the first time to the family business segment of respondents, we expected that the primary sample would construct independent scales (as derived from factor analysis) to measure the five styles of handling conflict in similar lines as developed by Rahim (1983a).

The ROCI-II is designed for the superior, subordinates and peers groups. In family businesses, although hierarchical positions may exist between family members, the underlying tone of relationship is that the members are equal, at par, being the family. Therefore, we developed a modified version of ROCI-II (Form C for peers), which we address in the study as ROCI-II FB. In ROCI-II FB, the term "peer" was interchanged with the term "family member(s)". Some items of the scale were modified with Indian English lexicon to make the respondents' comprehension of the items easy. Rahim confirmed that the changes made in the ROCI-II FB would not affect the psychometric properties of the scales.

Besides 28 items for the five styles, ROCI-II also records respondents' age, gender, education, work experience, organization size, category, hierarchical position and functional area. These details were also obtained from the respondents in the ROCI-II FB.

### **Sample and Procedure**

The target sample for the study consists of owner-managers of family businesses in India. Published data available for the businesses that can be called "family businesses," satisfying the definitional criteria of generational, ownership, and management control aspects of the family business, is only of stock exchange listed companies. A large segment of businesses are in the form of proprietorship, partnership and private limited companies, where ownership holding details are not published for public viewing. Under the circumstances, selecting sample from published secondary sources was found to be inappropriate. Therefore, a collective database of 600 businesses from two All India industry associations was shortlisted. The companies *prima facie* qualified as family business. In each business, the ROCI-II FB questionnaire was sent to one top level executive, belonging to the owner family. 170 responses were received and they were further screened for their definitional criteria qualification. 124 useful responses were selected for data analysis.

### **Analysis and Results**

Rahim (1983b) reported the factor analysis of responses to the 35 conflict items from the national sample of 1,219 ex-

ecutives. The analysis was obtained using principal factoring with iteration and varimax rotation. Eight factors were extracted with eigenvalues > 1.00. In the final instrument 28 items with factor loadings > .40 were selected. Table 1 depicts the factor structure matrix for 28 items of ROCI-II.

We analyzed responses to the 28 conflict items from an all Indian sample of 124 family business owner-managers using principal component factoring with varimax rotation. The analysis extracted nine factors with eigenvalues > 1.00 (Rahim & Bonoma, 1979; Rahim, 1983b). Item 1 (Q1) showed communality less than .50, and was dropped for the second iteration. 27 items were again factor analyzed, giving nine factors with eigenvalues > 1.00. The first five factors were consistent with priory expectations. 27 items with factor loadings > .40 were retained in the final factor analysis. Table 2 depicts the factor structure matrix for ROCI-II FB.

A visual comparison of Table 1 and Table 2, given below, indicate that our analysis of ROCI-II FB extracted nine factors from which the first 5 factors clearly indicated the five styles of conflict in the order as avoiding, compromising, dominating, integrating, and obliging. However we found cross-loadings in five items, and the higher of the two loading values was selected as the factor loading. Negative loadings represented reverse relationship. There were 8 items loaded between factors 6, 7, 8, and 9. These items, depicted in Table 3, had to be assessed to ensure that there was no difference in the conflict management styles of ROCI-II and ROCI-II FB, representing our primary data. Wilcoxon Signed-Ranked test, a non-parametric test was conducted to match the observations of the two instruments and provide the insight whether the two instruments differed in measuring the independent scales generated from factor analysis of five types of conflict.

### Wilcoxon Signed-Ranked Test

This is the non-parametric alternative to Matched-sample test. In a matched-sample test each experimental unit generates a paired or two matched observations, one from each population, 1 and 2. The difference between the matched observations provides insight to the difference in the two populations. The t test is used to test the null hypothesis of no difference between population means. However, if the differences are not normally distributed, the non-parametric Wilcoxon signed rank test can be used as an alternative.

We wanted to compare how different is the ROCI-II, measuring five conflict styles in the organizational setting, from the conflict styles measure in the family business environment, as collected from our primary data. For this, we identified the variables (items) which represent the five styles interpersonal conflict as developed by the ROCI-II and tried locating the extent to which these match with the data collected on the same variables after conducting factor analysis. The results are given in Table 3. From the above, we identified the number of variables that are considered for ROCI-II and the number of variables that match from our primary data of ROCI-II FB. The factors are compared in Table 4.

Based on the results of Table 4, we performed a Wilcoxon Test on a sample of 5 factors. All the differences between

ROCI-II and the number of variables that were common with our primary data of ROCI-II FB were positive. The hypotheses that we form are as follows:

H0: No difference in Conflict Management Styles between ROCI-II and ROCI-II FB

H1: There exists difference in Conflict Management Styles between ROCI-II and ROCI-II FB

If the factors representing five styles in each of the two instruments are identical, we would expect that the positive differences cancel out with the negative differences and the sum of the signed ranked values will be approximately equal to zero. In the given case, we notice that ROCI-II FB always falls short of the number of variables as compared to ROCI-II. Hence, the difference is always positive. Thus, we need to test whether the sum of signed ranks ( $T = +15$  in our case) is significantly difference from zero.

We assume that the population distribution of the differences in these paired samples is symmetric and that we want to test the null hypothesis that this distribution is centered at 0. As there are no cases where the differences are equal to zero, we rank the 5 factors (their differences) in ascending order with ties assigned the average of the ranks they occupy. The sums of the ranks corresponding to positive and negative differences (in our case, there are no negative differences) are calculated, and the smaller of these sums is the Wilcoxon signed rank statistic  $T$ , that is,

$$T = \min(T+, T-)$$

where,  $T+$  = Sum of positive ranks;

$T-$  = Sum of negative ranks;

$N$  = Number of non-zero differences

The null hypothesis is rejected if  $T$  is less than or equal to the value as per the Wilcoxon Table (for small sample).

As per the table we observe that the  $T_{\alpha} = 1$ , at a significance level of 5%. In our case,  $T = \min(T+, T-) = 15$ , which is greater than 1. The results are depicted in Table 5.

Hence, we can say the null hypothesis of no significant difference is accepted. We conclude that there is no significant difference in the variables considered under ROCI-II and ROCI-II FB, after conducting factor analysis.

### Discussion

The results showed that factorially independent scales of ROCI-II to measure the five styles of handling interpersonal organizational conflicts were applicable to family business context. We viewed our efforts exploratory and therefore chose not to test formal hypotheses or conduct a detailed statistical analysis using multivariate techniques. The contexts of the application of the ROCI-II and participants profile being dissimilar to some extent, our study was focused only on assessing the five-styles factors of ROCI-II to measure conflicts.

In family businesses, the family and the business are so entwined that the potential for discord is greater than in family businesses compared to other governance forms (Lee & Rogoff, 1996). We were guided by the concern about the paucity of data-based study on conflict in the family business literature. Given the results of the study, ROCI-II emerges as a suitable instrument to assess five styles (integrating, obliging, dominating, avoiding, and compromising) of handling interpersonal conflicts on two dimensions of concern for self

and concern for others.

The context of the application of the ROCI-II and the profile of the participants, who belonged to the family businesses being dissimilar, our study was focused only on assessing the five-styles factors of ROCI-II to measure conflicts. The results showed that factorially independent scales of ROCI-II to measure the five styles of handling interpersonal organizational conflicts were also applicable to family business context.

### Directions for Future Research

We believe that the stream of research on organizational conflict management should be extended to the field of conflict management in family businesses. The present study focused on assessing the suitability of ROCI-II. Further investigation should be carried out to assess other psychometric properties and predictive validity of scales. Other prevalent conflict styles instruments should also be assessed for suitability to the Indian family business context. Furthermore, our results indicate that a larger sample size of owner-managers of family businesses could make the analysis robust and prove a useful extension of previous research.

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## Figures and Tables

Figure 1 The family Business Dilemma

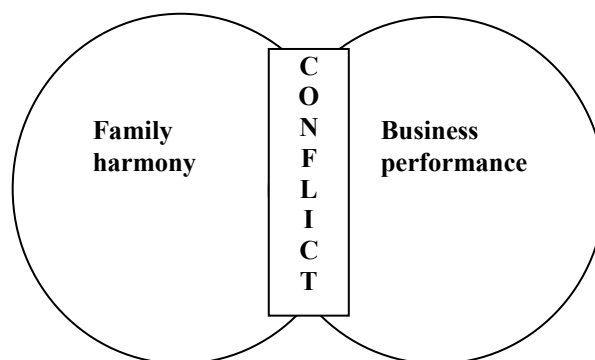


Figure 2 Two-Dimensional Model of Styles of Handling Interpersonal Conflicts

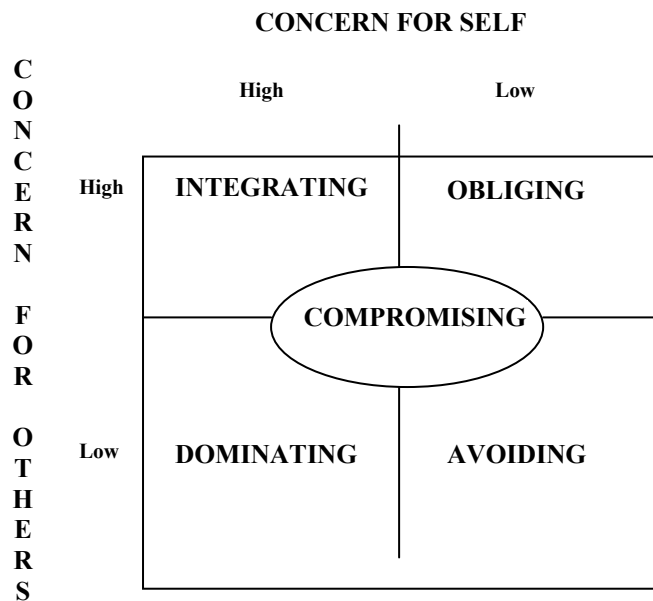


Table 1 Factor Structure Matrix for Varimax Rotated Factor Solution, ROCI-II

(N=1,219)

Item No.	Items	Factors <sup>a</sup>				
		IN	AV	DO	OB	CO
Q1	I try to investigate an issue with my --- <sup>b</sup> to find a solution acceptable to us	.53				
Q2	I generally try to satisfy the needs of my ---				.48	
Q3	I attempt to avoid being "put on the spot" and try to keep my conflict with my --- to myself		.60			
Q4	I try to integrate my ideas with those of my --- to come up with a decision jointly	.55				
Q5	I try to work with my --- to find solution to a problem that satisfies our expectations	.56				
Q6	I usually avoid open discussion of my differences with my ---		.58			
Q7	I try to find a middle course to resolve an impasse					.59
Q8	I use my influence to get my ideas accepted			.64		
Q9	I use my authority to make a decision in my favor			.69		
Q10	I usually accommodate the wishes of my ---				.68	
Q11	I give in to the wishes of my ---				.59	
Q12	I exchange accurate information with my peers to solve a problem together	.61				
Q13	I usually allow concessions to my ---				.42	
Q14	I usually propose a middle ground for breaking deadlocks					.82
Q15	I negotiate with my --- so that a compromise can be reached	.61				.49
Q16	I try to stay away from disagreement with my ---		.53			
Q17	I avoid an encounter with my ---		.48			
Q18	I use my expertise to make a decision in my favor			.54		
Q19	I often go along with the suggestions of my ---				.42	
Q20	I use "give and take" so that a compromise can be made					.50
Q21	I am generally firm in pursuing my side of the issue			.44		
Q22	I try to bring all our concerns out in the open so that the issues can be resolved in the best possible way.	.58				
Q23	I collaborate with my --- to come up with decisions acceptable to us	.49				
Q24	I try to satisfy the expectations of my ---				.57	
Q25	I sometimes use my power to win a competitive situation			.64		
Q26	I try to keep my disagreement with my --- to myself in order to avoid hard feelings		.61			
Q27	I try to avoid unpleasant exchanges with my ---		.42			
Q28	I try to work with my --- for a proper understanding of a problem	.60				

Table 2 Factor structure Matrix for Varimax Rotated Factor Solution, ROCI-II FB

N=124)

Item No.	Factors								
	1	2	3	4	5	6	7	8	9
Q26	.736								
Q27	.727								
Q17	.715								
Q16	.563								
Q6	.488						-.418		
Q7		.804							
Q14		.784							
Q15		.707							
Q9			.803						
Q8			.731						
Q25			.691						
Q18			.626						
Q5				.774					
Q4				.742					
Q23				.536			.519		
Q13				.496					
Q11					.759				
Q10					.754				
Q19					.524			.488	
Q24						.700			
Q2						.659			
Q28						.651			
Q22							.785		
Q21								-.720	
Q3	.431							.448	
Q12									-.655
Q20		.490							.502

Table 3: Comparison of variables representing factors in ROCI-II and ROCI-II FB

Factors	Conflict Management Styles	ROCI-II Items	ROCI-II FB (Primary Data) Items	Common Items	Non-matching Items
Factor 1	IN	Q1, Q4, Q5, Q12, Q22, Q23, Q28	Q5, Q4, Q23, Q13	Q4, Q5, Q23	Q13, Q1, Q12, Q22, Q28
Factor 2	OB	Q2, Q10, Q11, Q13, Q19, Q24	Q11, Q10, Q19	Q11, Q10, Q19	Q2, Q13, Q24
Factor 3	DO	Q8, Q9, Q18, Q21, Q25	Q9, Q8, Q25, Q18	Q9, Q8, Q25, Q18	Q21
Factor 4	AV	Q3, Q6, Q16, Q17, Q26, Q27	Q26, Q27, Q17, Q16, Q6	Q26, Q27, Q17, Q16, Q6	Q3
Factor 5	CO	Q7, Q14, Q15, Q20	Q7, Q14, Q15	Q7, Q14, Q15	Q20

Table 4 Factors Comparison

Factors	Conflict Management Styles	ROCI – II	Matching with ROCI-II FB
Factor 1	Integrating Style	7	3
Factor 2	Obliging Style	6	3
Factor 3	Dominating Style	5	4
Factor 4	Avoiding Style	6	5
Factor 5	Compromising Style	4	3

Table 5 Wilcoxon Rank Statistics

Factor	ROCI-II	Matching with ROCI-II FB	Difference	Rank
1	7	3	4	5
2	6	3	3	4
3	5	4	1	2
4	6	5	1	2
5	4	3	1	2
<i>Sum of Signed Ranks</i>				<b>15</b>

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# Life Style a Core Segmenting Criteria – Retail Banking Industry In India.

*G.Ramasundaram , Ramachandra Aryasri, M.Sakthivel Murugan*

## **Abstract:**

*Serving and satisfying the whole market is impossible practically. In a competitive world, bank has to find out niche submarket and develop a strategy to satisfy their needs. As a result, loyalty of customers and profitability of bank should be enhanced. There are many variables used as base for segmenting the heterogeneous market into homogeneous submarkets. Among them, lifestyle is one of the most important variables. In retail banking especially, in retail credit market, lifestyle plays major role in the behavior of consumers. So, this study attempted to segment the customers of retail credit on the basis of their lifestyle by conducting survey in Chennai city. Applying factor and cluster analysis, the total respondents was divided into three lifestyle segments and examined the differences between with special focus on behavior.*

**Keywords :** Market segmentation, Life style , Retail banking, Commercial banking.

## **Introduction**

Market segmentation is defined as the process of dividing a market into distinct submarkets with homogeneous needs or characteristics and selecting one or more submarkets to target with a unique marketing mix .If all consumers were identical, mass marketing would be a sound strategy. The strategy of segmentation let Bankers to keep away from straight on competition in the marketplace by differentiating their products or services, not only based on price but also through features and quality of service.

Market segmentation is the gateway in a three phase marketing strategy. After segmenting the market in to homogeneous strata, the marketer then has to select one or more segments to target. The marketer must make a decision on a specific marketing mix. Third step is positioning the offerings so the consumers in each target segment perceived it as satisfying their needs better than competitor products or services.

Market segmentation is recognized as a prominent strategy among financial service providers in view of stiff competition in Indian retail banking industry. Banks are able to increase profitability and have an edge over competitors through focusing on the needs of homogeneous markets within a larger heterogeneous market. Market segmentation in financial services has been carried out since early 1970s, though it was permeated into Indian retail banking later than it did in developed countries like USA and UK. Focus of bankers has been shifted from attracting non-users earlier to cross selling the services to existing customers.

Kotler (1988) suggested the four criteria for effective segmentation namely measurability, substantiality, accessibility and actionability. Segmentation could be classified into two categories- a priori and post hoc (Green, 1977). There are studies conducted in the area of financial services market using different variables as a base for market segmentation namely demographic factors, socio economic factors and psychological factors etc.,

## **Life style as segmentation base:**

Consumer life style is defined as a consumer's pattern of liv-

ing, which influences and is reflected by consumption behavior. It is an out come of an interactive process between social and personal variables of individuals in childhood and during life. It demonstrates pattern that is developed from the dynamics of living in a society. Further economic factors provide constraints and opportunities in the development of life style ( Wells and Tigert, 1971).

Life style factors or psychographics could be used to identify target markets. Life style descriptors would act as a catalyst for defining a customer segment in terms of attitudes, interest and activities of consumer. This is an attempt to get inside the consumer's mind (Hiebing, 1999).Life style research, studies how people spend their time in different activities; what is of greatest interest or importance in their immediate surroundings and their opinion on world ( Majumdar, 2004).

Life style is a distinctive mode of living in a broad sense. It is concerned with those ingredients or qualities, which describe the style of life, culture or group and distinguish it from others (Kotler,1993). However, Feldman and Thelbar (1972) defined life style as a group phenomenon and is influenced by ones' participation in various social groups and ones' relationship with others. Behavior of a person in one area could be used for predicting how a person would act in other areas. According to Plummer (1974), life style is a construct made up of the virtues of demographic and psychographic variables. Life style consists of values and personality of individual which are reflected in activities, interests and opinions towards leisure time, works, and consumption etc, (Wind, Yoram and Green, 1963) .The concept life style has wide application in consumer research and market segmentation. The meaning of life style is never explained accurately but it is seemed to have common understanding that lifestyle reflects on a pattern of attitudes and behaviors in some way consistently across an individual's life or particular part. Over the last five decades, this concept has been studied by many people for example Blackwell and Talarzyk (1977), Cosmas (1982), Gutman and Mills (1982) and Roberts and Wortzel (1979).

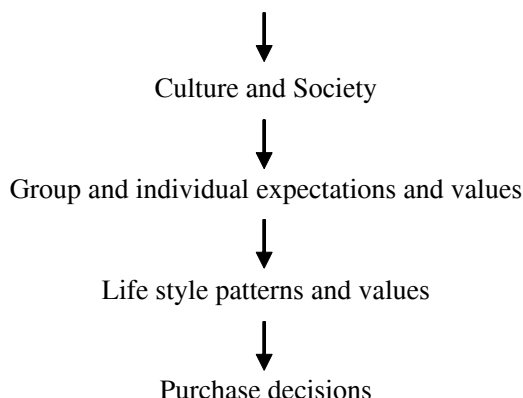
The main objective of this study is to segment the retail credit clients of commercial banks on the basis of lifestyle and to analyze the behavior of respondents in different lifestyle segments. For this purpose, survey was conducted among cus-



tomers of commercial banks who availed home loan, consumer loan and personal loan in Chennai city. Totally two thousand questionnaire were distributed and after continuous follow up thousand hundred and thirty six have been received. Of which, only eight hundred and ninety five were with complete information. Cronboch alpha (0.835) calculated shows that statements used for lifestyle has very high reliability.

## Review of literature:

Lazer was the first person to introduce the concept of lifestyle and its relationship with marketing and he attempted to give an idea about where the life style appears in the consumption process.



Market reactions of consumers

Gunter and Furnham (1992) studied psychological segmentation considering lifestyle coupled with personality, values and psychographics. However, Demby (1974) offered the definitional differences for psychographics from other psychological variables that it is the application of behavioral concept to market research; quantitative research process made use of psychological variables to predict consumer behavior and characteristics of consumers in response to products and marketing activities. Whereas Wells (1975) stated that psychographics construct is a quantitative method which life style profiles. According to Dorny (1971), psychographics is the psychological measures whereas lifestyle consists of activities and behaviors. All observations confirmed that life style is a part of the framework of psychological segmentation. Both psychographics and lifestyle could be used to describe a general life situation or a consumption situation with reference to a specific product or service class (Lawson and Todd, 2002). Variations in life style are expressed as variations in social class that results in changes in the consumption behavior (Levy 1996). Besides, social class is attributable to income and occupation. Goldthorpe et al (1969) discussed differences in lifestyle and consumption based on occupational structures. Lawson and Todd (2002) explained with the evidence from national study of consumer lifestyle in Switzerland to demonstrate lifestyle segmentation for the purpose of showing structural inequalities within society. Life style segmentation is also known as psychographic segmentation. It is developed on the basis of individual ideas, characteristics and patterns of living that may be exhibited in the products

and brands they purchase. Some people prefer a homely life-style than a sophisticated life style and vice versa (Lancaster and Reynolds, 2005).

Haley (1968) segmented people on the basis of benefit sought and related them with life style dimensions. Findings revealed that there was no strong association between life style segments and customers of specific product or service category. It was also observed in the findings of study conducted by Pernica (1974) that life style variables had no significant correlation with a person's brand preference. However, relationship between life style of consumers and their product specific attitude was inferred from the outcome of Heller's (1968) study. Wells (1973) classified respondents into eight life style segments using information based on 300 AIO statements and studied significant difference in the behaviors of various segments. Similarly Plummer (1971) found out the dissimilarity between users and non users of charge cards of commercial banks in terms of life style. Crask and Reynolds (1980) divided the viewers of visual and print media as the HITV life style, the HIPRINT life style, the HIBOTH life style and the LOBOTH life style. it was reported that all the four life style segments had distinctive exposure. Bates sharky (1985) applied life style segmentation for clustering car buyers. Significant variation was found in terms of behaviors among the various segments like Auto-piles, Necessity drivers, Auto phones, Auto cynics, Comfort seekers and Sensible centrists.

Stanley et al (1980) carried out a study on influence of life-style factors on bank patronage and concluded that reduction in price may attract new customers but people with bargain seeking life style are prone to switch when they find better bargain. Other life style factors involved in patronage are aspirations, cosmopolitans, small bank proneness and traditionalism. Kinnaird et al (1984) identified life style segments, which required increased marketing efforts, analyzed strategies for reaching profitable life style segments and suggested most effective way of new product offerings. Arbeit (1974) attempted to explain segments and sub segments of retail banking market with psychographic factors that was further linked with a particular life style.

## Factor Analysis

Since the number of statements used for inferring life style is more in number, it is difficult to analyze. So factor analysis has been applied to reduce the number of factors on the basis of similarity. For sampling adequacy and sphericity, KMO and Bartlett's test were applied.

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.808
Bartlett's Test of Sphericity	Approx. Chi-Square	9620.293	
	Df	780	
	Sig.	.000	

The result shows that it is highly significant. Principal component analysis method and varimax method were used for extracting factors and rotation respectively. The factors with eigen value more than one were selected. Table reveals that the number of factors reduced is twelve that accounts for the variance of 59.957 per cent.

Factor	Eigen value	% of Variance	Cumulative %
1	6.065	15.162	15.162
2	3.815	9.537	24.699
3	2.369	5.923	30.622
4	1.820	4.551	35.173
5	1.589	3.973	39.146
6	1.406	3.515	42.661
7	1.365	3.412	46.073
8	1.248	3.120	49.193
9	1.184	2.961	52.154
10	1.086	2.715	54.869
11	1.026	2.565	57.434
12	1.009	2.523	59.957

Out of forty statements used for getting information on AIO of respondents, except one statement, thirty nine statements scored the factor loading of more than .4. These statements have been reduced to twelve.

#### ***Factor 1.Optimists***

S.No	Statements	loading
1	We will probably move to a better position in five years	.748
2	Five years from now the family income will probably be a lot higher than it is now	.656
3	People today want to lead a life of pleasure	.555
4	Good grooming is a sign of self respect	.498
5	My greatest achievements are awaiting	.403

#### ***Factor 2 Aspirers***

S.No	Statements	loading
1	I wish to do something different	.734
2	I work too hard	.687
3	I aim to own a house or flat	.629
4	I take a lot of time and effort to teach my children good habits	.456
5	One must save for future	.412

#### ***Factor 3 Pragmatic***

S.No	Statements	loading
1	Unless you have specific reason to save, it is better to spend your money and enjoy it	.646
2	I don't attach so much importance to religion	.626
3	I do not bet money at races or buy lottery tickets	.554
4	Politics is a man's affair	.467

#### ***Factor 4 Party lovers***

S.No	Statements	loading
1	I like parties where there is a lot of music and talk	.772
2	I am involved in many activities outside my home	.736
3	A party would not be a party without liquor	.656

#### ***Factor 5 Systematic***

S.No	Statements	loading
1	My days seem to follow a definite routine	.740
2	I am orderly and precise	.713
3	I enjoy most household work	.628
4	I must have a bath daily to feel clean	.458

#### ***Factor 6 Explorers***

S.No	Statements	loading
1	I want to compete and win others	.643
2	I like to speed in my car/scooter/motor cycle	.615
3	I would like to travel around the world	.610
4	I like a little excitement and a little adventure	.604

#### ***Factor 7 Anti-credit***

S.No	Statements	loading
1	Owing money, even small amount worries me	.778
2	To buy anything than a house or car on credit is wrong	.685
3	I hate to ask someone for financial help	.635

#### ***Factor 8 Security seeker***

S.No	Statements	loading
1	I would rather live in/near big city than in/near a small town	.802
2	I prefer a government job to a private job	.448

#### ***Factor 9 Family Oriented***

S.No	Statements	loading
1	In the evenings, I prefer staying at home than going out	.671
2	Our family usually eats dinner together	.665
3	I like to pay cash for everything I buy	.408

#### ***Factor 10 Value orientation***

S.No	Statements	loading
1	Spiritual values are more important than material things	.682
2	Pleasure is not out put of money and wealth	.513

#### ***Factor11 Community oriented - Conservative.***

S.No	Statements	loading
1	A family is incomplete without a son	.724
2	Women wear too much make up today	.480
3	I am active in two or more service organizations	.460

#### ***Factor 12 Privileged***

S.No	Statements	Loadin g
1	Young people have too many privileges	.756

The first factor explains 15.162 per cent of variance and consists of five statements related with most of future things. More over. Statements have positive opinions. Hence it is labeled as optimism. The second factor which accounts for 9.537 per cent variance includes statements exhibiting goals and achievements in future and is named as aspirers. The third group of statements explaining 5.923 per cent variance is named as pragmatic because these statements are linked with highly rational behavior. The fourth factor accounts for the variance of 4.551 per cent and have three statements related with parties and social

gatherings and it is thus called as party lovers. Systematic factor describes 3.973 per cent variance and shows the characteristics of systematic and orderly way of living. As the sixth group of statements is different from normal way of life, and reveals ambitious behavior, it is labeled as achievers. The seventh and eight factors explain 3.412 and 3.12 per cent of variance respectively. They are named as anti credit and security seeker based on the meanings of statements. Since the ninth set of statements stresses family oriented character, it is called as family lover which accounts for 2.961 per cent variance. The tenth one explaining 2.715 variance is called as value orientation and the eleventh is community oriented conservative because two statements talk about orthodox behavior and third about community service. The last factor privileged has only one statement explaining 2.523 per cent variance.

Final Cluster Centers			
Factors	Cluster		
	1	2	3
Optimists	4.13	4.31	3.42
Aspirers	4.05	4.27	3.30
Pragmatic	2.47	3.56	3.19
Party lovers	2.27	3.71	3.31
Methodical	4.25	4.39	3.74
Adventurous	3.32	4.07	3.44
Anti credit	3.41	4.10	3.19
Security seeker	3.08	3.99	3.21
Family lover	3.76	4.04	3.34
Value orientation	3.25	4.06	3.28
community oriented conservative	3.51	3.96	3.30
Privileged	4.01	4.19	3.13

Hierarchical cluster method is used for finding out approximate number of clusters. It is learnt from the dendrogram that three clusters formed with the twelve factors. K means cluster analysis is applied to segregate total respondents into three clusters. Of total respondents, 368 falls to the first cluster, 276 and 251 fall to second and third cluster respectively. All three clusters possess more similarities than dissimilarities because of the fact that all respondents are the customers of retail credit. The less number of clusters reveal that people who avail credit from commercial banks in Chennai live with more or less life styles.

Number of Cases in each Cluster		
Cluster	1	368.000
	2	276.000
	3	251.000
Valid		895.000
Missing		.000

On the basis of mean score for the factors in each cluster and respondents behaviors, clusters are named as follows.

### Cluster 1 Systemmatic Aspirers

This segment consists of people having characteristics like they are highly positive oriented and aspiring for success. This segment people think that today youngsters are privileged than themselves. They are moderate in all other aspects. However people of this segment give less importance to family matters, values, security to life and risk of taking credit.

### Cluster 2: Cautious Achievers

People of second cluster have more or less same characteristics of what the first cluster has barring pragmatism, love for family, adventurous activities, averse to credit and value orientation. Respondents belonging to second cluster are having more concern for values related with their way of life, they are not of positive idea towards availing credit, and they do not go to party often and want safety for their life. Therefore they are named as cautious achievers.

### Cluster 3: Active Moderates

The third cluster is named as active moderates because these respondents have scored more than the average mean score of three but less than four invariably in all variables it shows that they are moderate in all their life style activities. Moreover, they are neither conservative nor highly optimistic. These cluster members are filled with positive ideas about the future with all practical thinking.

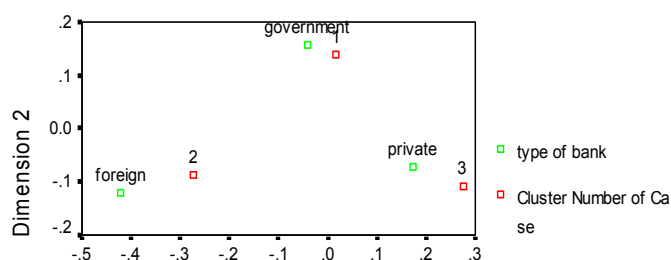
### Types of bank and their client's life style

type of bank	Cluster Number of Case			
	1	2	3	Active Margin
government	131	96	85	312
private	178	129	129	436
foreign	59	51	37	147
Active Margin	368	276	251	895

For analyzing the association between life style of people and type of bank with which they availed loan, correspondence analysis is employed. Notwithstanding insignificant chi-square value, the bi plot depicts some relationship. The distance between first cluster and public sector banks, third and private sector banks and second and foreign sector banks are less relatively.

Row and Column Points

Symmetrical Normalization



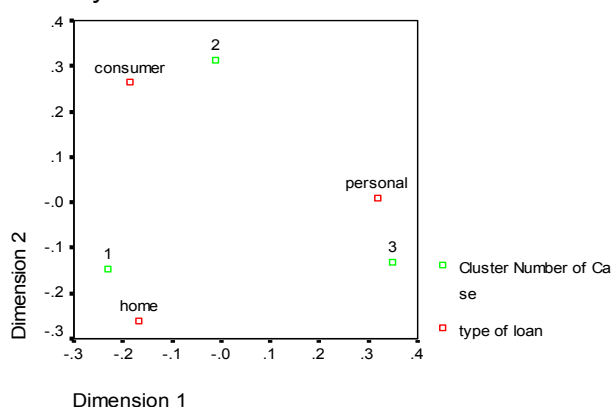
Further, the same correspondent analysis is used to find out the relationship between lifestyle segments and the type of loan availed by them. The result illustrates that though there is no significant relationship, personal loans are mostly taken by moderates: home loans by cautious achievers and consumer loans by methodical aspirers.

Correspondence Table

	Cluster Number of Case			
	1	2	3	Active Margin
personal	121	98	99	318
consumer	116	94	71	281
home	131	84	81	296
Active Margin	368	276	251	895

Row and Column Points

Symmetrical Normalization



## Conclusion:

Finding of this study shows that the borrowers of retail credit have more similar life style characteristics. All of them are optimistic and ambitious. They have positive attitudes towards credit and modern way of living. At the same time, there is no much difference found in the preference of people belonging to different lifestyle segments in terms of type of loans and type of banks. Drawing on the mean score of factors, it could be concluded that though there are many life-style segments classified by various studies previously, only a set of lifestyle segments favour consumer loans with commercial banks.

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## Corrigendum

The Editorial Board of SBJ regrets the inadvertent omission of the second author's name from a research paper published in **Volume V – No. 1 Fall 2008** issue of the journal. The journal takes full responsibility of this oversight.

The title of the paper should read as follows:

- **TELECOM SERVICES IN ETHIOPIA: AN ASSESSMENT OF CUSTOMERS' SATISFACTION AND THEIR PERCEPTION TOWARDS LIBERALIZATION**  
**Rakesh Belwal & Mesresha Wobeshet**

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## Forthcoming Conferences

No.	Location	Dates	Area	Website Address
1.	New Delhi, India	19 to 21 December 2009	(IJEB) International Conference on Business and Economics Issues.	<a href="http://www.serialspublications.com/news.asp">http://www.serialspublications.com/news.asp</a>
2.	Bombay, Maharashtra, India	27 to 29 May 2009	IES International HR Conference	<a href="http://www.ies.edu/management/Pdf/hr-conference.pdf">http://www.ies.edu/management/Pdf/hr-conference.pdf</a>
3.	New Delhi, Delhi, India	22 January 2010	Seminar on Tourism, Hospitality & Environment-Issues and Challenges	<a href="http://www.bcihmct.ac.in">http://www.bcihmct.ac.in</a>
4.	coimbatore, Tamil Nadu, India	28 to 29 January 2010	Multi Level Marketing Conference	<a href="http://skasc.ac.in">http://skasc.ac.in</a>
5.	Chennai, Tamilnadu, India	16 to 17 July 2010	National Conference on ACAD-EMIC RESEARCH	<a href="http://www.mgrseminar.info">http://www.mgrseminar.info</a>
6.	Ahmedabad, Gujarat, India	8 to 9 January 2011	2nd IIMA International Conference on Advanced Data Analysis, Business Analytics and Intelligence	<a href="http://www.iimahd.ernet.in/icadabai2011">http://www.iimahd.ernet.in/icadabai2011</a>
7.	LABUAN, Malaysia	18 to 20 March 2010	International Islamic Finance Conference 2010	<a href="http://www.kal.ums.edu.my/iifcums/">http://www.kal.ums.edu.my/iifcums/</a>
8.	Kuching, Sarawak, Malaysia	15 to 16 March 2010	International Conference on Business and Economics Research (ICBER)	<a href="http://www.globalresearch.com.my">http://www.globalresearch.com.my</a>
9.	Reading, United Kingdom	10 February 2010	Thames Valley Business Conference	<a href="http://www.thamesvalley.co.uk">http://www.thamesvalley.co.uk</a>
10.	Newcastle upon Tyne, United Kingdom	21 to 23 June 2010	Fourth International Plagiarism Conference	<a href="http://www.plagiarismconference.org/pages/register-interest.php">http://www.plagiarismconference.org/pages/register-interest.php</a>
11.	London, United Kingdom	14 July 2010	ICBEFMS 2010 : International Conference on Business, Economics, Finance and Management Sciences	<a href="http://www.waset.org/conferences/2010/london/icbefms/">http://www.waset.org/conferences/2010/london/icbefms/</a>
12.	Liverpool, Merseyside, United Kingdom	24 to 26 October 2010	3rd International Pedagogical Research in Higher Education (PRHE2010) Conference	<a href="http://www.hope.ac.uk/learningandteaching/lat.php?page=prhe&amp;t=prhe">http://www.hope.ac.uk/learningandteaching/lat.php?page=prhe&amp;t=prhe</a>
13.	Muscat, Oman	6 to 7 April 2010	International Conference on Higher Education and Quality Assurance	<a href="http://www.mazooncollege.edu.om/conference.html">http://www.mazooncollege.edu.om/conference.html</a>
14.	Dhaka, Dhaka, Bangladesh	22 to 23 December 2009	Global Business and Management Forum	<a href="http://www.gbmf.info">http://www.gbmf.info</a>
15.	Singapore, Singapore	26 to 28 February 2010	2010 International Conference on Innovation, Management and Service (ICIMS 2010)	<a href="http://www.iacsit.org/icims/index.htm">http://www.iacsit.org/icims/index.htm</a>
16.	Budapest, Hungary	21 to 23 April 2010	TTRA 2010 - Health, Wellness and Tourism – healthy tourists, healthy business?"	<a href="http://www.ttra-europeconference.com/">http://www.ttra-europeconference.com/</a>
17.	Los Angeles, California, United States	2 to 5 June 2010	International Business and Economics Research Conference, Los Angeles	<a href="http://www.jaabc.com">http://www.jaabc.com</a>

<b>No.</b>	<b>Location</b>	<b>Dates</b>	<b>Area</b>	<b>Website Address</b>
18.	Bangkok, Thailand	6 to 9 July 2010	4th International Colloquium on Tourism and Leisure	<a href="http://www.ictlconference.com">http://www.ictlconference.com</a>
19.	Saint Petersburg, Russian Federation	8 to 10 July 2010	Sixth International Strategic Management Conference	<a href="http://www.beykent.edu.tr/ismc">http://www.beykent.edu.tr/ismc</a>
20.	Athens, Greece	2 to 5 August 2010	7th Annual International Conference on Small and Medium Sized Enterprises: Management - Marketing - Economic Aspects	<a href="http://www.atiner.gr/docs/SME.htm">http://www.atiner.gr/docs/SME.htm</a>
21.	Bangkok, Thailand	4 to 6 August 2010	2010 the International Conference of Organizational Innovation	<a href="http://www.iaoiusa.org/2010icoi/">http://www.iaoiusa.org/2010icoi/</a>
22.	Budapest, Hungary	22 to 26 August 2010	Organization Development World Summit	<a href="http://www.odworldsummit.org/en.html">http://www.odworldsummit.org/en.html</a>
23.	East Coast, United States	23 to 25 August 2010	Human Capital Management Exchange	<a href="http://hcmexchange.com">http://hcmexchange.com</a>



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