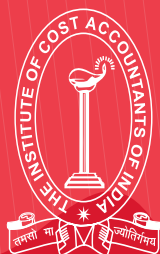www.icmai.in

RESEARCH BULLETIN

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FOREWORD

I am in high spirits to bring forth the present volume of the Research Bulletin of the Institute. The publication contains well-researched and thought provoking articles on a variety of relevant issues for researchers, academicians and professionals.

"*Agility is the most important means of implementation for digital transformation,*" says a report by McKinsey & Company. It says that agile methodologies can increase product development speed and decision efficiency by five times. Agile methodologies in banking can apply to more than just IT related projects. Banks can benefit from using agile practices on a business-wide basis, including customer service, wealth management, and marketing.

Banks hold a substantial competitive advantage when it comes to the depth, timeliness, and personal level of the customer data they possess. Harnessing powerful analytics, agile enables the swift and flexible development of applications that use such data. This practice helps to engage and serve customers with more innovative products — at crucial moments in customer journeys and life events. Continuously creating and refining such customer-focused products will help banks demonstrate that they know their customers. Understand their needs, and can suggest the most relevant offers at the optimum time.

In this edition, a wide array of topics based on blazing issues, like- Banking, Startups, Internal Audit, Financial Literacy, Stock Market, Forensic Accounting, MSME, Resource Mapping, etc.

Hope this would encourage readers to board on a lifelong journey of learning and enriching their knowledge base.

CMA P. Raju Iyer
President
The Institute of Cost Accountants of India

CHAIRMAN'S COMMUNIQUÉ

I feel privileged to place before you the present volume of Research Bulletin, Vol.48, Nos. I & II. Our Research Bulletin mainly highlights on pragmatic research articles and has a much wider reader base consisting of academicians, researchers, industry professionals and practitioners.

Throughout the Covid-19 pandemic, companies have learned to accelerate digital transformations and rethink operations to survive and thrive in a new normal. As 2022 begins, leaders across the technology industry are looking for new ways to drive business results while staying ahead of evolving customer needs.

5G's fast speeds and reliability can enable powerful use cases for the Internet of Things (IoT), artificial intelligence (AI) and sensor technology — fueling the digitalization of healthcare, energy, transportation and more. Cloud-connected robotics can orchestrate manufacturing and logistics activities, automating once manual processes to enable more efficient supply chains.

Industry stakeholders will need to evaluate frameworks for security and testing standards to minimize risk and proactively combat cyber threats. This includes incorporating cybersecurity early in the software development lifecycle, implementing holistic, continuous security testing and providing hands-on training for cybersecurity teams through virtual simulations. And although we're still in the early stages of 5G, 6G research is already ongoing. The emerging vision for 6G is near-instant and ubiquitous connectivity that enables a convergence between the human, physical and digital worlds.

This publication brings you in-depth research insights on a wide range of topics on contemporary issues like, Banking, Startups, Internal Audit, Financial Literacy, Stock Market, Forensic Accounting, MSME, Resource Mapping, etc. well-written by researchers, academicians and professionals.

Efforts made to publish this volume are sincerely acknowledged.

The readers are invited to put forward their valuable feedback towards enrichment of Research Bulletin.

Suggestions for improvement of this Bulletin shall be highly appreciated.

CMA (Dr.) K Ch A V S N Murthy
Chairman
Journal & Publications Committee
The Institute of Cost Accountants of India

EDITOR'S NOTE

Greetings!!!

It gives me an immense pleasure to announce the release of Research Bulletin, Vol.48 No. I & II, April & July, 2022 issue. Our Research Bulletin mainly emphasizes on contemporary and empirical research articles and has a much wider reader base consisting of academicians, researchers, professionals and practitioners. The strength of this book lies in its innovative approach in looking at issues in a comprehensive manner.

Our present volume of Research Bulletin, comprises of various blazing topics like, Banking, Startups, Internal Audit, Financial Literacy, Stock Market, Forensic Accounting, MSME, Resource Mapping, etc. would surely improve the knowledge base of readers.

We publish both theme based and non-theme based articles on the contemporary issues. Inputs are mainly received both from academicians and the corporate stalwarts. Our attempt is to draw attention towards environmental, social, economic and market-related issues, so that the researchers and decision-makers can enrich their knowledge base and can take strategic decisions consciously.

We are extremely happy to convey that our next issue of Research Bulletin, Vol.48, No. III, October, 2022 issue is on the theme- Demystifying Digital Transformation.

To some, the term "digital transformation" may sound cryptic and complicated, but it really is about taking practical steps to make operations clearer, easier and more concrete. By definition, digital transformation is a process that a facility, system or piece of equipment undergoes that allows end-users to see real-time data, make decisions based on it and act based on those decisions. Digital transformation puts the right information in the hands of the right expert, no matter where they sit, which improves the speed and accuracy of decision-making and action.

We look forward to constructive feedback from our readers on the articles and overall development of the Research Bulletin. Please send your mails at research.bulletin@icmai.in. We thank all the contributors and reviewers of this important issue and hope our readers enjoy the articles.

Warm regards,

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Journal & Publications Committee: 2021-22

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Contents

A Research & Development Model of Resource Mapping for Livelihood Planning

Suvendu Saha

Abstract:

The envisioned R&D Model of Resource Mapping for Livelihood Planning is based on the experience gained in a survey-based research work on resource mapping for livelihood planning, conducted in the backward district of Purulia (West Bengal, India) in 2018-20. The research work identified some parameters and attributes associated in the village-level resource mapping work, and highlighted the scope of the application of information technology in the work process through analysis of geo-referenced data – to render an extra edge in real time analysis. The research work produced a combined database having 67 base-level attributes, containing spatial and non-spatial data of the area of study comprising of 606 mouzas. It was felt that such database, when powered with GIS-enabled search engine and WebGIS infrastructure, may generate huge volume of strategic just-in-time information, which when linked with e-governance mechanism of the government, may help promote livelihood at the village level through optimal utilization of resources.

Technological tools like Geographical Information System (GIS) and Remote Sensing Data Analysis help us to develop spatially connected databases. Such database when combined with strategic non-spatial data-sets may produce a combined database, which once made up to village level, can provide a tremendous boost in the planning and monitoring of activities of social projects of the governments and NGOs, as well as may provide efficient and quality service to the entrepreneurs by way of providing just-in-time information.

In livelihood resource mapping work, criteria analysis of resource mapping data can help in extracting relevant information in super-imposed form from multi-layered datasets, through multiple object-based inter-related queries.

Four case studies are illustrated in this paper that offer examples of the ways to generate criteria maps for strategic information (along with its dataset) from combined database of GIS, in response to multi-level queries. Such criteria maps provide information on the existing

and potential livelihood position of the area of study, considering the topology, demography and other socio-economic conditions of the region. Thousands of such multi-level queries may generate numerous Resource Planning Maps and Participatory Planning Maps, useful for livelihood planning and its implementation.

Livelihood planning and its implementation at the grass-root level need collaborative efforts at various levels – both the government and non-government institutions may join hands in the fields of survey works, compilation of combined databases, analysis of the data, generating strategic information for livelihood planning, and most important, in the task of livelihood cluster development works at the grass-root level. A participative planning roadmap is given in the concluding note.

Keywords:

Resource Mapping, GIS, WebGIS, Sustainable Livelihood, Participative Planning

Prelude

During 2018-20, a survey-based research work on resource mapping for livelihood planning was conducted by the author in the backward district of Purulia (West Bengal, India). It was envisioned to make a survey-based groundwork that identify the parameters and attributes associated with the village-level resource mapping works, keeping in view of the scope of the application of information technology in the work process through analysis of geo-referenced data – to render an extra edge in utility in real terms. The research project generated a combined database containing spatial and non-spatial data of a small area of study comprising of 606 *mouzas*. It was felt that such database, when powered by a GIS enabled search engine, may generate huge volume of strategic just-in-time information, which when linked with e-governance mechanisms of the government, may help promote livelihood for a self-reliant India through livelihood planning at the village level.

It is felt that a research work can generate more value if its findings and experiences can be shared and utilized in real life applications and implementations, through value-added products and services. It is strongly felt that such utility-based research in social science can generate true values for the betterment of people and the overall development of the economies.

The technological tools for Resource Mapping works

In order to implement a livelihood development programme in a region, there is need for a lot of micro level information and planning, such as identifying right areas and target people, data on land use pattern, resource base, infrastructure availability, etc. Technological tools like Geographical Information System (GIS) and Remote Sensing Data Analysis allow us to develop spatially connected databases, combined with many strategic non-spatial datasets of the geographical area under study, which is very crucial in planning, monitoring and decision-making. The combined database, once made available up to village level, can provide a tremendous boost in planning and monitoring of activities of social projects of the governments and NGOs, as well as may provide efficient and quality service to the entrepreneurs by way of providing just-in-time information. With GIS, organizations make judgments based not only on the attributes of business entities, but on their spatial properties as well – location, overlaps, proximities, zones of influence, scale, and distances.

GIS is a tool for collecting and managing spatially defined data and linking this

data with attribute data (i.e., data from a traditional database), thus provides a unique platform for analyzing data based on geographical features. GIS generally incorporates an array of tools that are used to display, analyze, or query the data based on spatial criteria, criteria derived from the attribute data, or upon some combination of these data. An important display capability of GIS is that each data set represents as a unique map layer. In this context, each layer is similar to an individual user view (or table) in a database. The important difference that makes GIS so powerful is that data sets can be overlaid one on top of another, thus creating one or more new layers (or user views) that contain images showing how data relate to one another. This capability is important because it allows a user to visualize the relationships among the data and thereby identify patterns or relationships that might not otherwise be obvious. GIS managerial tools allow users to examine data by pointing to an object, by defining a polygon, or by selecting records within a given distance (radius) of a location. Another important GIS capability is that of spatial analysis, which capabilities perform 'what if' analyses. Most GISs incorporate a number of statistical tools and data manipulation functions used to test models and transform data.

The implementation of the GIS enabled Resource Mapping Model in a wider geographical area of study would essentially require a full-fledged development of WEBGIS ON LIVELIHOOD PLANNING that have the capability of online collection of departmental data related to livelihood development; as well as performing Criteria Analysis of spatial and non-spatial data to generate reports and maps for decision-making. We may try to visualize the systems architecture, which may be seen as a blueprint of the design contents of a dynamic application of GIS at work in the field of livelihood development.

Criteria Analysis of Strategic Queries for Livelihood Planning

In village-level livelihood planning using GIS infrastructure, the following agenda need to be accomplished:

1. Study of remote sensing (spatial) data on elevation and slope of the terrain of the area of study (creating DEM/DTM thereof); and include the data in Combined Database;

2. Study of remote sensing (spatial) data on Land-use Land-cover, perform Unsupervised Image Classification of Land-use Land-cover of AOS; and include the data in Combined Database;

3. Collect non-spatial data of pre-selected attributes from secondary and primary sources and appending the data in

Combined Database – data on raw materials availability, human resource position, infrastructure availability (like road, water, electricity, financial institutional support, etc.) and existing livelihood scenario of the area of study;

4. Append the combined Resource Mapping Data in Combined Shape file of A.O.S.

5. Perform Criteria Analysis for livelihood planning based on resource mapping data and generation of multi-layered Query Outputs in Web-GIS environment (the query parameters being based on the defined-attributes that are relevant and inter-related to the study objectives).

As mentioned, in livelihood resource mapping work, criteria analysis of resource mapping data can help in extracting relevant information in super-imposed form from multi-layered datasets, through multiple object-based inter-related queries. The general requirements of running such a mechanism consist of:

● A strategic query – Spatial Query (example: villages within 2 km from school, etc.) and Attribute Query (example: Villages with existing livelihood 'pottery', etc.);

● A 'query builder' mechanism consisting of software support for 'data extraction and analysis' by way of performing multi-criteria analysis, done through different layer representations symbolized differently. Multi-attribute queries may be done on multi-datasets to generate required information.

● Information – to generate numerous Criteria Sensitivity Maps and filtered 'Data' extracted through multi-queries.

Case Studies of Object-Oriented Queries for Criteria Analysis

GIS may take advantage of spatial factors to decide more efficiently on locations to optimize better utilization of goods and services. *Location Quotient Mapping* may be done to determine the share of employment in a given industry in a specified sub-area in proportion to the share of employment in the same industry within the larger area. For example, we may try to project the areas where the services of 'electricians' are required but not available in the areas having electricity in our defined area of study, so that such service line can be promoted through skill development EDPs in those projected areas. Fig. 1 display such a projected map so generated, data of which is derived from the proceedings and findings of primary and secondary surveys done in connection to a UGC sponsored minor research project undertaken in Purulia district during 2019-20.
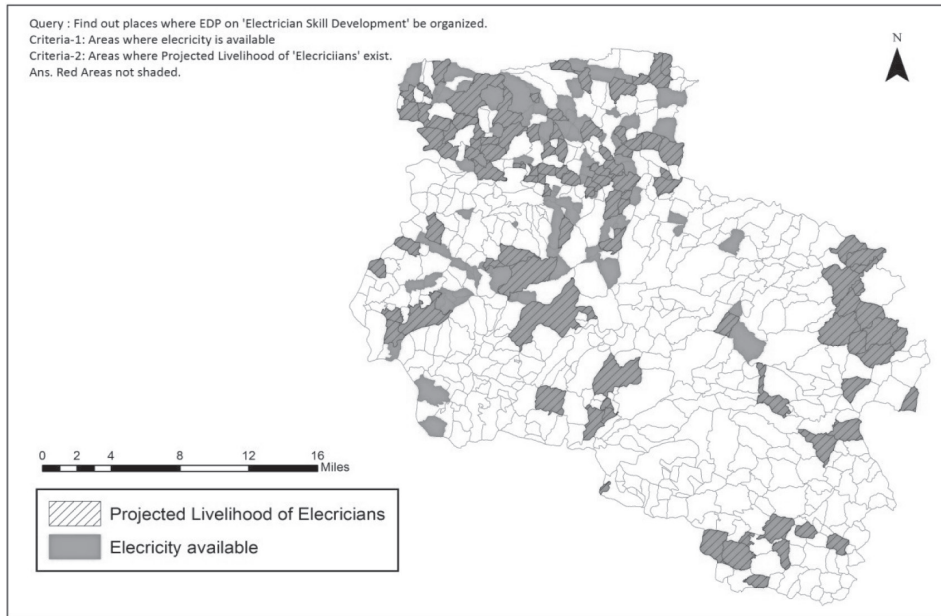
Fig. 1 **:** *Criteria Analysed Resource Map showing 'Promotion zone of new Electricians' in AOS*

For such a projection, two attributes may be used in 'criteria query builder', viz. 'areas where electricity is available' and 'areas which are projected for electrical services'. In this case, three layers of data-sets (viz. AOS with village boundary, Areas where electricity is available and Areas where Projected livelihood of 'electricians' exist) are overlapped on each other to display the scenario. It should be noted that the shaded areas in the map denote areas where electricians are already projected. The un-shaded areas of the coloured zone denote areas where there exist electricity and suitable for further promotion of electricians.

Another example may be reviewed in finding the projected areas where Forestry based small scale and cottage industries may be promoted in the area of study (AOS) as shown in Fig. 2. The data used for such multi-level queries are that collected through survey, and then after joined in the combined database from where the queries are generated (Existing and Projected areas of 'Forestry' livelihood in the AOS).

From the satellite data as shown below, obtained in respect of Land Class Land Use of the AOS (as mapped in Fig. 25), it can be seen that the forest area covered in the AOS is around 34.18%, while the agricultural land is also situated in between the forest areas in most places as seen from Fig. 2. Therefore, we can select all the areas
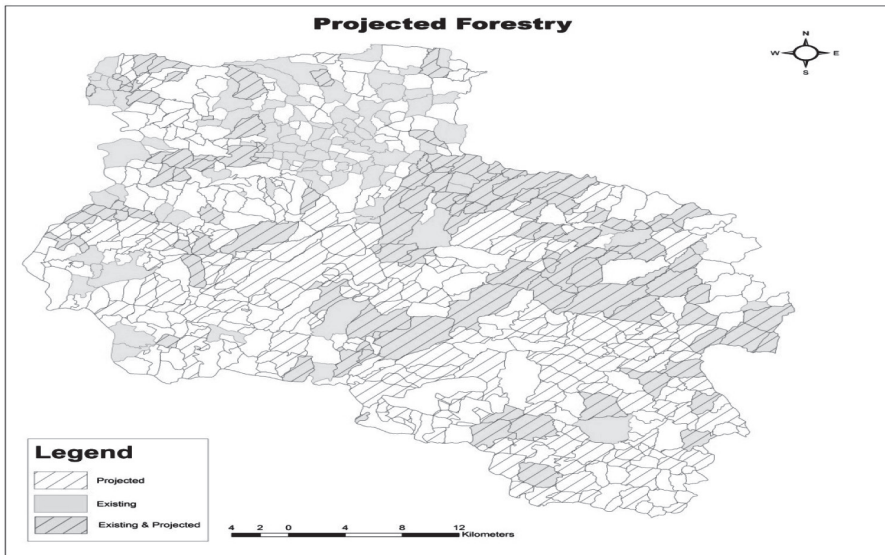
Fig. 2 : *Criteria Analysed Resource Map showing 'Promotion zone of Forestry based cottage industries' in AOS*

(as shaded in Fig. 2) as potential areas for 'forestry based cottage industries'.

Within the forest zone, a valuable forestry product 'Lac' is obtained which is the raw material for the production of Shellac, having international market demand. The major region earmarked for its production is shown in Fig. 3.

Satellite Data showing Land Class Land Use(Forest regions) in the AOS

Elevation Classes	Dense Forest	Medium Dense Forest	Low Dense Forest	Scrub Land	Waterbody
<250	197.3	809.82	2864.03	676.97	195.8
250-300	860.74	1579.2	3600.46	1501.65	382.31
300-350	26605.67	1009.06	2201.27	2201.27	129.06
350-400	2064.27	1231.94	1041.73	837.45	259.31
400-450	2902.99	1885.36	723.96	485.77	1.61
450-500	3231.11	2095.4	661.14	329.64	31.23
500-550	2518.22	2077.7	782.77	312.88	77.27
550-600	1057.65	1089.22	387.99	91.4	3.3
>600	116.15	59.69	11.22	18.42	0.27
Total : 189423.19	**39554.1**	**11837.39**	**12274.57**	**6455.45**	**1080.16**
%age of total	20.88	6.25	6.48	3.41	0.57

Source : *Sentinel 2A (USGS-EROS-Archive) referenced with WGS-84 datum and UTM projection*

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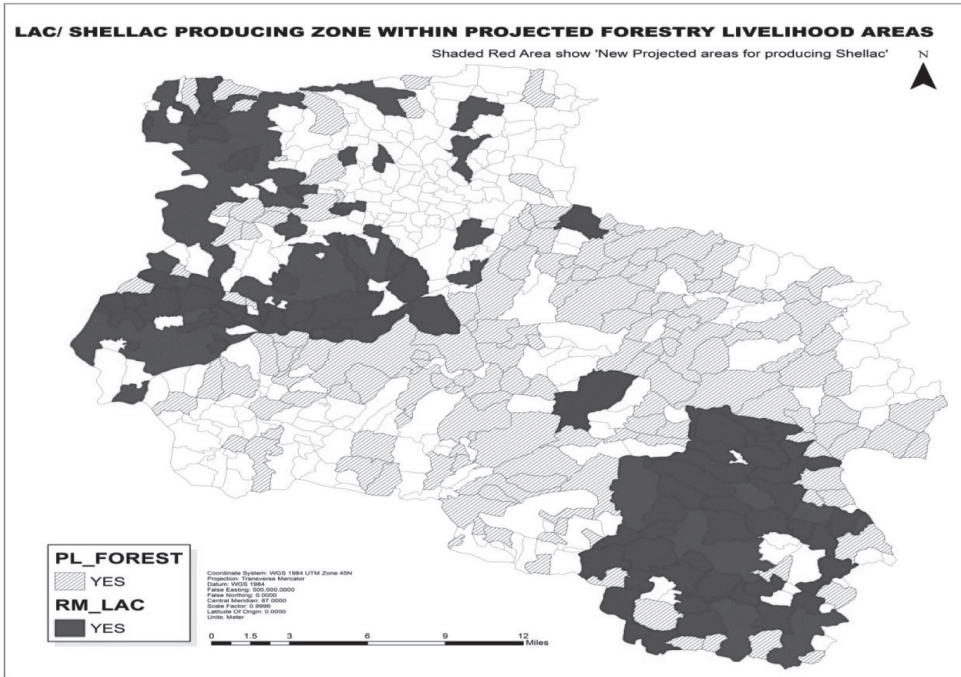
Fig. 3 : *Criteria Analysed Resource Map showing 'Promotion zone of Forestry based LAC/SHELLAC' in AOS*

Two major regions that grow Lac and produce Shellac (buttons/sticks) along with its various end products (bangles, handicraft, paint/rasin/ varnish and around 100 other uses) are earmarked as Balarampur, Jhalda and also a portion of Baghmundi (within the area of study in research project).

It should be noted that there exists the possibility of some errors in the projection through Criteria Sensitivity Analysis. There are practical problems in minimizing the errors connected with combining the data, since different types of data are available at different levels of aggregation and the data are also generated through different sources.

Let us take another example of projected livelihood mapping in agro based ventures in the area of study. As majority of the population are rural-based, so a major portion of unemployed workers (skilled and unskilled) may be engaged in agro-based activities for their livelihood. It will help in prevention of migration as well as may inject some cash flow in the region.

Within the plain lands and elevation range of 350 meters covering around 98% of agricultural land, various cash crops can be

Elevation Classes	Agricultural Land	Others
<250	17160.16	17251.83
250-300	40582.31	26605.67
300-350	10321.82	129.06
350-400	259.31	1076.84
400-450	42.61	404.43
450-500	66.96	523.48
500-550	469.23	1250.35
550-600	307.4	714.34
>600	8.1	35.29
189423.19	**69217.9**	**47991.29**
%age of total	36.54	25.34

Source : Sentinel 2A (USGS-EROS-Archive)

produced in 'two-times' cultivated lands, like cereals, tomato, vegetables, sugarcane and mustard. Land available for agro use is around 117,209.19 hectares covering around 61.88% of total land use in the AOS, as can be seen in the table shown left. These areas can be earmarked for the promotion of agro-based food processing small scale & cottage industries, as can be seen in Fig. 4.

Various types of queries can be generated to cover various objectives like:

- Finding land use like suburban, commercial, industrial, agricultural etc.
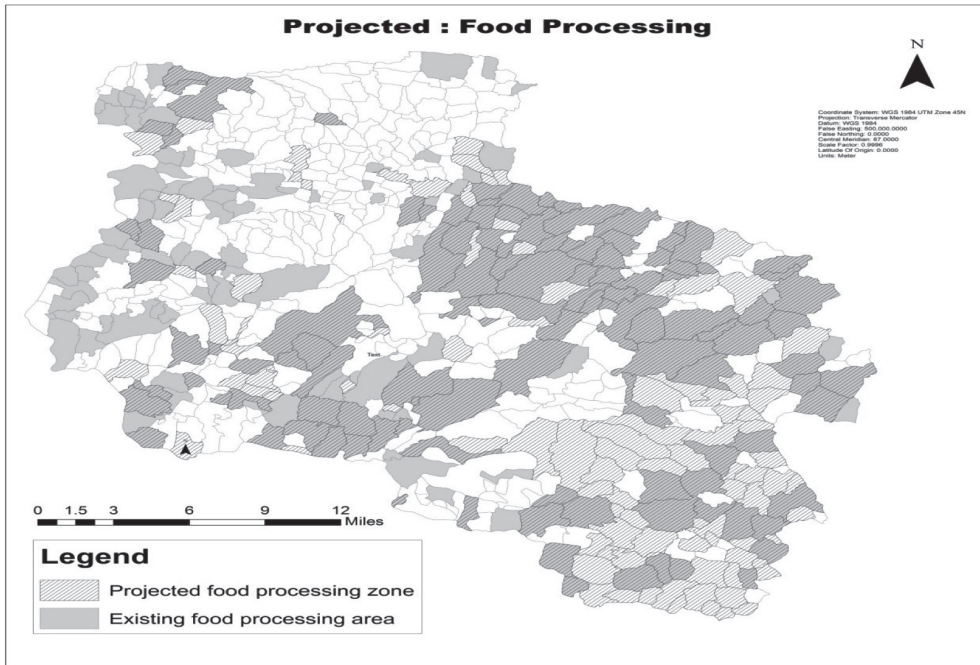
Fig. 4 : *Criteria Analysed Resource Map showing 'Promotion zone of Food Processing Units in AOS*

- Finding flood-prone zones and risk from other natural disasters.

- Draught of roads, drainage system and water-connections, utility cables.

- Access path to markets, park, hotels, airport, railway-station, hospitals and schools.

- Data of entrepreneurs area-wise, and their present status, via their geographical positions.

- Area wise Assessment of revenue collected and projected.

- Depict variety and quantity of crops plot wise/village wise/grower wise/centre-wise.

- Calculation of crop area to foretell and calculate harvest, total production on the basis of normal yield, etc.

Logically speaking, all the 67 non-spatial-sourced attributes included in the combined database, and all the spatial-sourced attributes of land-class/land-use, slope & elevation, etc. (as identified in my initial research work) may be used as strategic query variables for Criteria Sensitivity Analysis to generate numerous Resource Maps to display various livelihood potentialities in multi-dimensional conditions. The filtered datasets based on criteria factors may also be fetched along with the maps. All these information are very crucial for the planners and decision-makers who work on livelihood mission.

The Characteristics of the 'Query Builder'

The data mining mechanism through a Web-GIS portal defines the operational logic of the 'Query Builder' in GIS. The essential characteristics of it may be specified as below.

- To use a GIS software – open-sourced like QGIS or a professional one like ArcGIS, accessible through a Web-GIS;

- To convert all the data in digital form using the GIS software;

- To design or configure topological data structures, and link/ join non-spatial attribute data (collected from field) with spatial data;

- To maintain GIS boundary files and data; gather boundary data and associated attributes, and linking them;

- Based on the objectives, different layers of datasets need to be called for in the 'layer panel' of the GIS software. These layers with all its information should be in view-enabled state;

- The database design in tabular form may be made, so that the data can easily be fetched by even the non-technical users through user-friendly design interfaces.

- The interface should contain the following components :-

  o Toolbar : to operate tools like, Browser, Zoom, Pan, I-Tool for Information, Attributes-view, etc. ;

o Layer Panel : to display all the layers used for criteria analysis;

o Viewer : the area where all the active layers are visible, and the result of all the queries displayed;

o Status bar : where the coordinates (latitude and longitude) and Project Projection can be viewed;

o Output Viewer : to provide bird's eye view/ top view of the map projections.

● To fetch desired information from data present in GIS environment, 'information tool' may be used. A GIS interface can be used to query a database, although this requires a more sophisticated interface with the ability to formulate a query using the interactive commands. Database capability allows queries be generated in the GIS to show only areas selected by attribute value. This type of software also allows simple spatial database queries, such as selection of a particular region and operations such as buffering or overlay.

A number of map overlay operations are available in a GIS including a union procedure.

The union of say, two layers in a GIS is done to combine an input layer (base map) and an overlay layer to produce a third layer. This new layer contains the attributes of both component layers and the total extent of both layers. What this means is that each polygon of the resultant layer has the attributes of its constitute polygons and the extent (boundary) of the resultant set of polygons is the total of the two components.

● Some GIS support a standardized language to perform such queries. It is called the Structured Query Language or SQL. A SQL statement is made up of three parts: a field name, an operator, and a value. Such statements can also be connected with other statements with connectors.

● 'Filter tool' may be used to extract both spatial and attribute query-based information. The filtered datasets based on criteria factors may also be fetched along with the maps. Such maps may include further details of the land-use pattern represented through pie-charts or the like.

Thinking specifically about GIS-oriented data types, raster data are organized arrays of data structured into regular cells such as pixels making up a satellite image. The benefit of raster data is that the use of regions of pixels can easily be formed to represent regions of common characterization (e.g., soil or vegetation type) or activity (e.g., changes in land cover type, such as through construction of buildings, roads, etc.), thus creating various theme-based data layers, which can be stacked upon one another to integrate together different pieces of information. Vector data are mathematical

representations of geographic objects, or other business content objects having some geospatial meaning. Vector data are normally thought of as points, lines, and polygons. These data can be maintained in relational data tables with various attributes, properties, & behaviours, and through the tools & applications commonly found in GIS, can be used to create stand-along vector displays or overlaid upon raster-based displays. Other GIS data include elevation data, which is normally represented as "z" values representing height or elevation in an x, y grid that locates these points on the surface of the earth, where "x" and "y" could represent longitude and latitude, or some other referencing scheme. Elevation models have been used extensively to add relief or 3-dimensionality to normal 2-dimensional map displays. This is often accomplished by "draping" raster or vector layers over the top of wire-frame grid of x, y, and z points so that photos and maps are seen in their dimensional relief. This allows whole new classes of analyses. Examples of numerical data ingested into GISs are values for things that have no intrinsic shape, such as elevation, rainfall, temperature, slope, wind or current speed values, which relate to earth "things," or business data, which can be tied to business operations in a geographical place or region.

With the development of newer technologies such as Simple Object Access Protocol (SOAP), it makes increasingly possible for scattered individuals and departments to provide web-based GIS services that simplify access to departmental data, thus provide help in managing distributed data through e-governance. When a traditional GIS is combined with GPS and the Web, the GIS captures variations across space and time and truly becomes dynamic. It becomes the WebGIS. The basic architecture of a web GIS application is the client-server architecture; this is because the standard of geo-data is very specific in the sense that it requires a map server on top of the web server and a database compliant with geo-data. Middleware facilitates the sending of requests and responses between the client and server. The web server receives user requests and in turn sends back the requested files (HTML, binary images), which includes the web pages the user views, using the Hypertext Transfer Protocol (HTTP). A map server allows for the sharing, processing and editing of geospatial data, which is then stored in a geo-database (GIS database).

WebGIS enabled systems framework defined

GIS enables us to (i) overlay info over geographic features; (ii) make 'proximity/ criteria wise analysis' of data for decision making; and (iii) perform statistical and tabular analysis. With these unique capabilities, GIS reveals deeper contents of data, such as patterns, relationships, and situations—helping users make smarter decisions. As a platform for wide range

of spatial and non-spatial data integration, GIS has been established very useful in planning. However, its integration with ICT tools and networking technologies can add more power to its applications in e-governance in providing Geographic Informatics or Geomatics. Combining GIS capabilities with DSS modelling and data support results in 'Spatial DSS' or SDSS. Such tech-fusion necessities demand for the development of a Web-GIS, which can automate the process of collecting the (pre-selected) real-time departmental data so generated on a continuous basis, integrating

& updating the same, and disseminating information to the 'selected users' (who are eligible to log in) through multi-query based criteria analysis, for decision-making and formulating re-engineered action plans.

The entire work of gathering, managing, analyzing and presenting the data may be coordinated in an organised manner through a system's server embedded with Decision Support System and Web-GIS server setups. A logical diagrammatic model of such a system that facilitates and adds value in livelihood resource mapping operations may be illustrated in Figure 5.
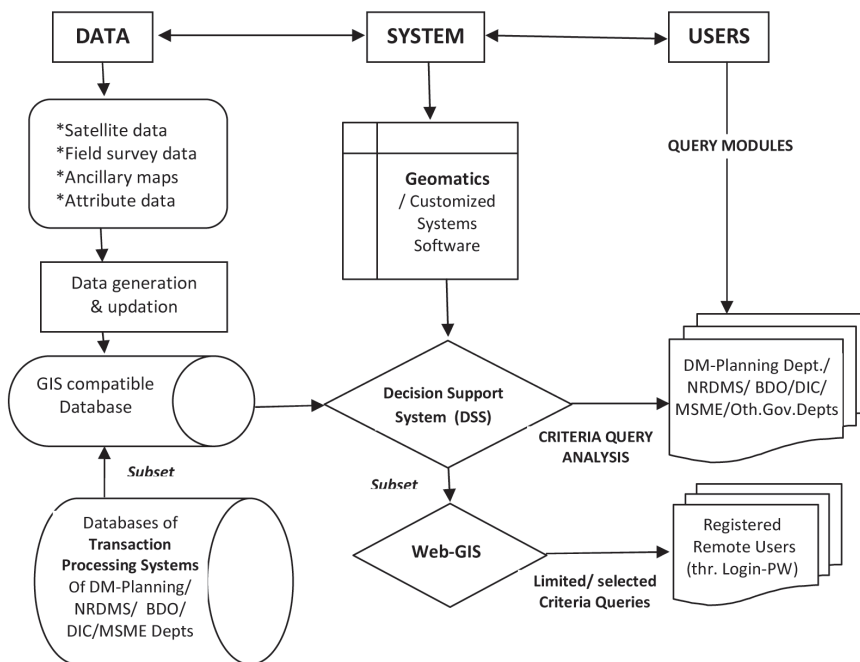
Fig. 5 : *Logical Diagram of Web-GIS Systems for Entrepreneurship Resource Mapping*

Thus, **GIS = f {Hardware, Software, Data, Connectivity, Procedures, Operators},** where *Hardware* represents all systems hardware; *Software* represents operating software and other applications and tools; Data are primary and supporting data received from many sources, ingested into, manipulated by, and outputted from GIS systems; *Connectivity* represents systems inter-networked connectivity linking GIS to remote data sources and other supporting applications; *Procedures* are the automated and manual processes, methods, and other algorithms necessary to use the GIS system; and *Operators* are the operators, analysts, researchers and others who use GIS hardware, software, data, connectivity, and procedures in order to support spatial analyses and other organizational decision-making.

The contemporary Web-GIS tools consist of three main components: systems engine, combined databases (of spatial and non-spatial data) and visualization module. In livelihood resource mapping works, Web-GIS can link some government departments and a central administrator to a central network using high-speed communication network (through Internet/ Intranet) through Systems Engine. Easy access to integrated sets of information with common geographic reference compiled from multi-layered datasets collected from various primary and secondary sources, help the planners to view multi-dimensional resource maps (along with its integrated datasets) for developmental planning, while the assigned departments/ offices may update or append data online, all through Visualization Module. Such information systems can perform geographic measurements, geo-accounting, spatial analysis and integrated decision-making for village-level Livelihood Planning.

For GIS, the data are typically raster, vector, elevation, spectral, textual, or structured (i.e., numerical data in tables, etc.) types. One way to classify data ingested into GIS and used for organizations' operational activities is to consider the remotely or environmentally sensed data, which are often purchased from commercial geospatial data collection vendors or are found in government, public, and other open source databases. Other data sources include organization/ department-specific operational data collected internally and industry-specific data procured from industry analysts and associations. Business data can also take many forms; however, the most common seem to be the forms found in typical office productivity software suites: e.g., structured data found in databases and spreadsheet programs and non-structured data found in textual documents and presentation graphics. These data are often of interest to GIS analysts and can be integrated into GIS-supported decision-making.

Visualization module is responsible for presenting output maps along with its related datasets. Such maps can be either static or dynamic. Static maps enable visualization of the given environment (territory) in scale and present different layers which

define how a GIS dataset is symbolized and labelled. Different layers can expose various classes of objects considering many criteria. Layers can be switched on and off and overlaid if needed. The maps can present objects in different views according to chosen criteria. Interactive dynamic maps enable creating and updating the maps on-line in the real-time when data is registered as well as simulating certain phenomena and processes. Additionally it is possible to link the objects with additional text descriptions available by hyperlinks, may be retrieved from other information systems such as ERP (Enterprise Resources Planning) or CRM (Customer Relationship Management). Such possibilities can facilitate estimation of planned undertakings or visualization of their progress.

Systems Specification of Web-GIS for Livelihood Resource Mapping

Exploitation of Web-GIS technology depends on the possible ways of accessing them by its potential users. For sharing the data of livelihood resource mapping, a Social GIS applications format is appropriate, which can be used by a community of inter-dependent government departments who work on 'livelihood planning and its implementation', as well as by potential entrepreneurs needing information.

The essential features desirable in Web-GIS may be summarized as below.

● It should be an interactive tool both for the administrators and registered users, with a controlled access of modules

for the users – through pre-determined module-permission matrix administered by the central administrator.

● Interactive 'Query Builder' features must be present in User's View in Web-GIS.

● There should present a working space for 'Spreadsheet (Excel) Data Extraction' (based on Query) with data filtering/ vlook up functions.

● Interactive 'Map Building' mechanism should be present, where resource maps may be generated based on data generated through criteria analysis of object-oriented queries.

● Interactive 'Adding Comment' tools must be inbuilt for enabling the users to write comments on the 'Query' and incorporate it in/ with the Resource Maps so produced.

Software Specifications

Organizations often purchase spatial services from Spatial Data Repositories (SDRs) maintained by various vendors, which are the collections of possibly heterogeneous spatial data and spatial data-storage technologies that provide spatial data management functions for spatially-enabled information systems. GIS vendors often provide a range of spatial services that can be integrated across a common data storage platform. ESRI's Spatial Database Engine (SDE), for example, is spatial middleware designed to inter-operate between leading commercial DBMS packages such as

Oracle and a variety of ESRI clients including their ArcIMS mapping server, Arc GIS desktop analysis and data maintenance software, and MapObjects Java and COM based programmable software libraries (ESRI, 2002). Similarly, Intergraph's Geographic Data Objects (GDO) is spatial middleware enabling the GeoMedia suite of products to access data stored in a variety of back-end data stores. Standardizing on spatial middleware such as these allows an organization to select a back-end database from a number of enterprise class database management systems which best meets their IT needs.

Open source GIS software like *Q-GIS* or a more professional one ArcGIS may be used in the process of development of systems software. *Oracle E-business Suite 12*, integrated with *Autodesk Map Guide Enterprise 2009* may be used for applications development, and porting the application on the APIIC intranet/Internet. *AutoCAD Map 3D 2009* may be used for GIS Data Publishing. As part of total systems development, Oracle Property Manager, Oracle Projects, Oracle Sourcing, Document Management System (DMS), Autodesk GIS may be used for development of key modules.

Database Management

GIS contains both attribute data and spatial data. Spatial data is often classified into two major forms – field-based and entity or object-based. Field-based models impose a finite grid on the underlying space and use field-functions defined within the context of the application to determine attribute values at specific locations over the grid. Field data is most commonly associated with satellite imagery and raster data derived from grid based collection methods. In contrast, object-based models identify discrete spatial objects by generalizing their shape using two or three dimensional coordinate systems. Spatial objects are a combination of non-spatial attributes describing each object's characteristics, and spatial or geometric components describing the relative location and geometric form of each object. Most data used by organizations today is stored as object data, as this form bears closest resemblance to traditional business data and can be stored in a variety of relational database management systems.

In order to exploit spatial data, organizations need to integrate spatial data and spatial services with their traditional business applications. This integration can be achieved by developing a technology framework which facilitates interaction between business applications, spatial services, and data management systems. In general, spatial data within an organization could be stored in commercial enterprise databases, in proprietary file structures on one or more physical storage devices, accessed from a remote server over the organization's intranet, or downloaded on demand over the Internet.

Spatial services using Hybrid and Application Specific data storage models require file-based storage for some or all of the spatial data. As file-storage is often

dependent on the operating system, selecting a spatial service vendor might require also adopting particular hardware and operating system platforms. Many commercial geo-coding solutions, for example, require a Microsoft Windows platform. Geographic Data Technology's Matchmaker address geocoding software, for instance, is only available on 32-bit Window's platforms and file systems. MapInfo's MapMarker V8 geo-coding software has similar platform restrictions. The data may also be stored in a data table using an object-model approach. In such approach, each record contains a unique identifier, descriptive attributes, some of which contain a spatial component, and an explicit spatial location stored as a latitude and longitude. Depending on information system needs, derived geometric information might represent accurate or "real-world" spatial locations. Increasingly, global positioning systems (GPS) and other mobile technologies allow non-spatial data already containing accurate spatial references to be captured and used directly by spatial services, negating the need for deriving location. Simple spatial data representing point locations are easily managed in relational database management systems. More complex spatial data representing linear features such as streets and highways, and polygonal features such as geopolitical divisions, sales areas, etc., however, are more difficult to represent in tabular form as each spatial object may contain many coordinate pairs. Spatial objects requiring large numbers of coordinates to define their shape require

innovative and efficient techniques to manage their storage.

Implementation of the Research Model : the Action Plan

There is an enormous scope of work in the implementation area. Livelihood planning and its implementation at the grass-root level needs collaborative efforts at various levels – both government and non-government institutions may join hands in the fields of survey works, compilation of combined databases, analysis of the data, generating strategic information for livelihood planning, and most important, in the task of livelihood cluster development works at the grass-root level. The action plan of such activities in chronological order may be as below.

A. Preparation of Livelihood Resource Mapping Maps of the areas of study. It would include the compilation of Combined Databases at village/ mouza level for each area of study, and consolidate the data at Block/ State/ National level.

B. Followed by the resource mapping works, Participatory Planning Maps based on resource mapping and post field visits may be undertaken.

C. Systems Analysis & Design of Web-GIS for Livelihood Resource Mapping. It should contain the mechanism of collecting input non-spatial data directly from departmental offices, to be included in the Combined Database of GIS. It

must also include output generating features including generation of outputs base on strategic queries.

D. Extending the resource mapping works in all the mouzas/ villages of all the districts of West Bengal in the first phase, and then gradually in all the states of India, following the proto-type model as described in the present research, may be with some extension of attributes and parameters of study, as well as with some modification/s in GIS database and visualization designs, as per the demand of the developmental planners.

E. Administrative Setups : Systematic and decentralized institutional setups at the district and village levels are required for creating a Web-GIS compliant distributed information system to support livelihood development. Various district level government departments and panchayat administrative setups may be involved in the project in generating and compiling transaction-oriented non-spatial data of assigned livelihood-related attributes. Considering the grass-root level infrastructure availability and economic feasibility of running the livelihood resource mapping works on regular basis using Web-GIS technologies, we may consider a 'Dual Partnership Admin Scheme' as noted below.

(a) At local level resource centres: MSME/DIC/ BDO/ DRDC/DM-Planning Dept./NRDMS

● Installation of *'GIS-compliant ED-Transaction Processing System'* – for collecting relevant data (pre-selected) to generate village/ mouza-level non-spatial data for the Combined Database of GIS; provision to update the data on regular basis through TPS in the local server, and then to append the revised data in the Combined Database. The operations may be executed in offline mode.

● Access to a *'dedicated social Web-GIS'*, developed and maintained by a service provider, to use the visualization module for viewing ED-Resource Mapping Info and performing Criteria Analysis (based on multi-dimensional queries); the primary objective is to get just-in-time information for ED-planning works, for optimal utilization of scarce resources through a careful research on ED-resource mapping data.

● The hardware and software requirements for the local resource offices: just the base-level digital computer systems, local server in LAN environment with internet facilities. [Windows OS 32/64bit, RAM at least 2 GB, Hard drive of 250 GB -min 5 GB of free space, 1GB Graphics card (optional), Monitor (Normal resolution - 1366/768), an open source Geographic Information System software (QGIS), a remote control software like AnyDesk/ TeamViewer/

etc] and other office automation hardware like printer, scanner, web-cam, etc.

(b) Centralized Systems Admin. By Service Provider:

- To develop and maintain a Social Web-GIS for the benefit of departments and other end-users.

- To collect the required data of selected attributes from the local servers (as generated, compiled and maintained by the local TPS) through internet/ intranet for its Combined Database maintained at its Central Server.

- To process the data (including remote sensing data), join the attribute data with the spatial data, and perform all necessary data warehousing and data mining works.

- To maintain the network in GIS environment where all spatial and non spatial queries can be handled to generate up-to-date information.

- To provide training and assistance to the end users to run the local resource centre of the system and fetch the desired outputs.

References:

1. Saha,S, (2020), Final Report of Minor Research Project 'WebGIS format compliant Resource Mapping of Livelihood Potentials in adjoining hill areas of West Bengal', SCM Commerce Digest, Oct.2020.

2. Acharya, T., & Nag, S. K. (2013). Study of groundwater prospects of the crystalline rocks in Purulia District, West Bengal, India using remote sensing data. Earth Resources. 2013.

3. Directorate of Cottage and Small Scale Industries (Lac Development Office, Purulia), Government of West Bengal (2005-06). A Report on Achievement of Lac Development Programmes in Purulia District.

4. Dutta, S. (2002). "Urbanization and development of rural small enterprises: Study the linkage with focus on West Bengal", Economic and political weekly, Vol. 37, No. 30, 27 July, pp. 3181-3189.

5. F. Ananda, D. Kuria and M. Ngigi, "Towards a New Methodology for Web GIS Development," International Journal of Software Engineering & Applications (IJSEA), pp. 47-66, 2016.

6. Jana, D.P. & Das, T.K. (2001). Lac Development in India Past and Present Status & Future Strategies. Directorate of Cottage and Small Scale Industries (Lac Development Office, Purulia), Government of West Bengal.

7. Malczewski, J. (1999). GIS and Multi-criteria decision analysis. Wiley.

8. National Bureau of Soil Survey and Land Use Planning. (2010). Soils of Puruliya District, West Bengal for optimizing land use. Kolkata: Government of India.

9. Thakur, D. Thakur, D. N. 2009 "Industrialisation in Tribal Areas", Deep and Deep Publications, New Delhi.

10. Vijayarani. K.R. 2011. "Small scale industries in India: Prospects and Policy Initiatives", New Delhi: New Century Publications.

WEB

www.bhuban.nrsc.gov.in

www.myenterprisewb.in

www.nrlm.gov.in

www.msmewb.gov.in

www.wbadmip.org

www.nic.in

www.nrega.nic.in

www.villageinfo.gov.in

www.mnregaweb2.nic.in

www.census2011.co.in

www.wbpspm.gov.in

www.data.gov.in

www.indiastat.com

www.bing.com/maps

www.usgs.gov/centers/eros

www.googleearthpro.com

www.pasda.psu.edu

https://gdg.sc.egov.usda.gov/

https://mapcruzin.com/free-india-maps.htm

https://gis.stackexchange.com

https://www.nrsc.gov.in/

https://earthexplorer.usgs.gov/

A Study on Employee Motivation in the Indian Banking Sector

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Abstract:

The study related to motivate the employees at work place with motivational benefits and the practices by employee retention. The present study is both descriptive and exploratory in nature. The exploratory research data sources include previous records, websites, books, magazines, journals, articles. The primary data collected through direct interviews questionnaire with respondents. Ultimately most of the beneficiaries are in contented with the existing structure and strategies that prevail in the select sector are worth-proved.

Keywords:

Motivational Benefits, Practices, Employee Retention

Introduction:

In general motivation is a panacea that affects both rationally and emotionally at work place in addition to his primary, secondary and territorial behavior. Motivation is to be pursued as a part of transaction behavior, group dynamics resulted in group cohesiveness and bind-over voluntarily by himself to support of 'individual is in subordination to the general interest' of Henry Fayol's modern management theory. It undoubtedly influences the level of perception and behavioral-learning and influence the productivity both in production/operations sector as banking and insurance sector lie under operations rather physical bundle of products/services. This may be one of the thought behind those strategists more persistently infuse into an organization as one of the best practice across globe. As all of us know that the motivation is a product of valence and expectancy and mostly an internalized feeling and person in total motivated but not in part. Most of such behaviors intangibly in human attitude but tangibly influence by way of bad morale that influence productivity in an enterprises involved manufacture and intangible in banking and insurance undertakings but definitely it reflect by way of underperformance which in turn hits not only individual targets but also group goals and objectives.

However this under performance unveiled by an in-Toto attack on enterprise mission-statements, objective - statements and strategically-vulnerable. Sometimes it is quite tangible on balanced score cords of top management and degrades beyond their talent and in turn result in relocation of their existence along with treasure of knowledge attached to their individual traits and Excellencies. Motivation will be on drive only when the staff involved at all levels wholeheartedly take to their conscience not only conscious, but also at sub-conscious and super conscious mind set and route it by way of their will power to make things possible that are impossible in nature especially in banking sector.

Theories of Motivation

As Roosevelt rightly said understanding one motivation level of employee is like searching a black cat in dark room. Though Johari-window points out I am ok but you're are not ok and you are ok but I am not ok; in spite of the thumb rule of 'rule-1 boss is always right and rule-2 is follow rule-1'. Keeping the above statements in to researcher conscience we look into few researchers' views on motivation theories and its limitations in application and use to motivate at workplace right now. Some of them quoted here are

Hawthorne studies (Terpstra, 1979). Six major contributories to theories of motivation are **McClelland's, Needs for Achievement,**

Affiliation and Accomplishment; Abraham H Maslow's need hierarchy i.e., physiological, security, social, ego and esteem categories, J.S. Adam's Equity Theory, Vroom's Valence & Expectation Theory, Herzberg Two factors Theory, Douglas McGregor Theory X and Y to assess innate and acquirable trait followed by several styles of leadership quality based on communication and motivation theories such as traitist, situationalist, acceptance, followance, electric & continuum in addition to Autocratic, Democratic, Laissez-faire and participative styles of individual leaders in motivation, communication and leadership to achieve organizational goals, objectives and strategies.

Validity of the types of motivation theory usable in practicality to select organizational sectors:

Primarily there are two types of motivation i.e., Positive and Negative models based on individual behavior and assessment in addition to its suitability to specific sector in particular and in general to all sectors. Positive motivation is a process of an attempt of individuals to come forward voluntarily to get the tangible and intangible benefits associated with the job thereby individual feel that there is job satisfaction in term of job and in terms of interlinked incentives both qualitative and quantitative in nature.

Negative motivation is a feel/fear that works in punitive manner that may cause in disciplinary action which in turn may impact on personal assessment for training, promotion, separation, development and attack negatively on compensation packages too.

However, many leaders feel that the negative motivators work better than that of positive motivators; this is because of the fact that how long we can feed a candy's into the mouth of individual. There may be days of shortages of candy's or individual may take that candy's are granted and a right of package in future. Which in turn may arose as a demand through collective bargaining mechanism kick to trade unionism.

Motivational methods:

1. **Confidence Building:** Face job related challenges, confidence and capacity building.

2. **Team Player:** Being a good team in support of in unity there is strength and coordinate others work in most appreciable manner and exhibit self reliance, confidence, trust, strength, competency, command and caliber. Competition in teams or groups creates teams and ignites team effort.

3. **Intuition, Mentoring, Training and Development:** prescheduled set of activities provide a perfect best-fit to explore motivation among staff of all levels and a tailor-made specific schedules, manuals, codes, conduct,

coaching, mentoring, intuition, workshops, conferences, open-quality-houses, peer-learning and development process to all employees which may cover online, offline, interactive, sabbatical, job separation so on.

4. **Inter-Personal Influence as a spirit & style of inspiring & aspiring towards motivation and learning:** Every employee is unique in their traits, abilities, characteristics, perceptual recognition, selection, organization, registration and reproduction for the purpose of achievement and accomplishment of organizational, individual & group targets, goals and objectives. In view of that each and every activity/schedule/program should aim accordingly and appropriately. Mutual takeaway is equally important in design of business games, strategies, simulations in light of real-life environment either inside the organization or even outside to take employee to his new frontiers and psychologically keep enriched because of this type of activities.

5. **Sustainable growth, improvement with continuity:** elevate both individual and organization by introducing sharing of live experiences as lessons from unlearn to learn and learn to relearn. Let the top management allow the statement 'let noble thoughts come from all sides'. Open-up of individual minds to new opportunities, creativity, imagination,

innovation, local resources and local technology in addition innovations of world with professional technical advancements which needs to unlearn, learn and relearn new technologies by avoiding fatigue, boredom, monotony through ergonomic developments wherever possible. One should not forget 'yesterday success does not guarantee tomorrow' and continuous learning should be pragmatic and panacea for the situation.

6. **Address apathy and empathy:**

   Understanding one's own self and other self is quite importance in motivation, communication, leadership, supervision and morale process. One should address the bad morale in the organization suitably by keeping in view about apathy and empathy at work place individual. Intuitive, heuristic and heuristic models helps better to convey message is quite important with ICT models. Skill-Set, Mind-Set and Brain-set should competently map for desired outcomes. In many of the programs one must include resource persons from anthropology, sociology, industrial-psychology and philanthropy by understanding enthalpy and entropy.

Importance of the Study:

The researcher aimed to evaluate existence, effectives and efficacy of motivation programmes designed by the organization.

It is an essential character that there should be an effective, tailor-made motivational program to accomplish set of targets, goals and objectives set by an enterprise. It is important to observe the functionality and efficacy of several motivational programmers' designed to employees by different undertakings/enterprises adapted and basic differences among such programmes between and amongst sectors, organizations, undertakings, enterprises, and levels of employees and its influence, volume, value-addition and outreach in the manner that it is designed. All the variances of all kinds should be recorded in an organized data-base for the purpose of further simulations by any other stakeholder interested in such databases for the purpose of enriched conclusions and recommendations in light of benefit of employees and organization under study. The author felt that it is necessarily to focus on some of socio-economic-cultural backgrounds of corporate promoters and beneficiaries of motivational programme. Author strongly felt that there is a further need of designing a programme for promoter group of such undertakings as case to case basis by AIMS, IIMs, IITS, Government, RBI, SEBI for its operational and financial controls which change the corporate strategies towards its stakeholders in general and employees in particular. As many sociologists and psychologists rightly pointed out that in India that there are Banking Branches without Banking. The numerical analysis of banking statistics too reveal and unveil that the per-employee statistics has made lot of differences between and amongst employees of Public and Private Sector Banking Organizations. This statistics supports the fundamentals of theories of AH Maslow's need hierarch theory; Herzberg Two Factor Theory motivators and maintainers; Douglas McGregor factors under Theory X, McClelland's Needs Theory, Vroom's Expectancy & Valence Theory, Z Theory, and ERG Theory and so on.

This study provides necessary information to the promoters and Top Management to have better understanding about the implementation of techniques of motivation with repercussion on set organizational behavior and objectives.

Hypothesis Formulation

- H0: There is no significant difference between banks in providing incentives to the employees.

- H1: There is a significant difference between banks in providing incentives to the employees

Methodology:

Simple Random, Purposive and Convenient sampling was used in the study and canvassed a schedule cum interview with 100 respondents from select sector and organizations. The data configured from both Primary and Secondary sources. The primary sources are questionnaire,

schedule and personal interview wherever possible within the scope of their legal/organizational/personal limitations and scope to share such information/data which is latent and undisclosed as per job in which they are in. The study include collection of data from secondary sources too from banking websites, reports, disclosures, publications both in own website, secondary sites such as NSE/BSE/RBI/NABARD etc. in addition to e-reports, interviews, debates, discussions, plenary-sessions, conferences, workshops, journals, magazines and books.

Tools and Techniques:

The researcher tried to attempt few test-statics such as Measures of Central Tendency, Measures of Dispersions and Chi-Square Test wherever possible to draw meaningful inferences, conclusions and deliberations.

Literature of Review:

Many articles, journals, magazines, reviews, reports are under observation for understanding the fact of motivators in addition to reference and text book enrichments. However, some of them most appropriate to the present study as enlisted below. As there is treasure of literature under the heading of motivation and exhaustive, many of them kept aside for the present study to avoid bulkiness and voluminous of material.

● T&D programmes contribute to overall growth of employees and it could be an effective inspirational strategy (Lockley, 2012). The T&D programmes need to be designed and executed TPA resource persons with necessary caliber & competency alongside of experience.

● Major hygiene factors, such as security, compensation and supervision practices, relationship with superiors and peers impact on individual performance (Barzoki et al. 2012). In addition, inter-personal behavior of peers, employment environment, family life, dependants, marital status, education and designation.

● Motivation process helps employees to align their individual goals with that of organization goals and which improvise organizational and individual productivity successfully with synergy (Kalimullah (2010).

● There are few obstacles for management is in engaging employee motivation in an effective manner(Thomas, 2009) due to individual differences, which in-fact addressed very introduction phase itself stating that there should be some tailor made programmes based categories of employees with regards to job description and specification.

● A survey of health & human service managers of US Government found that education level has strong & positive bearing in level of motivation employee

in any organisation (Moynihan & Pandey, 2007).

- A series of research studies reveals that the motivation and job satisfaction are primary variables that contribute and enrich employee performance in any organisation (Perry and Wise 1990, Crewson 1997, Brewer and Selden 1998, Naff and Crum 1999, Bright 2008, Taylor 2008, Wright and Pandey 2008, Liu, Tang and Zhu 2008, Liu 2009, Belias etal. 2014).

- Motivation as the process that arouses, energizes, directs, and sustains behavior and performance (Luthans, 1998).

- Motivation can be an inner force that drives individuals to accomplish personal & organizational goals (Linder, 1998).

- Job satisfaction is an emotional response to the current employment condition and motivation is the driving factor that pursued to satisfy one's own needs (Wang Xie & Lee Haidung, 2013).

- A research activity of 101 PSUs and 1356 Private-Sector Employees in US revealed that meaningful-work, compensation, job security and job specification for all categories of employees. (Houston 2000).

- Another research study notified that around 72% of employees concluded that monetary-rewards are Thee-Best motivators (Achim etal, 2013).

- One motivational research study covering 30 EEC concluded that the pay-cuts have negative bearing on the psychological well-being and job satisfaction (Drakopoulos & Grimani, 2015).

- A USSR database unveiled that Monetary Incentives is the predominant factor than that of job satisfaction and career advancement (Ankudinov et al. 2015).

Computation of Chi-square on the types of incentives motivates employees:

There is no significant difference between banks in providing incentives to the employees. Computations of Chi-Square Value: $\chi2$ calculated = 1.43 and Tabulated value of $\chi2$ for 2 degree of freedom at 5% level of significance is 5.488 ($\chi2$ tabulated = 5.488). For this test only 50 respondents valid questionnaires selected based on their responses.

Department	Monetary	Non Monetary	Both	Total
Human Resources	6	3	10	19
Finance	9	6	16	31
TOTAL	**15**	**9**	**26**	**50**

Decision Rule based on the cross table for Chi-Test Calculations:

S.NO	ORIGINAL VALUE	EXPECTED VALUE	(Oi-Ei)	(Oi-Ei)2	(Oi-Ei)2/Ei
1	6	5.7	0.3	0.09	0.02
2	3	3.42	-0.42	0.18	0.06
3	10	9.88	0.12	0.01	0
4	9	9.3	-0.3	0.09	0.01
5	6	5.58	0.42	0.18	0.98
6	16	16.12	-0.12	0.01	0.23
TOTAL					1.43
Since, $\chi2$ calculated value is less than $\chi2$ tabulated value ($\chi2$ cal< $\chi2$ tab), therefore null hypothesis (Ho) is accepted at 5% level of significance and we may conclude that monetary and non-monetary benefits do not differ significantly.					

Results and Discussion

1: What factor De-motives you at work place?	
(a) Job profile (b) Company policy (c) Work environment	%
Job Profile	40%
Company Policy	32%
Work Environment	28%

	The above data reveal that around 40% of the responses are get de-motives due to the job profile, about 32% are due to organizational policies and rest of 28% are concluded that work-environment would be one of the de-motivating factor.
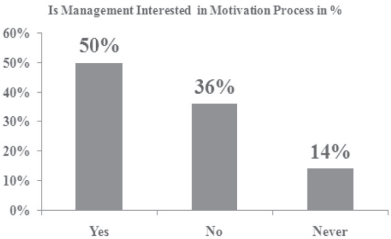
2.How far you are satisfied with the incentives provided by the organizations?	%
(a)Highly satisfied (b) Satisfied (c) Neutral (d) Dissatisfied (e) highly dissatisfied	
Highly Satisfied	36%
Satisfied	58%
Neutral	6%

| | A question was shooted about the satisfaction of the employees on incentives provided by the organisation and the data unveiled that around 36% of the respondents opted for Highly-Satisfied option, about 58% of the respondents are opted for Just-Satisfied and rest are indifferent about organisation incentives i.e., around 6%. |
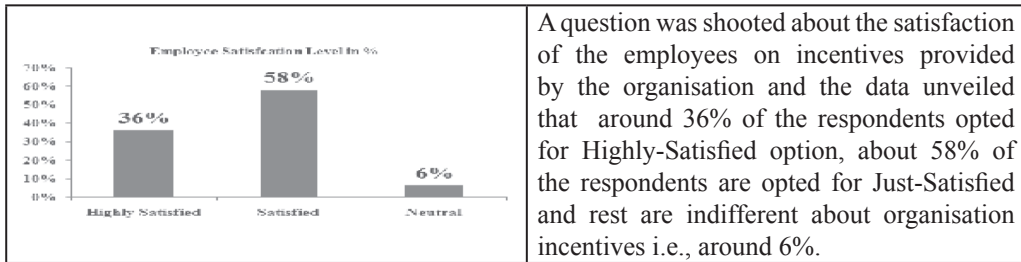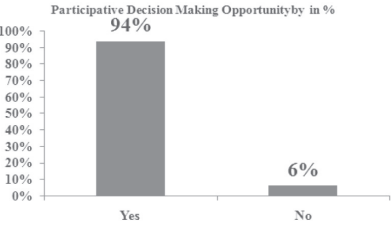
3. Does your Job improve your skills and abilities? (a) Yes (b) No (c) Never	%
Yes	64%
No	20%
Never	16%

| | A question was canvassed among employees of organization to observe that whether the job had any scope to improve skills and abilities of existing employees in the organization. The responses shows surprisingly around 64% accepted that the job involve scope for further learning and around 20% of respondents disagreed that the job provide scope for further learning or there is scope to improve their existing skills and abilities. About 16% of respondents unable to answer the question and stated that they never come across such situation. The data through light into the job analysis such ach job description and specification to be redrafted and provide scope for improvements of skills and abilities. And it is the responsibility of employer to make the job quite interesting. |

4: Management is really interested in motivating the employees?	%
a) Agree b) Disagree c) Neutral	
Yes	50%
No	36%
Never	14%

Is Management Interested in Motivation Process in % 50% 36% 14% Yes No Never	Another enquiry made by the researcher about the intentions of organisation, whether they are really interested in motivating the employees or make the job with boredom and monotonous. Surprising answered provided by employees of the organisation is that only 50% of the employees committed that that the management is quite interested in motivation process. Around 36% of the employees abruptly said they are not and balance 14% is neutral and they never thought of such things. New light is to be projected with top officials and a tailor made programmed are to be chalked-out at very high level before pricing the job and evaluation of job with more and more specification criteria.

5. Does the management involve you in the decision making which are connected to your department? a) YES b) No c) Occasionally	%
Yes	94%
No	6%
Participative Decision Making Opportunityby in % 94% 6% Yes No	Quite surprisingly it was found that lion share of employees said that there will be participation in decision making at higher level decision is quite questionable. It seems employees are in confusion that they are thinking their routine day to day duties and responsibilities are treated as decision making components. Only at manager level or assistant manager level only there will be decision making regarding receivables, recoveries, NPA and renewals of claims. Sanction of loans and advances kind of thing quite limited at branch level and balance will central processing centres taking care of risk assessment and approval through TPAs and CIBIL.

Outcomes: The outcomes of the study are follows:

- Every bank has a distinct organization structures that acts like a catalyst between employees and employer to maintain harmonious relationship.

- The employees of the banks are highly motivated and satisfied with incentive plan, safety measures and other employee welfare activities provided by the management.

- Effective Performance Appraisal System and sound superior-subordinate relationship helps the employees to improve their productivity.

- The employee performance always influenced by the incentives of both monetary and non-monetary in nature. Recommendations:

- In order to achieve organizational goals, it is necessary to invest on motivational factors like wages, promotions, awards and rewards.

- High level of motivation and commitment leads to higher productivity in terms of employee as well as employer.

- Provide the "opportunity for training" to every employee to enhance their inter and intra-personal skills.

- Establish trustworthiness and sincerity among the employees towards the organization with suitable compensation systems, employee empowerment and job involvement.

Conclusion

Finally we conclude that, the banks need to encourage and motivate their employees with highly effective motivational training programmes that enhance employee skills and create interest towards achievement of organizational and individual goals. Motivation really acts as a catalyst in the performance appraisal system of any organization. It is suggested that the organization can still focus on exact areas where the employees lagging and provide necessary stuff in order to make the motivational programs more effective. As we know that employees are the backbone of any organization, so the employees are properly motivated, they work well and finally the organization is going to benefit out it.

References

1. Aborisade, R., and Obioha, E. (2009), The Role of motivation in enhancing job commitment in Nigeria Industries, Kamla-Raj, J Soc Sci, 19, 2, 149-154.

2. Ahmad, N. & Oranye N. O. (2010), Empowerment, job satisfaction and organizational commitment: a Comparative analysis of nurses working in Malaysia and England, Journal of Nursing Management, 18, 582–591.

3. Allen, N. J., & Meyer, J. P. (2000), Family Supportive Work Environment: The Role of Employers, Journal of Vocational Behavior, 58, 414-435.

4. Awamleh, N. A. (1996), Organizational

commitment of civil service managers in Jordan: a field study, Journal of Management Development, 15, 5, 65-74.

5. Charles, K. R., & Marshall, L. H. (1992), Motivational preferences of Caribbean hotel workers: an exploratory study, International Journal of Contemporary Hospitality Management, 4, 3.

6. Cho, T., and Faerman, S. (2010), an integrative approach to empowerment: Construct definition, measurement, and validation, Public Management Review, 12, 1, 33-51.

7. Choong, Y. O., Wong, K. L., & Lau, T. C. (2011), Intrinsic Motivation and Organizational Commitment in the Malaysian Private Higher Education Institutions: An Empirical Study, International Refereed Research Journal, 2, 4, 40-50.

8. Denton, K. (1987), Effective Appraisals: Key to Employee Motivation. Industrial Engineering, 19, 12, 24.s

9. Dwivedula, Ravikiran, & Müller, R. (2011), Work Motivation as a Determinant of Organizational and Professional Commitment in Case of Temporary Organizations: Theoretical Perspectives,

Analysis of Profitability of Maharatna Central Public Sector Enterprises in India during the Post- Liberalization Era through Technical Efficiency Scores (TES)

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Abstract:

Maharatna companies act as life line of any developing nation like India. It acts as the key to achievement of sustainable development and inclusive growth. The Government of India first introduced Maharatna Scheme in February 2010 with the objective to make India self-reliant in several core sectors. The main objective behind introducing this scheme was to provide autonomy to the identified large sized Navaratna companies so that this company could expand their business activities in domestic as well as in foreign markets. The profitability or earning capability is the basic measure of operating efficiency of a business. In fact, profitability shows the ultimate results of various policies and decision which were taken by the companies during its normal course business operations. A PSE can discharge its social obligations better if it operates in a profitable manner. In this research study data envelopment analysis (DEA) technique was applied to evaluate the profit earning capability of the Maharatna CPSEs. The ratio of mean to standard deviation of technical efficiency score (TES) has been calculated to make inter firm comparison in respect of consistency of the profit earning capability of the companies. The nature of trend of TES of the selected companies have been analyzed through linear trend equation which have been fitted during the study and to examine the significance of the slope of the trend line |t| test has been applied. The study discloses a wide variation in TES score between the companies selected for the study. Based on calculated composite score, CIL captures the top-most position while HPCL finds place in last bench.

Keywords:

Profitability, Maharatna Companies, Discharge, Autonomy, Earning Capability

1. Introduction

Central Public Sector Enterprises (CPSEs) has always played an active role in overall development the developing nation like India. The contribution of CPSEs in achievement of sustainable growth and development as well as in formation of strong human capital and intellectual property rights is large well recognized. It contributes for social well being of the society by playing multi-dimensional role of invention, development, production and distribution of quality products to the people of society at reasonable price.

Just after the independence India was an agro based nation where approximate 75 per cent of the entire population were remain dependent on agriculture. Agriculture was the main means of livelihood and essential goods were imported from foreign developed nations to satisfy our basic needs. On seeing the pathetic condition only governments intervention could solve this problem by setting up some large sized organization which could serve broad economic aim of higher economic growth, self-sufficiency in production of essential goods and services for the countrymen, facilitate long terms positive balance of trade and balance of payment, ensures stability on prices of commodities, and creates benchmarks for price of essential items .Initially, CPSEs were established for the purpose of making India self-reliant in terms of production of various essential products and to supply then to people of society at reasonable price.

CPSEs always remain the backbone of a developing nation like Indian during pre and post-independence period. In the first five year plan which remains in force from 1951 to 1956, only 5 CPSEs were in operation, which operates in selected core sectors only with the total investment of ₹29 crores. During this plan several important reforms were taken by the concerned government to improve the condition of these CPSEs. Due to these reform measures of the Government CPSEs gained much importance in India economy and its importance in the society increased a lot. As per a report of department of public enterprises, total number of the CPSEs till March 2019 were 348 with an investment worth ₹26,33,956 crores (DPE survey 2018-2019). The GDP of the nation also showed a growth of 11.20 per cent at market price during this period. The total investment till 31st March 2019 in all CPSEs together stood at 16, 40,628 crores and recorded a growth of 11.71 per cent in GDP. The turnover of all the CPSEs in the year 2018-2019 were ₹25,43,370 crore and till date more than 15 lakh employees were engaged in these CPSEs for earning their livelihood (Public Enterprise Survey 2019-2020: Volume -1).

The opening up of the economy due to adoption of globalization and liberalization policy allowed entry of private players in the market which helped a lot in changing the shape of the Indian economy and put emphasis on rapid industrialization. As a result of the entry of private entities in the market public companies have to compete with domestic as well as overseas companies

to remain in existence in this severe competitive market. In order to survive in this competitive environment some CPSEs reoriented their business strategies as per the requirement of the hour and set a standard of their performance while few were not able to do so due unknown problems. In order to empower some big profit making PSEs, Central Government granted operation and financial autonomy to them so that it could react positively to the market forces. Based on the outstanding performance of these large sized CPSEs in their fields and which fulfilled the selected criteria as laid down by the central Government, CPSEs were awarded with the status of 'Maharatna', 'Navaratna', 'Miniratna- Category-I' and 'Miniratna- Category-II' by the DPE, Government of India. In the year 2009 some CPSEs which satisfy the certain criteria as laid down for 'Maharatna' by the Govt. of India were awarded by 'Maharatna' status for the first time. The main purpose behind awarding this status is to empower mega CPSEs so that it could expand their operations in domestic as well as in foreign market and emerge as global giant and it could satisfy the needs of huge number of people worldwide.

A company must fulfill some mandatory criteria get the Maharatna status.

(I)The company should be a Navaratna company. (II) The business firm must trade it share through any Indian stock exchanges as per SEBI norms. (III) The company must achieve turnover of ₹20,000 crore annually based on averages. (IV) The net worth of the company for last three years based on average should ₹10,000 crore. (V) The firm must earn net profit after based on average ₹2,500 (VI) The company should remain globally present.

Presently there are 10 Maharatna CPSEs. They are Bharat Heavy Electricals Ltd. (BHEL), Bharat Petroleum Corporation Ltd. (BPCL), Coal India Ltd. (CIL), GAIL (India) Ltd. (GAIL), Hindustan Petroleum Corporation Ltd. (HPCL), Indian Oil Corporation Ltd. (IOCL), NTPC Ltd. (NTPC), Oil and Natural Gas Corporation Ltd. (ONGC), Power Grid Corporation of India Ltd. (POWERGRID) and Steel Authority of India Ltd. (SAIL).

The profitability is treated as basic measuring scale to measure its operating efficiency of a business firm. In fact, profit earning capability of a firm shows the impact of various important decisions and policies which were adopted by the companies during its normal course of business operation. A PSE could discharge its social obligations better if it operates in a profitable manner. The most skillful utilization of available resources such as cash, inventories, debtors, fixed assets could contribute in maximization of overall profitability a company. Thus, we can say that profitability is the basic measures overall success of a company. Higher the profitability more the company is successful, grater the entrepreneur activity. Greater the profitability, larger the scopes of accumulation of capital and lower the company have to collect capital from open

market, more will be the development in the technology and thereby overall development could be achieved. The profitability or earning capability of a firm can be measured using some ratios. These profitability ratios can be sub-divided into two groups 1. Profitability in ratio in relation of sales such as Gross Profit Ratio, Net Profit Ratio, Operating profit ratio 2. Profitability ratios in connection with capital employed of the firm like Return on capital employed (ROCE), Return on net worth (RONW). ROCE is most widely used measure of profitability. It is shows the relationship between the operating profit and long term investment which made by the firm. It shows the overall earning capacity which firm can earn. Higher the ROCE, more efficiently the firm has utilized it assets which were employed in the business. In this study, the profitability of the all ten Maharatna CPSEs was analyzed using Technical Efficiency Scores (TESs). The TES were derived using DEA (Data Envelopment Analysis) technique.

2. Review important selected Literatures

It is useful to have insight on the existing literature. During last few years, several significant studies were made in India as well as in abroad on different aspects of CPSEs and especially on Maharatna companies. A good number of these studies were conducted in different periods for evaluation of financial heath and performances of Indian Maharatna companies. Paragraph below provide a brief idea about some of the important studies on the subject.

Mallik and Sur in the year 2004 conducted a comprehensive analysis of the financial performance of NTPC Ltd. which was related to pre and post-liberalization era. The years 1982-83 to 1990-91 were considered as the Pre-liberalization period while the years 1991-92 to 1999-2000 were taken as the post-liberalization period. The study inferred that the company was moving in the right direction to meet challenges on account of liberalization. In fact, the company continued to maintain a very high profile regarding its financial performance in the post- liberalization era. The study also noted that the liberalization brought more opportunities than challenges for the company.

Jafar and Sur in 2006 tried to know how well the working capital is being managed by the NTPC Ltd. The result of the research shows that the company is utilized its working capital in most efficient manner and generating more value for the organization by adapting themselves as per the need of new atmosphere that emanated due to the adoption globalization and liberalization and competitiveness policy by the Government of India. The study also showed that the competition arising out of globalization provides an opportunity to perform in well manner to survive in the competitive environment.

Singh and Paliwal in 2010 conducted a study to check and assess the impact of disinvestments of the firm on its performance of selected the PSEs which enjoy competitive advantage and the firm

which have monopoly in the market. The study was conducted for the period of 1985 to 2005 and study revealed that the performance as well as profitability of the competitive firm declined notably while the monopoly firm showed their efficiency in earning profit and cost control during post-disinvestment era.

Gupta et. al. (2011) in their study tried to review the financial health of selected thirty eight CPSEs which were operating in India (out of forty four PSEs which adopted disinvestment strategy till March, 2008). The small amount of disinvestment did not make any significant changes in the overall financial performance of PSEs due its gigantic size, its worldwide presence and having huge market share, a small amount change in capital of the firms does not put any affect on overall performance.

Chakraborty in 2014 tried to identify the relationship between efficient management of assets and its impact on profitability of selected CPSEs in India which were under consideration during 1997-1998 to 2011-2013 by applying appropriate correlation and regression techniques. The result of the study documented that efficient management of fixed assets and stocks made significant positive impact on overall profitability and earning capability of the selected firms which were taken into consideration for study.

Sur and Yadav in 2014 made a study to identify the trends in assets management efficiency in Maharatna CPSEs by applying some important efficiency rations. The study

showed that GAIL and IOCL jointly got first position in terms efficient management of their assets.

Vijaykumar and Jayachitra in the year 2014 conducted a research to investigate the profitability performance of twelve CPSEs in India during the period of pre and post disinvestment on companies belongs to Fertilizer production, Heavy Engineering goods manufacturer, Medium and Light Engineering, Petroleum refinery & Marketing and transportation Equipment. The data were analyzed using suitable statistical techniques. The result of the study noted that 58 per cent of the companies which were used for study were able to increase its profits in the post-disinvestment times by adjusting their activities and strategies as per need of the new environment. The study also concluded that disinvestment policy in majority cases put some positive impact on the performance of the companies as due to disinvestment the company gets new situation, new business environment to explore more and adapt as per need of the hour.

Apara in 2015 carried out a study on Steel Authority of India (SAIL) to analyze the impact of determinants such as size, growth, liquidity, leverage and productivity on the profitability and earning capacity of the company. The study revealed that size, leverage and productivity were negatively associated with profitability while growth and liquidity were positively correlation with profitability. The regression analysis also showed that the productivity and size

were established themselves as prominent variables in explaining the profitability of the SAIL in the study period.

The appraisal of the significant literatures so far made on the this topic which was addressed in the present research study reveals that most the these research studies were conducted to analyze and evaluate the financial health of CPSEs during pre and post-disinvestment period and some research studies were deals with analyzing the profitability performance of CPSEs during the pre and post-disinvestment period. Moreover, no any study was conducted in recent past to review the earning capability and profitability considering all the factors and determinants which impacts the profitability or earning capability of a firm. In recent past only very few studies were conducted where one or two dimension of profitability were taken into consideration. Further, the Data Envelopment Analysis (DEA) was not used in these studies relating to the CPSEs except a very few. No significant study in which profitability of all the 'Maharatna' companies was analyzed considering all the major determinants of profitability was carried out by applying DEA. So in order to narrow this gap which remains till date this research was conducted to analyze the profitability of all the ten 'Maharatna' companies at a time by applying DEA along with the conventional ratio analysis technique.

3. Objectives

1. To measure the profitability performance of Maharatna companies under study using Technical Efficiency Scores(TES)

2. To ascertain the status of the profitability of the sample companies under study based on composite ranks of TES.

3. To identify the trends in the profitability of the selected companies in terms of TES over the study period.

4. To analyze the major factors which influence profitability of the Maharatna CPSEs.

5. To make suggestions for enhancing profitability of the Maharatna CPSEs.

4. Methodology

This study is based primary dada only where all ten the 'Maharatna' CPSEs in India were taken into consideration for conducting the study. Purposive sampling technique has been followed for selection of companies. In this study all 'Maharatna' CPSEs of India are taken as sample for the analysis.

The data of the selected companies which were chosen as sample for the study for the period of 2003-2004 to 2020-2021 were derived from several secondary sources like from Capitaline Databases. Other several sources like journal, articles, books and other published reports were used for collection of important data.

India Government adopted liberalization

scheme in 1991-1992 to make the whole world a common market where everyone can enter into the market for buying and selling of goods and services without any barrier. But it is quite normal that effects of any policy which were adopted by the Government could not be reflected instantly just after its implementation of the policy. So, in this paper year 2003-2004 was considered as base year for research analysis disclose the actual impact of the policies adopted in the year 1991. The data which were collected for the study from various sources were analyzed using simple mathematical tools like percentages, average, min, max and important ratios were applied as per requirement in appropriate places.

While analyzing the profit earning capability of the companies used as sample in this research, the key contributory factors which influence profit earning capability of a firm like efficiency in managing fixed assets of the selected companies, efficiency in managing inventory, efficiency in managing debtors and efficiency in managing cash were used.

The profitability of the selected companies were reviewed using some important profitability ratios, such as gross profit ratio (GPR), net profit ratio (NPR), operating profit ratio (OPR), cash profit ratio (CPR), return on capital employed (ROCE), return on owners' equity (ROE), earning per share (EPS), value added to capital employed ratio (VACE) etc. were used in this study in analyzing the profitability of the companies

under study. Usually, a company collects funds from various sources to create a pool of funds and utilizes these funds in two ways: (a) for acquiring fixed assets which required for the managing the whole business and (b) for smooth running of the business it deploys a portion the fund in working capital. As the total collected funds deployed in fixed assets as well as in working capital for smooth running of the business. As per the theoretical argument the profit earning capability of a company chiefly depends on how efficiently these assets are utilized in the production process. Inventory, debtors and cash are major components of working capital of a company. Thus, we can say that in this research study major factor which influences the profitability such as efficiency in fixed assets, inventory, debtors and cash management were taken into consideration and these factors were analyzed to know their impact on the profitability of the firm. Several important ratios like Fixed asset turnover ratio (FATR), inventory turnover ratio (ITR), debtors turnover ratio (DTR) and cash turnover ratio (CTR) were used in assessing the efficiency in managing fixed asset, inventory, debtors and cash of the Maharatna companies. The grater the turnover ratio, the better is the efficiency with which assets are utilized.

A company is said to be efficient when it produces maximum output by using minimum input or if it produces a maximum output by using fixed inputs. TES is a score which is calculated to identify the units which are efficient and utilizing their all resources in most efficiently resulting to

which company could generate more values for the stakeholders. TES is calculated by dividing the observed output with the maximum output under the assumption of fixed input or in other way it can be calculated by dividing the observed input with minimum input under the assumption of fixed output. There are two ways to calculate TES, one is parametric approach and another is non-parametric approach. In this research study non-parametric approach which is based on DEA was applied in order to ascertain efficiency of in profitability performance of the selected Maharatna companies. Technical Efficiency Score (TES) was ascertained by taking into consideration those factors as input which influence and control the functioning of the companies under study.

5. Empirical Result and Discussion

Table 1 shows that BHEL obtained highest value of efficiency score 1.00 based on VACE in 2002-2003, 2003-2004,2005-2006, 2006-2007,2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2017-2018,2018-2019, 2019-2020 and 2020-2021 while it was the least (0.502) in 2016-2017. On an average, it was 0.974. The efficiency score of BPCL varied between 0.058 (2017-2018) and 1.00 (2002-2003 and 2020-2021). The mean TES of the company was 0.589.

The TES of the CIL ranged between 0.753 (2017-2018) and 1.00 (2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-

2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2018-2019, 2019-2020 and 2020-2021). The average value of TES achieved by CIL was 0.987.

The TES of GAIL varied between 0.067 (2017-2018) and 0.735 (2020-2021). On an average it was 0.452. The TES of the HPCL lies between .0.055 (2017-2018) to 1.000 (2018-2019). On and average it was 0.405. In IOCL the TES fluctuates between 0.107 (2017-2018) and 1.00 (2020-2021). The mean TES of the IOCL was 0.517 during the study. The maximum TES of NTPC was 1.000 in 2004-2005 while it was slightest in the year 2017-2018. The average TES of the NTPC was 0.498.

The TES of the POWERGRID was 1.000 in the year 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2008-2009, 2009-2010, 2010-2011, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2018-2019, 2019-2020 while it was the least (0.159) in 2017-2018. The mean TES of POWERGRID was 0.956 during the study.

The TES of ONGC ranged between 1.00 (2002-2003, 2004-2005, 2018-2019, 2019-2020 and 2020-2021) and 0.085 (2017-2018). The mean TES of ONGC was 0.721 during the study.

The TES of SAIL varied widely between 0.094 (2017-2018) to 1.00 (2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2012-2013, 2013-2014, 2018-2019, 2019-2020 and 2020-2021. The average, TES

Table: 1

Technical Efficiency Scores (TES) based on Value Added to Capital Employed (VACE) of Maharatna CPSEs (2003-2021)

Year / Company	BHEL	BPCL	CIL	GAIL	HPCL	IOCL	NTPC	POWERGRID	ONGC	SAIL
2003	1.000	1.000	1.000	0.557	0.667	0.809	0.638	1.000	1.000	0.915
2004	1.000	0.901	1.000	0.432	0.825	0.770	0.792	1.000	0.806	1.000
2005	1.000	0.373	1.000	0.539	0.332	0.509	1.000	1.000	1.000	1.000
2006	1.000	0.158	1.000	0.455	0.149	0.335	0.560	1.000	0.987	1.000
2007	1.000	0.802	1.000	0.689	0.361	0.594	0.696	1.000	0.986	1.000
2008	1.000	0.660	1.000	0.475	0.184	0.737	0.536	1.000	0.994	1.000
2009	1.000	0.954	1.000	0.497	0.295	0.620	0.536	1.000	0.956	1.000
2010	1.000	0.727	1.000	0.702	0.531	0.753	0.535	1.000	0.905	1.000
2011	1.000	0.631	1.000	0.667	0.607	0.692	0.723	1.000	0.768	1.000
2012	1.000	0.344	1.000	0.436	0.460	0.290	0.262	1.000	0.372	0.859
2013	1.000	0.342	1.000	0.392	0.343	0.195	0.218	1.000	0.414	1.000
2014	1.000	0.462	1.000	0.434	0.260	0.284	0.436	1.000	0.529	1.000
2015	1.000	0.626	1.000	0.339	0.162	0.244	0.250	1.000	0.431	0.741
2016	1.000	0.997	1.000	0.224	0.222	0.280	0.194	1.000	0.310	0.382
2017	0.502	0.321	1.000	0.079	0.315	0.136	0.097	1.000	0.158	0.094
2018	1.000	0.058	0.753	0.067	0.055	0.107	0.066	0.159	0.085	0.094
2019	1.000	0.525	1.000	0.406	1.000	0.935	0.305	1.000	1.000	1.000
2020	1.000	0.308	1.000	0.458	0.259	0.527	0.717	1.000	1.000	1.000
2021	1.000	1.000	1.000	0.735	0.660	1.000	0.901	1.000	1.000	1.000
Average	0.974	0.589	0.987	0.452	0.405	0.517	0.498	0.956	0.721	0.847
Maximum	1.000	1.000	1.000	0.735	1.000	1.000	1.000	1.000	1.000	1.000
Minimum	0.502	0.058	0.753	0.067	0.055	0.107	0.066	0.159	0.085	0.094
S.D	0.114	0.299	0.057	0.186	0.250	0.278	0.273	0.193	0.328	0.305
Consistency Coefficient (C.C)	8.523	1.967	17.418	2.424	1.617	1.856	1.823	4.954	2.202	2.779

Source: Compiled and computed from Capitaline Corporate Database, Capital Market Publishers (India) Ltd. Mumbai.

of SAIL was 0.847 during the study. The consistency coefficients (C.C) of TES of Maharatna CPSEs (as disclosed in Table 2) were 8.523 (BHEL), 1.967 (BPCL), 17.418 (CIL), 2.424 (GAIL), 1.617 (HPCL), 1.856 (IOCL), 1.828 (NTPC), 4.954 (POWERGRID), 2.202 (ONGC) and 2.799 (SAIL). Based on average TES, CIL captured the highest rank, followed by BHEL, ONGC, SAIL, POWERGRID, BPCL, IOCL, NTPC, GAIL, and HPCL in that order while in respect of the consistency scores of TES, CIL established itself as the most consistent performer, followed by ONGC, BHEL, ONGC, SAIL, GAIL, POWERGRID, BPCL, IOCL, NTPC and HPCL in that order during the entire span study.

Table 1 also reveals that BHEL secured highest TES in eighteen years (2002-2003, 2003-2004,2005-2006, 2006-2007,2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2017-2018,2018-2019, 2019-2020 and 2020-2021) throughout study while the highest score of efficiency was secured by BPCL in two years (2002-2003 and 2020-2021) and CIL, POWERGRID, HPCL, IOCL, NTPC, ONGC and SAIL also proved themselves as best performer in terms of value generating capability (as expressed by the TES) in eighteen years (2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2018-2019, 2019-2020 and 2020-2021), one year (2018-2019), one year

(2020-2021), one year (2004-2005), five year (2002-2003, 2004-2005, 2018-2019, 2019-2020 and 2020-2021) thirteen years (2003-2004, 2004-2005, 2005-2006, 2006-2007, 2008-2009, 2009-2010, 2010-2011, 2012-2013, 2013-2014, 2018-2019, 2019-2020 and 2020-2021) respectively. Another remarkable conclusion of the study is that GAIL was placed in the last position terms of efficiency in value generating capability.

A wide variation in efficiency scores which were calculated during the study was noticed in the selected Maharatna CPSEs over the years during the study. The more the value of average efficiency scores, the more the company is generating value for the organization by making efficient utilization of its available resources. The study also reveals that during the entire research the maximum value of average efficiency score was noticed in CIL while the minimum value was obtained by HPCL. From the Table, it can be concluded that in most of the years under study CIL was able to enhance its value generating capability with the help of smaller turnover ratios. On the other hand HPCL was not able to enhance its value generating capability using higher turnover ratios.

6. Analysis of Rank with respect to Value Generating Capability

In order to analyze rank in respect of value generation capability of the Maharatna CPSEs a composite rank analysis was made in Table 2 considering ranks both average and consistency of TES based on VACE of the companies for the period under study.

In this analysis, a composite rank was calculated to get a more inclusive measure of value generating capability in which the values of average efficiency and consistency of TES were combined together to obtain a composite score. The ultimate value generating capability ranking was made based on sum of scores of each company's separate individual ranking under the mean efficiency and consistency of TES. The ultimate ranking has been made based on the principle that lowers the composite score, the higher the value generating capability of the company and vice -versa.

Table 2 discloses that based on combined score as calculated during the research study , CIL secured the first place in respect of value generating capability followed by BHEL, ONGC, SAIL, POWERGRID, BPCL, GAIL, IOCL, NTPC and HPCL respectively in that order.

7. Analysis of Trend of TES

Table 3 discloses that the out of ten Maharatna companies, BHEL, GAIL, NTPC and SAIL showed a significant declining trend in TES in the profitability with the passage of time while an significant upward trend has been observed in CIL and POWERGRID. The negative values of slope of the trend lines indicates negative relationship between technical efficiency and time while the notable positive value of the slope of the equations reflects positive association between technical efficiency and time. However, the insignificant positive values of slopes of trend lines were observed in BPCL, HPCL and IOCL which

indicate the absence of definite trend in TES of these CPSEs.

8. Conclusion Observations

This research study deals with the aspect of technical efficiency with respect to the value generating capability in terms of VACE. The study documents extensive variation in the level of TES within the companies which were taken into consideration for the study. Based on average TES, CIL obtain top most position terms of average value generating capability while HPCL has last two ranks during the same period. CIL got the status most consistent performer in terms of value generation as calculated through consistency coefficient of TES during the study whereas HPCL got the status of most inconsistent performer in terms of value generating capability.

The analysis of composite scores which were calculated by combining both the average and consistency rank of the TES of the Maharatna CPSEs reveals that CIL established themselves as the most excellent player among the Maharatna CPSEs in terms of value generating capability while HPCL found place in the last row in the same study period.

A significant declining trend in the value generating capability as reflected in the TES was observed in 30 % cases while in 20 % cases a significant upward trend was observed but in the remaining 50 % cases no noticeable trend in values generating capability was noticed.

On the whole, the empirical analysis as made

Table: 2

Composite Rank of Profitability of Maharatna CPSEs based on TES (2003-2021)

Company	Mean Value	Rank	Consistency Coefficient (C.C)	Rank of CC	Sum of the Ranks	Ultimate Rank
BHEL	0.974	2	8.523	2	4	2
BPCL	0.589	6	1.967	7	13	6
CIL	0.987	1	17.418	1	2	1
GAIL	0.452	9	2.424	5	14	7
HPCL	0.405	10	1.617	10	20	10
IOCL	0.517	7	1.856	8	15	8
NTPC	0.498	8	1.823	9	17	9
ONGC	0.956	3	4.954	3	6	3
POWERGRID	0.721	5	2.202	6	11	5
SAIL	0.847	4	2.779	4	8	4

Source: Compiled and computed from Capitaline Corporate Database, Capital Market Publishers (India) Ltd. Mumbai.

Table: 3

Trends in Profitability of Maharatna CPSEs (2003-2021)

Company	Constant	|t| value	Coefficient	|t| value	R	F	R-Square
BHEL	.736**	7.835	-.020*	2.428	-.508	5.897	.258
BPCL	.288**	4.353	.008	1.320	.305	1.743	.093
CIL	-1.304	-1.040	.326**	2.964	.584	8.788	.341
GAIL	.361**	11.343	-.005*	1.784	.397	3.182	.158
HPCL	.331**	5.642	.002	.353	.085	.124	.007
IOCL	.311**	6.758	.001	.193	.047	.037	.002
NTPC	.315**	10.962	-.007**	2.876	.572	8.271	.327
ONGC	.818**	3.984	-.001	-.057	.014	.003	.000
POWERGRID	.124**	23.123	.003**	6.045	.826	36.538	.682
SAIL	.640**	7.492	-.020**	2.643	.540	6.984	.291

** Significant at 1 per cent level. * Significant at 5 per cent level.
Source: Authors calculation

in this study reflects managerial inefficiency in value generating capability in 50 per cent of the Maharatna companies in India during the period under study. This managerial inefficiency seems to be the outcome of excessive government interventions. In fact lack of complete autonomy in managing the business operations compelled the concerned managers to choose a second best alternative input mix rather than choosing the best allocation of resources. As a result, the managerial inefficiencies in business operations of the companies under study could not be removed.

Thus, a policy of decontrolling the Maharatna CPSEs by minimizing the government interference is suggested to improve their managerial efficiency.

9. References

1. Majeed, R., & Fayaz, M. (2020). Financial performance analysis of Bhel: Evidence from accounting performance metrics & DU-PONT model. *ZENITH International Journal of Multidisciplinary Research*, 10(1), 1-10.

2. Pardeshi, B., & Thorat, H. (2015). Evaluating the Financial Health of Central Public Sector Enterprises in India through Z Score Model. In *Twelfth AIMS International Conference on Management*,(2015.

3. Seema, G., Jain, P. K., Yadav, S. S., & Gupta, V. K. (2011). Financial performance of disinvested central public sector enterprises in India: An empirical study on select dimensions. *Journal of Applied Finance and Banking*, 1(4), 57.

4. Singh, K., & Sur, D. (2016). Profitability of Maharatna enterprises in India during the post-liberalisation era: a cross-sectional analysis. *International Journal of Management Concepts and Philosophy*, 9(3), 239-254.

5. Singh, K., & Sur, D. (2020). Analysing profitability and its determinants in Maharatna enterprises in India: a panel data approach. *International Journal of Business and Globalisation*, 25(3), 278-295.

6. Singh, N. K., & Choudhary, N. (2011). A Journey towards Excellence: Steel Authority of India Limited from Navratna to Maharatna. *SIES Journal of Management*, 7(2), 151-159.

7. Sinku, S., & Kumar, P. (2014). Analysis of Financial Health of Steel Authority of India Limited. *Industrial Engineering Letters*, 4(12), 38-47.

8. Sur, D., & Chakraborty, K. (2015). Financial performance of Maharatna central public sector enterprises in India: a case study of BHEL. *AshEse Journal of Business Management*, 1(2), 10-16.

9. Sur, D., & Chakraborty, K. (2015).

Financial performance of Maharatna central public sector enterprises in India: a case study of BHEL. *AshEse Journal of Business Management*, 1(2), 10-16.

10. Sur, D., & Chakraborty, K. (2015). Financial performance of Maharatna central public sector enterprises in India: a case study of BHEL. *AshEse Journal of Business Management*, 1(2), 10-16.

11. Sur, D., & Panja, R. (2014). Profitability Trends in NTPC Ltd during the Pre- and Post-Liberalization Periods: A Comparative Study. *The Journal of Institute of Public Enterprises*, 37(1&2), 78-90.

12. Sur, D., & Panja, R. (2014). Profitability Trends in NTPC Ltd during the Pre- and Post-Liberalization Periods: A Comparative Study. *Journal of Institutional Public Enterprises*, 37, 78-90.

13. Sur, D., & Yadav, S. K. (2014). Trends in asset management efficiency in Maharatna central public sector enterprises: a cross-sectional analysis.

The Journal of Institute of Public Enterprise, 37(3&4), 78-90.

14. Varghese, T. (2013). Impact of working capital management on firm's profitability & liquidity: An empirical study of Coal India Ltd (CIL). *JIMS8M: The Journal of Indian Management & Strategy*, 18(4), 57-64.

15. Vijayakumar, A., & Jayachitra, S. (2014). An empirical study on profitability performance of disinvested central public sector enterprises of Indian manufacturing sector. *ZENITH International Journal of Multidisciplinary Research*, 4(12), 7-29.

16. Yadav, R., & Yadav, R. (2018). Profitability trends in Hindustan Unilever limited-a study. *International Journal of Research in Social Sciences*, 8(12).

17. Yameen, M., & Pervez, A. (2016). Impact of liquidity, solvency and efficiency on profitability of steel authority of India limited. *International Journal of Accounting Research*, 42(3968), 1-10.

Decoding Gen Z's Perceptions About the Start-Up Environment in India: A Way Forward

Geetanjali Shrivastava

Abstract:

The purpose of this study is to learn how Gen Z perceives the start-up ecosystem in India. Using an exploratory descriptive research approach, the study investigates the link between the constructs. The data for this study was gathered through standardized questionnaire and validated measures. The information was gathered via a Google form from mostly Bhopal City's Gen Z. (Madhya Pradesh). The needed sample size for the investigation was calculated using Inverse Square Root Method. The study's structural model was analyzed and the hypothesis was tested using SmartPLS software. The results of the study revealed that government initiatives are the most influencing factor in creating an ecosystem for start-ups, followed by finance. Family and peer pressure hardly contribute to creating an ecosystem for start-ups. The ecosystem for start-ups had the greatest direct influence on promoting start-ups followed by personal factors. Talking about indirect influence government initiatives topped the chart followed by finance.

Keywords:

Start-Ups, Business Idea, Entrepreneurship, Start-up Ecosystem in India, Incubation Centres, Gen Z

Introduction:

"India's corporate landscape is undergoing a radical change due to a remarkable confluence of changes in the funding, regulatory and business environment in the country over the past two decades," Mishra, N., & Pacific, A. (2021).

First and foremost, let's grasp the notion of a start-up. The Start-up India Scheme is an effort of the Indian government with the primary goal of promoting start-ups, creating jobs, and increasing wealth. It was first released in January of 2016. In India, start-ups are formed as a private limited company (as defined by the Companies Act, 2013), a partnership firm (as defined by section 59 of the Partnership Act, 1932), or a limited liability partnership (as defined by the Limited Liability Partnership Act, 2008). These businesses can be classified as start-ups for up to ten years from the date of incorporation/registration if their annual revenue has not surpassed 100 crores in any of the financial years since incorporation/registration[1].

In terms of GDP (Nominal) Ranking (Statistics Times, 2021), India's economy is the sixth largest in the world, and even in the most pessimistic scenario (Ernst & Young), India will attain the target of a five-trillion-dollar economy by 2029-30. (Dhoot, V., Oct. 2021). India has seen rapid economic growth, not just in large corporations, but also in start-ups, Biju's, Ola, Uber, Lenskart, and other start-ups are providing a glimmer of hope to the youth. The Indian government has already begun to weave a web of research and incubator centers around the country. Start-up India, E-Biz Portal, Mudra Yojna, SETU (Self-Employment and Talent Utilization) India Aspiration Fund, Science and Technology Parks, and Business Development Centres are just a few of the initiatives that are helping the youth.

The Covid-19 outbreak has accelerated, possibly even more than in other nations, the use of web technology in India. According to a survey by NASSCOM (2021), more than 1,600 new firms were formed during the epidemic and the rigorous lockdowns since December 2019, bringing the overall number of start-ups in the nation to over 12,500. However, in the recent year, a number of well-funded Indian enterprises are preferring to relocate themselves to foreign countries because of the enabling environment provided in these countries (According to the 2019 RBI Report) This

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[1] Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India has come out with a definition for an entity to be considered as a Startup.

has piqued the interest in understanding more about Gen Z's perspectives on India's start-up ecosystem.

Importance of the Problem and Rationale for the Study

A new generation of workers, Gen Z, is more tech-smart and digitally adept, and this trend is only going to develop. The third-largest start-up hub in the world is located in India. The average age of a founder of a start-up entity is 28 years. According to Statista, women account for only 9% of all start-up founders. The government is also taking strong measures to support the start-up community. In the end, Gen Z will be the ones to benefit, so it's important to understand what the government has in store for them. In the Indian context, only a limited number of rational and scientific evaluations are available to learn about Gen Z's perceptions of start-ups.

Literature Review

According to an IBM survey, 90% of Indian start-ups fail within the first five years of incorporation. Software is the most popular sector for start-up growth, followed by mobile, web, and biotech. In terms of internet penetration and smartphone usage, India has seen tremendous growth. The country has a large population and a wide geographical region. Positive feelings are more closely linked to digital technologies. This demonstrates that Digital India is the future of the Indian start-up ecosystem. While entrepreneurial characteristics such as a strong will to succeed, innovative thinking, originality, breakthrough ideas, a high risk-taking propensity, perseverance, and adaptability are more or less universal, the ability to fit into the environment is likely even more crucial. (S. Singh, A. Chauhan, and S. Dhir 2019).

Data infrastructure is not yet available in every corner of the world. Participating fully in the data-driven economy necessitates not only linking individual citizens but also establishing suitable data infrastructure at the national level. (Nandan Nilekani Pravin Srivastava)[2] India's markets are also unorganized and fragmented. There is a lack of clear policy motives, communication sources, expertise, and exposure. Start-up systems require a mix of friendly operational, regulatory, and taxation concerns that greatly affect the business environment. The government, big companies, and educational institutions should work together to foster an entrepreneurial culture in India. Government and colleges should arrange mentorship programs, workshops,

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[2] Nandan Nilekani (Co-founder, Infosys, and architect of India's Data Empowerment and Protection Architecture), Pravin Srivastava (Secretary and Chief Statistician of India),

and lectures. The study indicated that the founder's gender, institute, and education had the least impact on the start-up's early funding. Pandey, N. K. (2018). However, along with potential, Start-up entrepreneurs may confront problems like India's infrastructure deficit, risk factors, and finding the right talent, among others. Despite these obstacles, the government and start-up entrepreneurs must collaborate to overcome these obstacles and make this program effective. Rani, M. A. (2017).

Almost all of the women-focused start-ups that have obtained financing have come from metro areas, highlighting the paucity of women-focused initiatives in smaller cities and villages. Young women's latent abilities and inventiveness may be found, developed through various skill-enhancing programs, and applied to a variety of industries to boost productivity in the industrial sector. Manshani, S., & Dubey, A. (2017). There is a need to concentrate on fostering an entrepreneurial culture. Youths still choose to work in fixed-term jobs rather than create their own businesses. The main reason for start-up migration to other nations is the better enabling environment, which includes tax benefits, well-developed infrastructure, ease of doing business, and exit policies, among other things. To retain successful Indian entrepreneurs and attract the greatest

individuals from across the world to start enterprises in India, financial incentives and strong infrastructural facilities must be utilized. (RBI 2019).

Women's aspirations, abilities, and determination should not be underestimated by policymakers. Women entrepreneurs in India, who mentioned a lack of work opportunities as a primary motive for starting a firm, appeared to have the most difficulties obtaining business funding when compared to their male counterparts. (Amanda B. Elam, et.al. 2021). When an investor invests in a new sector, he also considers the global macroeconomic and geopolitical challenges. (Singhal, J., Rane, C., Wadalkar, Y., Joshi, M., & Deshpande, A.) The policy should support greater entrepreneurship among graduating students in underrepresented fields. Academic institutes in India and ASEAN are either not properly promoting entrepreneurship or, at most, such promotion is confined to certain disciplines such as technology, business, and management. According to a general assessment across geographies, student entrepreneurship has the potential to unlock innovation and produce long-overdue market disruptions. (Litania, A., & Shukla, S.)

Conceptual Framework

According to RBI reports, new digital start-

ups are searching for new base countries for their businesses, while established ones are also migrating. Even though the number of start-ups is booming, it is still leaking out, and the government is desperately trying to retain the businesses in the country. After the Covid-19, India saw a surge in the number of start-ups, owing mostly to a scarcity of employment opportunities. In such a scenario, it is essential to understand what Gen Z anticipates from higher authorities. To decode the young brains about start-ups, a conceptual model has been designed. The suggested study framework has been established while keeping all of these characteristics in view (Figure 1). Personal Factor Family and Peer Pressure, Government, Finance, Ecosystem for Start-Ups have been analysed from the perspective of Generation Z.
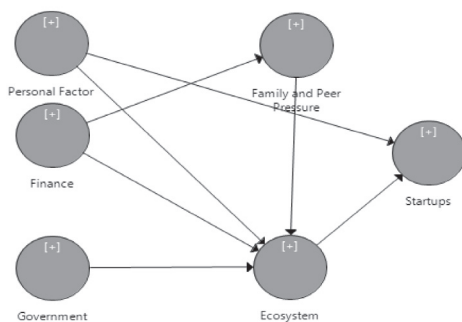
Figure 1: Conceptual Framework

Objectives of the Study

i. The study attempts to know whether Personal Factors influence the ecosystem for start-ups.

ii. To study whether Personal Factors influence Gen Z's motivation to pursue a future career in the start-up.

iii. The study attempts to investigate whether Family, Peer Pressure can create an ecosystem for start-ups.

iv. To study the influencing role of the Government in creating an ecosystem for Start-ups.

v. To study the influencing role of Finance on Families and Peers.

vi. To identify the influencing role of Finance in creating an Ecosystem for Start-ups.

vii. To study the influencing role of the Ecosystem in Motivating Gen Z for start-ups.

Hypotheses of the Study

H1: There is no significant influence of personal factors on the ecosystem for Start-ups.

H2: There is no significant influence of Personal Factor on Gen Z for getting motivated for Start-ups.

H3: There is no significant influence of Family and Peer Pressure in creating an ecosystem for Start-ups.

H4: There is no significant influence of the Government in creating an ecosystem for Start-ups.

H5: There is no significant influence of Finance on Family and Peer Pressure.

H6: There is no significant influence of Finance in creating an ecosystem for Start-ups.

H7: There is no significant influence of the Ecosystem in motivating Gen Z for start-ups.

Methodology

In order to ensure that the results match the objectives, the appropriate research analysis techniques were used in conjunction with the statistical tool SmartPLS 3.3.6 (Ringle et.al, 2015). In order to establish the reliability of the questionnaire and quantify internal consistency or errors of the researched variables in the Likert-scale questions, composite reliability was used in the study. The research also incorporated one open-ended question seeking suggestions from Gen Z for increasing Starts-ups in the country. In addition, descriptive analysis was utilized to examine the demographic data of the participants in this study.

Population, Target Sample, and Evaluation of Sample Size

The total population of Bhopal is approximately 2.5 million, of which almost 0.675 million are represented by GenZ (Target Population of the research). The sample size for the present research work was evaluated using the Inverse Square Root Method proposed by Kock and Hadaya (2018). At a 95% confidence level, with a minimum path coefficient of 0.2, the minimum sample size evaluated by the Inverse Square Root Method was 155 (154.505 rounded up to the nearest integer) participants. However, the researcher conducted the present research with 185 valid responses. The calculation of the sample size using the Inverse Square Root Method formula is presented as follows:

$$\text{Significance level} = 5\%: \; n_{min} > \left(\frac{2.486}{|p_{min}|}\right)^2.$$

$$n_{min} > \left(\frac{2.486}{0.2}\right)^2 = 154.505.$$

Sampling Procedure

The researcher used non-probability sampling approaches such as convenience

sampling, voluntary response sampling, and snowball sampling in this study by distributing an online questionnaire via social media platforms.

Results And Discussion

The descriptive analysis technique was employed in this study to assess the demographic data of the respondents who met the study's inclusion criteria.

The demographic profile study found that 47.6 percent of respondents (n=88) were female, while 52.4 percent of respondents (n=97) were male. 82.7 percent (n=153) of respondents were aged 15–20, 16.2 percent (n=30) were aged 21–25, and 1.1 percent (n=2) were aged 26–30. A large percentage of Gen Z respondents would prefer to work, accounting for 44.9 percent (n=83) of the total sample, followed by 18.4 percent (n=34) who indicated their willingness to start their own business, 13.0 percent (n=24) who indicated they would continue with their family business, 12.4 percent (n=23) who indicated they would like to pursue a profession (Doctor, Lawyer, CA, CS), and 11.7 percent (n=21) who indicated they would prefer to do something else.

Table 1: Demographic Profile of Respondents

Frequencies of Gender			
Levels	**Counts**	**%**	**Cumulative %**
Female	88	47.6%	47.6%
Male	97	52.4%	100.0%
Frequencies of Age			
15-20	153	82.7%	82.7%
21-25	30	16.2%	98.9%
26-30	2	1.1%	100.0%
Frequencies of Future Career Goals			
Business (Family or Established Business)	24	13.0%	13.0%
Job	83	44.9%	57.8%
Other	21	11.4%	69.2%
Profession (Doctor, Lawyer, CA, CS)	23	12.4%	81.6%
Start-Up (You have a unique idea for your business)	34	18.4%	100.0%

Source: Author's Own Calculations using Jamovi.

Measurement Model Assessment

This study employed Confirmatory Composite Analysis to visualize the relationship in terms of linear compounds. The Composite Reliability (CR) and Average Variance Extracted (AVE) metrics were used to analyze the measurement model as part of Convergent Validation. Additionally, because Composite Reliability (CR) is less biased than Cronbach's Alpha, it is considered preferable than Cronbach's Alpha for demonstrating reliability. A value of 0.70 or above is required for Composite Reliability (CR).

Table 2: Construct Reliability and Validity

	Factor Loadings	Composite Reliability	Average Variance Extracted (AVE)
Personal Factor			
PF10	0.742	0.800	0.572
PF18	0.733		
PF9	0.793		
Family and Peer Pressure			
FPPS4	0.905	0.874	0.701
FPPS5	0.875		
FPPS6	0.720		
Government			
GMT1	0.706		
GMT2	0.784		
GMT3	0.820	0.894	0.584
GMT4	0.800		
GMT5	0.714		
GMT6	0.754		
Finance	1.000	1.000	1.000
Ecosystem			
ECSI1	0.748	0.852	0.590
ECSI2	0.810		

ECSI4	0.740		
ECSI5	0.773		
Start-Ups		0.808	0.588
STU1	0.887		
STU2	0.678		
STU6	0.719		

Source: Author's Own Calculations using Smart PLS.

The results indicated that the base model is acceptable because it exceeded the required minimum threshold in all cases, with Composite Reliability (Construct Reliability) values exceeding the 0.70 threshold value (Hair et al., 1998). The Average Variance Extracted (AVE) for each construct also exceeded the 0.50 threshold (Fornell and Larker, 1981). Additionally, the loadings on all indicator items are greater than 0.70 (Yoo and Alavi, 2001), indicating that the questionnaire has a high degree of convergent validity.
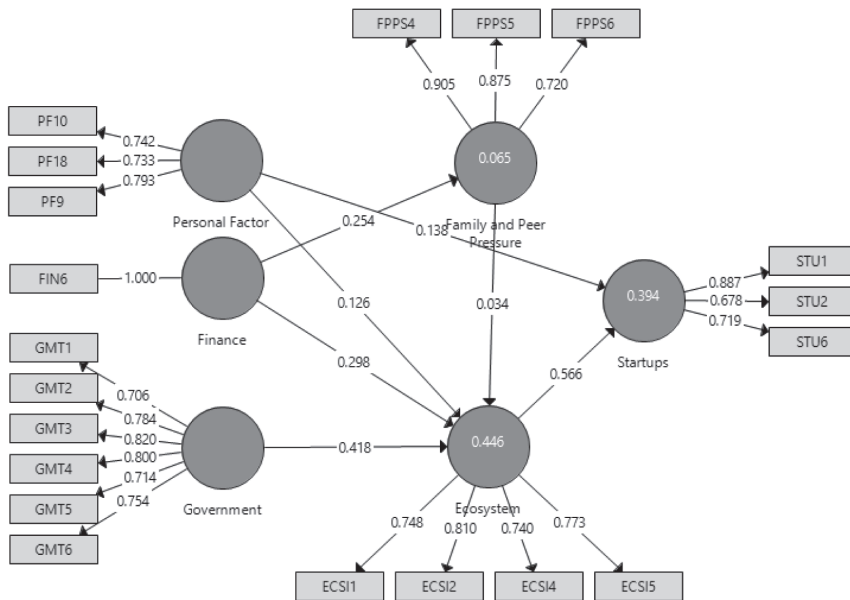
Figure 2: Measurement Model

Discriminant Validity

Table 3: Fornell-Larcker Criterion

	Personal Factor	Family and Peer Pressure	Government	Finance	Ecosystem	Startups
Personal Factor	0.757					
Family and Peer Pressure	0.311	**0.837**				
Government	0.326	0.199	**0.764**			
Finance	0.244	0.254	0.396	**1.000**		
Ecosystem	0.346	0.232	0.584	0.503	**0.768**	
Start-ups	0.334	0.208	0.438	0.331	0.614	**0.767**

Source: Author's Own Calculations using Smart PLS.

The discriminant validity of the study was examined to determine whether the tested constructs were distinct from one another and, if they were, whether additional statistical analysis could be undertaken. A discriminant validity study was conducted using the Fornell and Larker criterion (1981), the findings of which are summarized in Table No.3. The figures established that the investigated constructs are distinct and do not overlap.

Heterotrait-Monotrait Ratio (HTMT)

The Heterotrait-Monotrait Ratio (HTMT) is used in this study in addition to the standard method of determining discriminant validity. This method is different from the standard method. In PLS-SEM, HTMT is very useful as a building block for model evaluation.

Table 4: Heterotrait-Monotrait Ratio (HTMT)

	Personal Factor	Family and Peer Pressure	Government	Finance	Ecosystem
Personal Factor					
Family and Peer Pressure	0.456				
Government	0.447	0.227			
Finance	0.310	0.269	0.425		
Ecosystem	0.500	0.288	0.708	0.573	
Startups	0.525	0.324	0.558	0.397	0.834

Source: Author's Own Calculations using Smart PLS.

As seen in Table 4, all values are less than 1, indicating that the correlation between the two constructs is distinct, and hence the validation is valid. (Kline, 2011); (Henseler et al., 2015) advocate a 0.85 and (Gold et al. 2001) (Teo et al., 2008) 0.90 criterion, respectively.

Table 5: R Square

	R Square	R Square Adjusted
Family and Peer Pressure	0.065	0.060
Ecosystem	0.446	0.433
Start-ups	0.394	0.387

Source: Author's Own Calculations using Smart PLS.

R-Squared is a goodness-of-fit criterion for linear regression models. Table 5 depicts the percentage of variance in the dependent variable that is explained by the independent factors when all of them are included. R-squared values greater than one shows that there are fewer discrepancies between the observed and fitted values, reflecting a better model fit. The R-squared value of 0.446 implies that Ecosystem variation accounts for 44.6 percent of the variance in Start-ups. The following table summarises the model fit criteria.

To generalize the data findings, the SRMR value must be less than 0.08 (Hu and Bentler, 1999). Results of Table 6 indicated that by a little margin, the resulting statistical value is less than the provided cautious thresholds.

Assessment of Structural Model

The Structural Equation Model was

Table 6: Model Fit Summary

	Saturated Model	Estimated Model
SRMR	0.078	0.088
d_ULS	1.274	1.636
d_G	0.404	0.421
Chi-Square	446.799	457.784
NFI	0.700	0.693

Source: Author's Own Calculations using Smart PLS.

employed to draw a link between the constructs and their predictive significance. The bootstrapping approach was employed with 5000 bootstraps without altering the sign. This approach helps in calculating the p-values associated with the study's established hypotheses.

Seven hypotheses were developed based on the research objectives to investigate the conceptual framework, as well as to test the variables and their relationships. Except for hypothesis 3, all null hypotheses were rejected since their significance levels were less than 0.05 at the 95 percent confidence level. Rest all these variables were discovered to have a significant influence/ effect on one another.

When determining the effects of various constructs on the dependent variable (Start-ups), the direct and indirect effects of all independent variables, such as personal factors, finance, government, family, peer pressure, and ecosystem, were evaluated. The results of the study revealed that government initiatives are the most
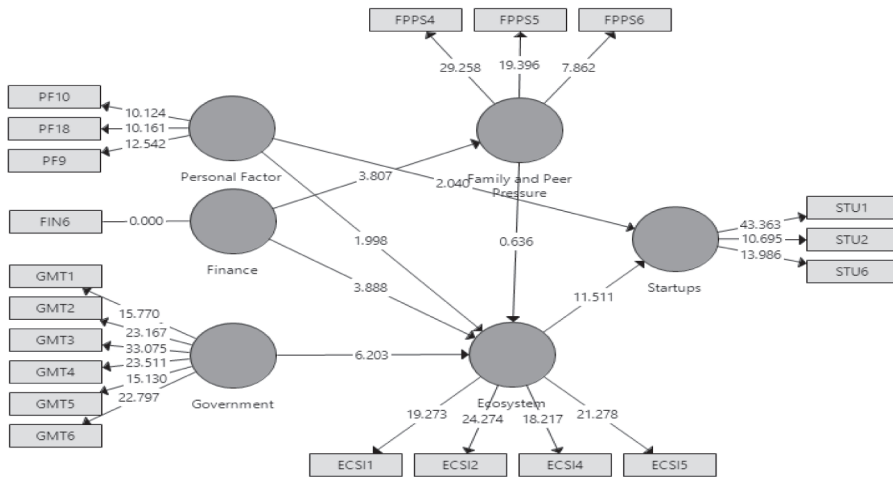
Figure 3: Structural Model

Table 7: Hypotheses Testing (Mean, STDEV, T-Values, P-Values)

Hypotheses	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
H1: There is no significant influence of personal factors on the ecosystem for Start-ups.	0.126	0.129	0.063	1.998	**0.046**
H2: There is no significant influence of Personal Factor on Gen Z for getting motivated for Start-ups.	0.138	0.141	0.067	2.040	**0.041**
H3: There is no significant influence of Family and Peer Pressure in creating an ecosystem for Start-ups.	0.034	0.037	0.054	0.636	**0.525**

H4: There is no significant influence of the Government in creating an ecosystem for Start-ups.	0.418	0.423	0.067	6.203	**0.000**
H5: There is no significant influence of Finance on Family and Peer Pressure.	0.254	0.264	0.067	3.807	**0.000**
H6: There is no significant influence of Finance in creating an ecosystem for Start-ups.	0.298	0.293	0.077	3.888	**0.000**
H7: There is no significant influence of the Ecosystem in motivating Gen Z for start-ups.	0.566	0.570	0.049	11.511	**0.000**

*Source***:** Author's Own Calculations using Smart PLS.

Table 8: Direct and Indirect Impact of various constructs

Dependent Variables ↓		Independent Variables ↓				
		Personal Factor	Finance	Government	Family and Peer Pressure	Ecosystem
Family and Peer Pressure	DE	-	0.254			
	IE	-	-			
	TE	**-**	**0.254**			
Ecosystem	DE	0.126	0.298	0.418	0.034	
	IE	-	0.009	-	-	
	TE	**0.126**	**0.307**	**0.418**	**0.034**	
Start-ups	DE	0.138	-	-	-	0.566
	IE	0.072	0.174	0.237	0.019	-
	TE	**0.209**	**0.174**	**0.237**	**0.019**	**0.566**

*Source***:** Author's Own Calculations using Smart PLS.

Note: DE: Direct Effects, IE: Indirect Effects and TE: Total Effects

influencing factor in creating an ecosystem for start-ups (β =0.418), followed by finance (β =0.307), family, peer pressure hardly contributes to creating an ecosystem for start-ups. (β =0.034). The ecosystem for start-ups had the greatest direct influence on promoting start-ups (β = 0.566), followed by personal factors (β = 0.138) and government initiatives for promoting start-ups contributes the highest indirectly (β = 0.237), followed by finance (β = 0.174).

Discussion and Conclusion

Gen Z is the most ambitious generation desirous of making a career in multinational companies, wanting to make rapid money and settle down. They believe that India is a land of many languages and cultures. So, capturing all regions and fully comprehending consumers will be a challenge. In India, family members play a vital role as direct influences, convincing their children to choose a job rather than establish their own business. Results of the study revealed that starting a business requires political and bureaucratic connections and bribes.

The findings of the study revealed that Gen Z has acknowledged the Government of India's measures in encouraging entrepreneurship at the start-up level and has taken a number of initiatives in the form of providing proper assistance, focusing on removing roadblocks which in turn encourages speedier growth. Funding Assistance and Incentives Simplifying procedures through the use of a web portal (for registration, compliance filing, and information retrieval).

Gen Z feels that India has a good R&D culture and that the Incubation Centres (ED Cell) are actively working for the nation's young. Gen Z firmly thinks that setting up a business generates employment and that they might receive timely capital infusions, yet the majority of them will exit the market if they receive a favorable price deal against their business. The results of the study revealed that government initiatives are the most influential factor in creating an ecosystem for start-ups, followed by finance. The ecosystem for start-ups had the greatest direct influence on promoting start-ups followed by personal factors. Talking about indirect influence government initiatives topped the chart followed by finance. Family and peer pressure had negligible contribution in an ecosystem for start-up.

Recommendations

The results of the present research work highlighted that majority of the Generation Z indicated the need to raise public awareness about government schemes. Failures in business should serve as a lesson to future entrepreneurs; thus, it is critical to present failed case studies of businesses as a reference point to avoid known pitfalls. It is suggested that appropriate financial and non-financial incentives be implemented in order to keep successful Indian start-up businesses in India. For creating opportunities in rural areas; government apps should be developed so that young people who are afraid of failure or are unaware of the registration process can at

least take advantage of the opportunity, and the relevant idea should then be supported by a specialized team to nurture and breed the business idea. Gender equality is essential in our country, and the government of India should implement it, particularly for female entrepreneurs. School students should be required to attend frequent educational sessions so they can make informed decisions and choices. The start-up fests (national and international) should become part of the academic calendar for schools and universities.

Limitations and Further Study

Because this study is limited to Gen Z experiences, data from millennials should be collected as well to better understand the difficulties they face. Moreover, research should be conducted to better understand the issues that women face while opting for Start-ups. Data from cities across India (metro, non-metro, and rural) could not be acquired, limiting the scope of this study. This study's data was primarily gathered from people in Bhopal and the surrounding region, and it was limited to Madhya Pradesh. Furthermore, data was gathered from people who had a close relationship with the researcher, narrowing the study's conclusions.

References

1. Amanda B. Elam, Karen D. Hughes, Maribel Guerrero, Stephen Hill, Catharina Nawangpalupi, María del Mar Fuentes, Juan Pablo Dianez González, Ana Fernández Laviada, Catalina Nicolas Martínez, Murcia Alicia Rubio Bañón, Murcia, Nihel Chabrak, Candida Brush, R. H. (2021). *Women's Entrepreneurship Report*.

2. Dhoot, V. (2021, October 30). *India's Dollar Five Trillion Goal Setback by three to five years'*. Retrieved February 20, 2022, from The Hindu: https://www.thehindu.com/business/indias-5-tn-goal-st-back-by-3-5-ears/article37258198.ece.

3. Fornell, C. G., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Errors. Journal of Marketing Research, 18 (1), 39-50.

4. Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge Management: An Organizational Capabilities Perspective. *Journal of Management Information Systems*, *18* (1), 185-214.

5. Hair, J.F., Anderson, R. E., Tatham, R. L. and Black, W. C. (1998), Multivariate Data Analysis, Prentice-Hall, Upper Saddle river, New Jersey.

6. Henseler , J., Ringle , C. M., & Sarstedt, M. (2015). A New Criterion for Assesing Discriminant Validity in Variance-Based Structural Equation Modeling. *Journal of Academy of Markeing Science*, *43* (1), 115-135.

7. Hu, L. T, and Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modelling, 6, 1-55.

8. Jain, S. (2016). Growth of start-up

ecosystems in India. *International Journal of Applied Research, 2*(12), 152-154.

9. Kline, R. B. (2011). *Methodology in the Social Sciences: Principles and Practice of Structural Equation Modeling* (3rd ed.). Guilford Press.

10. Litania, A., & Shukla, S. Incubators as Catalysts for Innovation.

11. Manshani, S., & Dubey, A. (2017). Start-up women in start-up India: A study of women entrepreneurs in India. International *Journal of Business Management (IJBGM), 6*(4), 91-100.

12. Mishra, N., & Pacific, A. (2021). *Credit Suisse : India's 100-strong unicorn club drives radical change in the country's corporate landscape.* 2020–2022.

13. Nasscom(2021). *Start-up India-Momentous Rise of the Indian Startup Ecosystem.* Retrieved February 10, 2022, from nasscom.in: nasscom.in/knowledge-center/ publications/start-report-momentus-rise-indian-start-ecosystem.

14. Pandey, N. K. (2018). An analysis of start-up ecosystem in metropolitan city in India. *International Journal of Engineering and Management Research (IJEMR), 8*(2), 237-244.

15. RBI (2019, June 25). *Publication Report.* Retrieved February 10, 2022, from rbi.org.in: rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=924.

16. Rani, M. A. (2017). Start-up India: Opportunities & challenges "Start-up India stand up India". ACADEMICIA: *An International Multidisciplinary Research Journal, 7*(1), 104-113.

17. Ringle, C. M., Wende, S., and Becker, J.-M. 2015. "SmartPLS 3." Boenningstedt: SmartPLS GmbH, http://www.smartpls.com.

18. Singhal, J., Rane, C., Wadalkar, Y., Joshi, M., & Deshpande, A. Data Driven Analysis for Start-up Investments for Venture Capitalists.

19. Singh, S., Chauhan, A., & Dhir, S. (2019). Analyzing the start-up ecosystem of India: a Twitter analytics perspective. *Journal of Advances in Management Research.*

20. Srivastava D. K., Ernst & Young, EY India Chief Policy Advisorhttps://www.ey.com/en_in/tax/economy-watch/india-is-likely-to-achieve-the-us-dollar-5-trillion-gdp-target-by-fy28.

21. Teo, T., Lee, C. B., & Chai, C. S. (2008). Understanding Pre-Service Teacher's Computer Attitudes: Applying and Extending the Technology Acceptance Model (TAM). *Journal of Computer Assisted Learning, 24* (2), 128-143.

22. Times, S. (2021, June 8). *GDP of India.* Retrieved February 20, 2022, from Statisticstimes.com: statisticstimes.com/economy/country/india-gdp.php.

23. Yoo, Y. and Alavi, M. (2001). Media and Group Cohesion: Reflective Influences on Social Presence, Task Participation, and Group Consensus, MIS Quarterly, 25(3), 371-390.

Effectiveness of Internal Audit-A Tool for Management Control System: An Action Research Approach

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Abstract:

Internal audit emerged to have been an indispensable tool of management control system in Large Public Ltd. Companies in particular and Public Ltd Companies in general. Research on internal audit and its effectiveness has mainly so far focused on Public Limited Companies though an effective internal control system is a must for any organization including Private Limited Companies. Present study was administered in DMM Enterprise Private Ltd. Company within the meaning of the Companies Act, 2013 in order to examine the degree of effectiveness of internal audit for Private Limited Companies. The findings reveal that internal audit is a powerful tool to ensure that operational and financial functions carried out in succinct manner by timely detecting errors, financial frauds, exposing the risks involved and guiding the management in day-to-day commercial operations of the concerned organization. The appointment of internal auditor is mandatory for all the Listed Companies and 'Producer Companies'. Unlisted Public Limited Companies having been subject to either of the criteria of a Paid-up Capital of INR 50 Cr. or more, the Turnover of INR 200 Cr or more and Loans and Borrowings of INR 100 Cr. from banks and financial institutions or having Outstanding Deposits of INR 25 Cr. at any point of time during the preceding financial year. As far as Private Limited Companies are concerned, internal audit has to be in place whenever the Turnover is INR 200 Cr. or more or the amount of Outstanding Loans and Borrowing is INR 100 Cr. or more at any point of time during the immediately preceding financial year. Internal audit for Private Limited Companies not covered within the criteria mentioned above assists efficiently in early detection of financial scam, frauds, errors, risk exposure, organizational performance evaluation and ensuring exercise of a robust management control throughout the length and breadth of the organization and save financial resources, ensures accuracy, authenticity, validity and reliability of financial

information which in turn contribute to ensure quality decision making by the management. Moreover, effective internal audit system can save financial resources from being spent on non- or non-timely compliances. This paper aims at examining effectiveness of internal audit through the 'Action Research Approach'. Effective internal audit has emerged to be a tool for exercising management control over large organizations for which it is mandatory and also the companies not covered under the canvas of mandatory internal audit requirements and any other organizations including   and medium sized enterprises. Scope of internal audit includes identifying and assessing the financial and non-financial risks and the hurdles in achieving the mission, goals and objectives of an organization. The study has been conducted on the Action Research Model developed by Kurt Lewin in the 1930s. This approach helps the organizations bring about sustainable efficiency in the economic operations of a business in terms of improving productivity, profitability and financial solvency.

Keywords:

Internal Audit, Relevance, Effectiveness, Risk, Management Control System, Internal Auditor, Management Control System. Wastes, Control, Monitoring, Budget, Financial Statement Analysis, Management Accounting and Reporting System

Section I: Introduction:

This section is devoted to offer a bird's eye view of the introductory backdrop of the chosen research domain, Infernal Audit, as an instrument for exercising management control over day-to-day economic activities and commercial operations of an organization. Besides, the research problem and its relevance are objectively addressed in this section of the Study.

1.1: Preamble

The management of an enterprise is to maximize the wealth of the firm by eliminating wastes, reducing irrelevant costs, identifying and assessing risks of different types that adversely impact on productivity. profitability liquidity, solvency and sustainability of the firm. The present decade is witness of incidences of cashless profit and profitless turnover not only in Indian corporate sector but across the globe. The Listed Companies and Unlisted Companies are stipulated by and large to comply with the relevant Financial Accounting Standards and Cost Accounting Standards for preparing Financial Statements and make adequate disclosures in order to enable the stakeholder to take appropriate decision with regard to investment and continuity of their stakes in the companies and preparing cost statements and reporting meaningful, significant and relevant information to the policy formulators and decision makers. The role of internal audit system is to provide an independent assurance that an enterprise's risk assessing, organizational governance and overall management control system are in harmonious conformity and congruence and are in place to ensure sustainable commercial operations. It is to mention that Private Limited Companies within the meaning of the Companies Act, 2013 are usually do not come under the ambit of mandatory provisions of internal audit and therefore regulatory compliance is not significant baring exceptions. In this context an obvious note of interrogation arises whether internal audit has any role or it is redundant in these types of companies? The present Study was administered in M/s DMM Enterprises Private Ltd in order to find out the answer to the set research question under Kurt Lethe Action Research Model developed by Kurt Lewin (1890-1947) in 1930s[1].

1.2: Profile of M/s DMM Enterprise Private Limited

M/s DMM Enterprise Private Ltd was incorporated in 1975 under the then Companies Act, 1956. The initial operation of the company was restricted in marketing building and infrastructural materials including cement purchasing from the local producers and importing quality materials from South Korea, Malaysia, Indonesia,

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[1] Kurt Lewin, a Social Scientist, developed a model, Action Research Model (ARM) in 1930s in order to address the issues involving change management. ARM is based on identifying priorities, collecting and interpreting data, dissemination the results for the purpose of designing plan of actions, implementing the actions, monitoring the changed environment and finally evaluating the performance and reporting.

Australia and other neighboring countries whatever needed. The company gradually diversified its dealings in products such as real estate development, shipping, stevedoring, and logistics supplies. More than 300 workforces in different cadres are in the payroll of. M/s DMM Enterprises is constituent of diverse products and service provider and occupied a respectful room in the corporate sector, mainly among its peers, Private Limited Companies. The company was incorporated with a Paid-up Share Capital INR 45 Cr, Annual Turnover for last several Financial Years were found to be in the range of INR 175-195 Cr., and Outstanding Loans or Borrowing from Banks and Financial Institutions is INR 98 Cr. Moreover, so far ever, it never touched statutory threshold limit and it is the endeavor of the company to keep its commercial activities below the statutory limits in order to avoid mandatory internal audit compliance. M/S DMM Enterprise Private Limited thinks that expenses for internal audit is avoidable and it is a kind of wastage of financial resources and very often the CEO of the Firm used to refer the philosophy and practice of Henry Ford (1863-1947)[2] the CEO of epoch making Ford Motors, who was averse to any kind of audit of his commercial activities and financial affairs by an Accountants. However, the statutory financial audit is conducted once a year after 31st March being the last day

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[2] Henry Ford, American Industrialist and founder of Ford Motor Company and inventor of assembly line products and opposed involvement of USA in World War I and World War II.

of financial year as usual. Every statutory auditor gives some kind of qualifications in the reports and reservations in their opinions on management control system (MCS)or internal control system (ICS) remaining in place in the organization which had never been the priority of the management nor received any attention of the management in general and Mr. Henry Ford, the CEO in particular. As the consequence M/s DMM Enterprise had been suffering persistently from financial frauds, embezzlement, misappropriation of assets, financial irregularities, wrong accounting treatment, stores and inventory mismanagement, inefficient receivables management, high volume of law of limitations and litigation, penalties, fines, and many other savable enterprises governance cost. The shortcoming reported through the statutory financial audit reports was just a tip of the ice-berg as the scope of statutory financial audit is quite limited and its scope and extent depends on effectiveness of internal control system. Moreover, appropriate time for taking corrective measures is not prioritized by the management and it is a well-accepted fact that statutory financial audit report is comparable to a postmortem report which can hardly do any anything for bringing life back to the dead body. Under the given circumstances, the firm is left with no option other than adjusting the loss in the accounts of the firm which has certainly adverse impact on overall sustainability of the company. Under the given situation, the firm was on the mode of contemplating as to whether it should volunteer for installing

an internal audit system but before taking the final decision, it was wondering if there is a strong anchoring base by which it would decide whether to go for an internal audit system or not. Under the stated background, the present was study was contemplated and administered by adopting Action Research Approach (ARA).

1.3: Present Study Initiation

The researcher availed the opportunity to take up the study and administered the same during April, 2016-March 2021. Internal audit has been accepted as an effective tool to practice efficient corporate governance and operation (IIA, 2010). Until recently, internal audit was observed to have been focusing on compliance management and compliance assurance, financial control and assets safeguarding (Allegrini et al., 2006; Dellahi et al., 2016) but internal audit is being, of late, observed to enhance the value adding potential through improved effectiveness and Institute of Internal Auditors, USA has offered a new definition of internal audit (2017) and it defines *"Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes"*

There are certain prior studies on examining effectiveness of internal audit which provide that the factors and measurement

of effectiveness are used differently by different researchers (Arena & Azzone, 2009) and there is lack of congruence on the best framework for examining effectiveness of internal audit. Further, Adams (1994)'s study reveals that there is inadequate attention and awareness of theories that might have aided in building theoretical framework. Adam (1994) observed that 'the Agency Theory'[3] contributes to rich and meaningful internal auditing research, explaining the existence of internal audit, its nature and the approach which is adopted, and predicting how internal auditors function and role is useful to the auditees". Al-Twaijry et al., (2003) and Mithret et al., (2010) observed in their studies that internal audit is able to add value to auditee firm. Internal audit is found to be quite effective in developing countries (Abu-Azza, 2012: Cohen and Sayag, 2010: Mithret & Woldeyohannis, 2008: Yee et al, 2008: Fadzil, Haron and Jantan, 2005). Eden & Moriah (1996) observed that internal audit has enough potential to increase the likelihood that the right things are done and that they are right. Again, Ali et al, (2012)'s study revealed that internal audit function exists to help members of an organization to improve the performance of their activities.

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[3] The Agency Theory is based on the premise that the board of directors is the primary internal control mechanism. It has comprehensive application to management of organizational resources for maximizing the wealth of the organization. Michael Cole Jensen (1939-) and William Henry Mackling (1921-1998) (1976) developed this theory and Stephen Ross and Barry Mitnick are the scholars to apply the theory in practice.

The cited Literature shows that almost all the researchers are unanimous to conclude that effectiveness of internal audit is a powerful tool for exercising management control on commercial and financial affairs of an organization. Arena et al (2006) defined effectiveness to mean the capacity to obtain results being consistent with the target objectives. The necessity for having a robust management control system is sine-qua-non for an efficient functioning of an organization in order to achieve the mission, objectives and goals of the firm under reference. An independent verification and examination of the implemented organizational policies, strategies and vision if conducted at regular intervals, it is supposed to consequently reduce record-keeping errors, asset misappropriation, minimize waste, eliminate losses and reduce and control the undesired costs, financial frauds and intra and inter departmental collusion in the profit seeking and non-profit seeking organizations as per the Institute of Internal Auditors (IIA, 2003), USA. There are many studies focusing on internal audit's importance and relevance as a powerful tool for fraud detection at early stages, ensuring result oriented corporate governance, potential risk assessment, mismanagement of financial resources and physical resources. (The Institute of Internal Auditors' Research Foundation, 2003; Mastan et al, 2015; IIA position paper, 2009; Karagiorgos et al., 2010) but these research studies were administered on only Public Limited Companies and Private Limited Companies are excluded by and large from the scope of these studies. In a report of IIA (2003) Flesher (1996, pp. 1, 3) quotes Arthur E. Hald (1944) that internal auditing has emerged due to its necessity and thus it become an integral part of modern business. The importance of internal audit is so much that no large business can avoid it. If they haven't got it now, they will have to have it sooner or later, and, for a developing business environment it is an obvious, researcher opines. IIA (2003) quotes Walsh (1963) that the ever-increasing gap between management and stockholders and the consequent action pattern has made it necessary to develop a series of control measures by means of which the business may be governed efficiently. The internal auditor examines and completes evaluation each of these activities and the related results by going through appropriate evidence in respect of the exiting internal control system.

The researchers found that internal audit disclosure significantly increase investor's confidence that financial statements are free from both errors and intentional and material misstatements. They also observe that investors' confidence differs more for the high fraud prone risky companies than that of the low fraud prone risky organizations. Holding congruity with Zohra and Huq (2014), Sun (2015) opines that internal control evaluation and disclosure have significant influence on operating decisions within the firms. On the basis of the report of the Central Bank of Nigeria, Augustine et al. (2013) conducted research on the banking sector of Nigeria and

found that effective and efficient internal control system has a greater influence on the quality of audit work. They argued that internal control system significantly influences the bank's operations and the quality of audit work. Researchers also recommended for installation of an effective internal control system by the management of every company. Based on 200 target sample, especially Accountants (Cost & Management Accountants (CMAs) & Certified Public Accountants (CPAs), CFO & Finance Directors, Chief Cashiers and Chief Executive Officers (CEOs) in remittance firms, Mohamud (2013) in his non-experimental descriptive research suggested that internal audit is of high relevance and importance in any organization irrespective of the sizes. Findings revealed that in spite of having less regulatory requirements for compliance, internal audit is necessary for a Private Limited Company for fraud detection at an early stage, enterprise risk management and organizational performance evaluation. These findings are expected to create value for upcoming, new and existing companies and shall help in deciding to what extent they would strengthen the management control system.

1.4: Problem Statement:

Internal Audit has been in place in the practice of management control system for long and it has gained more prominence after the incidences of financial scandals, scams and financial frauds all over the world. Keeping in view the attribute of corporate citizenship, internal audit has assumed to be a legal force as an enabler of good corporate governance and it has earned its sharp effectiveness as a tool of management control system. It has been provided in Section 138 of the Companies Act, 2013 that internal audit system is mandatory in all the listed Companies and the Public Limited Companies who are under certain qualifying parameters and the same is applicable to Private Ltd. Companies who are subject to certain riders but other than these companies, internal audit is not mandatory. It has been observed that the Private Limited Companies Number is enormous and they need to exercise efficient control over their commercial operation in scientific manner so that they can protect the interest of the promoters and other stakeholder and sustain the burn of any frauds and errors and mismanagement of resources. Under the given back ground the research problem 'Effectiveness of Internal Audit-A Tool for Management Control System: An Action Research Approach' under the Action Research Model has been administered on M/s DMM Private Limited for understanding effectiveness of internal audit system and its role in improving operational efficiency of the Private Limited Companies who are by and large averse to avail internal audit services since internal audit is not mandatory for them and therefore it is avoidable, as they perceive. The title of the study is self-explanatory and speaks itself what the research problem is all about. In brief, Action Research Model (ARM) developed

by Kurt Lewin (1890-1947) has been used in examining the degree of sharpness of effectiveness of internal audit as a tool for exercising management control so that variances are within the limit and devoid of undoing the financial performance of the firm.

1.5: Significance of the Study

This study is expected to be a guide of the Private Limited Companies in taking considered decision whether they should voluntarily install internal audit department or avail the services of the professionally qualified practicing accountants such as Chartered Accountants (CAs) and Cost & Management Accountants(CMAs) for bringing about operational efficiency and effective corporate governance by timely detecting errors and frauds and the operational and financial irregularities after taking care of the limitations of statutory and annual financial audit system. The fundamental functions of internal auditing are to evaluate and provide assurance that the risks are identified and quantified, internal control and corporate governance systems are in order as intended and it enables achieve the organizational goals within the parameters of time and cost effectiveness. It also recommends through reporting for improvement operational and financial performance, evaluates regulatory compliances, maintains efficient communication with the management and audit and other committees. Therefore, this study is expected to assist the management in reducing and eliminating wastes,

ensuring timely assessing risks, enabling scientific mobilization, combination, allocation and utilization of the resources-based judiciousness and the set priorities.

1.6: Objectives of the Study

The study is an enquiry about examining effectiveness of internal audit of Private Limited Companies not covered by the stipulation laid down in Section 138 of the Companies Act, 2013.

To be specific, following are the objectives of the Study:

(i) To examine the role and purpose of internal audit in exercising management control.

(ii) To assess the implications of non-existence of internal audit system.

(iii) To identify the determinants of effectiveness of internal audit system and hence management control system or simply internal control system.

(iv) To determine the parameters for internal audit Reports.

1.7: Hypothesis

Hypothesis is the supposition based on which the studies are carried out in real life situations. The specific null hypothesis was that internal audit is not effective for ensuring control and check and balances in day to day commercial and financial operations of the chosen company and the alternative hypothesis was that internal audit is a significant mechanism to becoming the 'eyes and ears' of the management. In other

words, the null hypothesis in the present study is that effectiveness of internal audit system is independent of professional competency, objectivity, prudence, due-diligence robust examination methods, unconditional patronage of the management and independence of the internal auditors. This is a qualitative and descriptive study and empirical study may be carried out on the basis of the results of this investigation in future and both the descriptive and inferential statistical tools and techniques may be used for deriving the desired results by the future researchers.

1.8: Research Questions

Research Questions are part and parcel of an enquiry and the process of knowledge cultivation. Research questions are complementary to the set objectives of the study and hence the combined   implications and spirit of both the set objectives based on the research gap and the formulated research questions are targeted to answered by the undertaken study that aims tentatively at finding out the objective answers to the following research questions.

1. When   can internal audit be considered effective?

2. Is Internal audit a myth or   enabler of efficient operational system?

3. How to measure effectiveness of internal audit?

4. What are the tentative independent variables on which dependent variables depends upon?

5. Is internal Audit substitute of statutory audits?

6. What are the qualifications of the statutory internal auditors?

7. To whom should the Internal auditor be accountable?

7. How is risk assessed and recommended by the internal auditor to mitigate such risks?

8. Is internal audit cost inefficient?

9. How does internal audit assist to enable efficient corporate governance?

10. Is internal audit mandatory for any organization?

1.9: Scope of the Study:

The study was conducted with the technique of ARA /ARM and it is administered on a multi units, multi-products Private Limited Company, M/s DMM Enterprise Private Limited which is not statutorily required to have any internal audit system by any law. The study restricts its scope of investigation within the transactions of the select firm. It has used cross sectional data for purpose of the study.

1.10: Beneficiaries of the Study

The study is expected assist the policy formulators and decision makers as it explores and find out the variables determining effectiveness of IA and as a sequel, it would help further to install a robust management control system whose purpose is to eliminate wastes, reduce cost,

minimize profit as an outcome of judicious utilization of economic resources. Moreover, this study also would reveal that ARA/ARM is quite helpful in examining the degree of effectiveness of internal audit when there was no prior existence of internal audit in the organization and management of the firm needs to justify its action for installation of internal audit. This study may be useful to the researchers, industry captains, internal audit and statutory audit professionals such as CAs, CMAs, CPAs as strategic business units (SBUs)[4] heads, cost center heads, profit center and investment center heads and finance and accounting professionals at large. The Private Limited Companies not covered under the ambit of Section 138 of the Companies Act, 2013 and any other organizations who are either averse in availing the service of the Internal Auditors or not aware of effectiveness of internal audit system for exercising as an efficient management control in order to prevent wastes and losses, improving productivity, profitability and ensuring economic sustainability by assessing various kinds of risks[5] an organization comes across during day to commercial operation managing the risks[6] before they could tell upon the financial health of the concerned organization.

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[4] A Strategic Business Unit in the literature of Strategic Management is a Profit Centre which concentrates on offering products, services and market segment. SBUs usually have a discrete marketing strategy and it is responsible to achieve target sales, desired profit and managing costs for ensuring competitiveness of the products and services it deals in

1.11: Tentative Outcomes

The was expected to make an investigation in objective manner in order to achieve the predetermined objectives of the study and exploring the tentative answers to the framed research questions. The findings of the study are used to recommend the practice of exercising a robust management control over the day-to-day economic activities through internal auditing system of the Private Limited Companies who are not mandated by the Companies Act, 2013 for installing an internal audit system. The study generated the arguments in favor of installation of internal audit system for any organization since it brings about improvement efficiency, productivity and profitability through reducing wastes and eliminating losses and enabling sustainability by exercising effective management control.

Section 2: Literature Review and Ascertaining the Research Gap

This section aims at offering an account of the literature survey with the criteria of inclusiveness and exclusiveness keeping in the view the mandate of the research topic. The purpose of literature survey is exploring the existing research findings and

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[5] Risk refers to the probability of loss quantifiable in financial and or economic terms

[6] Managing risks is the process of identification, evaluation and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor and control the probability or impact of undesired events and incidences or to maximize the outcomes the opportunities-Wikipedia

understand how far they are proximate to address the issues in connection with the research problem and the extent to which the existing literature are found to be redundant and hence the gap.

2.1: Literature Review

The purpose of literature review is to explore out the findings of the research conducted prior to the present study and hence the research gap in order to justify conduct of the present study under the Title of the Topic. The significance of research on auditing has drawn attention of the researchers since various corporate failure occurred (Tepalagul and Lin, 2015; Cahan and Sun, 2015). To keep peace with external audit, researchers also concentrated on internal audit. Since the 2008 financial crisis, regulatory and economic pressures are forcing organizations to do a more thorough job when conducting enterprise wise risk assessments, pursue strategic opportunities in a risk effective manner, increase the effectiveness of risk mitigation efforts and focus on a more holistic approach to risk management. Organizations are under pressure to identify all the business risks they face; social, ethical and environmental as well as financial and operational, and to explain how they manage them to an acceptable level. Internal audit could play an important role in risk management IIA (2011). There are many arguments why internal audit effectiveness remains continuously a relevant and significant issue. The role of internal audit of a company is considered important in the field

of corporate governance (Bostan & Grosu, 2010). The effectiveness of internal audit is a new research field in internal auditing (Sarens, 2009), which substantiates that only a few investigations have been carried out worldwide and several researchers have recommended the need for more studies especially in developing countries (Al-Twaijry et al., 2003, Mihret & Yismaw, 2007; Yee et al., 2008; Endaya & Hanefah, 2013). Further, on date, there is hardly any consensus among the researchers about the factors influencing effectiveness of internal auditing (Endaya &Hanefah, 2013). Effectiveness refers to the capacity to generate results that congruent and consistent with the set objectives (Arena et al., 2006. Therefore, internal control can be considered to be effective when it achieves reliability of financial reporting, efficiency and effectiveness of operations and compliance with the laws, rules and regulations. The internal control system is to provide the management with reasonable assurance that financial and cost information is accurate and reliable, the concerned firm complies with policies, plans, procedures, laws, rules and regulations and contracts, assets are safeguarded against loss and theft, embezzlement, misappropriation, frauds and liabilities are adequately disclosed and accounted for, resources are utilized economically and efficiently, predetermined objectives of the organization are accomplished (Fadzil, 2005). After setting out the objectives, next comes risk identifications that may occur during the course of attaining the

goals of the organization. Therefore, ability to identify risks assists the management to frame control measures in order to mitigate the risks (Beasley, 2007). Internal control system is very important action of enterprises operating smoothly and this is an important enabler to achieve long term strategic development for improving operating efficiency. The external audit of internal control system over financial reporting is very pathbreaking aspects of the Sarbanes-Oxley Act (SOX), 2002[7]. Financial statements audit must understand the internal control aspects of the auditee The external auditor must examine whether there is any material misstatement in the financial reports, determine the degree of effeteness of internal control audit in order to unearth and defect or incompetency of internal audit system. Internal auditing in any organization is founded on three pillars such as governance (ANAO, 2014), internal control (Monday et al., 2014) (Monday & Aladeraji, 2015) and risk management. Governance deals managing the organization, its structure, culture, policies and strategies and the ways it deals with various stakeholders of the company. Secondly, internal control or simply control

refers to the policies and procedures put in place by the management in order to promote accountability of resources. Control mechanism includes budgeting, purchase and procurements, asset and liability management, accounting for all the financial transactions in transparent manner and report the same periodically for oversight of the management and its decision-making purpose. It is important to mention that controls are in-built in financial and cost management system aiming at proper fiscal treatment, allocation of resources in judicious manner and efficient allocation of services (Asaolu et al., 2005). Again, risk management is an inseparable part of the strategic management process of any organization involved in implementing development strategies (Monday & Aladeraji, 2015). Internal audit primarily involves in assessing and monitoring the risks an organization faces, recommending measures for mitigating those assesses risks

Significance of internal audit is described as: "The globalization of economy, technological advancements, complexity of business and allegations of fraudulent financial reporting have recently sharpened the ever-increasing attention on internal control and internal auditing" (Afroze and Zohra, 2014). Some of the researchers concentrated on effectiveness of internal audit (Carcello, Hermanson and Neal, 2002; Savcuk, 2007; Sawalq & Qtish, 2012; Matari et al., 2014; Miller, 2014; George et al., 2015). Previous researchers also discussed about internal audit influence on Corporate Governance (Karagiorgos,

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[7] Sarbanes-Oxley Act, 2002 enacted by the US Federal Parliament for regulating financial reporting and auditing financial statements of the public companies. This law aims at protecting shareholders, employees and the public from fraudulent financial practices and accounting manipulations. Though it is not applicable to the private companies but the essence and spirit of internal control for exercising management control is highly relevant for obtain guidance of the Sarbanes – Oxley Act, 2002 in general

2012; Abdullah, 2014). Some also cover internal audit influence on internal control system which ultimately manipulates firm performance (Afroze and Zohra, 2014). A group of researchers concentrated on internal audit quality (Augustine, 2013; Alzeban, 2014).

Auguestine et al. (2013), report on the Central Bank of Nigeria found that effective and efficient internal control system has a prominent influential role on quality of audit work. More particularly, the researchers pointed out that internal control system has influential bearing over operation of the bank and quality of audit. The researchers recommended for exercising efficient internal control through internal audit by the management of bank. Mohamud (2013) conducted a descriptive research based on which, it was suggested that internal audit improves management control system. The researcher found positive correlation between internal audit and management control. Ljubisavljevic and Jovanovic (2011) opined that internal audit in an indispensable tool for exercising management control. This study revealed that the task of internal audit as assessing efficiency, effectiveness, economy and fairness of the performed operations, proving consultancy services to the enterprise's management and promoting effectiveness of risk management aiming at value creation and increasing commercial activities. Mastan et al. (2015) found that sufficient and appropriate resources, competent personnel, independent audit committee and internal audit charter for internal auditors are the internal audit success factors.

Again, Stewart and Subramaniam (2010) administered a comprehensive review on internal auditor's independence and objectivity and it revealed that that internal audit in any organization can assist in efficiency enhancement, minimizing wastage of resources and cost saving and enhancing resultant profitability of a firm. Due to recent financial scams, the importance of strong and robust corporate governance has been receiving a prominent room in the literature management and internal audit has been very crucial role in ensuring effective corporate governance by monitoring enterprise risks and enhancing reliability of the financial statements and financial reporting (Zohra and Huq, 2014). Again, Mihret and Gnat (2015) found that internal audit has a very significant role to play.

2.2: Research Gap

Research gap is the result of review of the research literature in the chosen domain of investigation. The forgone literature survey shows that there is a significant gap in the existing research literature. Majority of the researchers' studies emphasized on effectiveness, impacts, success factors and importance of internal audit in the context of Public Limited Companies and there has hardly been any serious study so far ever administered on effectiveness of internal audit with reference to typical Private Limited Companies by and large. The present study was undertaken to bridge the gap which justified administering the present study on M/s DMM Enterprise Pvt.

Ltd. for examining effectiveness of internal audit as a tool of exercising management control when internal audit is not formally required to be in place within the ambit of the Companies Act, 2013. General perception is that internal audit is necessary only for large sized organizations but this partially true since necessity of internal audit depends on the complexity of production and distribution system. Moreover, it acts as a lever for better performance in terms of profitability and minimizing losses and eliminating wastes of financial and physical resources. The present company is not a large sized organizations but its operation is full of complexities and hence it aims at undertesting usefulness of internal audit system for these types of organizations which beyond the purview of mandatory internal audit.

Section 3: Research Design & Methodology

This section is dedicated to offer an account of research design and methodology for conducting the study. Research Design is the building block or foundation of study and methodology deals with data, data collection process, tools and technique for data manipulation, and putting them for authenticity, reliability and validity before administering tools and techniques on them. This present study belongs to the category of action research and methodology as applicable to such research format is applicable. **Methodology is scientific process for designing the road map for conducting the study.** Given the nature of the problem, Action Research Approach

(ARA) has been adopted to examine the various dimensions of the research problem in order to ascertain the research objectives. Gonzalez and Bebbington (2001) quotes Yin (1994, p. 2) that a case study aims to explore a "contemporary phenomenon within its real-life context". Therefore, an Observational Research Method (ORM) aka ARA in order to achieving the objective of the study has been adopted. The study s of qualitative characteristics. The select firm's commercial operation and related functions were closely investigated and examined in minute details what could be the outcome in the presence of an effective internal audit system under the given backdrop of the private limited company which is not required to have an formal internal audit as others covered within the ambit Section 138 of the Campaniles Act, 2013. Primary data are used to a larger extent in the study. Data collection method includes interviews, observation and documentation at various implementation stages and archives. In addition to interviewing, the individual personnel remaining involved in the internal control whatever it is and check and balances process, various working teams are interviewed through discussion sessions and interaction during the study period and many a times online discussions and interviews with prior appointments were made due to pandemic environment. It is mentioned earlier, cross sectional data of the select firm are used in this study and observation method and qualitative analysis have been used for interpretation of the results.

Section 4: Existing Management Control System in the Select Firm

M/s DMM Enterprise Pvt Ltd. Functions with the support of senior management and the board level executives and personnel remaining in the payroll who make evaluation of financial, operational and control   functions in accordance with the tasks allocated and assigned by the management. They take care of transaction recording, accounting for assets etc. Only statutory financial audit is performed but other in the names of periodic appraisal reports on cost and financial planning, GST complacence handling and other statutory compliances were handled by in-house personnel. The Agency Theory is observed to have been practiced in letter and spirit and performance of the firm depends on the competency of the hired managers. The promoter of the company manages the day-to-day affairs in much close ended conservative ways.

4.1: Administering Investigation   for Examining   Effectiveness of Internal Audit System

Internal auditors play a vital role in ensuring that an organization is efficiently run, morally sound, technologically advanced, cognizant of the environment and other areas of concern, and safe from unnecessary risk (Institute of Internal Auditors, 2000). The Managers and Staff of M/S DMM Enterprise Pvt. Ltd performs several tasks as mentioned in Section 4, like purchase and procurement bill checking, salary sheet verification, tour and travel bills verification, oil and gas consumption bill checking, repairs and maintenance bills, budget establishing and monitoring and expenditure control, capitalization of expenditures, sales invoice, return inward and outward registers, post audit ledger posting, physical inventory verification and valuation, advertising and sales promotional expenses bill checking, statutory   compliances,   organizational policies and procedures, depreciation accounting verification, fixed assets verification, mobile phone bill verification, improving organizational performance, risk management, etc. By systematically showing whether these are significant for the company, it will be able to draw an inference about relevance and effectiveness of internal audit in the select firm and more generally in a private limited company. The examination and verification of the books of accounts, statutory auditors' observations, income tax returns files and other compliance records were verified for the period 2016-2021.

Section 5: Analyses and Discussion:

This   section is devoted to   incorporate the analyses and discussion on the study administered in order to assess the organizational efficiency based on the examination and verification of assts and liabilities and existing internal control system as the part of the action research approach on the commercial operations of M/S DMM Enterprise Private Ltd. Following items for the investigation period form the part of action research study

keeping in view the scope of the study and spirit of the Actions Research Model

5.1: Detection of Frauds and Errors

The importance of good corporate governance has received significant public and regulatory attention after enactment of the Sarbanes-Oxley Act, 2002 in the United States of America. This law mandates reforms to improve financial disclosures and prevention of accounting frauds. It covers the issues relating to independence of auditors, corporate governance, internal control and other allied measures. A crucial part of an entity's corporate governance is its internal audit function. In association with this, there has also been significant public concern about the level of fraud crept in within the organizations. This study aims at examining how internal audit functions are more likely to detect frauds.

5.1.1: Purchase and Procurement Verification:

Purchase and procurement process of the select firm is in place and the process from initiation to conclusion appears some like that the personnel responsible for recommending release of payment based on the invoice and purchase orders. But eventually, it was observed that there was glaring laps in the procurement and payment making process and as a matter of fact the company was suffering from due profitability. Purchase was made always on ad-hoc basis and there was hardly any no robust purchase and procurement system in the organization. The departmental personnel have never observed to make the use of Purchase Order, Invoice and Goods Received Notes (GRN) as there was No proper inspection staff who is to certify that the goods received are in good condition, as per the specifications and standard it aligns with the work order or paperchase order placed with the suppliers. The concerned procurement department was not found to be exposed to commercially expedient purchase process and procedures. The procurement process should have started with placing purchase requisition and making it move though scientific track leading to securing approval, next stage is meant for Quotation Collection or issuing Notice Inviting Tenders (NIT), next comes comparative statement preparation, verification/checking of the same leading to comparative statement's approval stage and finally the journey should conclude in placing purchase orders. Consequently, next stage entails goods delivered, leading to inspection and finally taking to the goods to the stores or go- down. Now payment needs to be released depending on the terms and conditions of the NIT or Quotations when it is a must to cross verify the Invoice raised by the suppliers in conjunction with Purchase Order and GRN and finally getting approval for payment and preparation cheque and handing over the same to the suppliers after taking receipt /signature in the payment register. Internal audit has to ensure that there was neither over payment nor under payment but everything is as per the purchase and procurement policy and procedure of the organizations. It is

observed that the company does not have any scientific system as a result it was not enjoying any discount benefits, benefits of negotiations even from the lowest tenders or lowest quotation supper and the firm is found to be a victim of glaring chance of misappropriation because of collusion among the infra-departmental and interdepartmental staff. Since the company is mostly engaged in trading so substantial cash outflow is made on paying the suppliers.

5.1.2: Tour & Travel Expenses Verification:

I t was studied that the existing system is to release tour and travel advance in favor of the staff ordered to be on official tour and travel and the advances left unadjusted for indefinite period of time and the same was hardly was having final settlement not even at the end of the Financial Year. In many cases, one year advance was carried forward to the next years and there were cases when an employee has been allowed to take multiple advances without submitting and settling the previous advances. In most of the cases, tours and travel advances are sanctioned by the appropriate authority at the eleventh hour and it is the tendency of the staff to apply for more amount than the reasonable amount required for a particular official tour. Statutory Financial Auditor qualifies the report that a huge amount of money has been left unadjusted and as a consequence, the company has been subject to bearing unnecessary pressure on working capital and additional interest for fund remaining locked up in the hands of staff. Moreover,

there is no systematic process to issue show cause notices for non-submission of tour accounts or delayed submission. If this area is regularly audited to arrested chaos by an independent internal auditor, it will certainly improve short term liquidity of the company. Moreover, the responsible employee has been found to be biased to recommend for any measures again his or her colleagues even sometime the glaring laps are transpired. Moreover, many cases of unauthorized and reimbursement of non-entitled amount were paid and adjusted as the case may be. Many cases were observed to have been sanctioned not by appropriate recommending nor by sanctioning authorities. Many occasions were observed not to have post-facto sanction of the approving authority when a tour and travel was undertaken on any emergency or demand of a contingency. Many cases were observed to have lack of clarity about the purpose of the tour, period, timely n that budget was hardly kept in view while sanctioning the amount on-submission of tour report and the follow up action. Moreover, it was overserved and financial control over the expenditure was hardly exercised.

5.1.3; Advertising and Sales Promotional Overhead Verification

It is one of the liberal areas of committing expenses for achieving the sales target as per the annual business plan as operating revenue is lifeline of business. Sales is the only window through revenue enters (Peter F Drucker, the Practice of Management,

1954) into the organization. There are various impaneled advertising agencies and the terms and conditions need to be vetted by expert and renewal or abandoning should be based on the performance of the agents in terms sales volume. Similarly, commissions and other performance linked incentives to the sales force and marketing personnel need to be verified not by the internal and inter-departmental staff as it is sometimes difficult to make impartial and unbiased evaluation. It has been observed that the one advertising or a certain advertising agency are issued work orders without making any considered evaluation and the firm never avail the benefit of the competitive markets. In most of the cases, the concerned employee just certified subjectively that the performance of a particular advertising agency is satisfactory and hence it is recommended for renewal of contract. To be specific, while having access to records of the firm, it was observed that there was lot of irregular practices in the process of selection and appointments of advertising agencies and undue incentives were released to fellow staff and this practice has been continuing for a long period of time as statutory financial auditor could hardly scan the transactions and veracity because of the limited scope of statutory Financial Audit which is just based on test checking but internal audit if it is in place is to periodically submit internal audit reports to the board and laps of one quarter can invariably be recouped in the next quarter if it to conduct quarterly internal audit

and certainly before the end of financial year but before the arrival of statutory financial auditor who can audit the Annual Accounts based on the degree assurance reflected in the reports of the internal auditor . The technique of incremental cost and incremental revenue was never applied in order to justify the budget allocation on advertising, sales and distribution overhead. This is a cardinal principle to justify budget allocation when incremental revenue is greater than incremental sales promotional cost.

5.1.4: Employment Cost Verification

Monthly salary sheet is prepared by the HR Manager and this is subject to many statutory deductions, recovery, adjustments and filing of reruns to the appropriate authorities. If it is not administered as per the norms, it attracts, fine, penalty, interest and even imprisonment depending on degree and nature violation. It has been seen that the firm is subject to violation of laws Income Tax Laws, Goods and Service Tax Laws , Provident Fund Laws, Gratuity Norms, Leave encashment irregularities, Leave Sanction and unauthorized Leaves, wrong increments, clearance of probationary period, and allied matters as these were seen to have been handled in most of the occasions out of the reactive measures when it accidentally came to the notice of the management by statutory financial auditor as the top management normally does not have access to this kind of routine affairs of the Company. It has

also been observed that the firm has been subject to many litigations on employment related issues. Compliance cost has been observed to be very high. It is also seen that attrition rate is quite high compared to the same type of industries. The training and development cost was not controlled... Some departments are found to overstaffed and the reverse picture in some departments. Management of the organization was not provided any significant report on value added per employee or productivity report, input-output analysis has hardly been the practice of the firm. Loss of productive hours due to abnormal idle time is very rampant. Labor variance report hardly generated. Moreover, incentive, bonus, ex-gratia etc. policy was not observed to be in place. Internal control on efficiency increase, raising productivity and panning and control over training development was altogether found to be non-existent.

5.1.5: Petrol, Fuel and Gas Expenses Versification

It has been observed that reimbursement is given without adhering to entitlement, verifying the logbook, without taking into account of the previous reading etc. There was lot of irregularities and the statutory financial auditor hardly verify comprehensively these areas and statutory financial auditor examines books of accounts and allied records on the basis of test check. The company has a pool car for communing of certain employees and repairs and maintenance cost was seen to

be uncollected and capital expenditure has been booked under revenue expenses and the reverse which shows gross violation of application of Generally Accounting Principles (GAP) in preparing the financial statements. Log-books are not maintained regularly. There is mismatch between the distance travelled and consumption of fuel. There is arbitrary purchase of fuel in absence any scientific policy. The fuel dealers are selected based on personal biasedness and no based-on t quotation or tender. As a consequence, fuel and gas is bought not on competitive market rates but the certain degree collusion between the transport officer and the suppliers is not ruled out. Needless to say, budgeting and budgetary control over the fuel expenses was not in place in the organization.

5.1.6: Physical Inventory Verification and Valuation

The Statutory Financial Auditor hardly see the valuation though they have been observed to have conducted physical verification and they report that facts and figure with regard to the stores and inventory value is certified and furnished by the management. This is a very sensitive area and vulnerable to risk and consequently, it is hardly possible to know whether there is any under purchases, over purchases, movement of inventory and its turnover and treatment of discrepancies. Inventory is subject to carrying cost, ordering cost, stock out cost, and it has eclipsing effect on the financial health of the firm. This is area is highly vulnerable to the risks

of liquidity, profitability and working capital impact. In a physical inventory valuation and verification process, it was observed that 100 bags of cement and 01 ton of steel are not found physically though they are very much reflected in the records of the company. On examination, on conducting verification of all the voucher, bill and other supporting documents, it was clearly observed no authentic document about where these materials were issued to or where they take to. Therefore, It is case of a sheer negligence or any purposeful defrauding transaction made by the concerned staff. There was no annual or periodic stock taking in order to find out the discrepancies in inventory management system and this is just a hint about laxity on the part of effectiveness of the existing internal control system. The involved staff are sure that this kind discrepancies shall never be transpired and no responsibility could be fixed up in absence of a foolproof system as the management of the company has been persistently averse to internal audit. There is no system of generating inventory consumption reports and price variance reports. The purchases were not made competitive prices, no panel of suppliers and suppliers of proprietary items is maintained by the firm. It has hardly any record of availing discount from the suppliers. Inventory movement is known to be ascertained on thumb rule and not scientific method such as inventory turnover ratio. Similarly, the EOQ, Inventory levels such as ordering level, maximum level,

minimum level, danger level, impact of overstocking and stockout are not taken into consideration for exercising control over inventory. It has been observed that inventory carrying cost is abnormally high as such non-moving items and slow-moving items create adverse impact on cost efficiency and hence profitability of the firm. Further, both the inbound and outbound logistics systems is very inefficient whose impact is on not timely delivery of goods to the customers. Even there is loss of revenue because many customers terminated the business relations with the company. Further, poor inventory management puts lot of pressure on working capital in one hand and interest burden due to inefficient management of working capital. The operating cycle length is opaque. Material purchase budget is hardly monitored and periodic variance reports are observed to be occasionally generated.

5.1.7: Watch and Security Deployment Cost Verification

This is important area of commitment of expenditure. It has been observed that the Company has only one Security Manager and an Assistant Security Manager on permanent payroll of the Company and 30 Nos of Security Personnel have outsourced from a Security Service Agency. Securities are deployed on shift duty roster and 10 Nos Security Personnel are deployed on each shift of eight hours. Firstly, the present security service providing agency has been on contract for 3 Years form beginning

and among the terms and conditions, yearly 10% increase in the gross payment subject to   performance evaluation by the Manager and other two Senior Staff not below the rank of   Chief Manager and Manager from another Department. The Chief Manager ranked Official from other Department is mandated to be the Chairman of the Performance Evaluation Committee. It has been observed that for last 10 years, no performance evaluation has been administered by Security Manager. However, he used to submit a report to the HR Manager   on the basis a fake performance evaluation committee report based on which the renewal of the contract used to be recommended. On physical verification as a part of the action research, it was observed that actual strength of security personnel were 18 Nos instead 30 Nos but the bill was raised for 30 Nos of security personnel. The performance appraisal report had   regularly been submitted to   Human Resource Manager on the basis of 18Nos of actual figure and 12 Nos of Security personnel were none but the 'ghost security personnel'. The attendance of the securities used to be taken by the   Assistant Security Manager and the same was authenticated by Security Manager before submitting the HR Section for certifying   release of payment.

5.1.8: Capital Budgeting and Capital Expenditure Verification

The select firm has been examined not to have any robust policy for capital expenditure for replacement of the air-conditioning machines, electrical and electronic appliances and gadgets. computer systems, investment for branding, replacement of flock of carriage inward and outward vans and matadors, expenditure budgets for advertisement hording, research and development budgeting system, etc. There is no systematic accounting of depreciation accounting and consequently it   could not enjoy the benefits allowed by the Income Tax Act, 1961.

5.1.9: Absence of Manpower Budget and Verification of Personnel Records:

During the course of on spot investigation, it was observed that the company does not have manpower planning system and the organization functions on   horizontal reporting system. Most of the employees are multitaskers and   hardly equipped with domain specific and specialized knowledge. Majority of the employees are used to the   practice the philosophy of 'learning by doing' which make them efficient   in discharging   programmed   and   routine functions and the company has to outsource for any non-programmed and non-routine problem solving. As a consequence, cost of production does not make the products and services competitive in the market.

5.1.10: Post Audit Carry Forward   of Balance Sheet Transactions   Verification

While making verification of the Ledger for finding out correctness in positing from the subsidiary books of accounts to the Ledger, it has been conducted   in conjunction with

Journals, Cash Book , Sales/Purchase Day Books, Stock and Stores Registers, Bank Reconciliation Statements, Journal Proper, Capitalization Approval, Fixed Assets Register, Cash Verification, Verification of Digital Transactions etc.it has been observed that there are lot of incongruities and internal staff are bogged down with their day to assignments. It is mentionable all the expired costs are charged to the Profit and Loss Account for the financial yearn normally ends on 31st march and the balances of the unexpired costs, assets and liabilities, shareholders' equity etc. are transferred from end of one financial year to the commencement of next financial year through the transfer accounting entry and errors of omission and commission may have impact on the financial position and more particularly anomaly in fun flow statement may arise. The financial statements are to be prepared on the basis of the Generally Accepted Accounting Principles (GAAPs), Accounting Standards, IFRS and other allied guidelines remaining in in place. It is important to mention that checking and verification of the correctness or otherwise should not be done by the same persons who initiate and prepare the documents and conclude a transaction. Internal audit is the system audit and it aims at unearthing any financial irregularities, operational weakness, leakage in revenue generation process and detecting frauds and errors on a continuous basis and it creates scope to adopt corrective measures within the financial years itself and before arrival of

the statutory financial auditors, performance of the auditee shall not suffer. Many a time, understatement of assets, over statement of liabilities, understatement of revenue and overstatement of expenses are used as process of defrauding the fiscal authorities and this kind of material manipulations in books of accounts were administered by Ramalingam Raju, CEO of Satyam Computers in 2009-2010 and he siphoned the financial resources from Satyam Computers, the Flagship Organizations to the fictitious entities and fake transactions. The results of the action research reveals that internal audit can detect frauds and errors much earlier than the arrival of the statutory financial auditor (practicing CAs), Salutatory cost auditors (practicing (CMAs) and salutatory secretarial auditor (practicing CSs) and it supplements and strengthens assurance level given by the statutory auditors.

5.1.11: Miscellaneous Records Verification

While undertaking internal audit of the miscellaneous items such as Debit Notes, Credit Notes, Bill of Exchange, Income Tax Returns under Section 139(1) of the Income Tax Act, 1961, TDS from Staff under Section 192 of the Income Tax Act.1961 compliance by the Drawing and Disbursing Officer , Statutory Compliance for Provident Fund, Gratuity, Staff Reimbursement etc. it has been observed that there are lot of inconsistency and incongruity in compliance handling and because of this, the firm shall be subject

to statutory penalties and fines to the extent of a greater magnitude which were not provided in the Accounts and these not allowable expenses under the fiscal acts, rules and regulations and it entails drainage of financial resources for no financial benefits. As consequence, the firm under reference may face a substantial liquidity crisis. Moreover, due to untimely, irregular and sometimes noncompliance is likely to contribute evidence laps and laxity in corporate governance.

5.2: Improving Organizational Efficiency and Performance:

Internal audit has been identified to be an effective mechanism for bringing about improvement in the operational performance by helping in productivity increase of the factor of production and profitability of the firm. Internal audit by an independent auditor assures conformity of the organizational policies formulated and implemented in the systematic manner and pointing out the gap between the two. The purpose of the review of the internal auditing of M/S DMM Enterprise Pvt Ltd. is to ascertain whether the established system provides reasonable assurance that the organization's objectives and goals will be achieved efficiently and economically. The internal control whatever in place has failed to be effective in safeguarding the assets of the firm and the concerned company has been suffering from liquidity, profitability and long term sustainability.

6. Findings, Suggestions and Conclusion

This is the concluding section devoted to present how the Objectives of the Study have been achieved and the result of qualitative hypothesis testing and the same are presented below.

6.1: Effectiveness of Internal Audit as a Tool for Management Control System

The study based on the commercial operations of M/S DMM Enterprise Ltd revealed that internal audit is relevant and enabler of efficient functioning of Private Limited Companies which are not covered under Section 138 of the Companies Act, 2013. The comprehensive literature review revealed that an organization having no or hardly any significant compliance requirements should volunteer to avail internal audit as it is an effective tool for exercising management control over the economic and commercial activities of that organization in general and the Private Limited Companies not mandated by the Companies Act, 2013 in particular.

6.2: Early Detection of Frauds and Errors

The analyses revealed that frauds and error detection at early stage is possible when a robust internal audit system is in place and internal auditor is equipped with independence, professional competence and objectivity. Risk management, improving operational performance of the firm, upgrading quality of management control system are some other factors that make internal audit relevant for a closely held company.

6.3 Enterprise Risk Management

Over the last one decade, particularly, after enactment of the Companies Act, 2013, importance of strong corporate governance for managing enterprise's risk has prominently been acknowledged. Companies are under pressure to identify all the business risks and specifically, they come across financial, operational, commercial, legal, technological, political, economic, social, ethical, and environmental risks and to explain how they manage and mitigate them to the extent of an acceptable level. Therefore, in order to achieve its objectives, each company has to develop and implement an approach to assessing and managing the uncertainties and opportunities it faces in the pursuit of its business strategy. Internal audit helps company to manage these sorts of risk.

6.3.1: Risk Assessment Criteria

A five-point scale was used for the purpose of quantifying risk impact as quantification is indispensable for control purpose. To quote Peter F. Drucker, 'We cannot control what we cannot measure'. Quantification is risk is the fundamental to risk mitigation. Risk measurement scale is of 5 points and it looks as such High risk-5, Moderate Risk-4, Medium risk-3, Lower Medium-2 and finally Low risk when an item is subject to 1 point in the 5-point scale. When any item audited falls in between 4.1-5 range, it is considered to be unsatisfactory and auditor recommends taking immediate action. Secondly, when overall departmental risk surrogate becomes 4.1- 5.0, it is considered to be unsatisfactory for the department as a whole . The firm sets some criteria to measure the degree of fraud or error identified. To cite an example, in a physical inventory verification and valuation under reference, internal auditor gets say 500 hundred bags of cement missing. Internal auditor assigns it 4.2 which indicates unsatisfactory.

6.4: Evaluating Effectiveness of Internal Control System

Reviewing and evaluating the degree of adequacy and effectiveness of an organization's internal control system in carrying out assigned responsibilities is representative of several core tasks forming internal audit work. The main objective of the action research administered on the select firm aims at ascertaining whether likely to be installed internal audit system could offer reasonable degree of assurance that the firm will be in a position to achieve its short term as well long term target or goal in terms of Efficiency, Effectiveness and Economy(Peter F Drucker, the Practice of Management, 1954) While evaluating degree of effectiveness of management control system in terms of administering internal audit, Measurement Remarks Length (Point) 1 - 2 Good 2 - 3 Satisfactory 3 - 4 Needs Improvement 4 - 5 and 5> is adverse and immediate action for bringing about normalcy.

6.5: Determinants of Effectiveness of Internal Audit System

The study revealed the degree of persistence absence of support and patronage of the top management, internal audit department's independence, professional competence of the internal auditor(s), cooperation from intra and inter-departmental personnel and training and development, experience, quality of internal audit, professional ethics, objectivity and enterprise risk assessment expertise are the major factors that played significant roles in making the select firm suffer loss to a glaring extent. Independence of interna audit system is of paramount importance in making internal audit effective (CIPFA[8], 2006; Ali et al., 2007; Kuta, 2008, Rahmatika, 2014). The independence can only be said to be in place only when the internal audit department or the appointed internal auditor and its team is allowed to perform the functions of the internal auditor in an environment free from interference, avoiding conflict of interest, having direct reporting to the board and senior management. The select firm has been observed not to have any serious understanding about the role of internal auditor. Internal audit is an operational audit by nature aiming at saving the resources of the organization provided

recommendations are timely implemented. The internal auditor must be technology savvy and well equipped with the systems audit plans, systems security audit and procedural techniques. Arithmetical testing is no longer relevant and meaningful. The cause -effect phenomenon needs to be focused and the risk assessment and recommendation for mitigating the assessed risks is the primary responsibility of internal auditor. Besides, the policy and procedural aspects for bringing about improvement in efficiency economy and effectiveness of the internal audit systems needs to be addressed. Moreover, there was no trained, skilled and dedicated officers and staff for periodic verification in order to arrest the inevitable frauds and errors that crept into system in absence of scientific check and balances. The dependent variable is effectiveness of internal audit (EIA) and the independent variables such as professional competence (PC), objectivity(O), examination methods (EM), management unconditional support (MUS), quality of audit work and reporting system (QARS).and the factor other than those mentioned is error term (€) and a regression model can be developed for arriving at the conclusion of precision. Therefore, EIA is the function of all the independent variables as mentioned above and this is the result of the action research administered in the select firm. This is based on the Action Research Approach i.e.; observational result and a regression model can be developed on basis of the results derived out of the of action research criteria.

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[8] CIPFA is the Chartered Institute of Public Finance and Accountancy, London, United Kingdom, one of the leading Chartered Accountancy Bodies in the United Kingdom. It is specialized in Public Financial Management and public Accountancy and Audit.

6.6: Policy Issues

The findings emanating from the study are of valid policy issues implications bearing over the commercial activities and financial state of affairs of the organization. The following factors may contribute to make IA more relevant, effective and successful in achieving internal audit objectives:

Top management should support and patronize in establishing internal auditing system and facilitate it to act with professional independence. internal auditor shall be accountable and reporting to the board. An independent firm of chartered accountants (CAs) or cost & management accountants (CMAs) should be appointed in order to get of the benefits of internal audit system. The cost for installation of internal audit services is quite low than benefits as it is evident form the study. These suggestions, if implemented appropriately, might lead to a situation which will make internal audit trustworthy and effective in assuring efficient management of resources and ensuring flawless governance of the organization. Further, the US Model under the Sarbanes-Oxley (SOX) Act, 2002. This Act mandates for introducing self-assessment for effectiveness of internal control system and the is required to get examined by practicing qualified accountant and this applicable to the listed companies. Further, the companies attributed with high investment value must have robust internal control mechanism in order to ensure business performance consistently. Further, Quality of internal audit and clarity in reporting to the Board in transparent manner is important to be kept in view while taking decision for hiring the services of the Professional Accountants. To be specific, the comprehensive literature survey presents that an internal audit to be signified as the most effective tool must take care of examining, how the management control commercial environment, risk management methodology in place and degree of efficiency in exercising supervision on the commercial happenings in the organization. The management should consider to install the internal audit system and more particular, budgeting as means of financial planning and control for both revenue expenses and capital expenditures and particularly functional budgeting system, cost information and management reporting system, risk management methodology, productivity measurement though input-out analysis, cash flow management and effective treasury functions keeping in view the necessity of short term and long term fiancé , manpower planning, profit planning, segment performance evaluation techniques etc. are some of the prioritized policies need to be formulated, implemented, monitor and periodic review in order to eliminate losses and rescuing wastes on account of appraisal cost, prevention costs, internal failures and external failure costs for enhancing competitiveness and ensuring sustainability for which cost

leadership, product differentiation and focus are the strategies recommended for M/s DMM Enterprise Pvt. Ltd.

6.6: Limitations and Future Direction

Finally, the recommendations are based on only one Private Limited Company and it is subject to inherent limitations which is likely to restrict the results to be generalized for other Private Limited Companies since the size, context, culture, legacy etc. are the important variables by which one company may be different from other? Further research may be administrated taking into consideration the limitations and the variables not considered in this study. Moreover, the research problem may be examined with help of more robust inferential and descriptive statistical tools and techniques. The future researcher may conduct an empirical study based on the theoretical construct as mentioned above in order to develop a robust model for ascertaining the degree of effectiveness of internal audit system and its contribution to exercising management control over the day to day operations of the business whose objective would be to recommend for installation of cost and monument accounting system and generation of relevant, meaningful and significant information for the management, establish a planning and control system, periodic report on income, cost, productivity and profitability product wise, customer wise, strategic business unit wise, margin of safety, contribution analysis, profit planning and expenditure control, capital budgeting and appraisal, cashflow analysis and ascertain working capital requirements and efficient and economic mode financing, reporting on robust treasury management so that abnormal cash volume is not left idle but to invest through portfolio building keeping in view the short term and long term liquidity and solvency of the firm. Risk-return tradeoff is another important function of internal audit system. The internal audit reports as per the predetermined frequencies are to be submitted to the management for its review and timely actions for arresting deficiency and discrepancies in order to avert the adverse financial implications on the organization. The internal audit team needs to have periodic meeting with the management after classifying its observations such as routine observations, critical observations and the most critical observations and after implementation of the corrective measures by the management, follow up action by the internal auditor is a must in order to ascertain the degree of success in its approach to bringing about overall improvement in the system of governance of the organization. The result of the study can be used as the road map for installing an internal audit system even when it is not mandatory but it acts as the control system of a car which makes the driver reach the destination. The control system of an automobile consists of the steering,

clutch, brake, accelerator and gear and the driver cannot afford to ignore any of them in order to avert accident and timely and safely reaching the destination. CEO is the driver and the automobile is the organization and effective internal audit is the management control system and it makes an organization achieve its objectives and sustainability. is not free from inherent limitation of Action Research Approach.

References

1. Adams, M. B. (1994), 'Agency theory and the internal audit, Managerial Auditing Journal, Vol. 9, No. 8, pp 8-12

2. Afroze, S & Zohra, F.T 2014 'Impact of internal control on the extent of audit procedures: Evidence from the banking sector of Bangladesh', The Cost and Management, Vol. 42, No. 1, pp. 4-17.

3. Ali, B. O., (2018), Factors influencing the effectiveness of internal audit on organizational performance, International Journal of Advanced Engineering, Management and Science, Vol No. 4, pp 220-226

4. Ali, Saidin, Sahdan, Rasit, Rahim & Gloeck, (2012) Internal Audit in the Federal Government Organizations of Malaysia; The good, the bad and the very ugly? Asian Journal of Business and Governance, Vol 11, pp. 125-1382

5. Allegrini, M., D'Onza, G., Paspe, I., Melville, R., & Saren, G. (2006), The European literature review on internal auditing, Managerial Auditing Journal, Vol. 21, No. 5, pp 845-853

6. Al-Twaijry, A. A. M., Brierly, J. A., & Gwilliam, D. R. (2003), The development of internal audit in Saudi Arabia: An institutional theory perspective, Crtical Perspective on Accounting, Vol. 14 No. 5, pp 507-531

7. Alzeban, A 2014, The impact of culture on the quality of internal audit: An empirical study, Journal of Accounting, Auditing & Finance, Vol. 30, No.1, pp 57-77.

8. ANAO (2014), Better Practice Guide-Public Sector Governance: Strengthening Performance Through Good Governance. Canberra, Australian National Audit Office

9. Arena, M., & Azzone, G. (2009), Identifying organizational drivers of internal audit effectiveness, International Journal of Auditing, Vol 13, No. 1, pp 43-60

10. Augustine, O, Enofe, Mgbame, C, Sadiq, O, A & Okungbowa, F.A 2013, Internal control system and quality audit work', Research Journal of Finance and Accounting, Vol.4, No.13, pp. 100-105.

11. Asare, T. (2009) Internal Auditing in Public Sector: Promoting Good Governance and Performance Improvement, International Journal of

Governmental Financial Management, Vol. 3 No 1, 14-27

12. Asaolu, T. O., Oyesanmi O., Oladele, P. O., & Oladoyin, A. M. (2005), Privatization and Commercialization in Nigeria: Implications and Prospects for Good Governance., South African Journal of Business Management, Vol. 36 No. 3, pp.65-74

13. Badara, M. S & Saidin, S.Z 2013 'The status of internal audit at local government level in Nigeria', Journal of Social and Development Sciences, Vol. 4, No. 1, pp. 16-23.

14. Baheri, M S., & Saidin, S, Z. (2013), Antecedents of internal audit effectiveness: A moderating effect of effective audit committee at local government level in Nigeria. International Journal of Finance and Accounting, 2(2), 82-88

15. Baheri, J., & Sudarmanto., & Wekk, I. S. (2017). The effect of management support to effectiveness of internal audit for public universities, Journal of Engineering and Applied Sciences, Vol. 12., No. 7, pp1696-1700

16. Cahan, S. F & Sun, J 2015 'The effect of audit experience on audit fees and audit quality', Journal of Accounting, Auditing & Finance, Vol. 30, No.1, pp. 78-100

17. Carcello, J. V, Hermanson, D.R &

Neal, T.L 2002 'Disclosures in audit committee charters and reports', Accounting Horizons, Vol. 16, No. 4, pp. 291-304.

18. CIPFA (2006)., Code of Practice for Internal Audit in Local Government in the United Kingdom, London: The Chartered Institute of Public Finance and Accountancy.

19. George, D, Theofanis, K & Konstantinos, A 2015 'Factors associated with internal audit effectiveness: Evidence from Greece', Journal of Accounting and Taxation, Vol. 7, No. 7, pp. 113-122.

20. Cohen, A., & Sayag, G (2010), The effectiveness of internal auditing: An emirical examination of its determinants, in Israeli Organization, Australian Accounting Review, Vo. 20, No. 3, pp 296-307

21. Dellai, H., Ali, M., & Omri, B. (2016). Factors affecting the internal audit effectiveness in Tunisian Organizations, Research Journal of Finance & Accounting, Vol.16, No. 7, pp 222-247

22. Fadzil, F. H., Haron, H., & Jantan, M. (2005). Internal auditing practices and internal control system, Managerial Auditing Journal, Vol. 20, No. 8, pp 844-866

23. Gonzalez, C. L & Bebbington, J 2001 'Accounting change or institutional appropriation? -A case study of the

implementation of environmental accounting', Critical Perspectives on Accounting, Vol. 12, No. 3, pp. 269-292.

24. Haron, H., Chambers, A., Ramsi, R. & Ismail, I. (2004), The reliance of external auditors on internal auditors', Managerial Auditing Journal, Vol. 19, No. 9, pp 1148-1159

25. Institute of Internal Auditors (IIA) (2003). 'Internal Auditing: History, Evolution, and Prospects'. Institute of Internal Auditors Research Foundation (IIARF) March 2011.

26. Karagiorgos, Gotzamanis, E & Tampakoudis, I (2010) Internal auditing as an effective tool for corporate governance', Journals of Business Management, Vol. 2, No. 1, pp. 15-23.

27. IIA. (2004) An Internal Auditing, bout internal auditing, Institute of Internal Auditors, retrieved June, 2021, from http://www.global.theiia.org/about/about-internal auditing /pages/About -Internal-Auditing.aspx

28. Ljubisavljevic, S & Jovanovic, D 2011 'Empirical research on the internal audit position of companies in Serbia', Ekonomski anali, Vol. 56, No.191, pp. 123-141.

29. The effectiveness of internal audit in improving organizational performance: Case study of Wollo University, Ethiopia', Indian Journal of Applied Research, Vol. 5, No. 7, pp. 547-550.

30. Matari, E. M. A, Swidi, A. K. A, Fadzil, F. H. B 2014, 'The effect of the internal audit and firm performance: A proposed research framework', International Review of Management and Marketing, Vol. 4, No. 1, pp.34-41

31. Mastan, D. P. F, Gmeda, H, Rajeswari, P & Muhammed, S 2015, 'the effectiveness of internal audit in improving organizational performance: Case Study of Wollo University, Ethiopia'. Indian Journal of Applied Research, Vol. 5, No.7, pp. 547-550

32. Matari, E. M. A, Swidi, A. K. A, Fadzil, F. H. B 2014,' the Internal Audit and firm performance: A Proposed research framework, International Review of Management and Marketing, Vol. 4, No.1, pp. 34-41

33. Matari, E. M. A, Swidi, A. K. A, Fadzil, F. H. B, 2014, 'Audit committee characteristics and executive committee characteristics and firm performance in Oman: Empirical study' Asian Social Science, Vol. 10, No.12.

34. Mihret, D. G., & Woldeyohannis, G, (2008). Value -added role of internal audit: An Ethiopian case study. Managerial Auditing Journal, Vol. 23, No. 6, pp 567-595

35. Mohamud, H. A 2013 'Internal auditing

practices and internal control system in Somali remittance firms', International Journal of Business and Social Science, Vol. 4 No. 4, pp. 165- 172.

36. Monday, J. U., In, V. O, G. H., & Ojo V. O. (2014), Effect of Internal Control on Operating Performance of Small Business in Lagos Metropolis, Proceeding of the International Conference on Accounting, Finance and Management, 2, 237-256

37. Moday, J. U., & Aladeraji, O.K. (2015), Strategic Management and Corporate Performance: A Resource – Based-Approach, Ife Journal of Humanities and Social Sciences, Vol. 2, No. 2, pp. 15-35

38. Saha, A. K & Arifuzzaman, S.M 2011 'Management disclosures on internal control in annual reports- A study on banking sector: Bangladesh perspective', International Journal of Economics and Finance, Vol. 3, No.5, pp. 216-222.

39. Saidin, S. Z, 2014 'Does reliance on internal auditors' work reduced the external audit cost and external audit work?', Procedia - Social and Behavioral Sciences, Vol. 164, pp. 641-646.

40. Sarens, G., & De, Beeide, I (2006). The relationship between internal audit and senior management: A qualitative analysis of expectations and perceptions, International Journal of Auditing, Vol. No. 10, No. 3, pp 219-241

41. Sarkar, J. B, Hossain, S.M & Islam, M.S 2009, 'Impact of internal audit and audit committee characteristics on external audit fees: A case study of banks in Bangladesh', ASA University Review, Vol. 3 No. 2, pp. 171- 185.

42. Savcuk, O 2007 'Internal audit efficiency evaluation principles', Journal of Business Economics and Management, Vol. VIII, No. 4, pp. 275-284.

43. Sawalqa, F. A & Qtish, A 2012 'Internal control and audit program effectiveness: Empirical evidence from Jordan', International Business Research, Vol. 5, No. 9, pp. 128-137.

44. Stewart, J & Subramaniam, N 2010 'Internal audit independence and objectivity: emerging research opportunities", Managerial Auditing Journal, Vol. 25, No. 4, pp. 328-360.

45. Suleiman, D. M & Dandago, K. I 2014 'The extent of internal audit functions outsourcing by Nigerian deposit money banks', Procedia - Social and Behavioral Sciences, Vol. 164, pp. 222-229.

46. Sun, Y 2015 'Internal control weakness disclosure and firm investment', Journal of Accounting, Auditing & Finance, Vol. 31, No. 2, pp.277-307.

47. T, Drogalas, G, (2014) Internal Auditor's Role in Risk Management, Journal of Business Management, Vol. 6, No. 7, pp 37-45

48. Tepalagul, N. & Lin, L 2014, 'Auditor independence and audit quality: A literature review', Journal of Accounting, Auditing & Finance, Vol. 30, No.1, pp. 101-121.

49. Yee, C. S. I., Sujan, A., James, K. K. & Leung, J. K.S., (2008), Perceptions of Singaporean internal audit, Journal of Business & Accounting, Vol. 1, No. 2, pp 147-174

50. Zohra, F.T. & Huq, U.R 2014, 'The effects of internal audit report disclosure on investor confidence and decisions', Journal of Business Studies, Vol. 35, No. 2, pp. 131-150.

Financial Literacy Among Working Women – A Study in West Bengal

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Abstract:

Behavioral Finance is the topic of discussion in today's world of uncertainty and irrational decision making among investors. The objective of the paper is to examine whether financial and savings-borrowing literacy affects the investment decision among working class of women of West Bengal. For the purpose of study, the data has been collected from 635 respondents with the help of a structured questionnaire using convenience sampling technique. The collected data were analyzed through SPSS package by using different statistical tools. This research points out that financial and saving literacy plays a very important role in the investment decision making. Significant difference was observed between financial literacy among various age, marital status and income groups. The knowledge regarding sacrificing present to future consumption, idea regarding EMI, FDI, ROI, the objective of savings whether it is for the education of children, their marriage, purchasing home or other assets plays an important role in making decisions regarding investment and savings among working women in particular.

Keywords:

Behavioral Finance, Financial Literacy, Saving Literacy and Working Women

1. Introduction:

The assumption made in the standard neoclassical theory is that people are rational and logical while making decision. Modern financial economic theories are based on this rationality and the investors make financial decisions based on the axiom of expected utility theory and the future is based on the forecast. Behavioral economists argue that behavior of the investors and market behavior can be irrational and inefficient.

The famous work done by Kaheman and Tversky (1979) contributed to the field of psychology and in 1970's led to the background for the introduction to a new paradigm in the field of investors decision making known as Behavioral Finance. It mainly concentrates on the application of financial decision making using psychological and economic principles.

Women nowadays are not only confined to the household activities but they are also competing equally with the men counterpart in the professional world as well. Working women plays a very important role when we come to the investment decision and also related to financial literacy. Education and environment play a very vital role in shaping the investment activities of the individual. Financial awareness and financial literacy help the individuals to engage in better financial decision making and financial planning. Women's literacy regarding investment helps a country to develop socially and economically. The growing importance of income by women plays an important role in this research. The share of total household income for women has increased over the time and also their control over the expenditure which means the decision related to investment decision has been revised. The investment instruments in which working women are interested after spending their income is also a matter of interest to the researchers. The reason is that the amount of investible income has increased over time; moreover, working women nowadays are aware of investment, provision for tax savings, availability of large number of investment avenues, capital gains and various other benefits. Investment made by the individuals concerned with two types of risk, namely, systematic and unsystematic risk.

2. Review of Literature

This section considers literature review of behavioral finance and financial literacy.

Financial literacy, according to Organization for Economic Co-operation and Development (OECD) and International Network on Financial Education (INFE), can be defined as A combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing.

Levin et al. (1988) in the study show that women are more cautious in their decisions and less likely to take gambles compared to men.

Quantitative research carried out in the US identifies a similar range of factors including

income, wealth, age, marital status, gender and level of education (Finke and Huston, 2003).

The 2004 US Health and Retirement Study (HRS) was done by Lusardi and Mitchell (2006) to assess fundamental financial knowledge in adults above the age of 50. They created questions on comprehending interest compounding, inflation impacts, and risk diversification, and discovered that financial illiteracy is pervasive, especially among women, the elderly, and those with less schooling. These findings were especially striking given that the majority of respondents over the age of 50 have used bank accounts and credit cards, as well as taken out at least one mortgage (Mandell and Hanson, 2009).

Desigan et al. (2006) conducted a study on attitude of women investors towards investment and observed that basically they hesitate investing in mutual funds because of lack of knowledge, market fluctuations, risks associated with investment and related problems.

Beckmann and Menkhoff (2008) report that women tend to be more risk averse, less confident and behave less competitively oriented.

Kaur and Punia (2008) has conducted a study about working women of Hissar District of Haryana; the result has showed that most of the working women opt for job out of the gross economic necessity (50%), raise economic status (23%), make use of education (11%), to have independent

income (9%) and the rest for other miscellaneous motives.

Clark and Strauss (2008) observe that women are more risk averse than men, the young are more risk seeking than the old, wealthier individuals manifest a greater willingness to invest in equities and the poor in risk averse securities.

Martenson (2008) have noted that women face problem in respect of their financial situation at the time of retirement due to lack of awareness.

Sharma and Gupta (2011) identified factors affecting investment decisions in India to include risk, return, peer influence, recommendation of financial advisors and market trends.

Research findings and reviews have shown results of low level of financial literacy existing both in developed and developing nations. Lusardi and Mitchell (2011) concluded that financial illiteracy is widespread worldwide and knowledge about the stock market is particularly low.

Van Rooij et al. (2011) estimated the level of financial literacy and its association with stock market association. They establish that only 40.2% of the respondents could correctly answer all the questions related to basic financial knowledge. Households feel discouraged to invest in the stock market due to the lack of financial knowledge.

Similarly, Cole et al. (2011) finds out the household financial literacy and the relationship between financial literacy and

demand for financial services in Indonesia and in India and the result shows that in India financial literacy is at the lowest level. 52% of the respondents in Indonesia and 34% in India have correctly answered the survey questions.

Chaturvedi and Khare (2012) note that there is a growth of middle-class families due to double income; it leads increase in the number of working women. So there arises a need to educate and provide necessary information to the growing women investors to invest in different available investment avenues through financial literacy campaign and advertisement.

Sellappan et al. (2013) surveyed women investors to study the impact of age and marital status towards investment in financial instruments and their study notes that younger women are likely to invest in shares, mutual funds, insurance and fixed deposits compared to older women. Married women are more interested in making investment than the unmarried.

Sharma and Vasakarla (2013) investigated the possible gender effects on risk aversion and overconfidence in investment decision making. Gender influence has increased the concern of financial advisors and companies which has created opportunities for these organizations to evaluate their approaches towards individual investors. It was found that females are more risk-averse when compared to the males. Females are more traditional than their male counterpart in terms of risk aversion. The study concludes that the gender has a major effect on the

investment decision where it supports risk aversion differences due to the gender of the individual; male does not prefer to invest in risk free investment.

Bhushan and Medury (2013) assisted a survey on 516 salaried individuals in India and found that the financial literacy was only 58.3%, which is abnormally low. Moreover, Agarwal et al. (2012) conducted a study on financial literacy among the working young in urban India and found a low level of financial literacy.

The survey conducted by the Master Card Inc. (2014) shows that India has poor ranking among 16 countries of the Asia Pacific region with only 62 index points with 8,087 respondents aged between 18-64 years. The overall financial literacy index was based on three aspects: basic money management (50% weight), financial planning (30% weight) and investment (20% weight) in the mentioned survey. Topmost position was acquired by Taiwan with 73 index points whereas Japan acquired only 55 index points in the Asia Pacific region.

A growing body of literature suggests that investment knowledge is necessary to improve consumer behavior related to financial products and services. For instance, Van Rooij et al. (2011) and Arrondel et al. (2015) shows that people with low literacy, specifically those less knowledgeable about stocks and bonds, participate less often in the stock market.

Saha (2016) in a study titled "A Study of Financial Literacy of Working Women of

Raipur City" relates the basic knowledge of investment products and insurance products along with the extent of credit facility product knowledge of 100 samples drawn from the working women of Raipur City. The study came to a decision that empowerment of women is due to their financial wellbeing which is because of her financial decision caused by financial literacy and financial knowledge. The risk-free investment was widely preferred in compared with the risky investment avenues.

Reddy and Swapna (2018) organised a study to find out the financial literacy level of working women towards equity investment and also to note the financial literacy and investment behaviour on equity with reference to static demographic variables. Samples were drawn from the working women investors of Bangalore. The respondents were in the view that the transparencies in operation by the investment companies help them to decide on investment as per their likes and dislikes. The result throws light on the happiness and satisfaction of working women with respect to the investment companies which find the need of the investors and update them with the latest news and schemes. They were highly satisfied with the technological development and online investment portals. In order to promote and coordinate financial literacy, the federal, regional, local along with public and private programs should reach the public and increase the awareness to the need of enhancing their knowledge on financial risks and methods of defending them from financial risks

through appropriate investments, insurance and financial education.

Nadia Asandimitra et.al. (2019) conducted research with the goal of determining the level of financial literacy among working women, as well as describing assets allocation along with time and profit in investment. The qualitative study said that the characteristics of the respondents influence their investment choice as an investment is associated with risk factors. The study concluded with a positive result that working women have strong financial literacy as evidenced by their investment regimen.

The influence of psychological and environmental elements on individual investors' attitude is investigated in a study by Chandra and Kumar. The link between cognitive and behavioural characteristics, as well as investor attitudes, was examined. Psychological biases have been recognised as a factor in determining an individual's attitude towards investing. A survey instrument is used to conduct univariate and bivariate analysis to determine the variables. Five psychological factors influence investor attitudes, according to the research. Prudence, a cautious approach, conservatism, lack of confidence, knowledge, and financial addiction are all examples of factors (Yadav et al., 2020). An individual's attitude towards stock market investment is positively influenced by previous behaviour. The investor's attitude positively mediates past behaviour and intention (Raut, 2020). The study looked

at the elements that impact Turkish college student's financial attitudes. There were three financial habits identified: prompt bill payment, budgeting, and future savings. The findings of the survey demonstrate that more financially aware students have better financial habits.

3. Objective of the Study

- To examine whether financial literacy influences investment decisions among working women in West Bengal

- To examine whether savings and borrowing affect the financial literacy in the investment decisions of working women in West Bengal

4. Research Methodology

Convenience sampling technique was adopted for sample collection on the basis of some predetermined characteristics such as only women who were working have been selected as respondents and whose age is more than 20 years and taken from the group of people easy to contact and reach.

Data collection relate to working women in West Bengal; working in different sectors and some of them are self-employed. Majority of the respondents i.e., 80% are contacted personally at their work place at their convenience; rest 20% mailed questionnaires constitute for those who are located at far off places. A total of 750 questionnaires were distributed among the working women respondents in different sectors, out of which a total of 635 completed questionnaires were considered for the purpose of the study. Data was collected mainly from Kolkata, districts of Howrah, Bardhhaman, and district of Malda.

This survey is based on the primary data collection. The primary data is collected through structured questionnaire by direct interviews and also mailing the same to the working women at different organizational hierarchy and also to those who are self-employed. The surveys were spread into two phases. First phase was pilot study followed by the final data collection process. In the pilot survey, respondents were from Kolkata and for the final survey districts of Howrah, Bardhhaman, district towns of Malda were included.

All the questions were based on the variables identified with the help of literature review. Responses are recorded by the researcher on a five-point Likert scale, where 1 denotes Strongly disagree, 2 denotes Disagree, 3 denotes undecided, 4 denotes Agree and 5 denotes Strongly agree. The study was conducted among 635 respondents. The collected data were analyzed and interpreted through SPSS package by using different statistical tools (viz. descriptive statistics, correlation and regression analysis, analysis of variance, etc.) The total time taken for the whole process was almost 2 years from November,2019 to October, 2021. It took more time due to the unplanned pandemic situation which hampered the process of primary data collection.

5. Data Analysis and Findings

635 women respondents working in different

organizations and some of them in self-employed are taken for the study. The respondents are either Salaried or Self-Employed.

Table 1 shows the occupation-wise distribution of the sample respondents.

Table 1: Occupation-wise Distribution of the Sample Respondents

Occupation	No. of Respondents	Percentage (%)
Salaried	369	58.1
Self Employed	266	41.9
Total	**635**	**100.0**

This table shows that more than half (58.1%) of the respondents are salaried and nearly two fifth of the respondents (41.9%) earn their living from self-employment.

Table 2 shows the demographic profile of the respondents which includes age, marital status, number of children, educational qualification, income level and job experience in years.

Table 2: Demographic Profile of the Sample Respondents

Demographic Characteristics	Class	Frequency	Percentage (%)
Age (Years)	20-25	5	0.8
	26-30	104	16.4
	31-35	128	20.2
	36-40	115	18.1
	41-45	141	22.2
	46-50	83	13.1
	51-55	29	4.6
	Above 55	30	4.7
	Total	**635**	**100.0**
Marital Status	Married	325	51.2
	Divorced	15	2.4
	Widowed	27	4.3
	Unmarried	268	42.2
	Total	**635**	**100.0**

No. of Children	Married with no children	89	14.0
	Married with 1 child	221	34.8
	Married with 2 children	57	9.0
	Unmarried	268	42.20
	Total	**635**	**100.0**
Educational Qualification	Higher Secondary	109	17.2
	Graduate	412	64.9
	Post Graduate	104	16.4
	Ph.D. and higher Professional Qualifications etc.	10	1.6
Income (Rs) per annum	Below 2,00,000	108	17.0
	2,00,000 – 3,99,999	125	19.7
	4,00,000 – 5,99,999	134	21.1
	6,00,000 – 7,99,999	111	17.5
	8,00,000 -9,99,999	55	8.7
	10,00,000-4,99,999	51	8.0
	15,00,000-20,00,000	25	3.9
	Above 20,00,000	26	4.1
	Total	**635**	**100.0**
Job Experience (Years)	Less than 5	213	33.5
	5-10	277	43.6
	10-15	118	18.6
	15-20	15	2.4
	more than 20	12	1.9
	Total	**635**	**100.0**

Demographic analysis helps in measuring the dimensions and dynamics of the sample respondents. This table indicate that out of 635 respondents, majority of the respondents i.e., 76.9% falls in the age group of between 26-45 years and the minimum respondents i.e., 4.7% falls in the age group of above 55 years. Working women of 26-45 age group are more interested in taking investment decisions. In respect of marital status, it was found that 42.2% of the sample respondents are unmarried whereas majority (57.9%) are married; less than 7% are divorced or widowed. Majority of the sample respondent i.e., 58.1% were salaried and 41.9% are self-employed in occupational status. Majority (21.1%) of the sample respondents' earnings is between Rs.4,00,000 – 5,99,999 per annum and minimum percentage (4.1%) of the sample respondents are in the earning bracket of more than Rs.20,00,000 per annum.

5.1 Savings Profile of the Sample Respondents

Economic growth is the most vital factor which affects the quality of life that people lead in a country. Three variables that measure the growth of an economy are Income, Saving and Investment. Table 3 shows the Savings profile of the sample respondents in the last 6 months (April 2021 to September 2021) of the study period.

Table 3: Savings Pattern of the Sample Respondents

Type of Account	Frequency	Percentage (%)
Savings Account	457	72.0
Recurring Deposit Account	122	19.2
Savings and Recurring Deposit Account	36	5.7
Savings, Recurring and Time Deposit	20	3.1
Total	**635**	**100.0**

The respondents hold different financial assets in their portfolio of investment plans. Table 4 shows the different financial assets held by the sample respondents.

Table 4: Financial Assets owned by the Sample Respondents

Financial Assets	Number of Respondents	Percentage (%)
Savings Account	635	100.0
Certificate of Deposit	518	81.6

Employer-provided retirement account	562	88.5
Annuity Plan if any	251	39.5
Life insurance with a cash value	246	38.7
Government savings bonds	251	39.5
Corporate Bonds	329	51.8
Mutual Funds	338	53.2
Shares	307	48.3

Table 3 show the savings portfolio of the sample respondents during the last 6 months (April 2021 to September 2021). 72% of the sample respondents have saved in the savings account and 3.1% of the respondents have savings, recurring and time deposit account. Table 4 shows that 100% of the respondents have savings account, 81.6% held certificate of deposit, 88.5% have Employer-provided retirement account, 51.8% Corporate Bonds, 53.2% hold Mutual Funds and 48.3% invested in Shares.

5.2 Financial Literacy Profile of the Sample Respondents

Financial literacy is a well know topic of concern specially in the developing countries like India. It has earned interest among various groups of the society including government, bankers, employers, community interest groups, financial markets and other organizations in the developing countries. The interest in improving financial literacy is due to the development of new financial instruments, the complex nature of the financial markets and the changes in the political, social, demographic and economic factors. Table 5 shows the descriptive statistics of the financial literacy attributes considered based on the survey.

Table 5: Descriptive Statistics of the Financial Literacy Attributes of the Respondents

Attribute	Frequency (%)					Mean	S. D.	Skew.	Kurt.
	1	2	3	4	5				
1. Lesson from financial scams.	3 (0.5)	0 (0)	5 (0.8)	207 (32.6)	420 (66.1)	4.64	0.551	-1.903	7.429
2. Knowledge of investments.	0 (0)	0 (0)	14 (2.2)	426 (67.1)	195 (30.7)	4.29	0.498	0.405	-0.639
3. Assessment of financial position	3 (0.5)	9 (1.4)	71 (11.2)	211 (33.2)	341 (53.7)	4.38	0.776	-1.208	1.356

| 4. Idea of purchasing power of money | 0 (0) | 9 (1.4) | 24 (3.8) | 335 (52.8) | 267 (42.0) | 4.35 | 0.625 | -0.780 | 1.266 |
| 5. Concept of Time value of money | 3 (0.5) | 6 (0.9) | 9 (1.4) | 299 (47.1) | 318 (50.1) | 4.45 | 0.625 | -1.401 | 4.572 |

The financial literacy attributes of the respondents have been assessed with the help of 5-point Likert scale. Altogether there are 5 financial literacy attributes which are identified. From Table 5 it is estimated that the mean value of all the financial literacy attributes lies between 4 and 5 which reveals that among the respondents strongly agreement attribute is more predominant than strongly disagreement attribute. The sample respondents strongly agree that financial literacy is very much essential for taking investment decision.

Cronbach's Alpha coefficient confirms the internal consistency of the set of items of

Table 6: Reliability Statistics

	General Financial Literacy
Cronbach's Alpha	0.581

a given scale. In general, any value greater than 0.50 is desirable under the Cronbach's Alpha. The above value of Cronbach's Alpha ensure that the internal consistency of the dataset is satisfactory.

Table 7 shows the score 1-2 indicating extremely weak financial literacy, 2-3 weak financial literacy, 3-4 indicates moderate and 4-5 indicates strong financial literacy.

Table 7: General Financial Literacy of the Sample Respondents

Financial Literacy Type	Frequency	Percentage (%)
Extremely Weak	3	0.5
Weak	35	5.51
Moderate	87	13.7
Strong	510	80.31
Total	**635**	**100.0**

Majority of working women respondents belong to strong characteristics (80.31%) compared to 13.7% moderate, 5.51% weak and the rest 0.5% are extremely weak level of financial literacy. This shows that in fact

financial literacy among working women is essential for making investment decision. The knowledge regarding investment, risk and return relationship, concept of time

value of money etc. are very important for taking investment and financial decisions.

5.3 Savings Literacy Profile of the Sample Respondents

Savings is that part of income which has not been spent on consumer goods and services. It is the difference between income and consumption expenditure. Savings and investment depend upon different factors and are made for different purposes and motives.

Table 8: Descriptive Statistics of the Savings Literacy Attributes of the Sample Respondents

Attribute	Frequency (%)					Mean	S.D.	Skew.	Kurt.
	1	2	3	4	5				
1. Sacrificing present consumption	0 (0)	0 (0)	6 (0.9)	176 (27.7)	453 (71.3)	4.7	0.477	-1.155	-0.026
2. Idea about the savings in Bank/ Post Office or any other financial institution	0 (0)	3 (0.5)	5 (0.8)	297 (46.8)	330 (52.0)	4.5	0.543	-0.603	0.331
3. Idea about the interest rate on savings as well as borrowings in commercial bank	0 (0)	6 (0.9)	52 (8.2)	262 (41.2)	315 (49.6)	4.63	3.471	13.645	192.512
4. Interest on borrowed money is much higher in unrecognized sector than recognized sectors.	3 (0.5)	27 (4.3)	67 (10.6)	365 (57.5)	173 (27.2)	4.07	0.766	-0.939	1.502
5. Reading offer document carefully at the time of taking investment decision	0 (0)	27 (4.3)	73 (11.5)	346 (54.5)	189 (29.8)	4.10	0.758	-0.754	0.629

6. Basic idea about EMI.	0 (0)	30 (4.7)	83 (13.1)	290 (45.7)	232 (36.5)	4.14	0.816	-0.786	0.2
7. Savings objective is Children's Education	17 (2.7)	33 (5.2)	55 (8.7)	282 (44.4)	248 (39.1)	4.12	0.956	-1.34	1.783
8. Savings objective is Retirement Plan	0 (0)	17 (2.7)	32 (5.0)	339 (53.4)	247 (38.9)	4.29	0.683	-0.937	1.515
9. Savings objective is Home Purchase	6 (0.9)	19 (3.0)	29 (4.6)	346 (54.5)	235 (37.0)	4.24	0.752	-1.378	3.368
10. Savings objective is Children's Marriage	18 (2.8)	20 (3.2)	18 (2.8)	180 (28.3)	399 (62.8)	4.45	0.915	-2.157	4.736
11. Savings objective other than point 1-11	0 (0)	8 (1.3)	20 (3.2)	330 (51.9)	277 (43.7)	4.38	0.613	-0.777	1.263

From Table 8 it is found that the mean value of all the Savings literacy attributes is in between 4 and 5 in the Likert scale. It implies that among the respondents strongly agreement attribute is more predominant than strongly disagreement attribute. The respondents strongly agree that savings literacy is very much essential for taking investment decisions among working women in West Bengal.

Table 9: Reliability Statistics

	General Savings Literacy
Cronbach's Alpha	0.630

The above value of Cronbach's Alpha (0.630) ensure that the internal consistency of the dataset is satisfactory.

Table 10 shows the score 1-2 as extremely weak savings literacy, 2-3 weak, 3-4 moderate and 4-5 indicates strong savings literacy attribute.

Majority 77% of working women sample respondents belong to strong characteristics, 15% moderate, 7.56% weak and the rest i.e., 0.5% have extremely weak characteristics. This shows that in fact savings literacy among working women is essential for making investment decision. The knowledge regarding sacrificing present to future consumption, idea regarding EMI,

Table 10: General Savings Literacy of the Respondents

Savings Literacy	Frequency	Percentage (%)
Extremely Weak	3	0.5
Weak	48	7.56
Moderate	95	15.0
Strong	489	77.0
Total	**635**	**100.0**

FDI, ROI, the objective of savings whether it is for children education, children marriage, purchasing home or other assets plays an important role in making decisions regarding investment and savings among working women in particular.

6. Implications and Future Scope of the Study

This paper examines whether the financial literacy and savings-borrowing literacy plays an important role in investment decision making with particular reference to the working women investors of West Bengal. Their financial and savings literacy plays a very important role in the investment decision making in the economic field. Working women in the age group of 26-45 are more interested in taking investment decisions. In respect of marital status, it was found that 42.2% of the respondents are unmarried whereas 57.9% are either married, divorced or widowed. 58.1% are salaried and 41.9% are self-employed in occupational status. This indicates that salaried women believed in making investment decisions rather than self-employed respondents. Majority of sample respondent earnings lies between 4,00,000 – 5,99,999 per annum which is 21.1% and minimum percent of 4.1% respondents are in the earning bracket of more than 20,00,000 per annum. In the period (April 2021 to September 2021) 72% of the respondents have saved in the savings account and 3.1% of the respondents have savings in savings, recurring and time deposit account. 100% of the respondents have savings account, 81.6% holds certificate of deposit, 88.5% have Employer-provided retirement account, 51.8% Corporate Bonds, 53.2% of the them hold Mutual Funds and 48.3% invested in Shares. The survey also shows that financial and saving literacy have a major role in investment decision and they are extremely associated with the concern area of the working women perspective in taking fruitful investment decision.

The current study makes contribution in academics as well as in the practical investment domains. The newly developed concept of Behavioral finance plays a very important role in finding out the linkage between the different financial literacy

and the behavior of the investors in taking decision mainly among the working class of women investors. In future the study can also be extended to a wide range of investors and also the vicinity of the study could be enlarged. Larger sample size can be included throughout Pan India for extension of the research.

7. Concluding Observations

Broadly this study has pointed out that earning money is important; invest where it can earn maximum return for the individual is essential. Due to increase in uncertainty and risk, it is essential for the sample working women of West Bengal to take complete authority in respect of financial decision making. Financial literacy leads to financial empowerment.

In this study knowledge regarding the risk and return relationship, lessons from financial scam, the concept of EMI, Time value of Money, FDI , concept of savings and sacrifice of present over future consumption, idea about the savings in Bank/Post Office or any other financial institution, idea about the interest rate on savings as well as borrowings in commercial bank, idea about interest on borrowed money which is much higher in unrecognized sector than recognized sectors, reading offer document carefully at the time of taking investment decision, savings is done basically for child's education, their marriage, and buying new assets should be understandable to the working women of all sectors of the society in West Bengal in particular. With proper knowledge of

the investment strategies and with proper financial planning working women of West Bengal can earn massive returns which will also be an indicator of economic growth. Every individual investor possesses different mindset when they decide about investing in different investment avenues such as stocks, bonds, mutual funds, fixed deposit, real estate etc. In the survey 100% of sample respondents hold savings bank account, 81.6% holds certificate of deposit, 88.5% Employer-provided retirement account, 51.8% Corporate Bonds, 53.2% hold Mutual Funds and 48.3% respondents invested in Shares. Investment behavior reveals how an investor wants to allocate the surplus funds to various instruments available in the financial market.

In the recent times due to Covid 19 pandemic the economy is giving rise to economic crisis and according to International Monetary Fund (IMF) "the global economy is expected to shrink by over 3% in 2020 – the steepest slowdown since the Great Depression of the 1930's". In this situation financial literacy and financial empowerment may be used to counter this type of financial distress.

References

1. Ajmi Jy. A. (2008). Risk Tolerance of Individual Investors in an Emerging Markets. International Research Journal of Finance and Economics, 17, 15-26.

2. Bahl Sarita. (2012). Investment Behavior of Working Women of Punjab. ArthPrabhand: A Journal of Economics and Management, 1(6).

3. Bajtelsmit, V. L., & Bernasek, A. (1996). Why Do Women Invest Differently than Men? Financial Counselling and Planning, 7.

4. Barber, B.M., & Odean, T. (1999). Boys will be Boys: Gender, Overconfidence, and Common Stock Investment. International Institute of Forecasters, 19(3).

5. Beckmann, D., & Menkhoff. L. (2008). Will women be women? Analyzing the gender difference among financial experts. 61(3), 364-384.

6. Bernasek, A., & Shwiff, S. (2001). Gender, risk and retirement." Journal of economic issues, 35(2), 345-356.

7. Collins, J. (2012). Financial advice: A substitute for financial literacy? *Financial Services Review, 21*(4), 307-322.

8. Eckel, C.C., & Grossman, P.J. (2008). Men, Women and Risk Aversion: Experimental Evidence. Handbook of Experimental Economic Results, 1(113), 1061-1073.

9. Falth, A. (2014, May 12). Women's financial literacy and skills. Retrieved from http://www.empowerwomen.org/en/circles/make-financial-markets-work-for-women/women-financial-literacy-and-skills

10. Gaur Arti, Julee., & SukhijhaSunita. (2011). Difference in Gender Attitude in Investment Decision Making in India. Research Journal of Finance and Accounting, 2(12).

11. Gneezy, U,R.Thaler.,& F.Yu. (2004). Information Availability and Investment Behavior, mimeo, University of Chicago.

12. Jianakoplos, N.A., & Bernasek, A. (1998), Are women more risk averse? Economic Inquiry, 36(4), 620-630.

13. Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk, Econometrica.

14. Kahneman, D., & Tversky, A. (1982). The Psychology of Preferences, Scientific American, John Wiley and Sons.

15. K. Reddy Sreelatha., & Narayanan, L. (2015). Investment Pattern of Working Women in the twin cities of Hyderabad and Secunderabad- A Study. Asian Journal of Management Research, 6(1), 223-242.

16. Kumar, G., & Seth. (2020). Financial express (Retrieved from https://www.financialexpress.com/money/whyfinancial-litercy-is-important-forchildren/2334907/).

17. Lanjewar J. (2015). Role of Working Women in Family Economics. Abhinav National Monthly Refereed Journal of Research in Commerce & Management, 4(3), 1-5.

18. Lusardi, A., & Mitchell, O.S. (2019). The economic importance of financial literacy: Theory and evidence. Journal of economic literature, 52(1), 5-44. Frey B., Schaltegger C. (eds) 21st Century

Economics. Springer, Cham. https://doi.org/10.1007/978-3-030-17740-9_9Hilgert et.al 2002a.

19. Mathi M.K., & Kungumapriya A. (2014). Review of Literature on Investment Behavior of Rural investors. 3(7), 351-353.

20. Powell, M., & D. Ansic. (1997). Gender Difference in Risk Behavior in Financial Decision-Making: An Experimental Analysis, Journal of Economic Psychology 18, 605-628.

21. Rai, K., Dua, S., & Yadav, M. (2019). Association of financial attitude, financial behaviour and financial knowledge towards financial literacy: A structural equation modeling approach. FIIB Business Review, 8(1),51-60.

22. Raut, R. K. (2020). Past behavior, financial literacy and investment decision-making process of individual investors. International Journal of Emerging Markets.

23. Ricciardi, V., & Simon, H. (2000). What is Behavioral Finance? The Business, Education and Technology Journal, 2(1).

24. Santhiyavalli, G., & Usharani, M. (2014). Investment behavior of women investor in Coimbatore City. International Journal of Innovative Research and Practices,2(3), 1-10.

25. Saha, B. (2016). A Study of Financial Literacy of Working Women of Raipur City, 154– 160.

26. Schubert.R, M.Gysler, M.Brown., & H.Brachinger. (1999). Financial Decision-Making: Are Women Really More Risk Averse? Amercian Economic Review Papers and Proceeding, 89, 381-385.

27. Schubert.R, M.Gysler, M.Brown., & H.Brachinger. (2000). Gender Specific Attitudes Towards Risk and Ambiguity: An Experimental Investigation, mimeo, Center for Economic Research, Swiss Federal Institute of Technology

28. Sellappan, R., Jamuna, S., & Kavitha, T. (2013). Investment Attitude of Women towards different sources of Securities-A Factor Analysis Approach. Global Journal of Management and Business Research Finance, 13(3).

29. Sharma, M., & Kota, H. B. (2019). The role of working women in investment decision making in the family in India. Australasian Accounting, Business and Finance Journal, 13(3), 91–110.https://doi.org/10.14453/aabfj.v13i3.6.

30. Shefrin, H., & Statman, M. (1985). The disposition to sell winners too early and ride losers too long: Theory and evidence. The Journal of Financial, 40(3),777-791.

31. Shiller, R. (1998). Human behavior and the efficiency of the financial system." National Bureau of Economic Research, Working Paper, 6375.

32. Shukla S. N. (2016). A Study of Investment Preference of Working

Women of North Gujarat Region. International Journal for Science and Research in Technology,2(2), 68-73.

33. Singh I., & Gupta, K. (2021). The impact of financial literacy on investor attitudes and decision-making: An empirical analysis. Journal of General Management Research, 8(2), 47-57.

34. Syed Tabassum Sultana. (2010). An Empirical Study of Indian Individual Investors' Behavior." Global Journal of Finance and Management, 2(1), 19-33.

35. VasagadekarPriya. (2014). A Research Paper on Investment Awareness among Indian Working Women with reference to Pune Region. International Journal of Scientific & Engineering Research, 5(6).

36. VenPunj, S., & For, J. (2018). Impact of financial literacy on equity: with special reference to working women, 8(12),440–451.

Impact of Cluster Development Programme on MSME Sector in West Bengal: An Empirical Study

Rintu Nath

Abstract:

The MSME sector, which is also considered the backbone of the country's manufacturing output, is facing stiff competition from large-scale as well as multinational manufacturers. The Cluster Development Programme (CDP) was introduced by the Ministry of MSME, Government of India in 2007. The CDP acts as a protection mechanism for the second largest employment generating MSME sector. CDP is used to improve the productivity, competitiveness and capacity building of MSMEs. The aim of this study is to examine and assess the impact of Cluster Development Programme on MSME sector, using eight selected clusters in West Bengal as case study. The results of the study show that MSMEs have benefited greatly from CDP. The results could be useful to the MSME department and its policymakers, new entrepreneurs, researchers, as well as government and academic institutions.

Keywords:

Cluster, CDP, MSMEs, Capacity Building, Academics

Introduction

Micro, small and medium enterprises (MSME) sector has become a dynamic and emerging sector of our economy. The sector made a substantial contribution to the country's manufacturing output, employment and exports. In terms of value, this sector accounts for about 45% of manufacturing output and 40% of total export turnover of the country. According to the NSS 73rd round, 2015-16, the number of MSMEs in India is estimated at 63.39 million, and these businesses employ 110.99 million people as per MSME Annual Report 2020-21.

Despite its commendable contributions to the national economy, the industry faces major problems such as inadequate infrastructure, insufficient working capital and poor marketing strategy. Other major concerns are limited access to banking and financial services, high credit costs, and the use of traditional technology. Moreover, the dominance of large domestic and foreign companies creates a terrible situation in terms of competitiveness and market share. The cluster development programme (CDP) concept is well-suited to providing a holistic approach (through hard and soft interventions) in this area.

Problem Analysis

Open economy invites many challenges to the small scale industries (SSI) sector, especially developing economies like us. The MNCs come out with abundance of funds along with sophisticated technology.

The main concern is protecting and maintaining SSI sector properly and adequately from major domestic and foreign companies. Ministry of MSME needs to increase competitiveness and stimulate the MSME sector. We are taking many initiatives with various national and international organizations in India. The MSE-CDP program was debut in October 2007. The effectiveness of CDP can be measured by soft and hard interventions.

CDP has a macro impact on the MSME sector. Financial benefits of CDP initiatives can be perceived in a range of indicators like rate of productivity, competitiveness, cost effectiveness and growth prospects of the beneficiary units of the respective cluster. Alternatively, this study is likely to measure outcome derived from CDP by using soft and hard interventions separately and their impact on MSME sector. Henceforth, CDP initiatives supposed to have strong relevance on MSME sector.

Review of Literatures

Several studies were conducted on various aspects of MSME as well as the effectiveness of cluster development programme in India and abroad by scholars, researchers, MSME committees and others. A few are highlighted below:

Belleflamme, Picard and Thisse (2000) studied the impact of location economies on the location of firms. It is known that such externalities lead to significant cost reductions when companies are put together.

Reddy (2003) assessed the start-up process

and identified problems of poverty, weak capital, insufficient basic security needed to receive financial support from development agencies, regulatory procedures complex administration, unfamiliarity with government programs, non-cooperation of agents, low ability to repay borrowed funds considering of 120 scheduled caste and scheduled tribes in three regions of Andhra Pradesh.

Das (2005) analyzed the key issues that determine the performance and growth of industrial clusters in India. Tambunan T (2005) finds that SMEs in Indonesia are important for job creation and an important source of economic growth and foreign exchange earnings.

Banerjee P (2005) examined that small businesses struggle due to poor management know-how, limited access to the wealth factors, and poor governance. Maes and Basu (2005) reviewed the "Trickle Up Program", a US-based organization engaged in microenterprise development for very poor households in 14 major countries, including India.

Bala Subrahmanya (2005) concluded that IT revolution in India is crucial for small businesses to grow and go global.

Biswas and Seshagiri (2007) found that micro enterprises played a key role indeed in sustaining economic growth in India (UNIDO study). Das et al (2007) examined the importance of SMEs in any economy and found that India has nearly three million SMEs, which account for almost 50 per cent of industrial output.

Brown et al. (2009) pointed out the role of trained entrepreneurs and efficient use of infrastructure on SMEs. Ravi (2009) analyzed the development of entrepreneurship in the MSME sector in India.

Ghatak (2010) examined the impact of financing supported by the World Bank and other authorities on SMEs. Mansuri (2010) pointed out that poverty is widespread but developing countries are the main victims and concludes that SMEs play an important role in the development of the economy.

LämmerGamp, Thomas (2015), Director of the European Secretariat for Cluster Analysis, presented cluster programs aimed at promoting SME participation in R&D. Cluster organizations support this by providing tailored advice and services to participating companies and researchers.

Research Gap

From the literature review above, it seems that over the years, researchers and scholars have made various efforts to examine and evaluate different aspects of the MSME sector in the Indian and global perspective. However, to date there has been no fundamental research on the effectiveness of the cluster development programme (CDP) in the MSME sector from the West Bengal point of view. Therefore, this study will try to highlight this untouched area.

Research Questions

This study addresses the following research questions:

(i) Does the Cluster Development Programme help develop MSMEs?

(ii) Is the CDP effective in promoting MSMEs in West Bengal?

Objectives of the Study

The research objectives of the study are as follows:

(a) To analyze the Cluster Development Programme of MSME sector in West Bengal

(b) To examine the effectiveness of Cluster Development Programme of select MSME clusters in West Bengal

Database and Research Methodology

Data Base

The study is exploratory in nature which is analyzed with the help of secondary data. Secondary data is based on existing literature on the subject including books, journal articles, and newspaper reports. Study is also collected reports of concerned committees and institutions, MSME guidelines, provision of statues, research based MSME publications and international best practices.

Empirical research is done on the basis of both primary and secondary data. Secondary data is collected from a variety of sources, including DIC, industry reports and MSME annual reports, and consulted various web sources. Raw or primary data is based on structured questions. The study is taken advised from state government officials, SPV members and beneficiaries of eight selected clusters in West Bengal. Questionnaire is designed through expertise opinions taken from phone, email or personal interaction. During the period of data collection, we supplied questionnaires to 645 MSME units. Of which, 399 (62% of 645) MSME units gave positive feedback.

Methodology

We have selected three parameters such as awareness creation, confidence building and capacity building from soft interventions for measuring effectiveness of CDP. The study has also taken four parameters from hard interventions such as research & development centre, practical skills, raw material bank and performance of the small cluster units. In order to present and interpret data, simple percentage and cross tabulations are used. For qualitative data, descriptive statistical tools and chi-square test (dependency analysis) are also used. Most of the primary data were collected during 2019-20 secession and SPSS package is used to analyze the data.

Hypotheses Formulated

We have formulated four sets of hypotheses. First two hypotheses represent soft interventions and last two hypotheses represent hard interventions for analyzing the effectiveness of select CDP on MSME sector in West Bengal.

Hypothesis-1

H_o = There is no relation between Awareness Creation through CDP and confidence building of the beneficiaries.

H_1 = There is a relation between Awareness Creation through CDP and confidence building of the beneficiaries.

Hypothesis-2

H_o = Confidence Building through CDP has no significant effect on the capacity building of the MSMEs

H_1 = Confidence Building through CDP has significant effect on the capacity building of the MSMEs

Hypothesis-3

H_o = Research & Development Centre (RDC) has no impact on Practical Skills Development of the beneficiaries.

H_1 = Research & Development Centre has an impact on Practical Skills Development of the beneficiaries.

Hypothesis-4

H_o = There is no relation between Raw Material Bank and Performance of the Small Cluster Units.

H_1 = There is a relation between Raw Material Bank and Performance of the Small Cluster Units.

Cluster Development Programme (CDP)

Cluster projects are carried out by a Special Purpose Vehicle (SPV) with the help of formulating a partnership or registered association or a trust or company. In a cluster programme, there are two main interventions:

(i) Soft Intervention: This includes interventions for soft operations, viz. awareness creation, capacity building, market development activities, management development and technology upgrading.

(ii) Hard Intervention: This includes interventions for providing various services through establishment of Common Facility Centers (CFCs), etc.

CDP in the MSME Sector in West Bengal

CDP in the MSME sector is going on with priority basis. Various agencies of concerned Central Government and Government of West Bengal are taken holistic approaches of CDP for boosting up of MSMEs. The CDP initiative is formulated with the objective of strengthening the institutional framework, creating stronger backward and forward linkages and introduction of modern technology in order to enhance the productivity and competitiveness of the enterprises in the cluster.

According to the latest data, all DICs in the state have been identified with 92 clusters. But only 30 clusters are in different stages of interventions. Out of the 30 clusters, 8 have completed the hard and soft interventions or nearing to complete the hard intervention. 9 clusters have completed soft intervention and hard intervention is continuing. The remaining 13 clusters have completed soft interventions and DPRs have been prepared for hard interventions and infrastructure development. 62 out of 92 clusters were assigned to PMCs to prepare a feasibility study report indicating whether they could implement soft interventions.

MSME Clusters in West Bengal under Study

One of the main objectives of the study is to assess the impact of soft and hard interventions in the MSME sector. Therefore, clusters that received soft and hard interventions are selected for the study. The selected 8 clusters are:

- Fan Cluster, Bansdroni, Kolkata.
- Honey Processing Cluster , Malda
- Lead Acid Battery Cluster, Siliguri
- Plastic Processing Cluster, Dabgram, Jalpaiguri
- Re-rolling Mills Cluster, Jagatballavpur, Howrah
- Roofing Tiles Cluster, Murlu, Bankura
- Silver Filigree Cluster, Magrahat, South 24 Parganas

- Zari Cluster, Budge Budge, South 24 Parganas

Analyses of effectiveness of select MSME clusters in West Bengal

We have tried to examine to what extent CDP is effective on the MSMEs. In order to evaluate the effectiveness of CDP in the MSME sector, we have taken relevant activities related to soft interventions and its overall impact on the MSME units. In order to carry out such functions, the study focused only three core issues (awareness creation, confidence building and capacity building) relating to performance of CDP through structured questions. The survey covers 399 beneficiaries from 8 clusters covering 7 districts in West Bengal. Sample units represent the total number of units under the CDP scheme from which the study collected data. Table 1 presents a summary of the eight selected clusters.

Table 1: Brief Profiles of the Eight (8) selected MSME Clusters in West Bengal

Name of the Clusters	Status of Soft & Hard Interventions	SPV	District	No of Units	Sample Units	Total Sample Units
Fan	Completed	Pvt. Ltd.	Kolkata	260	54	54
Honey Processing	Completed	Co-operative Society Ltd.	Malda	660	102	156
Lead Acid Storage	Completed	Pvt. Ltd.	Darjeeling	72	10	166
Plastic Processing	Completed	Co-operative Society Ltd.	Jalpaiguri	90	13	179
Re-Rolling Mills	Completed	Pvt. Ltd.	Howrah	175	27	206

Roofing Tiles	Completed	Co-operative Society Ltd.	Bankura	175	28	234
Silver Filigree	Completed	Co-operative Society Ltd.	South 24 Parganas	650	84	318
Zari	Completed	Co-operative Society Ltd.	South 24 Parganas	4500	81	399

Source: *Compiled by the Researcher*)

Analysis of soft Interventions

Soft interventions are series of trust building measures for the MSME units. These are done in general through a sequence of fundamental activities such as awareness creation, confidence building, and capacity building. So, effectiveness of soft interventions can be measured with (i) Awareness Creation (ii) Confidence Building (iii) Capacity Building.

(i) **Awareness Creation of the Beneficiary Units**

Raising awareness is an important step that needs to be publicized in order to create consensus among participating units. Awareness can motivate participating units to successfully strive for soft interventions. Enhancing participants' interest in the cluster development programme is a key activity. Beneficiaries are motivated to participate in meetings and workshops to raise awareness about CDP. Whether or not the participants were made known through seminars and meetings is shown in Table 2 below.

Table 2: Awareness Creation through Organizing Seminars & Meetings

	Frequency	Percent	Cumulative Percent
Agree	319	79.9	79.9
Neutral	67	16.8	96.7
Disagree	13	3.3	100.0
Total	399	100.0	

Source: *Compiled by the Researcher*)

It appears from the above table that 79.9% of respondents agreed on enhancement of awareness creation through organizing seminars, meetings and workshops. Only 13 (i.e.3.3%) respondents opined that there is no relevance of seminars, meetings etc. on the awareness creation of the MSME units.

(ii) **Confidence Building of the Beneficiaries**

After completing the awareness programme, the next step is to create a training plan specifically designed for the beneficiary units. It develops a level of knowledge of the

MSME units. Whether training programme and exposure visits improve beneficiary

units confidence level based on the findings shown in Table 3 below.

Table 3: Training programme and exposure visits enhance confidence building

	Frequency	Percent	Cumulative Percent
Agree	358	89.7	89.7
Neutral	34	8.5	98.2
Disagree	7	1.8	100.0
Total	399	100.0	

Source: *Compiled by the Researcher*)

From the table above, we can see that 89.7% of respondents agreed to build confidence through the training programme and exposure visits by the MSME units. Only 7 respondents, less than 2% of respondents, believed that training programme and exposure visits had nothing to do with building trust in the MSME units.

The study is examining of relationship between awareness creation and confidence building through chi-square test.

Chi-Square Test:

Hypothesis-1

H_o = There is no relation between Awareness Creation through CDP and confidence building of the beneficiaries.

Beneficiaries

H_1 = There is a relation between Awareness Creation through CDP and confidence building of the beneficiaries

A cross tabulation is drawn between awareness creation and confidence building under soft interventions in Table 4 below:

Table 4: Cross tabulation: Organizing Seminars, Meetings Grow Awareness Creation *Training Programme Enhance Confidence Building

Count					
		Training Programme Enhance Confidence Building			
		Agree	Neutral	Disagree	Total
Organizing Seminars, Meetings Grow Awareness Creation	Agree	285	30	4	319
	Neutral	63	1	3	67
	Disagree	10	3	0	13
Total		358	34	7	399

It appears from the cross tabulation that 71.4% of respondents agreed on improvement of confidence building through training programme and exposure visits. It is one of the core issues of soft interventions under cluster development programme. Whether null hypothesis is accepted or rejected can determine with the help of Pearson Chi-Square Test is shown below in Table 5.

Table 5: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.305a	4	.023
Likelihood Ratio	11.736	4	.019
Linear-by-Linear Association	.239	1	.625
N of Valid Cases	399		

The Pearson Chi-Square or P value of the test at the 5% significance level is 0.023, which is less than 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis. It can now be said that there is a close relationship between training programme and confidence building.

(iii) Capacity Building

Capacity building has typically been defined as the development and strengthening of human and institutional resources. Capacity building indicates to enhance the volume of production or services. A micro or small enterprise can't do this alone. It requires an exclusive collaborative approach to perform in cost-effective manner. Cluster is such a platform to use combined efforts done by the various cluster actors.

Confidence building induces of the participating units mentally strong and leveraging to produce more output at low cost. Capacity building has been gaining momentum by SPV formation. The impact of SPV formation on capacity building has been counted through survey of beneficiary's opinion which is shown below in Table 6.

Table 6: Capacity Building through SPV formation

	Frequency	Percent	Cumulative Percent
Agree	361	90.5	90.5
Neutral	35	8.8	99.2
Disagree	3	.8	100.0
Total	399	100.0	

Source: *Compiled by the Researcher*)

90.5% of respondents believed that SPV plays a crucial role for encouraging capacity building among the beneficiary units. It is used as a tool to achieve a better and improve performance. Less than 1% of total respondents indicated that capacity building of MSMEs is not related to SPV formation. The correlation between confidence building and capacity building under soft interventions is measured through Chi-Square Test.

Chi-Square Test:

Hypothesis-2

H_o= Confidence Building through CDP has no significant effect on the capacity building of the MSMEs.

H_1= Confidence Building through CDP has significant effect on the capacity building of the MSMEs.

A summary table drawn between confidence building and capacity building through three-way survey opinions is presented below in Table 7.

Table 7: Cross tabulation: Training Programme enhance Confidence Building*
Capacity Building through SPV formation is important for CDP

Count					
		Capacity Building through SPV formation is important for CDP			Total
		Agree	Neutral	Disagree	
Training Programme enhance Confidence Building	Agree	326	30	2	358
	Neutral	29	5	0	34
	Disagree	6	0	1	7
Total		361	35	3	399

Through the research table, it can be seen that 81.7% of respondents agree on capacity building through SPV formation, which is also one of the core issues of cluster soft interventions. Whether the null hypothesis is accepted or rejected based on the Chi-Square test is shown below in Table 8.

Table 8: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.660a	4	.001
Likelihood Ratio	7.259	4	.123
Linear-by-Linear Association	2.737	1	.098
N of Valid Cases	399		

The Pearson Chi-Square or P value of the test at 5% level of significance is 0.001 which is less than .05. So, reject the Null Hypothesis and accept the alternative hypothesis. Now, it can be said that there is close relationship between confidence building and capacity building. That is confidence building can affect capacity building positively.

Analysis of Hard Interventions

The main objective of hard interventions is to provide physical services from common facility center (CFC) at affordable and comparatively least cost for the members and other MSME units. Hard interventions strengthen of the MSME units in the way of reducing costs, improve productivity, helps in maintaining standard and quality and enhance competitive powers of the beneficiary units. Lastly, it forms social capital in the society.

For analysis of hard interventions, four questions have been raised based on cause-effect relationship are mentioned below:

(i)   Research & Development (R&D) centre

(ii) Practical skill development

(iii) Raw material bank

(iv) Performances of the units of small clusters

(i)   **Research & Development Centre**

RDC is an important centre of CFC. The justification of this centre is to develop new knowledge and improve existing ones in order to safeguard MSMEs from upcoming challenges and threats. Research and development centre and its immense benefits have been enjoyed and widely accepted by the MSMEs and their reflection is shown below in Table 9.

Table 9: R&D Centre is an important segment of CFC

	Frequency	Percent	Cumulative Percent
Agree	327	82.0	82.0
Neutral	53	13.3	95.2
Disagree	19	4.8	100.0
Total	399	100.0	

Source: *Compiled by the Researcher*)

It appears from the above table that 82% of respondents agreed that R&D centre plays an important role for the benefits of the MSME units. Only 4.8% of respondents said that R&D centre has no impact on the beneficiary units.

(ii) **Practical Skills Development**

Practical skills have been gaining by the participating units through R&D centre. The Research centre is being setup with a vision to provide all sort of support for establishing and running productive programme for the benefit of unskilled or semi-skilled persons.

R&D centre induced to develop practical

skills of the beneficiary units. This centre identifies of the direction of present skills requirements and in near future. Regarding outcome from R&D centre, opinion of the sample MSMEs fall below in Table 10.

Table 10: Practical Skills Development is the Key Outcome from R&D Centre

	Frequency	Percent	Cumulative Percent
Agree	372	93.2	93.2
Neutral	22	5.5	98.7
Disagree	5	1.3	100.0
Total	399	100.0	

Source: *Compiled by the Researcher*)

It is found from the above table that 93.2% of respondents agreed on augmentation of practical skills development through R&D centre. Only 5 out of 399 (i.e.1.3%) respondents opined that there is insignificant impact of R&D centre on MSME units. 5.5% of respondents didn't have any specific idea about the R&D issues. However, the correlation between R&D centre and practical skills development is tested with the help of Chi-Square Test.

Chi-Square Test:

Hypothesis-3

Ho= Research & Development Centre (RDC) has no impact on Practical Skills Development of the beneficiaries.

H1= Research & Development Centre has an impact on Practical Skills Development of the beneficiaries.

A cross tabulation was constructed to identify a sample of opinions about the impact of research & development centre on practical skills development and the results are presented in Table 11 below.

Table 11: Cross tabulation: RDC is an important segment of CFC * Practical skills development is the key outcome from RDC

		Practical skills development is the key outcome from hard interventions			Total
		Agree	Neutral	Disagree	
RDC is an important segment of CFC	Agree	305	19	3	327
	Neutral	50	3	0	53
	Disagree	17	0	2	19
Total		372	22	5	399

Source: *Compiled by the Researcher*)

From the above table, it can be seen that 76.45% respondents agree to strengthen the development of practical skills from R&D centre under CDP which is one of the core issues of hard interventions.

The Pearson Chi-Square test is developed to test whether there is any relationship between the R&D center and the practical skill development of the beneficiaries, and the final results are presented in Table 12 below.

Table 12: Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.134	4	.004
Likelihood Ratio	8.827	4	.066
Linear-by-Linear Association	1.278	1	.258
N of Valid Cases	399		

The Pearson Chi-Square or P value of the test at 5% level of significance is 0.004 which is less than .05. So, null hypothesis is rejected and the alternative hypothesis is accepted. Now, it can be said that there is close relationship between R&D centre and practical skills development.

(iii) **Raw Material Bank**

Raw materials and their regular supply are becoming a growing problem in clusters. Raw Material Bank (RMB) or sales depot makes certain smooth functioning of production especially for the small units of a cluster. It is one of the key concerns of every MSME cluster under study. It saves cost and increases income of the beneficiary units.

RMB ensures not only standard quality supply to the needy enterprises but also maintain same price for all units. It protects cluster members from variation of raw material prices and maintain unique price. Quality raw materials through designated commodity banks will not only help the artisans in the cluster get their basic input at the right price, but will also protect them from middlemen and touts. Therefore, non-availability of RMB has been considering as key concern for most of the MSME clusters in West Bengal.

Raw material bank and its requirements felt by most of the enterprises and their witnessed is shown below in Table 13.

Table 13: Raw Material Bank is needed for the units of Small Clusters

	Frequency	Percent	Cumulative Percent
Agree	337	84.5	84.5
Neutral	51	12.8	97.2
Disagree	11	2.8	100.0
Total	399	100.0	

Source: *Compiled by the Researcher*)

From the above table it shows that 84.5% of respondents felt their strong requirements for raw material bank especially for the units of small clusters. 11 out of 399 respondents did not accept any need for the raw material bank.

(iv) **Performance of the Units of Small Clusters**

Several clusters in India and abroad accept that there is an urgent need of raw material bank. It is undoubtedly true that a cluster with raw material bank and a cluster without raw material bank make huge difference between the two clusters from the view point of cost per unit of raw material and income of the beneficiary units.

The effect of raw material bank on cost per unit of production as well as financial performance of the MSMEs is extremely important which is reflected by their opinion is shown below in Table 14.

Table 14: Raw Material Bank effect on Performance of the MSMEs

	Frequency	Percent	Cumulative Percent
Agree	333	83.5	83.5
Neutral	53	13.3	96.7
Disagree	13	3.3	100.0
Total	399	100.0	

Source: *Compiled by the Researcher*)

It shows from the above table that 83.5% of respondents emphasized on raw material bank. Deficiency of RMB has been affected adversely at the overall performance of the MSME units. It is noted that there is no raw material bank in selected CDP under study. In contrast, 3.3% of respondents thought there is no impact of raw material bank on the beneficiary units. The chi-square test reveals whether there is a correlation between raw material banks and MSME performance.

Chi-Square Test:

Hypothesis-4

Ho= There is no relation between Raw Material Bank and Performance of the Small Cluster Units.

H1= There is a relation between Raw Material Bank and Performance of the Small Cluster Units.

A cross tabulation is drawn between raw material bank and performance of the MSMEs in three dimensional scale and outcome is shown below in Table 15.

Table 15: Cross tabulation: Raw Material Bank is needed for the units of small clusters * Raw Material Bank affects the Performances of the MSMEs

		Raw Material Bank affects performances of the MSMEs			Total
		Agree	Neutral	Disagree	
Raw Material Bank is needed for the units of small clusters	Agree	285	40	12	337
	Neutral	43	8	0	51
	Disagree	5	5	1	11
Total		333	53	13	399

Source: *Compiled by the Researcher*)

It appears from the cross tabulation that 71.4% of respondents agreed on raw material bank affects performance of the MSMEs. Non existence of raw material bank which is one of the core issues of hard interventions. The correlation between two variables is tested by the Pearson Chi-Square Test and P value is shown below in Table 16.

Table 16: Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.163[a]	4	.007
Likelihood Ratio	12.483	4	.014
Linear-by-Linear Association	3.107	1	.078
N of Valid Cases	399		

The Pearson Chi-square or P-value for the test at the 5% significance level is 0.007 and is less than 0.05. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted. From this, we can conclude that there is a close relationship between raw material bank and MSME performance.

In this section, 30 MSME clusters are considered instead of the 8 selected to evaluate the overall CDP scenario in West Bengal. The study attempted to examine the overall effect of CDP in MSME clusters in West Bengal on the basis of employment generation. A cross-tabulation has been established regarding job creation between before and after the interventions shown below in the Table 17.

Table 17: Cross Tabulation of employment generation before and after the interventions

	After Interventions						Total Clusters
Before Interventions	Job Creation	1-1000	1001-2000	2001-4000	4001-15000	15001-60000	
	1-1000	6	2	0	0	0	8
	1001-2000	0	2	4	0	0	6
	2001-4000	0	0	1	1	0	2
	4001-15000	0	0	0	5	1	6
	15001-60000	0	0	0	0	8	8
Total Clusters		6	4	5	6	9	30

Source: *Directorate of M&SSE, Govt. of West Bengal 2019 and Compiled by the Researcher*
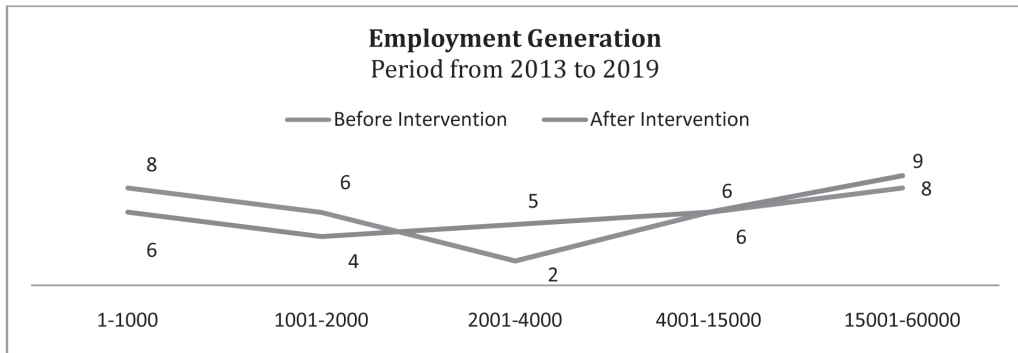
Figure 1: Employment generation between before and after the interventions

From the cross-table, it appears that there is a quantitative change in job creation between before and after the intervention. The figure shows that these 8 clusters and 6 clusters initially created jobs ranges from 1 to 1000 and from 1001 to 2000 but after the interventions; the number of clusters was reduced to 6 and 4 respectively. In both cases, the job creation range is moved to the upper cell, positively affecting 2001 to 4000 or 15001 to 60000.

Conclusion

The effectiveness of the CDP leads to the definitive conclusion that the programme is of paramount importance to the MSME units and can be very effective. The theoretical findings as well as outcome of the empirical analysis are summed up in this section. MSME plays a key role in achieving balanced and sustainable economic growth by creating jobs, encouraging entrepreneurship and contributing to export revenues. Both soft and hard CDP interventions were found to be very successful and effective in the selected MSME clusters studied. Soft intervention raises the level of awareness,

self-confidence building, and capacity building among beneficiary units. These enhance their soft skill development. Likewise, CFCs help improve the income, competitiveness and job creation of beneficiary units. However, the lack of marketing and commodity banking is considered a major drawback of this study. One of the interesting conclusions may be from research that CDP-based CFCs build social capital in society.

Limitations of the Study

CDP and its measuring effectiveness are enormous work, so due to time and resources constraint this study could not cover everything. Some of the major limitations are listed below:

- We have considered the CDP of the eight clusters in this study. It could have been better if we can reach to CDP of all clusters whose hard interventions are running in West Bengal.

- The primary data regarding effectiveness of CDP have been collected from MSME units of seven districts across the State of West Bengal. Considering all districts may give some different results.

Scope for Further Research

We venture to suggest a few potential areas for further research:

- An extension of the present work can be done by comparing the social performance of CDP in the MSME sector on region-wise.

- An exclusive study could be made on the poverty alleviation and protection

mechanisms through CDP in the MSME sector and its empowerment.

Bibliography & References

Books

1. Ghatak Shambhu (2010), Micro, Small and Medium Enterprises (MSMEs) in India: An Appraisal. http://www.legalpundits.com/

2. Peter Andreas (1996), "Role of DICs in the Promotion of Small Scale Industries in Jammu and Kashmir", Unpublished Ph.D. Thesis in University of Jammu, pp 43-384

3. Thorat Y.S.P (2006), Microfinance in India; Sectoral issues and challenges, towards a sustainable microfinance outreach in India, Spanish. http://www.microfinancegateway.org

Articles

1. Bala Subrahmanya MH (2005), Technological innovations in Indian small enterprises: dimensions, intensity and implications, International Journal of Technology, http://inderscience.metapress.com/

2. Banerjee MM (1998), Micro-enterprise development: A response to poverty, Journal of Community Practice, http://www.tandfonline.com/

3. Banerjee P (2005), Corporate Governance and Competence in SME's in India, CACCI Journal, http://techmonitor.net

4. Belleflamme P, Picard P, Thisse JF (2000), An economic theory of regional clusters, Journal of Urban Economics, http://www.sciencedirect.com/

5. Biswas Shantanu, Roy Soumya, Seshagiri Sarita (2007), Collaboration in Indian SME clusters: a case study, Motorola India Research Labs, http://ebusiness.tc.msu.edu

6. Brown ED, Coombe A, Kipperman F, Kumar KB (2009), Catalysts of Entrepreneurship--Policies for Growth, http://www.rand.org

7. Crouch C, Gales PL, Trigilia C, Voelzkow H (2011) Local production systems in Europe: Rise or demise, http://ideas.repec.org/

8. Das B, Shil NC, Pramanik AK (2007), Strengthening SMEs to make export competitive, http://mpra.ub.uni-muenchen.de

9. Das Keshab (2005), Industrial Clustering in India: Local Dynamics and the Global Debate, http://books.google.com

10. Das Sanjay Kanti (2012), Entrepreneurship and Micro Finance: A reflection from North East India, Asian Journal of Research in Social Sciences and Humanities, http://indianjournals.com/

11. Das, Keshab (2008), "Micro, Small and Medium Enterprises in India: Unfair Fare." Gujarat Institute of Development Research Working Paper Series, http://www.gidr.ac.in/

12. Gulyani Sumila (2001)Effects of poor transportation on lean production and industrial clustering: Evidence from the Indian auto industry, The World Bank, Washington, DC, USA http://www.sciencedirect.com

13. Gupta R (2006), Scope of Cottage and Small Scale Industry in West Bengal in the Early 2000, IBS Research Centres, Kolkata, http://papers.ssrn.com/

Reports

1. Report of the 4 All India Census of MSME, 2006-07,fisme.org.in/document/FinalReport

2. SME clusters in India, Draft Report - of Planning Commission (2010) by SR Hashim, www.planningcommission.gov.in/

3. Evaluation Study Report of MSE-CDP, Ministry of MSME, Govt. of India, January, 2009

Web Resources Consulted

1. www.unescap.org
2. www.unido.org/clusters
3. www.dcmsme.gov.in
4. www.ebusiness.tc.msu.edu
5. www.ojs.lib.byu.edu
6. www.papers.ssrn.com
7. www.zunia.org
8. www.isb.edu
9. www.trp.org.in
10. http://www.wbsidcl.com
11. http://clusterobservatory.in/interventions/php
12. www.who.int/tobacco/control/capacity_building
13. www.sdc.ihrd.ac.in

Impact of Mergers on Stock Prices: A Study with Reference to Public Sector Banks of India

Samrat Banerjee
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Abstract:

The study aims to assess the effect of mergers on the share cost of merged public sector banks which took place recently. Complete five instances of mergers were taken into consideration. For the purpose of the analysis, the event Study methodology is utilized. The data have been gathered from the official website of the National Stock Exchange. To know the market reaction towards the merger AR and CAR were calculated and T measurements were utilized to know the significant AR. The study reveals that a banking environment is directly or indirectly affected by frequent mergers. Constant fluctuations in the share prices are seen pre and post -announcement of mergers. It is also noted that merger announcements mostly had a significant impact on stock returns in all the cases.

Keywords:

Mergers, Event study, Significant Abnormal Returns, Cumulative Abnormal Returns, Share Prices, Public Sector Banks

Introduction:

M&A has been around for quite a while; it is not, at this point another idea that has recently been presented in the business world. It started making its presence fall as early as the latter part of the 1800s and the expanding intensity in the worldwide business scene was generally instrumental in its widespread application.

Six times of high merger action, frequently called merger waves, have occurred in U.S. history. The examination has shown that merger waves will in general be brought about by a blend of monetary, administrative, and mechanical stuns. Generally, this M&A technique depends on a conviction that gains can accumulate through cost decrease, expanded market power, diminished profit instability, and scale and extension economies. If the combination does, indeed, lead to esteem gains, investor abundance can be expanded. Then again, if merging substances doesn't prompt the guaranteed positive impacts, at that point mergers may prompt a less productive and important financial industry. Numerous specialists worldwide have experimentally discovered that investors' abundance of the obtaining banks has diminished while it has been the other way around on account of obtained firms.

This research is an eye-opener for all academicians, economists, and banking professionals as it gives a holistic picture regarding the effect of mergers on stock returns with special reference to the banking sector. Thus, this study tries to evaluate whether the decision to merge such public sector banks generated abnormal stock returns and whether it was beneficial or detrimental for the shareholders. This study has considered the recent merger concerning all the mainstream public sector banks, which can be viewed as a major strategic decision in the banking sector in the view of increasing NPA and demonetization.

Literature Review

M. Pramod and Reddy A. V. (2007) analyzed the effect of amalgamation on the performance of parent firms in several industries by using the financial ratio before and after the merger to examine the impact of the amalgamation on the firms.

A. Manoj and J. Singh (2008) conducted a study on the effect of the bank mergers of five banks in the Indian financial area. The five bank mergers were the Times bank and HDFC Bank, the ICICI and the Bank of Madurai, the ICICI Bank and the ICICI Ltd., the merger of Global Trust Bank with the Oriental Bank of Commerce and Centurian Bank and the Bank of Punjab.

David (2010) broke down the whole financial exchange and the air pocket impact on the Mergers and acquisitions then followed by the decrease of pre-bubble and

that the blasting of the bubble has prompted the awareness by the financial backers and gives proof that it is during the euphoric bubble period that the investors face more challenge. The merger of banks is the most huge change that occurred in the Indian financial area.

S. Pankaj and S. Gupta (2011) made a pre and post-investigation of firms and showed up at an end that Mergers and Acquisitions affected their benefit. Following a couple of long periods of Mergers and Acquisitions, it became visible that maybe the organizations may have had the option to use the collaborations which emerge out of mergers. Furthermore, Acquisitions have not been fruitful in dealing with their liquidity. The investigation likewise showed pre and post-investigation correlations of the firm. It additionally showed the positive impacts which were based on source significant monetary boundaries like the profit before interest and expense.

Dr. K.A. Goyal and Vijay Joshi (2012) contemplated the instance of ICICI Bank Limited to be aware of the development of ICICI Bank Limited. This Bank is amalgamated with Nine Finance elements like SCICL, ITC Classic Finance Ltd., Anagram Finance, Bank of Madura, Bank of Sangali, ICICI Personal Finance Service Ltd. and ICICI Capital Service Ltd., Standard of Chartered Grindlays Bank's two branches, and Bank of Rajasthan Ltd.

As per them merger and acquisition are considered in three stages pre-merger stage, acquisition stage and post-merger stage. Also, presumed that there were numerous issues and difficulties for ICICI Bank Limited however it acknowledged that demands and turned into India's biggest Private area bank.

Prof.Ritesh Patel(2014) analyzed the money and stock return of chosen banks to know the impact after the merger and reasoned that mergers and acquisitions have decidedly affected Indian banks and informed that some open area banks are more profitable as opposed to private area banks.

Dr. Sangita Ghosh(2016) analyzed the merger between Global Trust Bank and Oriental Bank of Commerce. She investigated the liquidity factor, effectiveness factor, benefit factor and execution factor of Oriental bank of Commerce. It also discovered that in the wake of blending banks benefit and productivity of acquirer bank has improved yet there was no adjustment in the liquidity position of oriental bank of commerce.

Prof. Ritesh Patel and Dr. Dharmesh Shah (2016) analyzed the monetary execution of pre and post-merger banks through the Economic Value added approach and through other monetary boundaries like the mean score of net overall revenue, return on total assets, return on resources, return on long haul reserve, premium acquired and all-out resources.

Mondal, Pal & Dr. Sarbapriya Ray (2017) conducted a case study on the merger of Nedungadi Bank and Punjab National Bank and evaluated the effect of the merger on the financial performance of the bank in terms of profitability, short-term solvency and stakeholders' wealth. Various financial ratios were used for this research and it was found that there was a significant improvement in the financial parameters post-merger.

Ritesh Patel (2019) investigates the impact of merger announcements on shareholders' wealth of bidder banks and target banks using a paired-sample t-test and event study methodology. It was found that voluntary mergers lead to significant wealth gains, whereas forced mergers lead to minimal wealth loss.

Sandeep, Prof & Khanwalker, M & Gupta, Ashulekha (2020) analyzed the benefits of the merger of banks stating that the Government of India has majority stakes in merged banks and merger has increased the profitability of the banks and increased the customer base of the banks. Furthermore, they also asserted that the merger of banks has widened their overseas operations.

Madray, Jaskaran Singh (2020) presented the reasons favoring the merger of public sector banks and also illustrated the possible outcomes for the stakeholders theoretically.

Mundargi, Mukund (2021) presented a few arguments to support the merger of public

sector banks announced by the Finance Minister on 30th August 2019. He cited reasons like cost advantage, technological boost and synergies to theoretically support the decision of merger.

Research Gap

This is the first-ever research conducted on the merger of all public sector banks which took place during the pandemic covid-19. This study will present a clear picture regarding the outcome of the merger of the public sector banks on their stock prices, unlike previous mergers which took place only between the major banks and their subsidiaries.

Objectives Of The Study

- To analyze the impact of the merger on the abnormal returns of the merged banks.

- To understand the effect of the merger on cumulative abnormal returns of the merged public sector banks.

- To assess whether there is any significant impact of the merger on the share price of the public sector banks.

Research Methodology

We have collected the stock prices of the public sector banks and the nifty bank prices from the official website of NSE(National Stock Exchange). We have taken all the 5

public sector banks which have merged recently in our study. We have considered 41 days as the Event window and 100 days as the estimation window. We have applied the event study methodology for analyzing whether the mergers have resulted in any significant return or not.

We have used the market model for the event study which is as follows

$$AR\_(i,t)=R\_(i,t)- (\alpha i+\beta\_i \, R(m,t))$$

where Ri,t is the raw return on security 'i' for a day 't', while E(Ri,t) is the expected return on security 'i' during 't' which will be estimated using the market model, Řit=αi+ βiRmt +êit . Finally, we have computed the Average Abnormal Return and Cumulative Average Abnormal Return for each relative day which are as follows: AAR_t) □ = 1/ NΣARi,t (N is the number of securities with abnormal return during the day 't'), CAAR = ΣAR t

Implementing the grounded methodology of event study, I have divided the complete time of investigation in regard to every acquirer into two significant periods viz."'Estimation Window" and "Event Window" the equivalent is portrayed in **fig 1**. The Event Window deals with the time frame encompassing the declaration of the merger. The day of the declaration of the merger is named 't' day. The time frame before t -day is called as pre- declaration period (20 days) whereas the term after the t-day is called the post-declaration period (20 days).

Various studies which critically examine the revenue generation employs short-term announcement periods encompassing the day when the mergers are announced. The reason is that most merger deals take place within confidentiality and within a closed boundary. But, various sources tend to leak out the merger information and the market starts to react to the information, taking into consideration the profits/losses of the merger faced by the acquirer firms.
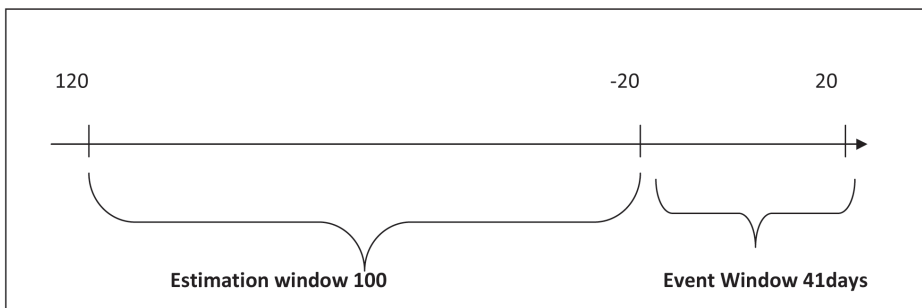
Fig:1

To calculate **t-statistics of Abnormal return** the following formula is used

=Abnormal return/Standard error

To calculate **Cumulative Abnormal return**, the AR calculated is used. The following formula is used

=CAR=∑A.R

To calculate **t-statistics of Cumulative Abnormal return** the following formula is used

=CAR/(S.D*(no. Of days in the window)^ (1/2))

Results and Discussions

Punjab National Bank Amalgamating with Oriental Bank of Commerce and United Bank of India.

Table 1 presents the abnormal return (A.R) and cumulative abnormal return (C.A.R) for days -20 to +20 encompassing the official declaration of amalgamation of PNB with Oriental Bank of Commerce & United Bank of India. A study of the table exhibited that out of 41 days of the event window, A.R is found to be negative for 16 days.

A.R is significant at 5% for 7 days prior to merger (-2,-7,-9,-10,-11,-12,-13) of the event window and for 4 days post-merger (1,5,9,18) of the event window. This indicates that the stock market was reactive on and around the declaration of this merger and the investors reacted in a significant manner.

The value of CAR is found to be statistically significant for 12 days(pre-event) and one day(post-event), which also indicates a significant reaction to the stock market.

Therefore, the study reflects that the stock market reacted significantly to the leakage of merger information at an initial stage, but showed a very minimal reaction to it after its announcement.

The graph of A.R of the event window(-20,+20) depicted in **fig 2** shows that the A.R is highest on the -7th day of the event window(pre-event) and CAR shown in **fig 3** reflects that the market responded due to the announcement of this merger.

Table1:

Period	Abnormal Return	T-Stat of A.R	C.A.R	T (no. Of days in the window)	t-stat of CAR
-20	0.02809123	1.686746114	0.404666428	20	4.979500785
-19	0.02869988	1.723292745	0.376575198	19	4.754211955
-18	0.00756479	0.454230176	0.347875317	18	4.512227516
-17	-0.0050601	-0.303837036	0.340310525	17	4.542077568
-16	0.01199055	0.719975932	0.345370655	16	4.751481803
-15	-0.0311763	-1.871990104	0.333380108	15	4.736937779

-14	0.01849245	1.110384769	0.364556409	14	5.361722668
-13	0.03527596	2.118155455	0.346063955	13	5.281877422
-12	0.08445958	5.071400194	0.310787993	12	4.937160392
-11	0.05029709	3.020103601	0.226328413	11	3.755314912
-10	0.15112138	9.074127687	0.17603132	10	3.063328514
-9	0.05121591	3.075274479	0.024909936	9	0.456935583
-8	0.0091739	0.550849759	-0.026305978	8	-0.511815082
-7	0.19800547	11.88929614	-0.035479882	7	-0.737966711
-6	0.01232995	0.740355622	-0.233485349	6	-5.245508999
-5	-0.1657141	-9.950349426	-0.245815302	5	-6.049612247
-4	-0.1097806	-6.591811055	-0.080101237	4	-2.204006427
-3	-0.0211768	1.271564564	0.02967941	3	0.942970844
-2	0.07610998	4.570045968	0.050856167	2	1.978938306
-1	-0.0411722	-2.472195156	-0.025253813	1	-1.38973047
0	0.01591836	0.955822603	0.01591836	0	
1	0.05564798	3.341398948	0.071566336	1	3.938332777
2	-0.1287201	-7.729038183	-0.0571538	2	-2.223994668
3	0.02721948	1.634401462	-0.029934323	3	-0.951069907
4	-0.0399726	-2.400168641	-0.06990696	4	-1.923508215
5	0.03333436	2.001571334	-0.0365726	5	-0.900066227
6	0.02802523	1.682782956	-0.008547373	6	-0.19202628
7	-0.0241264	-1.448674604	-0.032673738	7	-0.679600086
8	-0.0658366	-3.953179311	-0.098510362	8	-1.916639995
9	0.04717352	2.832547807	-0.051336841	9	-0.941697712
10	0.0299539	1.798590415	-0.021382946	10	-0.372109843
11	-0.018325	-1.100328337	-0.039707918	11	-0.658846743
12	-0.0345893	-2.076927482	-0.074297266	12	-1.180282141
13	0.0206874	1.242181101	-0.053609864	13	-0.818232366
14	-0.0148068	-0.889079905	-0.068416685	14	-1.006240137
15	-0.0225831	-1.356011393	-0.090999828	15	-1.293000125
16	0.00727381	0.436757952	-0.083726019	16	-1.15187162
17	-0.0269042	-1.615469498	-0.110630202	17	-1.476566021
18	0.0610334	3.664768196	-0.049596804	18	-0.64331113
19	0.00668809	0.401588411	-0.042908712	19	-0.541716805
20	-0.023024	-1.382483248	-0.06593272	20	-0.811315214

Source: *self computed*

Fig 2. displays the relationship between abnormal return (A.R) to time throughout the event period (day -20 to +20)
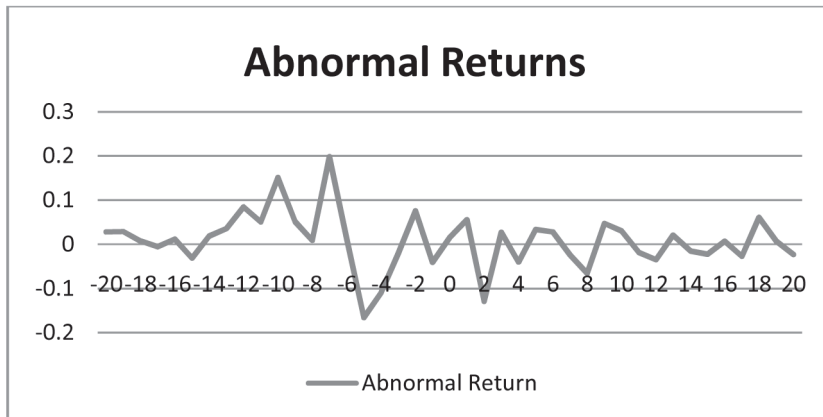
Source: *self computed*

Fig 3. displays the relationship between Cumulative abnormal return(C.A.R) to time throughout the event period(day -20 to +20)
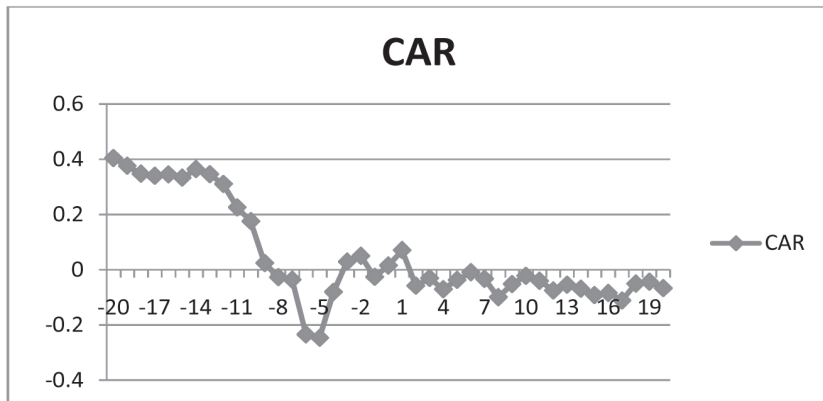
Source: *self computed*

Canara Bank amalgamating with the Syndicate Bank

Table 2 presents the abnormal returns (A.R) and Cumulative abnormal returns(CAR) for

41 days event period (20 days prior to the declaration and 20 days post the declaration of the merger) against the amalgamation of the Syndicate Bank & Canara Bank. The

table displays that AR is negative for 4 days before and 10 days after the announcement. AR is statistically significant for 6 days(-6,-7,-9,-10,-11,-12) (Pre Event) and for 2 days (9,13)(Post Event) of the event window which again hints at the significant reaction of the stock market owing to the merger announcement.

The CAR value before the announcement date is positive for all the 20 days and statistically significant for 17 days (i.e value>1.96)(pre-merger). The day after the announcement, CAR is found to be insignificant on all the days of the event window except for the next day (Day 1) after the announcement of the merger. This again indicates that the investors reacted significantly on and around the date of the merger announcement.

The graph of the event window (-20,+20) depicted in **Fig.4**, shows that both AR and CAR **Fig.5** are volatile on and around the merger announcement date.

Table 2

Period	Abnormal Return	T-Stat of A.R	C.A.R	T (no. of days in the window)	t-stat of CAR
-20	0.010997404	0.694595617	0.426028894	20	5.099233078
-19	0.013746873	0.868252026	0.41503149	19	5.096652879
-18	-0.004784064	-0.302161313	0.401284617	18	5.062873372
-17	0.000322612	0.020376193	0.406068681	17	5.271762548
-16	0.016897989	1.06727637	0.405746068	16	5.429691257
-15	-0.040257974	-2.542692183	0.388848079	15	5.374216217
-14	0.003701093	0.233760916	0.429106053	14	6.138770961
-13	0.007216718	0.455807669	0.42540496	13	6.315557303
-12	0.073811441	4.661927879	0.418188242	12	6.461926311
-11	0.069790149	4.407943281	0.344376801	11	5.557997561
-10	0.094169465	5.947739934	0.274586652	10	4.64793695
-9	0.077646592	4.904155924	0.180417187	9	3.219122174
-8	-0.04502313	-2.843659216	0.102770595	8	1.944933173
-7	0.079341183	5.011186182	0.147793724	7	2.990114235
-6	0.039367562	2.486453766	0.068452542	6	1.495873132
-5	-0.088181913	-5.569566394	0.02908498	5	0.696248985
-4	-0.053823189	-3.399470659	0.117266893	4	3.138529608

|					
-3	0.002735426	0.172769404	0.171090082	3	5.287434672
-2	0.0711526	4.493995622	0.168354656	2	6.372222643
-1	0.012120434	0.765526171	0.097202056	1	5.203029143
0	0.085081622	5.373752133	0.085081622	0	
1	0.025764134	1.627261756	0.110845756	1	5.933348758
2	-0.135361443	-8.549423798	-0.024515687	2	-0.927918602
3	0.020584175	1.30009571	-0.003931513	3	-0.121501003
4	-0.03208093	-2.02623035	-0.036012443	4	-0.963836545
5	0.001134704	0.071667838	-0.034877739	5	-0.834918582
6	0.020119428	1.270742326	-0.014758311	6	-0.322509002
7	-0.033917973	-2.142257921	-0.048676284	7	-0.984802635
8	-0.093687712	-5.917312457	-0.142363996	8	-2.694238157
9	0.074020678	4.675143303	-0.068343318	9	-1.219426452
10	0.009426586	0.595382841	-0.058916732	10	-0.997285385
11	-0.037626411	-2.376482732	-0.096543143	11	-1.558137916
12	-0.035760615	-2.258639159	-0.132303758	12	-2.044383485
13	0.033498849	2.115786064	-0.098804909	13	-1.466856583
14	-0.037774663	-2.385846345	-0.136579572	14	-1.953900922
15	-0.015599003	-0.985232462	-0.152178576	15	-2.103239317
16	0.009524483	0.60156601	0.142654092	16	-1.90899614
17	-0.026362316	-1.665042893	-0.169016408	17	-2.194245487
18	0.073903324	4.667731226	0.095113084	18	1.200009871
19	0.024556908	1.551013388	-0.070556177	19	-0.866441098
20	-0.016740677	-1.057340528	-0.087296853	20	-1.044875144

Source: *self computed*

Fig 4. displays the relationship between A.R to time throughout the event period (day -20 to +20)

Abnormal Return

Fig 5. displays the relationship between C.A.R to time throughout the event period (day -20 to +20)

CAR
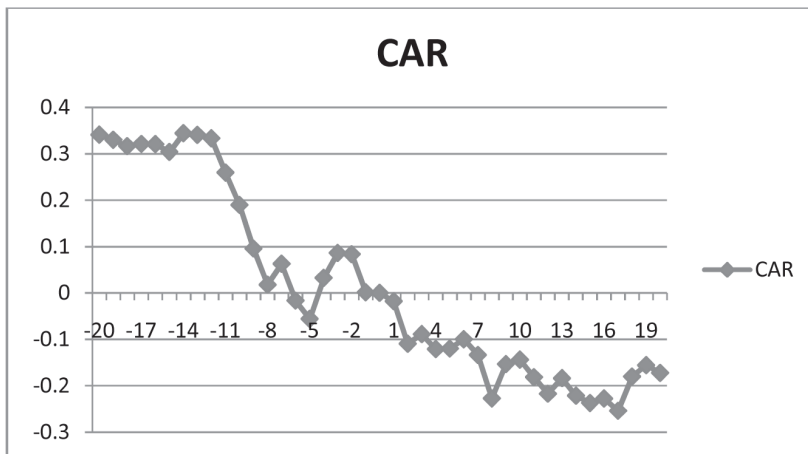
The Merger of Union Bank with the Andhra Bank & Co-operative Bank.

Table 3 presents the A.R and CAR for -20,+20, encompassing the official declaration of the amalgamation of the Union Bank with the Andhra Bank and the Co-operative Bank. A study of the table showed that the value of A.R is statistically significant at 5% for 8 days(pre-event)and 4 days after the event in the event window indicating that the announcement of this merger significantly affected the stock returns and the investors.

The CARs before the declaration period is positive for 19 days and 6 days after the announcement of the merger were found to be positive. The value of CAR was found to be statistically significant for 17 days pre-merger. Post the merger it didn't reflect any significant result except for the next day of the event(Day 1), which again suggests a significant impact of the merger announcement on the investors on and around the merger announcement date.

The graph of A.R of event window(-20,+20) depicted in **fig 6**, shows that no consistent pattern of the AR and CAR shown in **fig 7**, reveals that it did not reflect any significant result(i.e >1.96) during the whole post-announcement period, except for the very next day of the event (Day 1).

Table 3

Period	Abnormal Return	T-Stat of A.R	C.A.R	T (no. of days in the window)	t-stat of CAR
-20	-0.015481259	-0.704092275	0.631462447	20	6.548787279
-19	0.037456735	1.703543427	0.646943706	19	6.883638344
-18	0.07613596	3.462686099	0.609486971	18	6.662796167
-17	-0.008717749	-0.396485803	0.533351011	17	5.999527044
-16	0.00696082	0.316580169	0.54206876	16	6.285252666
-15	-0.026122893	-1.18807692	0.535107939	15	6.408023837
-14	0.049088271	2.232549167	0.561230832	14	6.95674136
-13	-0.013728956	-0.624396983	0.512142561	13	6.587908308
-12	0.104889969	4.770426929	0.525871516	12	7.040724947
-11	0.076670076	3.486977827	0.420981548	11	5.887014039
-10	0.124156635	5.646680636	0.344311472	10	5.049865912
-9	0.021486105	0.977194423	0.220154837	9	3.403575046
-8	-0.005380513	-0.24470732	0.198668732	8	3.257713451
-7	0.192954786	8.775640971	0.204049245	7	3.576961999
-6	0.045192415	2.055364449	0.01109446	6	0.210067509

-5	-0.147522299	-6.709357992	-0.034097955	5	-0.70724793
-4	-0.048041166	-2.184926513	0.113424344	4	2.63029606
-3	0.003178334	0.144551575	0.16146551	3	4.323619787
-2	0.083629832	3.8035096	0.158287176	2	5.191096324
-1	-0.01616154	-0.735031621	0.074657344	1	3.462588573
0	0.090818884	4.130469825	0.090818884	0	
1	0.090641251	4.122391035	0.181460135	1	8.416074741
2	-0.151933985	-6.910002758	0.029526151	2	0.968322864
3	0.014332974	0.651867905	0.043859124	3	1.174431478
4	-0.0875302	-3.98089952	-0.043671076	4	-1.012726679
5	0.024909665	1.132898969	-0.018761411	5	-0.389142664
6	0.062888363	2.860181418	0.044126952	6	0.835519626
7	-0.01431975	-0.651266497	0.029807201	7	0.522517134
8	-0.111542178	-5.072971393	-0.081734977	8	-1.340266932
9	0.030705518	1.396496101	-0.051029458	9	-0.78891108
10	0.051858553	2.358542387	0.000829095	10	0.012159969
11	-0.01084687	-0.49331887	-0.010017775	11	-0.140088763
12	-0.045918904	-2.088405409	-0.05593668	12	-0.74891825
13	0.035278254	1.604465468	-0.020658426	13	-0.265738146
14	-0.04565256	-2.076291981	-0.066310986	14	-0.821958362
15	-0.069188832	-3.146728633	-0.135499817	15	-1.622637222
16	-0.020849959	-0.948262351	-0.156349777	16	-1.812865684
17	-0.024086571	-1.095464409	-0.180436348	17	-2.029681632
18	0.108318168	4.926342451	-0.07211818	18	-0.788382291
19	0.021805179	0.991706021	-0.050313001	19	-0.535342567
20	-0.072908826	-3.315915067	-0.123221827	20	-1.277912153

Source: *self computed*

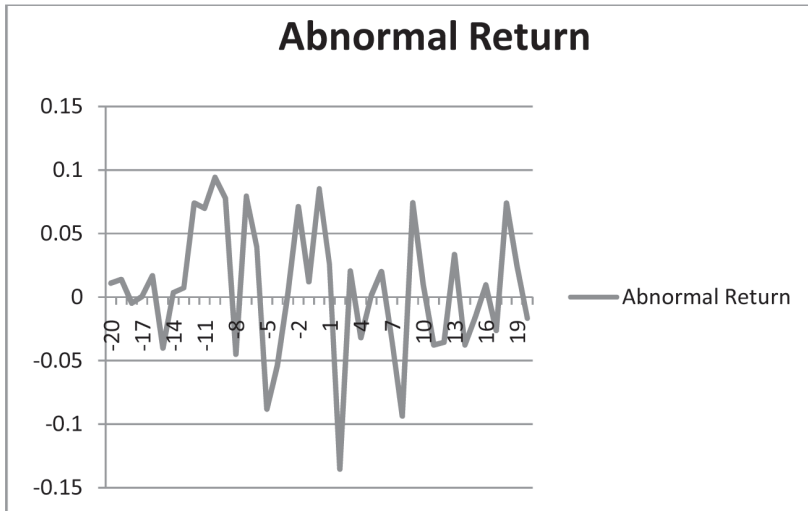**Fig 6.** displays the relationship between A.R to time throughout the event period (day -20 to +20)
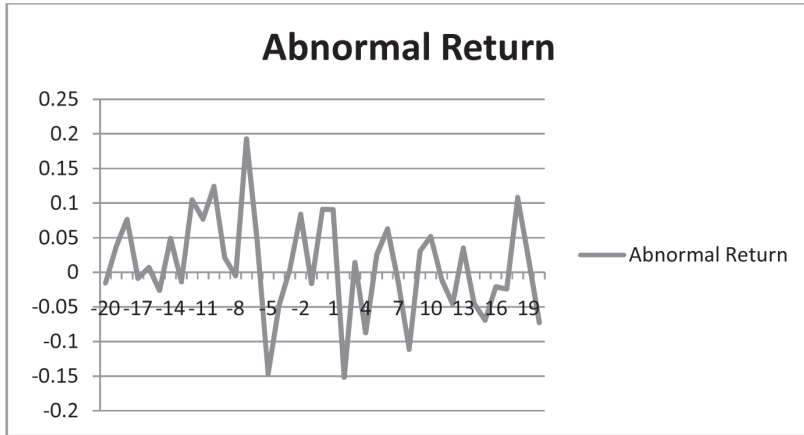
Fig 7. shows the relationship between C.A.R to time throughout the event period(day -20 to +20)
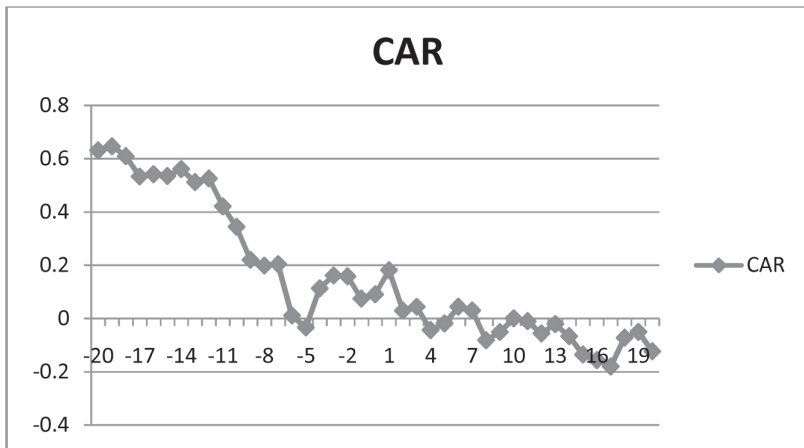
Indian Bank amalgamating with the Allahabad Bank

Table 4 exhibits the AR and CAR for events -20 to +20, encompassing the official declaration of the merger of Indian Bank with the Allahabad Bank. A study of the table showed that prior to the event AR is found to be positive for 10 days and significant on -7th, -16th,-1st day and on the post-event AR is found to be positive for 10 days and significant at 5% level(i.e value>1.96) on 1st& 9th day of the window period. Therefore, the reaction of the stock market due to the merger announcement cannot be denied.

The CAR value is found to be positive for 38 days out of the 41 days of the event window of which 4 days prior to the event and 9 days post the event are found to be statistically significant.

From the entire above analysis, it can be seen that the leakage of the merger information positively affected the market, increasing the wealth of the shareholders

The graph of AR of the event window (-20, +20) depicted in **Fig. 8**, shows no consistent

pattern of the abnormal return and the CAR shown in **Fig.9**, reveals that the highest CAR is recorded after the declaration of the merger.

Table 4

Period	Abnormal Return	T-Stat of A.R	C.A.R	T (no. Of days in the window)	t-stat of CAR
-20	-0.010844896	-0.390703473	0.15335282	20	1.513168126
-19	0.037581676	1.353935662	0.164197716	19	1.662266783
-18	0.017127588	0.617046794	0.12661604	18	1.316930605
-17	0.015224324	0.548478877	0.109488452	17	1.171802097
-16	0.059590099	2.146821784	0.094264128	16	1.039912693
-15	-0.101602368	-3.66037615	0.034674029	15	0.395065493
-14	-0.030653237	-1.104328391	0.136276397	14	1.60718933
-13	-0.015639315	-0.563429546	0.166929635	13	2.043017947
-12	0.042315036	1.52446199	0.18256895	12	2.325662602
-11	0.023621779	0.851009662	0.140253914	11	1.86607486
-10	0.035458157	1.277432735	0.116632135	10	1.627528642
-9	0.045579082	1.642054094	0.081173978	9	1.194004577
-8	0.0393543	1.417797097	0.035594896	8	0.555332583
-7	0.071985458	2.593383003	-0.0037594	7	-0.062701853
-6	-0.055969524	-2.016385218	-0.07574486	6	-1.364545331

-5	-0.063606639	-2.291523597	-0.01977534		5	-0.390255753
-4	-0.029996374	-1.080663928	0.043831301		4	0.967085306
-3	-0.013821822	-0.497951654	0.073827676		3	1.880914198
-2	0.012228174	0.440538106	0.087649498		2	2.734921398
-1	-0.003381931	-0.121839074	0.075421324		1	3.32816285
0	0.078803255	2.839004257	0.078803255		0	
1	0.082833985	2.984217294	0.16163724		1	7.132665233
2	-0.078970136	-2.845016389	0.082667104		2	2.579456105
3	0.015681716	0.564957111	0.09834882		3	2.505641556
4	-0.014330473	-0.51627657	0.084018347		4	1.85376447
5	-0.004910589	-0.176911277	0.079107758		5	1.561149479
6	0.026874099	0.968179328	0.105981857		6	1.909265458
7	-0.010435717	-0.375962191	0.09554614		7	1.593582469
8	-0.05427845	-1.955461763	0.04126769		8	0.64383648
9	0.16676896	6.008099386	0.20803665		9	3.060053448
10	0.001621401	0.05841339	0.209658051		10	2.92564724
11	-0.043684691	-1.573805871	0.16597336		11	2.208271451
12	-0.002950329	-0.106289997	0.16302303		12	2.076676048
13	0.010592308	0.38160363	0.173615338		13	2.124842922
14	-0.016306266	-0.587457443	0.157309072		14	1.855240293
15	0.028070605	1.011285212	0.185379677		15	2.112160456
16	-0.014202862	-0.511679178	0.171176816		16	1.888405979
17	-0.008299466	-0.299000593	0.162877349		17	1.743197714
18	0.001486195	0.053542365	0.164363544		18	1.709541545
19	0.021473042	0.773598225	0.185836586		19	1.881329361
20	-0.018995906	-0.684355735	0.16684068		20	1.646255988

Source: *self computed*

Fig 8. displays the relationship between A.R to time throughout the event period (day -20 to +20)

Abnormal Return

Fig 9. displays the relationship between C.A.R to time throughout the event period(day -20 to +20)

CAR
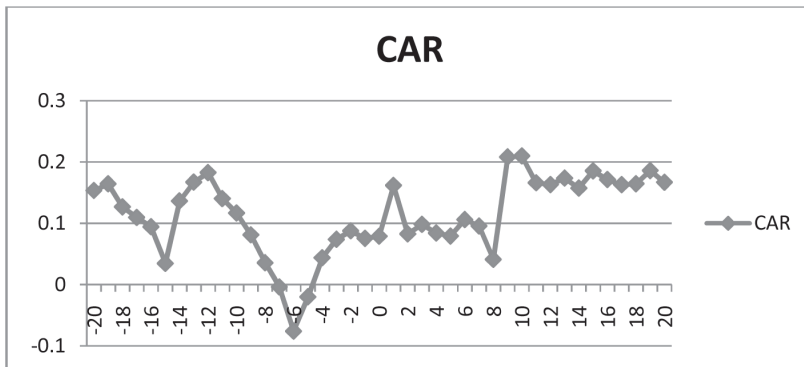
The Merger of Bank of Baroda with the Vijaya Bank & Dena Bank

Table 5 exhibits the abnormal return & C.A.R for the event -20 to +20 encompassing the official declaration of the mergers of the

Bank of Baroda with the Vijaya Bank and the Dena Bank.

A study of the table showed that A.R is positive and significant on the day -1, -18 (pre-event), which indicates that the

investors were less reactive to some extent on this merger announcement.

The value of CAR value is found to be significant for 8 days, prior to the event date and insignificant during the whole post-announcement period except for the very next day of the event(Day 1). Thus, the market is found to be less reactive towards the merger of the Bank of Baroda and other amalgamating banks.

The graph of AR of the event window(-20,+20)depicted in **fig-10** shows no consistent pattern of AR and CAR in the **fig-11** reveals that there is a consistent fall in the CAR after the announcement of Mergers, resulting in the decline of the profit of the shareholders.

Table 5

Period	Abnormal Return	T-Stat of A.R	C.A.R	T (no. Of days in the window)	t-stat of CAR
-20	0.001493904	0.083745806	0.16424993	20	2.311125612
-19	0.001786242	0.100133748	0.16275602	19	2.349598361
-18	0.056605925	3.173234339	0.16096978	18	2.387489462
-17	0.020382291	1.142597437	0.10436385	17	1.592791814
-16	-0.001801409	-0.100984017	0.08398156	16	1.321165821
-15	0.021608666	1.211345982	0.08578297	15	1.39376267
-14	-0.011203714	-0.628061624	0.06417431	14	1.079271067
-13	0.011929812	0.668765512	0.07537802	13	1.315547153
-12	-0.022023651	-1.234609377	0.06344821	12	1.152556183
-11	-0.011318812	-0.634513815	0.08547186	11	1.621661385
-10	0.006830316	0.3828962	0.09679067	10	1.926046938
-9	-0.004071469	-0.228239825	0.08996035	9	1.886962508
-8	0.013840172	0.775857114	0.09403182	8	2.092007487
-7	0.026726935	1.498267677	0.08019165	7	1.907275835
-6	0.006269774	0.351473145	0.05346472	6	1.37348845
-5	-0.031823775	-1.783988055	0.04719494	5	1.328139908
-4	-0.004692756	-0.263068114	0.07901872	4	2.486184455
-3	0.00383413	0.21493495	0.08371147	3	3.041289231
-2	-0.000192652	-0.010799726	0.07987734	2	3.554200979
-1	0.05112845	2.866176141	0.08006999	1	5.03852211
0	0.028941545	1.622415047	0.02894155	0	
1	0.002969168	0.166446639	0.03191071	1	2.008028528
2	-0.000196069	-0.010991287	0.03171464	2	1.411166368

3	0.001813625	0.101668824	0.03352827	3	1.218102633
4	-0.009187903	-0.515058596	0.02434037	4	0.765826684
5	0.003936302	0.220662538	0.02827667	5	0.795749925
6	0.007171229	0.402007185	0.0354479	6	0.910643136
7	-0.00616517	-0.345609222	0.02928273	7	0.696459496
8	-0.005818299	-0.32616419	0.02346443	8	0.522033466
9	0.011366652	0.637195681	0.03483108	9	0.730598971
10	-0.008318893	-0.466343359	0.02651219	10	0.52756858
11	-0.011566524	-0.64840014	0.01494566	11	0.283564737
12	-0.021518001	-1.206263468	-0.00657234	12	-0.11938853
13	-0.001912352	-0.10720328	-0.00848469	13	-0.148080423
14	0.003448717	0.193329363	-0.00503597	14	-0.084694009
15	0.003961199	0.222058257	-0.00107477	15	-0.017462427
16	-0.012359817	-0.692870832	-0.01343459	16	-0.211347829
17	-0.005641885	-0.316274723	-0.01907647	17	-0.291143457
18	-0.047929692	-2.686859065	-0.06700617	18	-0.99382951
19	-0.000966473	-0.054178899	-0.06797264	19	-0.981274935
20	0.017825912	0.999291102	-0.05014673	20	-0.705603892

Source: *self computed*

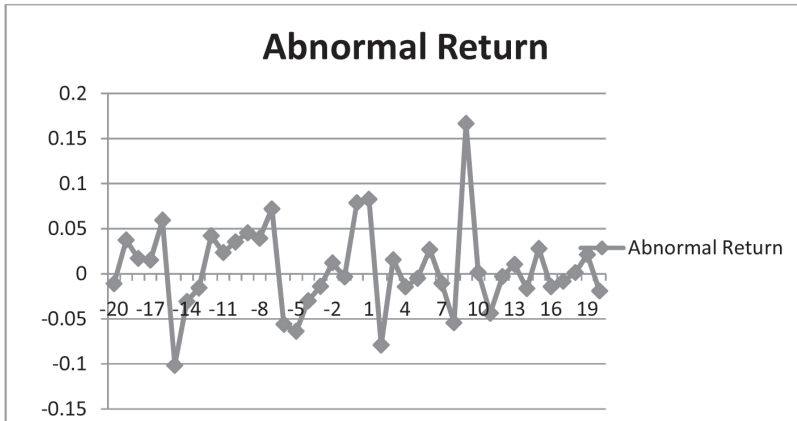**Fig 10.** displays the relationship between A.R to time throughout the event period (day -20 to +20)
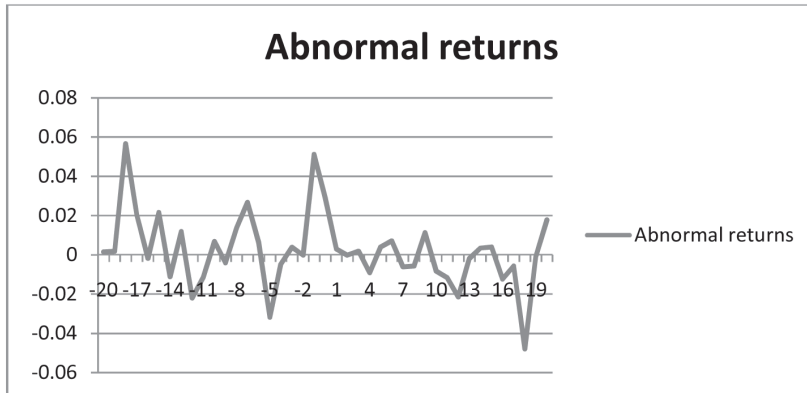
Fig 11. displays the relationship between C.A.R to time the throughout event period(day -20 to +20)
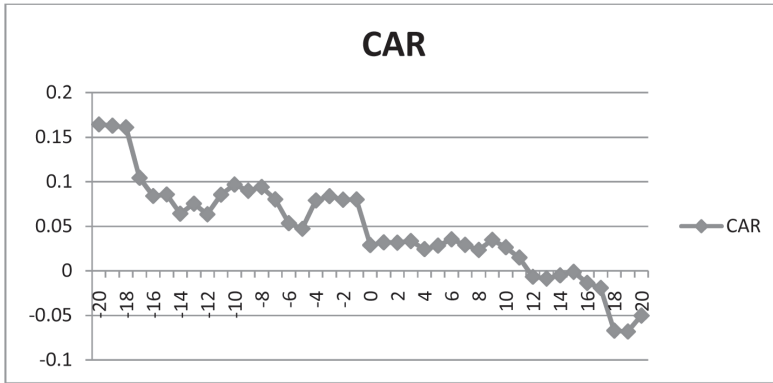
Conclusion and Recommendation

The banking industry has been undergoing major consolidation in recent years, hence resulting in the formation of strong entities in the global market. The consecutive mergers and acquisition results in the creation of a sense of skepticism for all stakeholders concerned. This paper analyses the short-run effect of mergers announcement on stock returns of the merged banks. The study reveals that in the case of the selected banks (Punjab National Bank, Union Bank, Canara Bank, Indian Bank & Bank of Baroda), the investors reacted significantly in the stock market to the announcement of mergers. Therefore, it can be concluded that, in a banking environment, mergers and acquisitions can directly or indirectly affect the shareholder's sentiments but it can also be noted that mergers are not always successful or it may take some time to reflect their productivity. Hence, it is very important to announce the mergers at the right time as it plays a very important role in the success of the entity. To conclude, the investors need to take into consideration, the corporate structure decision when they take their decisions to invest in the companies. As an investor for the short term, they have to analyze the strategic alliance like mergers and other forms of corporate restructuring and then frame their short-term investment strategies.

The year 2020 has been catastrophic to businesses. If amidst the pandemic, the banks could sustain and operate without failure, in a rising economy which is likely to come up in the next 1-2 years the PSBs are expected to ramp up even further. The merger also needs appropriate preparation of labor to manage the progressions and adapt to the culture of the new as well as old clients, so an arranged and legitimate preparation timetable should be executed for the workers of both the banks and this is an enormous undertaking during this lockdown period, which will help the banks to hold it's customers of the anchor banks as

well as the other amalgamating banks.

Theoretically, mergers will not only reduce costs but also help RBI to implement standards in developed countries. In addition to that, synergies in terms of market capitalization, profitability, asset quality and risk management strategies can be seen due to mergers.

This study has certain implications. This research will provide the researchers with a motivation to conduct further research on such restructuring events and to analyze their impact on the organization and the stakeholders. Furthermore, this research will also help the Government and economists to get a transparent picture regarding the results of their strategic decision of merging mainstream public sector banks. The Government could get an idea of how successful their decision has been in terms of wealth generation for the shareholders. This research will also guide other private organizations to decide on such restructuring practices keeping this merger as an instance. This study leaves scope for further research to analyze the impact of the announcement of the merger on the GDP growth rate of our economy.

References

1. Beena P. L. (2000). 'An analysis of merger in the private corporate sector in India' Journal of Scientific & Industrial Research, Special Issue on Management, August – Sep., Nasscom, New Delhi. Page No. 34-51

2. Huzifa Husain, (2001) 'Merger and Acquisition unlocking value' Antitrust Bulletin 37, pp. 541-600.

3. Chitranandi A.K, (2001) "Trumps for M & A – Information Technology Management in a merger and acquisition strategy" International Journal of Management Reviews 9 (2), pp. 141-170.

4. Mansur, A. Mulla, (2003): Forecasting the Viability and Operational Efficiency by use of Ratio Analysis – A Case Study. Finance India, XVII (3): 893-897.

5. Biswas Joydeep,(2004) : Corporate Mergers & Acquisitions in India Indian Journal of Accounting Vol.XXXV(1), pp.67-72

6. Shrimali Vijay and SaxenaKarunesh, (2004) : Merger & Acquisitions: Indian Journal of Accounting Vol.XXXV(1), pp 48-54

7. Ryo Kawahara and Fumiko Takeda, (2007) 'M & A and Corporate Performance in Japan' Journal of Banking and Finance 17, pp. 411-422.

8. Mantravadi, P. and Reddy, A.V. (2007) Mergers and Operating Performance Indian Experience. ICFAI Journal of Mergers & Acquisitions, 4, 52-66.

9. Manoj Anand and Jagandeep Singh; " Impact of Merger announcement on Shareholders wealth: Evidence from Indian Commercial Bank; Vikalpa, vol 33 No 1-2008, Pp.35-54

10. David C. Cheng, (2009) 'Financial determinants of Bank Takeovers' Journal of Financial Economics 31,pp. 135-175

11. Kumar, R., (2009). "Post-Merger Corporate Performance: an Indian Perspective", Management Research News 32 (2), pp. 145-157

12. N. M. Leepsa & Chandra Sekhar

Mishra, (2009), "Post Merger Financial Performance: A Study withReference to Select Manufacturing Companies in India", International Research Journal of Finance and Economics ISSN 1450-2887

13. .Ruhani Ali and Gupta G S (2010) 'Motivation and Outcomes of Malaysian takeovers: An international perspective' Antitrust Bulletin 37, pp. 541-600

14. Ritesh Patel & Dharmesh Shah, 2016. "Mergers and Acquisitions: A Pre-post Risk â€" Return Analysis for the Indian Banking Sector," Journal of Applied Finance & Banking, SCIENPRESS Ltd, vol. 6(3), pages 1-7.

15. Mondal, Pal & Dr. Sarbapriya Ray (2017), 'Influence of Merger on Performance of Indian Banks: A Case Study', Journal of Poverty, Investment and Development,ISSN 2422-846X Vol.32, pp 43-51

16. Ritesh Patel (2019),The Journal of Wealth Management Summer 2019, 22 (1) 86-95; DOI: https://doi.org/10.3905/jwm.2019.22.1.086

17. Sandeep, Prof & Khanwalker, M & Gupta, Ashulekha. (2020). Merger of Public Sector Banks in India-Synergies at Work.

18. Madray, Jaskaran Singh, Merger of Public Sector Undertaking Banks in India (July 27, 2020). IJCRT| Volume 8, Issue 7 July 2020 | ISSN: 2320-2882 | Published Paper id : IJCRT2007441 | Paper ID : 197270, Available at SSRN: https://ssrn.com/abstract=3662157

19. Mundargi, Mukund. (2021). Merger of Public Sector Banks in India -An Impact Study.

Websites

- https://in.finance.yahoo.com/quote/INDIANB.BO/history/
- https://in.finance.yahoo.com/quote/CANBK.NS/history/
- https://in.finance.yahoo.com/quote/BANKBARODA.BO/history/
- https://www1.nseindia.com/products/content/equities/indices/historical_index_data.htm
- https://inspirajournals.com/uploads/Issues/456240786.pdf
- https://rbidocs.rbi.org.in/rdocs/Publications/Pdfs/18577.pdf
- https://www.ijsr.net/archive/v9i7/SR20712143808.pdf
- https://dare2compete.com/bites/are-bank-mergers-good-for-india-and-its-economy
- https://www.investmentpedia.org/bank-mergers-in-india/
- https://economictimes.indiatimes.com/punjab-national-bank/quarterly/companyid-11585.cms
- https://in.finance.yahoo.com/quote/PNB.NS/history?period1=1546300800&period2=1617926400&interval=1d&filter=history&frequency=1d&includeAdjustedClose=true
- https://www.wikipedia.org/
- https://www.researchgate.net/publication/ 263604524_The_Impact_of_Mergers_and_Acquisitions_on_Corporate_Stakeholder_Practices
- https://www.investopedia.com/ask/answers/040815/how-does-merger-affect-shareholders.asp

Nexus between Macroeconomic variables and Sustainable Investments- Evidence from Indian Sustainable Stock Indices

Egurla Kishan

Abstract:

The Sustainable Investments have become core weapon to attain climate targets and Sustainable Development Goals (SDGs). The study has been investigating the impact and long-run association among the GDP, Stock Market, Forex rate, Inflation, M3, Unemployment, IIP and sustainable stock investments of S&P BSE CARBONEX, S&P BSE GREENEX in India from 2012 to 2021. For the analysis the regression analysis model and for short-run and long-run relationship analysis the Granger Causality test and Johansen cointegration test have been applied. The study outcomes reveals that the GDP, stock market, forex rate and unemployment has positive significant long-run relationship with the S&P BSE CARBONEX returns. The GDP, inflation, M3, Unemployment and IIP has significant long-run relationship with the S&P BSE GREENEX returns in the study period.

Keywords:

Sustainable Investments, SDGs, S&P BSE CARBONEX, S&P BSE GREENEX, Johansen Cointegration

Introduction:

Sustainable investing or ESG investing or socially responsible investing has gain popularity in recent times across the world. According to Global sustainable investment alliance (GSIA) (Alliance, 2021), "sustainable investment considers the Economic, Social and Governance (ESG) factors in portfolio selection and management. The United Nations sustainable development goals (UN SDGs-2015), Paris agreement of UNFCCC-2015 and Cop-26 of UNFCCC-2021 have been more influencing events in the world to push sustainable finance, climate finance. There are many organizations in the world are pioneering to promote sustainable investments like United Nations sustainable stock exchanges (UN SSE) initiative, Principles for responsible investments (UN PRI), United Nations Environmental Program-Finance Initiative (UNEP-FI), Global sustainable investment alliance (GSIA), Euro Sif, Japan sustainable investment forum, UKSIF, US SIF, RIA-Australia, RIA-Canada, VBDO, NGFS, GIIN, FC4S, NZBA, NZIA and India-green finance platform etc., The SDG-13 for stock exchanges has focuses on Climate action and Green finance. The sustainable stock indices have designed by many stock exchanges in the world, which tracks the sustainable performance of constituent companies. At global level, the stock exchanges have been developed products to encourage sustainable investments like DJSI-world, DJSI-Europe, DJSI-Emerging markets, DJSI-Asia/pacific, S&P BSE CARBONEX, S&P BSE GREENEX, S&P BSE 100 ESG and Nifty 100 ESG etc., As per the Global Sustainable Investment Alliance (GSIA) report-2020 (GSIA, 2020), global sustainable investments have reached USD 35.3 trillion, which has increased 15% from 2018 sustainable investments and sustainable investment assets under management have increased by 33.4% from 2018. Sustainable investments have increased in Canada at 48%, in USA at 42%, Japan 34% and Australia 25% from 2018 to 2020. The sustainable funds in India have attracted INR 3686 crore in 2020-21 fiscal year, which has jumped 76% from previous fiscal year and mainly focusing on renewable energy, low carbon, green transport and environmental protection.

Macroeconomic, social and environmental factors have been major influence on sustainable investments like, GDP growth rate, Inflation, money supply, WPI, CPI, business confidence, per-capita income, FDI, FPI, temperature, rainfall, social status, Co2 emissions etc., Many studies have explained the association between major economic factors impact on conventional and sustainable investments at global level. In present scenario, it should be more focus on promoting and attracting sustainable investments and climate-related investment to protect environment in turn to attain sustainable development.

Review of Literature:

The study has done by (KHAN, 2021), to investigate the effect of gold prices, crude oil price, foreign exchange and inflation

on Asian stock markets during 2007-2020. The results show that the gold price has positive effect, crude oil price and inflation has negative effect on stock markets. The study done by (Sharma, 2021), to check the impact of macroeconomic variables on sustainability stock indices India from 2012 to 2021 by using econometric analysis (ARDL model and error correction model), the results show that the GREENEX sustainability index was associated with IIP, WPI, M3, crude oil and REER variables and the CARBONEX was linked with IIP, M3, crude oil and REER. The interest rate variable has not been associated with GREENEX and CARBONEX indices. The study of (Verma, 2021), has done on a systematic review from 1972 to 2021 to identify the effect of various macroeconomic variables on stock market performance of developed and emerging markets. The study systematic review results found that the GDP, FDI, FII have a positive effect on developed as well as emerging economies stock markets and the gold price, inflation have a negative effect. The study aims to analyze the interaction between stock market return, volatility and macroeconomic variables in China and USA from 1995 to 2018 has done by (Abbas, 2020.), by using the GARCH model and VAR model. The findings of the study reports that the volatility persistence in the stock markets and macroeconomic variables and for China weak causality existed in the study period and strong causality existence for USA market. The investigation of (Prawoto, 2020), has done on the relationship

between the value of trade, investment, exchange rate, industrial added value, oil consumption and carbon dioxide emissions on Indonesian economic growth from 1986 to 2018. The outcome shows that the value of trade, investment, exchange rate and industrial added value has influenced the economic growth in long-run and short-run and the oil consumption and CO_2 emissions has influenced in long-run. The research paper of (Sheikh, 2020), has intended to investigate the symmetrical relationship between macroeconomic variables and KSE-100 indexes by using ARDL model and error correction model. Study found that the money supply, inflation rate has inverse relationship with stock market but CPI has direct, significant relationship. The connections between inflation, industrial production, interest rate, money supply and stock markets of Belgium, France, Germany, Netherlands and Portugal stock prices has done by (Silvio John, 2019.), and the study findings reveal that the inflation, industrial production has positive relationship with stock prices and interest rate and money supply has not found positive relationship with stock prices.

The research done by (Abbas G. M., 2018), has focuses on the relation between stock market volatility and macroeconomic fundamentals for G-7 countries during 1985 to 2015 by using GARCH family model and vector autoregressive model. The results indicate that the weak volatility transmission between stock market and economic fundamentals individually in G-7 countries and collectively the volatility

transmission has highly significant. The research of (Megaravalli, 2018), has conducted to examine the long-run and short-run relationship between the India, China and Japanese stock markets with macroeconomic variables from 2008 to 2016 by applying unit root, cointegration, granger causality and pooled mean group estimator methods and the results show that the exchange rate has a positive significant long-run effect on stock markets while the inflation has a negative insignificant long-run effect. In short-run macroeconomic variables has not associated with stock markets. The study of (Dasgupta, 2012), has to explore the long-run and short-run relationships between the S&P BSE SENSEX and wholesale price index, index of industrial production, exchange rate, call money rate from 2007 to 2012 by using granger causality test and Johansen cointegration test and the results explained that the long-run relationship between BSE SENSEX and index of industrial production, call money rate and also showed that no short-run linkages between BSE SENSEX and macroeconomic variables in the study period. The study of (Ahmed, 2008), has performed to know the relationship between stock market and inflation, money supply, industrial production, exports, foreign direct investment, exchange rate and interest rate in India from 1995-2007. The results shown that differential casual links in long-run and similar casual links in short-run between aggregate economic variables and stock markets by applying granger causality and Johansen cointegration test.

The study undertaken by (Kwon, 1999), mainly focused on Korea stock market relation with economic factors by using cointegration, granger causality and error correction model. The outcome explains that the Korean stock market integrated with production index, exchange rate, trade balance, money supply. The research paper of (Fischer, 1993), has focused on the role of macroeconomic factors on the economic growth and conducted regression analysis that shows the growth has negatively associated with inflation, large budget deficits and foreign exchange markets. The previous studies have mainly focused on different macroeconomic variables relationship with stock market returns and I have found very few studies on linkages of economic variables with sustainable investments. The present study emphases on how macroeconomic variables affecting the sustainable investments in India and also try to establishes the long-run relationship between the macroeconomic variables and sustainable stock indices returns in India.

Objectives:

The following objectives have been outlined to examine the impact of macroeconomic variables on sustainable stock indices in India.:

1. To Study the impact of Macroeconomic variables on S&P BSE CARBONEX returns.

2. To Study the impact of Macroeconomic variables on S&P BSE GREENEX returns.

3. To Study the short-run and long-

run relationship between S&P BSE CARBONEX, S&P BSE GREENEX and Macroeconomic variables.

Hypotheses:

H01: There is no significant impact of GDP, Stock Market, Forex rate, Inflation, M3, Unemployment and IIP on S&P BSE CARBONEX Returns.

H02: There is no significant impact of GDP, Stock Market, Forex rate, Inflation, M3, Unemployment and IIP on S&P BSE GREENEX Returns.

H03: There is no significant short-run and long-run relationship between macroeconomic variables and sustainable indices of India.

Data and Methodology:

The study has undertaken to establish the short-run and long-run relationship and also to find the impact of different macroeconomic variables on Indian sustainable stock market indices returns. The Indian sustainable stock indices i.e., S&P BSE CARBONEX and S&P BSE GREENEX evaluate the sustainability performance of companies. The macroeconomic variables for the study have been taken are Gross Domestic Product (GDP), Stock market returns i.e., S&P BSE SENSEX, Foreign exchange rate (INR-USD), Inflation rate, Money supply-M3, Unemployment rate, Index of Industrial production (IIP) and the Indian sustainable stock indices have taken are S&P BSE CARBONEX and S&P BSE GREENEX. The quarterly secondary data collected from RBI website, BSE website and other secondary sources for all the variables from 2012 to 2021 and converted into natural logarithm values. Further the study proceeds with by analyzing descriptive statistics- mean, standard deviation, skewness, kurtosis, J-B statistic and then run the augmented dicky-fuller test to check the stationarity in the variable series and then applied the Multiple regression analysis to check the impact of macroeconomic variables on sustainable stock indices and then run granger causality, Johansen cointegration test to establish short-run and long-run relationships between macroeconomic variables and S&P BSE CARBONEX, S&P BSE GREENEX.

To investigate the impact of macroeconomic variables on sustainable stock returns the regression analysis has employed. The regression analysis Equation is as follows:

$$Y = \alpha + \beta_1\, X_1 + \beta_2\, X_2 \ldots + \beta_t\, X_t + \varepsilon_t \qquad \textbf{(1)}$$

S&P BSE CARBONEX $= \alpha + \beta_1 GDP + \beta_2$ stock market $+ \beta_3$ forex rate $+ \beta_4$ inflation $+ \beta_5 M3 + \beta_6$ unemployment $+ \beta_7 IIP + \varepsilon \qquad \textbf{(2)}$

S&P BSE GREENEX $= \alpha + \beta_1\ GDP + \beta_2$ stock market $+ \beta_3$ forex rate $+ \beta_4$ inflation $+ \beta_5\ M3 + \beta_6$ unemployment $+ \beta_7\ IIP + \varepsilon \qquad \textbf{(3)}$

The Granger Causality test is used to testing the causality effect between the variables proposed by sir clive William john granger in 1969. The test equation is as follows:

$$X(t) = \sum_{\tau=1}^{L} A_\tau\ X(t-\tau) + \varepsilon(t) \qquad \textbf{(4)}$$

For analyzing the long-run relationship between the macroeconomic variables

and S&P BSE CARBONEX, S&P BSE GREENEX has employed the Johansen cointegration test. The test equation in trace value and maximum eigen value is as follows:

$$J_{trace} = -T \sum_{i}^{n} = {}_{r+1} ln (1 - \lambda_l) \qquad \textbf{(5)}$$

$$J_{max} = - T \, ln (1 - \lambda_r + {}_1) \qquad \textbf{(6)}$$

Table-1: Descriptive Statistics

Variable	S&P Bse Carbonex	S&P Bse Greenex	Gdp	Stock Market	Forex Rate
Mean	2.886	2.7688	1.79572	3.00907	1.4359
Median	3.5667	2.687475	1.94591	3.21074	1.4358
Maximum	20.9445	22.3948	3.00072	22.6634	1.4668
Minimum	-35.198	-32.7437	-0.69314	-33.642	1.3878
Standard Deviation	9.030343	9.26645	0.5924	8.65412	0.0199
Skewness	-1.683681	-1.130724	-2.3148	-1.67144	-0.46139
Kurtosis	10.01961	7.465685	10.8494	10.3378	2.8109
J-B	93.44669	38.6287	121.109	100.238	1.3679
Prob.(J-B)	0.0000	0.0000	0.0000	0.0000	0.504614

Variable	Inflation	M3	Unemployment	IIP
Mean	1.6525	11.7625	1.842167	1.39277
Median	1.6425	11.759	1.722767	1.40979
Maximum	2.4159	12.196	2.916148	4.07022
Minimum	0.8065	11.294	1.673351	0.0953
Standard Deviation	0.4169	0.2612	0.239062	0.71911
Skewness	0.05264	-0.0245	2.696531	1.2479
Kurtosis	2.5242	1.9461	12.08422	7.3995
J-B	0.36603	1.7161	172.0626	34.115
Prob.(J-B)	0.832755	0.424	0.0000	0.0000

Source: *Calculated by Author*

Table-1, depicts the descriptive statistics i.e., mean, median, maximum, minimum, standard deviation, skewness, kurtosis, J-B statistic. The mean values of S&P BSE CARBONEX, S&P BSE GREENEX, GDP, stock market, forex rate, inflation, m3, unemployment and IIP are 2.88, 2.77, 1.79, 3, 1.4, 1.65, 11.7, 1.8 and 1.39 respectively. The skewness of S&P BSE CARBONEX (-1.683681), S&P GREENEX (-1.1307124), GDP (-2.3148), Stock Market (-1.67144), shows negative or left skewed and proves that the distribution has Asymmetrical. The variables, forex rate (-0.46139), Inflation (0.05264), M3 (-0.0245) has exhibits the standard symmetrical distribution. The Unemployment (2.696531) and IIP (1.2479) shows the positive asymmetrical distribution. The kurtosis of S&P BSE CARBONEX (10.01961), S&P BSE GREENEX (7.465685), GDP (10.8494), stock market (10.3378), Unemployment (12.08422) and IIP (7.3995) have been more than 3 and exhibits leptokurtic distribution. The kurtosis of forex rate (2.8109), Inflation (2.5242) and M3 (1.9461) have less than the 3, which exhibits platykurtic distribution in the study period. J-B statistic is statistically significant in case of CARBONEX, S&P GREENEX, GDP, stock market, unemployment and IIP.

Table-2: Unit Root Test for Stationarity Check- Augmented Dickey-Fuller (ADF) Test:

Variable	ADF t-Statistic	ADF Critical Value	Probability
S&P BSE CARBONEX	-6.851619	-2.945842	0.0000
S&P BSE GREENEX	-6.879631	-2.945842	0.0000
GDP	-6.222382	-2.954021	0.0000
Stock Market	-7.047385	-2.945842	0.0000
Forex Rate	-5.061211	-2.9484.4	0.0002
Inflation	-5.158416	-2.957110	0.0002
M3	-7.744538	-2.948404	0.0000
Unemployment	-5.370376	-2.971853	0.0001
IIP	-5.480784	-2.991878	0.0002

Source: *Calculated by Author*

Table-2, shows the unit root test results for checking the stationarity of the variables under study. The Augmented Dicky-Fuller unit root test applied for all the variables and tested the stationarity nature. The S&P BSE CARBONEX ADF test statistic value is -6.851619, which is greater than the 5% test critical value (-2.945842) and statistically significant at 5% level of significance and concluding that the S&P BSE CARBONEX series has a stationarity. The S&P BSE GREENEX ADF test statistic value is

-6.879631, which is greater than the 5% test critical value (-2.945842) and statistically significant at 5% level of significance and concludes that the S&P BSE GREENEX series exhibits stationarity. The ADF test statistic values of GDP, Stock market, Forex rate, Inflation, M3, Unemployment and IIP are -6.222382, -7.047385, -5.061211, -5.158416, -7.744538, -5.370376 and

-5.480784 respectively and all the test statistic values are statistically significant at 5% significance level and concluding that all the macroeconomic variables exhibit stationarity. The probability values of all the variables under study are statistically significant at 5% level of significance and concluding that the variables under study exhibits the stationarity in the study period.

Table-3: Regression Analysis: Impact of macroeconomic variables on S&P BSE CARBONEX Returns:

Dependent Variable: S&P BSE CARBONEX
Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-11.95522	21.05015	-0.567940	0.5754
GDP	2.471403	0.621900	3.973958	**0.0006**
STOCK MARKET	1.081535	0.039955	27.06901	**0.0000**
FOREX RATE	35.50258	23.38340	1.518282	0.1420
INFLATION	-1.048447	0.682567	-1.536034	0.1376
M3	-3.853710	2.307035	-1.670417	0.1078
UNEMPLOYMENT	1.572774	2.142213	0.734182	0.4700
IIP	0.038933	0.345779	0.112594	0.9113
R-squared	**0.975053**	Mean dependent var		3.481107
Adjusted R-squared	**0.967776**	S.D. dependent var		6.021321
S.E. of regression	1.080882	Akaike info criterion		3.205750
Sum squared resid	28.03934	Schwarz criterion		3.572184
Log likelihood	-43.29200	Hannan-Quinn criterion		3.327212
F-statistic	134.0043	Durbin-Watson stat		**2.447290**
Prob(F-statistic)	**0.000000**			

Source: *Calculated by Author*

S&P BSE CARBONEX = $\alpha + \beta_1$ GDP + β_2 stock market + β_3 forex rate + β_4 inflation + β_5 M3 + β_6 unemployment + β_7 IIP + ε

Table-3, explains the impact of macroeconomic variables on the S&P BSE

CARBONEX returns by analyzing the regression results outcome. The R-squared and adjusted R-squared values are 0.975 and 0.968, which clarifies the S&P BSE CARBONEX returns have explained 96%

collectively by GDP, stock market, forex rate, inflation, M3, unemployment and IIP. Individually the GDP and stock market variables have significantly impacted the S&P BSE CARBONEX returns while forex rate, inflation, m3, unemployment and IIP have insignificant impact. The F-statistic probability value is 0.0000, which depicts the statistically significance in fitting of the regression analysis model.

Table-4: Regression Analysis: Impact of macroeconomic variables on S&P BSE GREENEX Returns:

Dependent Variable: S&P BSE GREENEX
Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-60.32493	43.88796	-1.374521	0.1820
GDP	4.422685	1.296613	3.410951	**0.0023**
STOCK MARKET	1.110252	0.083303	13.32794	**0.0000**
FOREX RATE	67.23670	48.75259	1.379141	0.1806
INFLATION	1.546494	1.423100	1.086708	0.2880
M3	-4.768598	4.809991	-0.991394	0.3314
UNEMPLOYMENT	5.089918	4.466350	1.139615	0.2657
IIP	-0.660948	0.720923	-0.916808	0.3684
R^2	**0. 909714**	Mean dependent		3.234575
Adj. R^2	**0.883380**	S.D. dependent		6.599055
S.E. of regression	2.253556	AIC		4.675214
Sum squared resid	121.8844	Schwarz criterion		5.041648
Log likelihood	-66.80342	Hannan-Quinn criterion		4.796676
F-statistic	34.54578	Durbin-Watson stat		**2.793211**
Prob(F-statistic)	**0.000000**			

Source: *Calculated by Author*

S&P BSE CARBONEX = $\alpha + \beta_1$ GDP + β_2 stock market + β_3 forex rate + β_4 inflation + β_5 M3 + β_6 Unemployment + β_7 IIP + ε

Table-4, depicts the impact of macroeconomic variables on S&P BSE GREENEX returns. The R-squared and adjusted R-squared values are 0.909 and 0.88, which describes the S&P BSE GREENEX returns explained about 88% collectively by the GDP, stock market, forex rate, inflation, m3, unemployment and IIP. The GDP and stock market have significantly impacted the S&P BSE GREENEX returns while the forex rate, inflation, m3, unemployment, IIP have insignificant impact in determination of S&P BSE GREENEX returns in the study period. The F-statistic probability value is 0.0000, which tells that the regression model has significantly fitted in the study period.

Table-5: Granger Causality Test Results:

Pairwise Granger Causality Tests
Lags: 2

Null Hypothesis:	F-Statistic	Prob.
S&P BSE GREENEX does not Granger Cause S&P BSE CARBONEX	1.03854	0.3664
S&P BSE CARBONEX does not Granger Cause S&P BSE GREENEX	0.88030	0.4251
GDP does not Granger Cause S&P BSE CARBONEX	1.47953	0.2439
S&P BSE CARBONEX does not Granger Cause GDP	4.09037	**0.0269**
STOCK MARKET does not Granger Cause S&P BSE CARBONEX	1.77304	0.1872
S&P BSE CARBONEX does not Granger Cause STOCK MARKET	1.53713	0.2315
FOREX RATE does not Granger Cause S&P BSE CARBONEX	0.39303	0.6784
S&P BSE CARBONEX does not Granger Cause FOREX RATE	0.01082	0.9892
INFLATION does not Granger Cause S&P BSE CARBONEX	2.82736	0.0750
S&P BSE CARBONEX does not Granger Cause INFLATION	1.01563	0.3743
M3 does not Granger Cause S&P BSE CARBONEX	0.20909	0.8125
S&P BSE CARBONEX does not Granger Cause M3	2.21955	0.1262
UNEMPLOYMENT does not Granger Cause S&P BSE CARBONEX	1.12863	0.3368
S&P BSE CARBONEX does not Granger Cause UNEMPLOYMENT	22.3130	**1.E-06**
IIP does not Granger Cause S&P BSE CARBONEX	3.01605	0.0687
S&P BSE CARBONEX does not Granger Cause IIP	2.93176	0.0734
GDP does not Granger Cause S&P BSE GREENEX	1.81550	0.1802
S&P BSE GREENEX does not Granger Cause GDP	3.31577	**0.0500**
STOCK MARKET does not Granger Cause S&P BSE GREENEX	1.61595	0.2155
S&P BSE GREENEX does not Granger Cause STOCK MARKET	1.55103	0.2286
FOREX RATE does not Granger Cause S&P BSE GREENEX	0.24310	0.7857
S&P BSE GREENEX does not Granger Cause FOREX RATE	0.01250	0.9876

INFLATION does not Granger Cause S&P BSE GREENEX	3.23329	0.0500
S&P BSE GREENEX does not Granger Cause INFLATION	1.15238	0.3295
M3 does not Granger Cause S&P BSE GREENEX	0.03937	0.9614
S&P BSE GREENEX does not Granger Cause M3	1.72706	0.1950
UNEMPLOYMENT does not Granger Cause S&P BSE GREENEX	1.57986	0.2227
S&P BSE GREENEX does not Granger Cause UNEMPLOYMENT	15.8769	2.E-05
IIP does not Granger Cause S&P BSE GREENEX	2.58812	0.0969
S&P BSE GREENEX does not Granger Cause IIP	2.80218	0.0815
STOCK MARKET does not Granger Cause GDP	3.97256	0.0295
GDP does not Granger Cause STOCK MARKET	1.59485	0.2197
FOREX RATE does not Granger Cause GDP	0.97620	0.3884
GDP does not Granger Cause FOREX RATE	0.44221	0.6467
INFLATION does not Granger Cause GDP	0.86601	0.4309
GDP does not Granger Cause INFLATION	0.41460	0.6643
M3 does not Granger Cause GDP	2.14649	0.1345
GDP does not Granger Cause M3	2.04801	0.1466
UNEMPLOYMENT does not Granger Cause GDP	6.25236	0.0054
GDP does not Granger Cause UNEMPLOYMENT	0.63774	0.5355
IIP does not Granger Cause GDP	0.38871	0.6823
GDP does not Granger Cause IIP	11.0273	0.0004
FOREX RATE does not Granger Cause STOCK MARKET	0.43654	0.6503
STOCK MARKET does not Granger Cause FOREX RATE	0.07008	0.9325
INFLATION does not Granger Cause STOCK MARKET	2.09571	0.1406
STOCK MARKET does not Granger Cause INFLATION	1.02741	0.3702
M3 does not Granger Cause STOCK MARKET	0.19001	0.8279
STOCK MARKET does not Granger Cause M3	1.86701	0.1721
UNEMPLOYMENT does not Granger Cause STOCK MARKET	1.30801	0.2853
STOCK MARKET does not Granger Cause UNEMPLOYMENT	23.8665	6.E-07

IIP does not Granger Cause STOCK MARKET	3.23328	**0.0501**
STOCK MARKET does not Granger Cause IIP	2.77820	0.0830
INFLATION does not Granger Cause FOREX RATE	0.75085	0.4806
FOREX RATE does not Granger Cause INFLATION	0.63412	0.5374
M3 does not Granger Cause FOREX RATE	21.6116	**2.E-06**
FOREX RATE does not Granger Cause M3	0.59542	0.5577
UNEMPLOYMENT does not Granger Cause FOREX RATE	1.72106	0.1961
FOREX RATE does not Granger Cause UNEMPLOYMENT	3.85796	**0.0323**
IIP does not Granger Cause FOREX RATE	2.63732	0.0931
FOREX RATE does not Granger Cause IIP	2.03514	0.1535
M3 does not Granger Cause INFLATION	0.05676	0.9449
INFLATION does not Granger Cause M3	1.10203	0.3453
UNEMPLOYMENT does not Granger Cause INFLATION	0.51063	0.6052
INFLATION does not Granger Cause UNEMPLOYMENT	0.11267	0.8938
IIP does not Granger Cause INFLATION	1.60747	0.2221
INFLATION does not Granger Cause IIP	0.03455	0.9661
UNEMPLOYMENT does not Granger Cause M3	1.54291	0.2302
M3 does not Granger Cause UNEMPLOYMENT	1.65501	0.2081
IIP does not Granger Cause M3	0.43108	0.6550
M3 does not Granger Cause IIP	2.72269	0.0868
IIP does not Granger Cause UNEMPLOYMENT	2.01562	0.1561
UNEMPLOYMENT does not Granger Cause IIP	2.34069	0.1188

Source: *Calculated by Author*

Table-5, explains the short-run relationship among the macroeconomic variables and sustainable stock indices and to find short-run relationship among them the granger causality test has been employed. The granger causality exists between the S&P CARBONEX and GDP, S&P BSE CARBONEX and Unemployment, S&P BSE GREENEX and GDP, Inflation and S&P BSE GREENEX, S&P BSE GREENEX and Unemployment, stock market and GDP, unemployment and GDP, GDP and IIP, stock market and unemployment, IIP and stock market, M3 and forex rate, forex rate and unemployment.

Table-6: Johansen's Co-integration Test Results:

Series: S&P BSE CARBONEX, S&P BSE GREENEX, GDP, STOCK MARKET, FOREX RATE, INFLATION, M3, UNEMPLOYMENT, IIP.

Trace

Equations	Eigenvalue	Trace Statistic	0.05 Critical Value	Probability
None*	0.998910	**507.4799**	197.3709	**0.0001**
1*	0.985021	**316.4869**	159.5297	**0.0000**
2*	0.926076	**198.8554**	125.6154	**0.0000**
3*	0.875254	**125.9233**	95.75366	**0.0001**
4	0.552411	67.64209	69.81889	0.0737
5	0.540691	45.13347	47.85613	0.0881
6	0.421984	23.34856	29.79707	0.2293
7	0.219120	8.000254	15.49471	0.4654
8	0.037662	1.074908	3.841466	0.2998

Trace test indicates 4 cointegrating equations at the 0.05 level

* Denotes rejection of the hypothesis at the 0.05 level

Maximum Eigen Value

Equations	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Probability
None*	0.998910	**190.9930**	58.43354	**0.0000**
1*	0.985021	**117.6315**	52.36261	**0.0000**
2*	0.926076	**72.93215**	46.23142	**0.0000**
3*	0.875254	**58.28121**	40.07757	**0.0002**
4	0.552411	22.50862	33.87687	0.5683
5	0.540691	21.78491	27.58434	0.2316
6	0.421984	15.34830	21.13162	0.2652
7	0.219120	6.925346	14.26460	0.4980
8	0.037662	1.074908	3.841466	0.2998

Max-eigenvalue test indicates 4 cointegrating equations at the 0.05 level
* Denotes rejection of the hypothesis at the 0.05 level

Source: *Calculated by Author*

The Table-6, explains the cointegration results of macroeconomic variables and sustainable stock market returns in long-run. The trace statistic and maximum eigen statistic values are significant displayed in bold and evident that rejection of null hypothesis at 5% level and concludes that four cointegrating equations drawn between the macroeconomic variables and sustainable stock indices in India in the study period.

Table-7: Normalized Co-integrating Coefficients:

Normalized cointegrating coefficients (standard error in parentheses)

S&P BSE CARBONEX	GDP	STOCK MARKET	FOREX RATE	INFLATION	M3	UNEMPLOYMENT	IIP
1.000000	-3.600652	-1.200286	-113.4044	1.332068	9.347064	-1.544486	0.890551
	(0.18556)	(0.00977)	(4.63307)	(0.18389)	(0.61923)	(0.37817)	(0.10773)

Normalized cointegrating coefficients (standard error in parentheses)

S&P BSE CARBONEX	GDP	STOCK MARKET	FOREX RATE	INFLATION	M3	UNEMPLOYMENT	IIP
1.000000	-6.335940	0.118358	739.8286	-1.278876	-38.46858	-14.34411	-4.006885
	(1.62562)	(0.08935)	(39.1756)	(1.60370)	(5.33887)	(3.30877)	(0.93170)

Source: *Calculated by Author*

Normalized Equations are as follows:

S&P BSE CARBONEX = 3.61 GDP + 1.2 stock market + 113.4 forex rate – 1.33 inflation – 9.35 M3 + 1.54 unemployment – 0.89 IIP   (7)

S&P BSE GREENEX = 6.34 GDP – 0.12 stock market – 739.83 forex rate + 1.28 inflation + 38.47 M3 + 14.34 unemployment + 4.01 IIP   (8)

In Table-7, the normalized cointegrating coefficients of S&P BSE CARBONEX are in first part and S&P BSE GREENEX are presented in second part. While interpreting, the normalized cointegrating coefficients signs should be reversed, the (-) sign indicates positive relation and (+) sign indicates negative relation between the variables. The S&P BSE CARBONEX has shown positive and significant long-run relationship with GDP, Stock Market, Forex rate and Unemployment and negative long-run relationship with Inflation, M3 and IIP. The S&P GREENEX has shown the positive long-run relationship with GDP, Inflation, M3, Unemployment and IIP while long-run negative relationship with Stock Market and Forex rate.

Conclusion:

Sustainable Investments are backbone

to achieve the climate targets of Paris agreement and COP-26 targets and SDG goals. The sustainable investments and climate specific green funds have surged rapidly in recent days but many factors have been putting speed brakers like Covid-19 outbreak, socio-economic and environmental related factors. The study has been put immense inputs to find out the impact of macroeconomic variables on sustainable investments in India and also establishes the short-run and long-run linkages.

The GDP and stock market (proxy of S&P BSE SENSEX) variables have significantly impacted the S&P BSE CARBONEX and S&P BSE GREENEX returns in the study period. The S&P CARBONEX has exhibited the significant long-run relationship with the GDP, stock market, forex rate and unemployment while the S&P BSE GREENEX shown long-run relationship with GDP, inflation, M3, unemployment and IIP. The study outcomes may be useful for policy makers, investors to building sustainable investment portfolio and in turn address the issues like climate change, global warming and CO_2 emissions. Further study has a lot of scope to undergone into developed and emerging economies sustainable investments influences from economic, social and environmental factors and also focus on SDGs investments.

References:

1. Abbas, G. &. (2020). Does macroeconomic uncertainty really matter in predicting stock market behavior? A comparative study on China and USA. *China Finance Review International.*

2. Abbas, G. M. (2018). Conditional volatility nexus between stock markets and macroeconomic variables: Empirical evidence of G-7 countries. *Journal of Economic Studies.*

3. Ahmed, S. (. (2008). Aggregate economic variables and stock markets in India. *International Research Journal of Finance and Economics,* (14), 141-164.

4. Alliance, G. S. (2021). *GLOBAL SUSTAINABLE Investment Review*- 2020.

5. Asravor, R. K. (2021). Dynamic relation between macroeconomic variable, stock market returns and stock market development in Ghana. *International Journal of Finance & Economics,* 26(2), 2637-2646.

6. Dasgupta, R. (2012). Long-run and short-run relationships between bse sensex and macroeconomic variables. *International Research Journal of Finance and Economics,* 95(95), 135-150.

7. Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of monetary economics*, 32(3), 485-512.

8. Khan, M. A. (2021). The Effect of Macroeconomic Indicators on Stock Market: A Study On Asian Economies.

Bulletin of Business and Economics (BBE), 10(1), 114-127.

9. Kwon, C. S. (1999). Cointegration and causality between macroeconomic variables and stock market returns. *Global finance journal*, 10(1), 71-81.

10. Megaravalli, A. V. (2018). Macroeconomic indicators and their impact on stock markets in ASIAN 3: A pooled mean group approach. *Cogent Economics & Finance,* 6(1), 1432450.

11. Prawoto, N. &. (2020). Effect of Macroeconomic Indicators and CO2 Emission on Indonesian Economic Growth. *International Journal of Energy Economics and Policy,* 10(6), 354.

12. Sharma, P. S. (2021). Impact of macroeconomic variables on sustainability indices using ARDL model. *Journal of Sustainable Finance & Investment.*

13. Sheikh, U. A. (2020). Symmetrical cointegrating relationship between money supply, interest rates, consumer price index, terroristic disruptions, and Karachi stock exchange: Does global financial crisis matter? *Cogent Economics & Finance,* 8(1), 1838689.

14. Silvio John, C. N. (2019.). Do Stock Markets Lead or Lag Macroeconomic Variables? Evidence from Select European Countries. *The North American Journal of Economics and Finance.*

15. Verma, R. K. (2021). Impact of macroeconomic variables on the performance of stock exchange: a systematic review. *International Journal of Emerging Markets.*

Perception of State Government Employees of Kerala about Forensic Accounting and Investigation standards issued in August 2021

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Abstract:

Government Employees draw salary from the consolidated fund of India. Besides, they handle money and properties of the society. Therefore, they have to be cautious. Even though, Forensic Accounting and Investigation is applied by Banking and related industries, it is equally significant in all spheres of life. A Basic understanding about Forensic Accounting and Investigation and its latest amendments like newly issued   Forensic Accounting and Investigation standards is necessary to be cautious and protect the public money. They should be cautious while allocating large contracts and dealing with parties. They should not try to get personal gains from the contract. Forensic Accounting is a way to nab the culprits. It gives evidence before a court of law. Therefore, all levels of Government employees should try to understand the Forensic Accounting and Investigation. If they are unaware, proper training should be given to them. Therefore, researchers try to understand the Perception of State Government Employees of Kerala about   Forensic Accounting and Investigation standards issued in August 2021.

Keywords:

Perception, Government Employees, Forensic, Accounting and Investigation, Standards

Introduction

Forensic Accounting and investigation plays a greater role in our Corporate Governance and auditing process. It provides evidence which is to be given before a court of law. The scope of Forensic Audit is very wide and it can rectify the defects of the financial audit. Banks and financial institutions can appoint forensic auditors to unearth scams and financial irregularities. Every discipline is based on scientific knowledge and theory. Therefore, Forensic Accounting and Investigation standards are very important.

Significance of the study

Public money and property are more important than private money and property. Therefore, the misappropriation of it is a serious problem. To control and reduce the misappropriation of public property ,the responsible persons should understand about different techniques and concepts which helps to cater their needs .Under the above circumstances, the role of Forensic Accounting and Investigation and its latest amendments are very important in the public sector.Therefore ,the researchers try to understand the Perception of State Government Employees of Kerala about Forensic Accounting and Investigation standards issued in August 2021

Objectives

1. To understand the Perception of State Government Employees of Kerala about Forensic Accounting and Investigation standards issued in August 2021

2. To understand about Forensic Accounting and Investigation standards issued in August 2021

3. To understand the perception of non-Government Employees of Kerala state Forensic Accounting and Investigation standards issued in August 2021

Hypothesis

1. H0: There is no significant difference between the age of State Government Employees of Kerala and their perception towards Forensic Accounting and Investigation standards issued in August 2021.

2. H0: There is no significant difference between the gender of State Government Employees of Kerala and their perception towards Forensic Accounting and Investigation standards issued in August 2021.

3. H0: There is no significant difference between the Employment Status of State Government Employees of Kerala and their perception towards Forensic Accounting and Investigation standards issued in August 2021.

4. H0: There is no significant difference between the perception of the State Government Employees of Kerala and non –State Government Employees of the Kerala towards Forensic Accounting and Investigation standards issued in August 2021.

Review of Literature.

Nisha Chathurvedi, 2015 has identified the

increasing necessity of forensic accounting in firms and institutions . The study observed different corporate scandals happened in India and their adverse impact on financial sector. The study concludes that forensic accounting provides appropriate solutions for white-collar crimes and other financial misrepresentations.

Parul Shair, 2017 has conducted a study to highlight the opportunities and techniques of forensic accounting in India. He identifies the wide scope of forensic accounting in the background of corporate scandals happened over the country. The study also discussed how forensic accounting has turned into a separate "niche" and other latest innovations in forensic accounting.

Prof. Shimoli Dhami, 2015 explored forensic accounting in its historic perspective. He explains skills required and techniques involved in forensic accounting. The study concludes by suggesting that a new regulatory framework to be set up for forensic accounting and it should be taught as a subject matter at academic level.

Mr. Prema Lama and Mr. Brahma Chaudhuri, 2018. has focused on conceptual framework of corporate scams and financial losses happened in light of such scams.Study posited that uncertain market conditions is one among the main reasons to commit financial malpractices by management . Study suggests that regulatory bodies need to introduce a seperate "cell "for forensic accounting.

Ojuye TE,2021 has conducted a research on how forensic accounting prevents corporate frauds in Nigerian banking institutions. The study revealed that forensic accounting efficiently tackled fraudulent activities in Nigerian banking sector which helped to bring back investors' confidence on Nigerian banks.

Sample size of the Study

Researchers have collected both the primary data and secondary data. A structured questionnaire was developed to collect data from both Kerala State Government Employees and Non-State Government Employees. Sample Size is 385 as per Z-Score Analysis. Stratified Random Sampling method is adopted to collect data from 385 state Government Employees and 385 Non-State Government Employees. Google forms are developed and circulated to get the data.

Methodology of the Study

Primary Data were analyzed using statistical tools and testing of hypothesis like One-Way Analysis of Variance and Independent sample t-test. Secondary data is collected from the website of ICAI. SPSS Software and online statistical calculators used for the data analysis.

Data Analysis.

Secondary data in respect of the newly introduced Forensic Accounting and Investigation Standards **has been selected for analysis and interpretation by the researchers as part of this research.** The

institute of Chartered Accountants of India published seven new Forensic Accounting and Investigation Standards on August 31, 2021 for the information of all stakeholders. Earlier, the said institute has published sixteen Standards on Forensic Accounting and Investigation. The institute of Chartered Accountants of India has published the new

Forensic Accounting and Investigation Standards on August 31, 2021 for the information and compliance with respect to Forensic Accounting and Auditing. It will serve as guiding principle to the members of the The institute of Chartered Accountants of India and other professional bodies while conducting the Forensic Auditing.

Table No. 1

Forensic Accounting and Investigation Standards issued in August 2021

Serial No	Forensic Accounting and Investigation Standard	Description of the Standard
1	FAIS 250: Communication with stakeholders	This standard deals with the responsibility of the professionals with regard to effective two-way communication with the primary stakeholders during the various stages of the engagement to achieve the objectives of the engagement.
2	FAIS : 410 Applying Data Analysis	This standard gives the directions to the professionals when the professional appears before statutory or regulatory bodies including court of law and adjudicating authorities as a Fact witness.
3	FAIS : 410 Applying Data Analysis	This standard deals with collection, preparation and analysis of data during the forensic Accounting and investigation.
4	FAIS 420: Evidence Discovery in Digital Domain	This standard deals with discovery of electronic evidence by the professional through E-Discovery process. The professional can seek help from Qualified Expert based on the needs of the assignment.
5	FAIS 430: Loans or Borrowings	This standard deals with specific types of engagements related to disputed transactions of loans and borrowings.

6	FAIS 510: Reporting Results	As per this standard, the professional has to issue a detailed written report to the various stakeholders whenever he/she concludes the assignment.
7	FAIS 610:Quality Control	The professional should be quality conscious and he/she should carry out the work through a systematic and disciplined way to achieve the requirements of Quality control.

Source: https://resource.cdn.icai.org/66387daab53640.pdf

Testing of Hypothesis

Null hypothesis is given in the Heading Hypothesis section. Those are tested using One ANOVA and Independent t-test.

Table No. 2

ANOVA for Age and Perception of State Government Employees of Kerala towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021.

ANOVA					
		Sum of Squares	Df	Mean Square	F
FAIS 250: Communication with stakeholders	Between Groups	0.373	2	0.187	0.581 Sig 0.560
	Within Groups	122.785	382	0.321	
	Total	123.158	384		
FAIS360: Testifying Before a competent Authority	Between Groups	0.460	2	0.230	0.428 Sig 0.652
	Within Groups	205.425	382	0.538	
	Total	205.886	384		
FAIS :410 Applying Data Analysis	Between groups	0.373	2	0.187	0.581 Sig 0.560
	Within Groups	122.785	382	0.321	
	Total	123.158	384		
FAIS 420:Evidence Discovery in Digital Domain	Between Groups	0.460	2	0.230	0.428 Sig 0.652
	Within Groups	205.425	382	0.538	
	Total	205.886	384		

FAIS 430:Loans or Borrowings	Between Groups	1.288	2	0.644	1.099 Sig 0.334
	Within Groups	223.767	382	0.586	
	Total	225.055	384		
FAIS 510: Reporting Results	Between Groups	1.288	2	0.644	1.099 Sig 0.334
	Within Groups	223.767	382	0.586	
	Total	225.055	384		
FAIS 610:Quality Control	Between Groups	1.288	2	0.644	1.099 Sig 0.334
	Within Groups	223.767	382	0.586	
	Total	225.055	384		

Source: Primary Data

Table 2 revealed that One-way ANOVA was applied to find whether the mean scores vary accordingly to the age of State Government Employees of Kerala towards perception about Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021. The p-value is greater than 0.05 in all the above cases. Therefore, the result is not significant and hence the null hypothesis is accepted in all the above cases. Therefore, it is inferred that there is no significant difference between the age of State Government Employees of Kerala and their perception towards Forensic Accounting and Investigation Standards issued in August 2021.

Table No. 3

ANOVA for Gender and Perception of State Government Employees of Kerala towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021.

ANOVA					
		Sum of Squares	**Df**	**Mean Square**	**F**
FAIS 250: Communication with stakeholders	Between Groups	2.079	1	2.079	3.571 Sig 0.060
	Within Groups	222.976	383	0.582	
	Total	225.055	384		
FAIS360: Testifying Before a competent Authority	Between Groups	2.079	1	2.079	3.571 Sig 0.060
	Within Groups	222.976	383	0.582	
	Total	225.055	384		

FAIS :410 Applying Data Analysis	Between groups	2.079	1	2.079	3.571 Sig 0.060	
	Within Groups	222.976	383	0.582		
	Total	225.055	384			
FAIS 420:Evidence Discovery in Digital Domain	Between Groups	2.079	1	2.079	3.571 Sig 0.060	
	Within Groups	222.976	383	0.538		
	Total	225.055	384			
FAIS 430:Loans or Borrowings	Between Groups	5,681	1	5,681	8,065 Sig 0.005	
	Within Groups	269.764	383	0.704		
	Total	275.444	384			
FAIS 510: Reporting Results	Between Groups	5,681	1	5,681	8,065 Sig 0.005	
	Within Groups	269.764	383	0.704		
	Total	275.444	384			
FAIS 610:Quality Control	Between Groups	5,681	1	5,681	8,065 Sig 0.005	
	Within Groups	269.764	383	0.704		
	Total	275.444	384			

Source: Primary Data

Table 3 revealed that One way ANOVA was applied to find whether the mean scores vary accordingly to the gender of State Government Employees of Kerala towards perception about Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021 .The p-value is greater than 0.05 in the cases of FAIS 250: Communication with stakeholders: FAIS360: Testifying Before a competent Authority: FAIS: 410 Applying Data Analysis. FAIS 420: Evidence Discovery in Digital Domain.Therefore, the result is not significant and hence the null hypothesis is accepted in the above cases. Therefore, it is inferred that there is no significant difference between the gender of State Government Employees of Kerala and their perception towards Forensic Accounting and Investigation Standards issued in August 2021.

The p-value is less than 0.05 in the cases of FAIS 430: Loans or Borrowings,

FAIS 510: Reporting Results, FAIS 610: Quality Control.Therefore, the result is significant and hence the null hypothesis is rejected in the above cases. Therefore, it is inferred that there is significant difference between the gender of State Government Employees of Kerala and their perception towards Forensic Accounting and Investigation Standards issued in August 2021.

Table No. 4

ANOVA for work experience and Perception of State Government Employees of Kerala towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021.

ANOVA		Sum of Squares	Df	Mean Square	F
FAIS 250: Communication with stakeholders	Between Groups	6.866	2	3.433	4.701 Sig 0.010
	Within Groups	278.968	382	0.730	
	Total	285.834	384		
FAIS360: Testifying Before a competent Authority	Between Groups	6.866	2	3.433	4.701 Sig 0.010
	Within Groups	278.968	382	0.730	
	Total	285.834	384		
FAIS :410 Applying Data Analysis	Between groups	8.628	2	4.314	5.836 Sig 0.003
	Within Groups	282.369	382	0.739	
	Total	290.997	384		
FAIS 420:Evidence Discovery in Digital Domain	Between Groups	8.628	2	4.314	5.836 Sig 0.003
	Within Groups	282.369	382	0.739	
	Total	290.997	384		
FAIS 430:Loans or Borrowings	Between Groups	8.628	2	4.314	5.836 Sig 0.003
	Within Groups	282.369	382	0.739	
	Total	290.997	384		
FAIS 510: Reporting Results	Between Groups	8.628	2	4.314	5.836 Sig 0.003
	Within Groups	282.369	382	0.739	
	Total	290.997	384		
FAIS 610:Quality Control	Between Groups	8.628	2	4.314	5.836 Sig 0.003
	Within Groups	282.369	382	0.739	
	Total	290.997	384		

Source: Primary Data

Table 4 revealed that One way ANOVA was applied to find whether the mean scores vary accordingly to work experience of State Government Employees of Kerala towards perception about Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021.

The p- value is less than 0.05 in all the cases. Therefore, it is inferred that there is significant difference between the work experience of State Government Employees of Kerala and their perception towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021.

Table No. 5

ANOVA for monthly salary and Perception of State Government Employees of Kerala towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021.

ANOVA					
		Sum of Squares	Df	Mean Square	F
FAIS 250: Communication with stakeholders	Between Groups	8.628	2	4.314	5.836 Sig 0.003
	Within Groups	282.369	382	0.739	
	Total	290.997	384		
FAIS360: Testifying Before a competent Authority	Between Groups	8.335	2	4.167	5.640 Sig 0.004
	Within Groups	282.237	382	0.739	
	Total	290.571	384		
FAIS :410 Applying Data Analysis	Between groups	8.335	2	4.167	5.640 Sig 0.004
	Within Groups	282.237	382	0.739	
	Total	290.571	384		
FAIS 420:Evidence Discovery in Digital Domain	Between Groups	8.335	2	4.167	5.640 Sig 0.004
	Within Groups	282.237	382	0.739	
	Total	290.571	384		
FAIS 430:Loans or Borrowings	Between Groups	8.335	2	4.167	5.640 Sig 0.004
	Within Groups	282.237	382	0.739	
	Total	290.571	384		
FAIS 510: Reporting Results	Between Groups	8.335	2	4.167	5.640 Sig 0.004
	Within Groups	282.237	382	0.739	
	Total	290.571	384		

	Between Groups	8.335	2	4.167	5.640
FAIS 610:Quality Control	Within Groups	282.237	382	0.739	Sig
	Total	290.571	384		0.004

Source: Primary Data

Table 5 revealed that One way ANOVA was applied to find whether the mean scores vary accordingly to the monthly salary of State Government Employees of Kerala towards perception about Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021. The p-value is less than 0.05 in all cases. Therefore, the result is significant and hence the null hypothesis is rejected in the above cases. Therefore, it is inferred that there is significant difference between the monthly salary of State Government Employees of Kerala and their perception towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021.

H0: There is no significant difference between the perception of State Government Employees of Kerala and non –State Government Employees of the Kerala towards Forensic Accounting and Investigation standards issued in August 2021.

Independent Sample t-test is applied to test the null hypothesis. Following are the details.

Group Statistics

Employees	N	Mean	Std Deviation	Std Error Mean
Perception Government Employees	385	3.5844	1.35161	.06888
Non-Government Employees	386	3.5377	1.37282	.06997

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
									95% Confidence Interval of the Difference	
	F	Siq	t	df	Siq. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Perception Equal variances assumed	365	546	.476	768	634	04675	.09818	14599	23950
Equal variances not assumed			.476	767.814	634	04675	.09818	.14599	23950

As per the result shown above, we can accept the Null hypothesis

Findings.

1. It is found that there is no significant difference between the age of State Government Employees of Kerala and their perception towards Forensic Accounting and Investigation Standards issued in August 2021.

2. It is found that there is no significant difference between the gender of State Government Employees of Kerala and their perception towards Forensic Accounting and Investigation Standards issued in August 2021.

3. It is found that there is significant difference between the work experience of State Government Employees of Kerala and their perception towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021. The null hypothesis is that there is no significant difference between the work experience of State Government Employees of Kerala and their perception towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021. But after the Hypothesis testing ,the researchers can reject the null hypothesis as the p value is less than 0.05.

4. It is found that there is significant difference between the monthly salary of State Government Employees of Kerala and their perception towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021. The null hypothesis is that there is no significant difference between the monthly salary of State Government Employees of Kerala and their perception towards Significance of Compliance of Forensic Accounting and Investigation standards issued in August 2021. But after the Hypothesis testing ,the researchers can reject the null hypothesis as the p value is less than 0.05.

5. It is found that there is no significant difference between the perception of the State Government Employees of Kerala and non –State Government Employees of the Kerala towards Forensic Accounting and Investigation standards issued in August 2021.

Conclusion

State Government Employees of Kerala and non –State Government Employees of the Kerala are very much interested in towards accepting Forensic Accounting and Investigation standards issued in August 2021.They are ready to accept the change.

References:

1. Nisha Chaturvedi.(2015). Forensic accounting in India (future prospects for its application): International Journal of Recent Research In Commerce, Economics and Management (IJRRCEM). vol.2, issue 1,pp(133-139).

2. Parul Shair.(2017). Prospects And

Techniques Of Forensic Accounting In India: International Journal Of Research In Economics and Social Sciences(IJRESS). vol.7, issue 8,pp.604-614

3. prof.Shimoli Dhami(2015). Forensic Accounting: Signaling practicing Accountants to Improve Skillset And Forming Regulatory Body For Forensic Accountants In India: vol.4, issue 5.ISSN no.2277.

4. Mr. Prema Lama, Mr. Brahma Chaudhuri

(2018). Forensic Accounting: A Study of Its Role In Investigating Corporate Frauds And Scams In India: 11th internationational conference on Science , Technology and Management.

5. Ojuye,T.E (2021). Forensic Accounting And Audit : A Way of Preventing Perpetual Corporate Fraud In Nigeria Banking Industries: International Journal of Management (IJM).vol.12, issue 1,pp. 1704-1711.

Relation Between Growth in Fixed Assets and Choice of Capital Structure in Indian Context

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Santu Charan Das

Abstract:

This study investigates how fixed assets affect capital structure. For the purpose, a dynamic panel regression model with fixed assets as the independent variable and capital structure as the dependent variable was developed. In the Indian context, the notion of target capital structure, which might have an impact on investment in fixed assets, has been investigated. When debt is invested in fixed assets, the greater sales brought on by larger fixed assets translate into reduced debt-to-equity ratios. This paper considers the BSE 500 companies over a period of 18 years from 2001-2002 to 2017-18. The study observed that the fixed asset and lag value of debt-equity work together to influence debt-equity more persuasively than they do separately.

Keywords:

Capital Structure, Fixed Asset, Debt-equity, Difference GMM, System GMM

A company needs financing to invest in fixed assets or physical infrastructure. The decision between debt and equity would be the main focus of asset financing, regardless of whether it took the conventional route or an innovative one. It is generally advised that in order to control interest rate risk, businesses should finance their fixed assets with either a permanent source of funding, such as equity, or a long-term source of funding, such as long-term debt (Taggert, 1977). Investigating the connection between the evolution of fixed assets and capital structure is so relevant. There are a number of capital structure theories that hint at the potential link between a company's amount of debt and the growth of its fixed assets. Myers (2001) made the important observation that while there isn't a single theory that can be utilised to determine the debt-to-equity ratio, there are a few conditional theories that can be beneficial in understanding capital structure decisions. In this situation, earlier empirical studies on a relevant capital structure component may be able to assist us in creating a conceptual framework.

The capital structure of a company is influenced by a variety of factors. In this regard, two highly in-depth research studies' findings should be mentioned first. A study on American companies from 1950 to 2003 was done by Frank & Goel (2009). They noticed that the average industry leverage to which a firm belongs and the company's assets have a positive impact on leverage, whereas the company's earnings has a negative impact. They also discovered that corporations that pay dividends have less debt. In a different work, Oztekin (2015) used large samples from 37 countries and a study period from 1991 to 2006 to examine how tangible assets, average industry leverage, and firm size affect leverage favourably. However, leverage is adversely impacted by profit margin and inflation. The authors also noted that while determining leverage, a number of institutional elements are at play.

There are some other noteworthy academic works that looked at factors of corporate capital structure. Baker & Martin (2011), Sergheiescu & Vaidean (2014), and Bandopadhyay & Barua (2016) are a few of the studies under question. Their findings are consistent with the two previous works of literature.

Some research looked into the capital structure's macroeconomic determinants. Makhova and Zinecker (2008) found that government debt and interest rates have a significant impact on capital structure. In their study of small and medium-sized businesses in Greece and France, Daskalakis & Psillaki (2008) found that differences in capital structure are more often caused by firm-specific factors than by country-specific ones. From the discussion above, it is clear that numerous researches have shown various aspects affecting capital structure. Studies that suggested tangible fixed assets as a component in capital structure discovered that the former had a considerable favourable impact on the latter.

The debt financing carries financial risk. Again, using the fixed asset raises operating risk, which could affect capital structure in the context of risk management. Mayers (2001) noted that debt-equity ratios are low when business risk is high. The corporation diversifies to lower operating risk when financial leverage increases in order to keep total systemic risk at the optimum level (Amit & Livnat, 1988). However, Michaelas (2001) found that in the UK, small businesses with higher operating risk have a tendency to employ more debt, which results in a positive association between the two.

Numerous research, such as those by Kjellman et al. (1995) and Hovakimian et al. (2010), show that businesses adhere to a target capital structure. The target capital structure chosen by the trade-off theory optimises the firm's value and reduces costs (Kraus & Litzenberger, 1973). Nor et al. (2011) found that South East Asian enterprises have a solid track record of pursuing their goal capital structure. The corporation may have long-term goal leverage ratios, however Nukoo & Boetang (2010) argue that the rate of adjustment is extremely slow. According to John, Kim, and Palia (2012), cash holdings shift more quickly toward the optimal capital structure for businesses with higher non-debt tax shields. Mahakud & Mukherjee, 2011 found that the target leverage ratio has been influenced by the profitability, growth prospects, and tangibleness of the companies and that the speed of adjustment to the target capital structure is determined by various adjustment costs and benefits experienced by the companies. The decisions about the capital structure and the capital budgeting for capacity growth (or increase in fixed assets) are both long-term choices. Based on his research, Gupta (1969) discovered a significant positive relationship between the debt-to-total-assets ratio and the fixed asset turnover ratio. For acquiring funding to invest in fixed assets Researchers generally agree, according to Harris & Raviv (1991), that fixed assets and leverage have a favourable relationship. In a different study, Getzmann et al. (2014) found that the tangibility of assets behaves in accordance with trade-off theory to favourably affect leverage.

Sales growth could result from infrastructure or capacity expansion. Changes in capacity expansion may also affect profitability. Bartoss and Gordon (1988) found a favourable correlation between sales growth and debt levels. Additionally, they noticed a bad correlation between profitability and debt load. The debt-equity ratio has a considerable impact on sales growth and profitability, according to Putri & Rahyuda (2020). The effect of tangible fixed assets on leverage, along with other factors, has been studied in research so far carried out in the Indian context and elsewhere. Several studies have looked into how fixed assets affect target capital structure or target leverage. Among them, sales growth and profitability have been taken into account as the control variables in various study articles. However, there are very few thorough research studies that have

determined the relationship between fixed assets and capital structure while taking the sales growth, profitability, and desired capital structure into account. This study is conducted in an attempt to fill up this gap.

The primary objective of the study is to determine the linkage between fixed assets and debt-equity ratio. It is also to be examined whether the change in fixed assets (infrastructure) corresponds with the planning for financing the same assets. In this context, the planning for financing the physical infrastructure has been examined by investigating the existence of target capital structure.

Capital Structure Conceptual Framework:

According to earlier empirical studies, the capital structure varies as a result of a number of factors along with changes in

fixed asset. Instead of examining the impact of standalone factor on capital structure, it is the need to look into the factors of capital structure comprehensively as far as practicable.

An unlevered firm earns a profit and carries operating risk which ultimately affects the business valuation of the firm. A firm can decide to incorporate debt in its capital structure through financial leverage which enables it to take the advantage of the tax shield and also financial leverage which enables it to take the advantage of the tax shield and also assume financial risk which ultimately affects the business valuation of the firm at least according to some well-established theories e.g. Modigliani-Millar (1963). A capital structure framework is shown in Diagram 1 to clarify this. The capital structure is influenced by numerous

A Capital Structure Frame Work
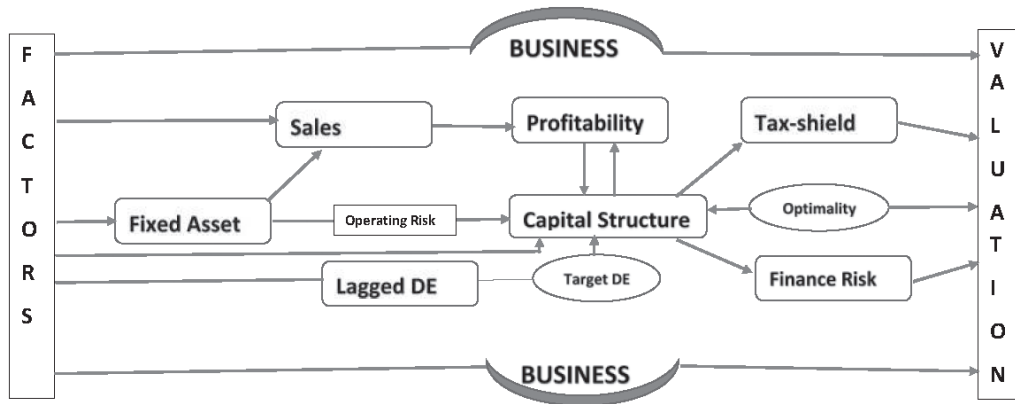
[Source: Authors]

Diagram-1

internal and external influences. According to Pecking Order or Agency theory, choosing a company's capital structure should not be based on maximising its worth. From the debate, it can be concluded that regardless of whether the company is worried about valuation, all enterprises may have a target capital structure.

Data & Methodology:

For this study, the researcher employed a quantitative methodology. Descriptive statistics, model construction, data sources, and variable specification are all covered in this part.

The study considers BSE-500 Indian enterprises to explore the goals. Due to their unique form of capital structure, the financial companies have not been taken into account. The top and bottom 5 percent of the dependent variables' values have not been taken into account. All of the BSE 500 firms could not be taken into consideration because there were missing data for various variables in various years. In this paper, four hundred twenty companies are taken into account for the empirical investigations.

The "Capitaline plus Database" is where the information came from. The study period was 18 years from 2001–02 to 2017–18.

Methods of Data Analysis: Baltagi (2005) observed that the panel data is informative and captures the variability in more detail and less prone to collinearity. In this study, the researcher applied descriptive statistics to understand the nature of data, correlation matrix to demonstrate bi-variate Pearson corelation coefficient among variables, unit root test for data stationarity, collinearity test for detecting multicollinearity among independent variables and finally dynamic panel regression analysis for determining the relationship. In regression analysis, the researcher applied the fixed-effect model and random effect model. For selecting the appropriate model the researcher utilized the Hausman test. To test the optimality the researcher also used the threshold regression model and dynamic panel data model was applied to assess the speed of adjustment towards capital structure, if any. To analyse the data, the researcher used STATA 11.2 version software.

Model specification and formulation: It may be extrapolated from the theoretical framework to say that every company might have a target capital structure and strives to achieve that level of capital structure. It is important to evaluate how the target capital structure relates to the existing level of capital structure (actual capital structure). Thus the corporate's decisions about their long-term finance are predetermined. Similarly, purchasing fixed assets is a long-drawn choice, not made immediately. The companies have a desired asset structure for the foreseeable future. It has been noted in the literature that businesses both domestically and internationally adopt the practise of having a goal capital structure. According to Ozkan (2001), enterprises shift to their optimal debt gradually because doing so instantaneously is expensive and beyond the capability of managers. To compare actual debt with ideal debt,

the researcher has to know the degree of adjustment. The adjustment process will be as under:

$$LEV_{it} - LEV_{i,t-1} = \alpha\ (LEV^*_{it} - LEV_{i,t-1})\ \text{.……..\ (3)}$$

Here LEV_{it} is the actual debt of company i and period t;

$LEV_{i,t-1}$ Is the actual debt of company i and period t-1;

LEV^*_{it} is the optimal debt of company i and period t;

Now the remodeling equation will be
$$LEV_{it} = \alpha\ LEV^*_{it} + (1-\alpha)\ LEV_{i,t-1}\text{…............\ (4)}$$

When α=0 the actual level of debt in the current period is equal to the previous period and there is no adjustment of the actual debt towards the optimal level of debt. Again, when α=1 the actual level of debt is equal to the optimal level of debt and the companies manage to find out optimal capital structure.

Substituting the LEV^*_{it} value the equation will be

$$LEVit = (1-\alpha)\ LEV_{i,t-1} + \alpha\ \beta X_{it} + \mu_{it}\ \text{\ …..…\ (5)}$$

Again, $\mu_{it} = \gamma_i + \lambda_t + \varepsilon_{it}$

Here γ_i is the unobserved firm-specific effects

λ_t is the unobserved time effect

ε_{it} is the error term

The researcher applied GMM that as suggested by Arellano-Bond (1991) and Blundell - Bond (1998). This methodology is used due to three econometric issues. The first issue is the existence of unobserved firm-specific effects. The second issue is the autoregressive process of the leverage ratio. And the endogeneity problem of the explanatory variables is the third issue. The Arellano-Bond (1991) suggested two specification tests first is the Hansen test, for over-identifying restrictions. This test analyzes the overall validity of the instruments. The second test is the AR test or autocorrelation test these are AR (1) and AR (2). AR (2) is more important than AR (1). Wald or F- Test signifies the model specification.

With the above theoretical formulation in the background, the relation between capital structure and target capital structure is to be determined.

Formulation of Model:

Determination of target capital structure requires dynamic process. Static panel models could not analyse the possible dynamism when the companies choose their target capital structure. Dynamic panel estimators help to determine the level of adjustment and to control the endogeneity. Jalivand and Harris (1984), Hovakimian et al. (2001), Fama and French (2002), and Flannery and Rangan (2006) have strongly supported the dynamic trade-off theory. Some factors affect the target capital structure with the speed of adjustment (Flannery and Hankins, 2007). The authors mainly analyse the firm-specific factors and time-specific factors. From the above discussion, the researcher fit a dynamic panel data regression model.

Debt-equity ratio and total debt to total capital were considered as dependent variables by the researcher to assess the effects of the factors on capital structure. Lagged leverage ratios, growth, liquidity, size, net profit ratio (NPR), degree of financial leverage, tax effect, degree of operating leverage, dividend per share, earning per share, and non-debts tax shield were other tools employed by the researcher. The dynamic panel data model examines the effects of control variables such firm-specific characteristics and adjustment costs.

Total debt to Total equity (DER): In this paper, debt-equity ratio is the proxy for target capital structure. This ratio highlights the capital structure of the company. A higher debt ratio indicates the levered firm and a lower debt ratio indicates the less levered firm.

Lagged debt-equity ratio (DER) The lagged debt-equity ratio is considered as the independent variable which could be a possible determinant of target leverage.

Dividend per share (DPS): A dividend decision, a major financial decision, is a vital factor to affect the capital structure of the firm (Jensen et.al, 1992). For the purpose, dividend per share has been considered as an independent variable.

Earnings per Share (EPS): Earnings per share is a factor to determine the choice of external financing and stock repurchase.

Tax-Effect: To avail tax-shield, the companies use debt. Cheng and Shiu (2007)

opine that high tax rates issue more debt than equity because of the interest tax shield. Tax effect is calculated by total tax paid divided by earnings before interest and taxes (Deynyse, Goei and Kappert, 2010). Tax is one of the most important determinants of capital structure.

Non-Debt Tax Shield: NDTS is an important determinant of capital structure. De Angelo and Masulis (1980) said that NDTS is the substitute for the tax shields on debt financing. Bradley et.al, 1984 and Jarrel and Kim, 1984 investigate the relationship between leverage and NDTS. In this dissertation, Non-debt Tax Shield is expressed as depreciation to total asset.

Profitability: Net profit ratio (NPR) is considered to represent profitability. Myers (1984) opined that there is a direct relationship is present between debt and profitability. Frank and Goyal (2009); Chakraborty (2010) showed a negative relationship between profitability and debt. But Jensen et al. (1992) showed a positive relationship between profit and debt. The profitability has been expressed as profit after-tax to net sales.

Based on the above variables, the dynamic capital structure (LEV) formulation may be expressed as,

$$LEV_{it}^* = \beta_0 + \beta_1 LEV(-1) + \beta_2 LEV(GR) + \beta_3 LEV(LQ) + \beta_4 (TANG)_{it} + \beta_5 (SIZE)_{it} + \beta_6 (DFL)_{it} + \beta_7 (DPS)_{it} + \beta_8 (EPS)_{it} + \beta_9 (DOL_{it} + \beta_8 (NPR)_{it} + \beta_{10} (TAX)_{it} + \beta_8 (NDTS_{it} + \mu_{it} \dots (1)$$

DFL=degree of financial leverage, GR= Growth, NPR=Net profit ratio, NDTS=Non-

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debt tax shield, DOL=degree of operating leverage, TANG=Tangibility of fixed asset DPS=Dividend per share, EPS=Earnings per share and μ_it=Error term

Here LEV* is the target leverage ratios or optimal debt ratios of the company. In this paper, the researcher used debt-equity ratio (DER) as leverage ratio. Rewriting the equation,

$$LEV_{it}^{*} = \ \beta X_{it} + \mu_{it} \quad \text{...........} \quad (2)$$

On the basis of the above methodological underpinning, the data has been analysed and reported in the next section.

The mean value of the dependent variable DER is 0.88. The result of the standard deviation of the DER is 2.52. The mean value of growth and liquidity are 0.82 and 3.04 with standard deviations are 34.11 and 12.42 respectively. The average size of log of sales is 7.01. The mean value of Tangibility and NPR are 0.46 and 0.37 with their standard deviation value are 0.30 and 10.80. The skewness and kurtosis of Tangibility are 2.71 and 57.14 respectively. Risk is measured by two ratios DFL and DOL. The mean value of DFL and DOL are 1.67 and 1.19. The SD of DPS and EPS are 323.22 and 729.21 respectively. The mean value of Tax-effect is 0.17 with SD is 2.27. The average value of NDTS is 0.07.

TABLE-1

Descriptive Statistics

	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
DER	0.00	89.67	0.88	2.52	18.89	508.63
SIZE	3.21	13.08	7.01	1.96	0.84	6.01
GROWTH	9.30	2674.9	0.82	34.10	75.81	5926.53
LIQUID	0.00	426.00	3.03	12.41	22.13	573.89
TANGI	0.042	7.75	0.46	0.30	2.71	57.13
NPR	-22.35	637.22	0.37	10.79	53.98	3016.53
DFL	-216.59	272.06	1.66	7.57	11.54	535.94
DOL	-9049.45	10632.98	1.19	199.41	8.06	1985.43
DPS	0.00	7900.00	129.32	323.21	9.36	134.48
EPS	0.00	35594.59	65.19	729.21	32.66	1270.10
TAX	-71.00	95.33	0.16	2.26	11.57	1275.90
NDTS	-0.61	2.35	0.06	0.05	15.51	497.17

Source: Computed by the authors

TABLE-2

Correlation Matrix

DER	1.00											
SIZE	-0.03**	0.21*	1.00									
GR	-0.00	0.01	-0.01	1.00								
LQ	-0.01	-0.07*	-0.19*	0.00	1.00							
TANG	0.07*	0.20*	0.06*	-0.01*	-0.14*	1.00						
NPR	-0.01	-0.02***	-0.09*	-0.00*	0.04*	-0.04*	1.00					
DFL	0.04*	0.05*	-0.04*	-0.00	0.09*	0.00	0.00	1.00				
DOL	0.01	0.01	0.01	-0.00	0.00	-0.02**	-0.00	-0.00	1.00			
DPS	-0.08*	-0.11*	0.25*	-0.00	-0.03**	-0.10*	-0.00	-0.03*	0.00	1.00		
EPS	0.04*	0.01	0.03*	-0.00	-0.01	-0.02	-0.00	-0.01	-.00	0.15*	1.00	
TAX	-0.02	-0.01	0.01	-0.00	-0.00	-0.02**	-0.00	-5.40E-	0.00	0.00	-0.01	1.00
NDTS	-0.03**	-0.10*	0.03**	-0.01	-0.01	-0.17*	-0.03**	-0.01	0.01	0.06*	0.00	0.02	1.00

Source: Computed by the authors

The correlation matrix shows that Tangibility, DFL and EPS have a positive impact on the debt-equity ratio (DER) at 1% significance level. Again Size, DPS and NDTS have a negative impact on debt equity ratio at 5% significance level. Growth, Liquidity, NPR, DOL and Tax-effect have no significant impact on debt equity ratio. Liquidity and NDTS has negative impact at 1% significance level. NPR has negative impact on total debt to total capital ratio at 10% significance level. The researcher excluded three independent variables viz. Growth, Tax-effect and DOL for insignificant correlation between.

Models of Dynamic Panel Data Analysis:

The correlation matrix shows there may have collinearity among independent variables. There are some omitted variables in the large dataset. The Generalised Methods of Moments (GMM) is a method for estimating parameters in the statistical model in such a case (Arelleno & Bond,1991). GMM is used to control the correlation between the explanatory variables and error term in a model, to control for omitted variable bias and to control unobserved panel heterogeneity, if any. The GMM has two estimators, difference GMM and system GMM.

To understand which estimator between the two is suited Bond (2001) suggested a procedure. At the outset, the pooled Ordinary Least Square and Fixed Effect regression. The coefficient of lagged dependent variables denoted by φ (phai). The pooled co-efficient of lagged dependent variable is called upper bound estimate and

fixed effect estimates is to be consider lower bound estimates. If the difference GMM coefficient is close to or below the fixed effect estimates then the former estimation is biased and system GMM is preferred to get robust result.

TABLE-3

Results of Pooled OLS and Fixed Effect Bound Estimates (φ)

	Pooled OLS		Fixed Effect	
Variables	Co-efficient	SE	Co-efficient	SE
DER L1	0.389*	0.120	0.216*	0.069
GR	0.000***	0.000	-0.000	0.000
LQ	0.001	0.001	-0.002	0.001
TANG	0.294*	0.104	0.769**	0.386
SIZE	0.040**	0.019	-0.085	0.091
NPR	-0.000	0.000	-0.002**	0.001
DFL	0.011***	0.006	0.010	0.006
TAX	-0.001	0.009	0.002	0.007
DOL	0.000***	0.000	0.000	0.000
EPS	0.000*	0.000	0.000	0.000
DPS	-0.000*	0.000	-8.48e-07	0.000
NDTS	-0.116	0.364	0.007	0.468

Source: Computed by the authors

The above result shows that upper bound estimate ($\varphi 2$) is 0.389 and the lower bound estimate ($\varphi 1$) is 0.216. In the next stage, the researcher utilized difference GMM estimation.

The lagged DER of one-step difference GMM is 0.270 and two-step difference GMM is 0.278 and both estimators of difference GMM is significant at 1% and 10% level. These coefficients are not close to or below the fixed effect estimate. So, the difference GMM estimator is appropriate for this study. Two-step difference GMM is suitable as debt-equity ratio is affected by company level variables. AR (2) test statistic points out that there is no second-order serial correlation of the residuals and Hansen test statistic support the validity instruments. The result shows that the tangible fixed assets and DFL have a positive impact on the debt-equity ratio. Again, the liquidity, size and NPR have a negative impact on the debt-equity ratio.

From the above short-run significant

coefficient, the researcher also investigates the long-run relationship of these variables (LQ, TANG, SIZE, NPR and DFL). The formula is (_b[variables])/(1-_b[l.der]).

TABLE-4

Results of Difference GMM model

Variables	Difference GMM [Dependent variable-DER]			
	One Step		Two Step	
	Coefficient	Robust SE	Coefficient	Robust SE
DER L1	0.271*	0.056	0.279*	0.060
GR	-0.000	0.000	0.000	0.000
LQ	-0.002	0.001	-0.003*	0.001
TANG	0.592	0.388	0.438***	0.230
SIZE	-0.051	0.111	-0.140***	0.079
NPR	-0.002	0.001	-0.003*	0.000
TAX	-0.382	0.478	-0.237	0.405
DFL	0.009	0.006	0.011**	0.004
DOL	-0.000	0.000	5.60e-06	0.000
DPS	-0.000	0.000	-0.000	0.000
EPS	0.000	0.000	0.000	0.000
NDTS	0.124	0.556	-0.294	0.266
AR (1)	0.120		0.146	
AR (2)	0.240		0.351	
F - Test	430.76*		54.72*	
Sargan Test	0.000		0.000	
Hansen Test	0.126		0.126	

Source: Computed by the authors

The result shows that the above variables have significant long-term and short-term relationships with capital structure. The long-term analysis suggests that the net profit ratio (NPR), size (as proxied by relative sales) and liquidity affect DER negatively whereas DFL and Tangibility (as proxied by relative fixed assets) affect DER positively.

According to the analysis above, tangible

TABLE-5

Result of Long-Run Relationship

[Dependent Variable: DER]

Variables	Coefficient	SE	Prob.
LQ	-0.004*	0.001	0.006
TANG	0.607***	0.336	0.072
SIZE	-0.194***	0.118	0.100
NPR	-0.004*	0.001	0.007
DFL	0.015*	0.006	0.024

fixed assets (measured by fixed asset/total asset) have a positive impact on DER. The lag value of DER also affects DER positively. Additionally, the Liquidity, Size (as shown by ln Sales), and Net Profit ratio have a negative impact on DER. According to the correlation matrix, fixed assets and sales have a positive and significant relation with each other. Sales also have a positive and strong correlation with profit (represented by EPS). The correlation matrix also shows a negative association between EPS and DER.

The fixed assets are purchased either through hire purchase, instalment payments, or loans from financial institutions or may be from own fund. DER is connected to fixed assets in any case. More fixed assets enable more sales, which facilitate higher profit. Through increased retained earnings, the higher profit could lower DER. As a result, while DER's lag value has a positive impact on it, fixed assets also have an indirect and direct impact on DER through better sales and profits. This was envisioned in the model above, and Diagram 1 serves to illustrate it. The purchase of the fixed assets is financed. The utilisation of fixed assets is intended to increase operational capacity. The increased capacity may lead to higher profit which would aid in meeting contractual obligations caused by additional debt borrowed for the purpose. As a result, the loan financing be evaluated in light of how it will be applied. For the purpose, a compound ratio of fixed assets (tangibility) and net profit ratio has been taken into account as an independent variable in relation to DER for this purpose. The following table shows the results:

It is observed from Table-6 that the model is fit for the data set. The DER is negatively impacted by the composite variable. This suggests that the debt-equity ratio will decrease as a result of the increased profitability brought on by new introduced fixed assets bought on debt capital. The change in fixed assets has a negative impact on DER because of the positive change in

TABLE-6

Impact of Joint Independent Variable

Dependent Variable: DER
Method: Panel Least Squares
Sample: 2001-2018
Cross-sections included: 368 :: Total panel (unbalanced) observations: 6380

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGIBILITY*NPR	-0.916079	0.222988	-4.108208	0.0000
C	0.918531	0.029695	30.93214	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
Root MSE	2.192196	R-squared	0.245409	
Mean dependent var	0.881260	Adjusted R-squared	0.199212	
S.D. dependent var	2.523816	S.E. of regression	2.258481	
Akaike info criterion	4.523359	Sum squared resid	30660.52	
Schwarz criterion	4.914390	Log likelihood	-14060.51	
Hannan-Quinn criter.	4.658732	F-statistic	5.312239	
Durbin-Watson stat	1.520303	Prob (F-statistic)	0.000000	

net profit ratio. This is due to the fact that as fixed asset growth multiplies a positive net profit ratio, retained earnings grow as well, which lowers DER. Otherwise, the debt could be redeemed with the surplus fund to lower DER. It can also be noted that the absolute co-efficient of joint variables is larger than the co-efficient of individual variable NPR as shown in Table- 4. Further, the coefficient is statistically significant at 1% level. This finding is in sharp contrast with the preceding conclusion on the independent effect of fixed assets on capital structure. The Table 5 shows that, the fixed assets have a positive impact on DER.

The debt-to-equity ratio may alter as a result of the expansion of a fixed asset. The existence of the target capital structure serves as evidence that the decision on capital structure are long-term decisions. The correlation matrix in Table 2 shows that the fixed asset and DER have a positive relationship. It is also noticed in equation from Table-5 that DER (-1) may also affect DER due to the existence of the target capital structure. The analysis that follows will show how Tangibility and DER (-1) together as compound ratio has an impact on DER.

TABLE-7

Impact of Joint Independent Variable

Dependent Variable: DER
Method: Panel Least Squares
Sample (adjusted): 2002-2018
Cross-sections included: 368 :: Total panel (unbalanced) observations: 6012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER(-1)*TANGIBILITY	0.301367	0.016096	18.72287	0.0000
C	0.702915	0.028405	24.74643	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
Root MSE	2.052290	R-squared	0.299525	
Mean dependent var	0.848465	Adjusted R-squared	0.253844	
S.D. dependent var	2.452328	S.E. of regression	2.118328	
Akaike info criterion	4.398544	Sum squared resid	25321.91	
Schwarz criterion	4.809865	Log likelihood	-12853.02	
Durbin-Watson stat	1.905406	Prob (F-statistic)	0.000000	

In Table -3 and Table-4, it could be noticed that on all occasions, the first lag of DER positively affects DER at 1% level of significance. Here, in Table-7 it is observed that the model of the joint variable of DER (-1) and Fixed asset on DER is fitted well. Further, the joint effect of those variable affect DER positively which is statistically significant at 1% level of significance. As standalone DER (-1) affects DER positively, so, it may be interpreted that as the fixed asset changes, DER changes in the same direction. The incremental DER may put financial pressure on the company. This might create a problem if NPR does not grow at the same time.

Interpretation of Analysis: The primary analysis based on correlation matrix and fixed effect model shows that the change in fixed asset affects debt-equity ratio in the similar direction. It is also observed that the previous year's debt-equity ratio affects debt-equity of the current year in the same direction implying the evidence of target capital structure. Thus, the observation suggests that a company with high debt-equity is recommended not to resort to debt capital for acquisition of fixed assets. However, it is observed from the analysis of compound ratio that if the investment of debt capital increases net profit ratio then debt-equity ratio may decline. The net profit

ratio may rise by investing in technology, automation or updated infrastructure. Thus this analysis of the paper suggests that, the investment of debt capital in fixed asset for improved technology, automation or any other fixed infrastructure which would increase profitability and would reduce the debt-equity ratio of the company.

Limitations of the Study and Future Scope:
This article only considers the relationship between debt and fixed assets in relation to India. To draw any general conclusions, it would have been wise to take into account the statistics from other nations. The authors noted that doing research using a multi-country approach has a future possibility.

Conclusion:

Theoretically, capital structure and fixed assets should have a bi-directional relationship. The purpose of this study was to find out how Indian companies' capital structures are impacted by asset growth or expansion plans. According to the analysis, in Indian corporate scenario, the investment in fixed assets is financed by acquisition of debt capital. The evidence of target capital structure suggests that the investment in fixed infrastructure is a long-term decision and may be planned long before the purchase of fixed assets. The debt -equity ratio is more significantly impacted by the combined effect of fixed assets and the first lag of DER than by each factor acting alone. Sales are projected to increase as a result of the capacity expansion through fresh investment in fixed asset resulting in higher profit and lower debt-equity. This study concludes that the investment of debt capital in technology, automation, or any other fixed infrastructure that would boost profitability and enables the company to lower its debt-to-equity ratio.

References:

1. Acedo-Ramirez, M., J. Ayala-Calvo, and J. Rodriguez-Oses. 2013. "Capital structure of small companies in the Spanish footwear sector: Relevant factors". *Springer Publication*, 4: 155-173.

2. Amit, R., & Livnat, J. (1988). Diversification, Capital Structure, and Systematic Risk: An Empirical Investigation. Journal of Accounting, Auditing & Finance, 3(1), 19–43. doi:10.1177/0148558x8800300103

3. Ariff, M., H. Taufiq, and M. Shamsher. 2008. "How capital structure Adjusts Dynamically during financial crisis?" *Corporate Finance Review*, 13 (3): 11-24.

4. Avarmaa, M, A. Hazak, and K. Mannasoo. 2011. "Capital structure formation in Multinational and local companies in the Baltic States", *Baltic Journal of Economics*, 11(1): 125-145.

5. Aybar-Aris, C, A. Casino-Martinez, J. Lopez-Gracia, 2012. "On the adjustment speed of SMEs to their optimal capital structure", *Small Business Economics*, 39: 977-996.

6. Ayturk,Y, A.O. Gurbuz,, and S. Yanik. 2016. "Corporate derivatives use and firm value: evidence from Turkey", *Borsa Istanbul Review*, 16(2): 108-120.

7. Baker, M and J. Wurgler. 2002. "Market Timing and capital Structure", *The Journal of Finance*, 47(1): 1-32.

8. Baltagi, Badi H. 2005. Econometric analysis of Panel data, (3rd ed.), *Sussex: John Wiley& Sons Ltd*.

9. Basu, K. 2015. Market imperfection and optimal capital structure: Evidence from Indian Panel Data. *Global Business Review*, 16(1): 61-83.

10. Bhaduri, S.N. 2002. "Determinants of capital structure: A study of the Indians corporate sector", *Applied financial economics*, 12 (9): 655-665.

11. Booth, L, V. Aivazian, A. Demirguc-Kunt, and V. Maksimovic, 2001. "Capital Structure in Developing Countries", *The Journal of Finance*, 56(1): 87-130.

12. Bradley, M., G. Jarrell, and E. Kim. 1984. "On the existence of an optimal capital structure: Theory and Evidence". *The Journal of finance*, 39(3): 857-878.

13. Cahyono, S. and A. Chawla. 2019. "Dynamic capital structure in Indonesian case: Do Industry specific variables affect adjustment speeds?", *Investment management and Financial Innovation*, 16(2): 2018-2235.

14. Cassar, G. and S. Holmes. 2003. "Capital Structure and Financing of SMEs: Australian Evidence", *Accounting and Finance*, 43(2): 123-147.

15. Chakraborty, I. 2010. "Capital Structure in an emerging Stock market: The case of India", *Research in International Business and Finance*, 24(3): 295-314.

16. Chen, J.J. 2004. "Determinants of Capital Structure of Chinese listed Companies", *Journal of Business Research, Elsevier*, 57(12): 1341-1351.

17. Cheng, S-R. and Shiu, C-Y. 2007. "Investor Protection and Capital Structure: International evidence", *Journal of Multinational Financial Management*, 17(1): 30-44.

18. Daskalakis, N., & Psillaki, M. (2008). Do country or firm factors explain capital structure? Evidence from SMEs in France and Greece. Applied Financial Economics, 18(2), 87–97. doi:10.1080/09603100601018864

19. DeAngelo, H. and Masulis, R.W. 1980. "Optimal Capital Structure under Corporate and Personal Taxation". *Journal of Financial Economics*, 8: 3-29.

20. Degryse, H, P.De. Goeij, and P. Kappert, 2012. "The impact of firm and industry characteristics on smalls firm capital structure", *Small business economics*, 38: 431-447.

21. DeMiguel, A. and J. Pindado. 2001. "Determinants of Capital Structure: new evidence from Spanish Panel data", *Journal of Corporate Finance*, Elsevier, 7(1): 77-99.

22. Dhankar, R. and A. Boora, 1996. "Cost of capital, optimal capital structure and value of firm: An empirical study of Indian companies", *Vikalpa*, 21(3): 29-36.

23. Donaldson, G.1961. "Corporate Debt Capacity: A study of Corporate Debt policy and the determination of Corporate Debt capacity", Division of Research, Graduate School of Business Administration, Harvard University: Boston.

24. Drobetz, W., P. Pensa, and G. Wanzenrid. 2007. "Firms Characteristic, Economic Conditions and Capital Structure Adjustments", A publication of the Center of Business and Economics (WWZ), University of Basel.

25. Eldomaity, T.I. and M.A. Ismail. 2009. "Modeling capital structure decision in a transition market: Empirical analysis of firm in Egypt", *Revquant Finan Acc*, 32: 211-233.

26. Fama, E.F. and K.R. French, 2002. "Testing Trade-Off and Pecking Order Predictions about Dividends and Debt", *The Review of Financial Studies*, 15(1): 1-33.

27. Ferri, M.G. and W.H. Jones. 1979. "Determinants of Financial Structure: a new methodological Approach", *The Journal of Finance*, 34(3): 631-644.

28. Flannery, M. and Rangan, K. (2006). Partial adjustment toward target capital structures, *Journal of financial economies*, 79: 469-506.

29. Frank, M.Z. and Goyal, V.K. 2009. "Capital structure decisions: Which factors are reliably important?", *Financial Management*, 38: 1-37.

30. Getzmann, A., Lang, S., & Spremann,

K. (2014). Target Capital Structure and Adjustment Speed in Asia. *Asia-Pacific Journal of Financial Studies*, 43(1), 1–30. doi:10.1111/ajfs.12038

31. Gill, A; Biger, N and Mathur, N (2011). The effect of Capital structure on Profitability: Evidence from the United States, *International Journal of Management*, 28(4), 3-15.

32. Goyal, AM (2013). Impact of Capital Structure on Performance of Listed Public Sector Banks in India, *International Journal of Business and management Invention*, 2(10), 35-43.

33. Guha-Khasnobis, B and Bhaduri, S.N (2002). Determinants of capital structure in India (1990-1998): A Dynamic Panel Data Approach, *Journal of Economic Integration*, 17(4), 761-776.

34. Gupta, M. C. (1969). The Effect of Size, Growth, and Industry on the Financial Structure of Manufacturing Companies. *The Journal of Finance*, 24(3), 517. doi:10.2307/2325350

35. Haron, R. and Ibrahim, K. (2012). Target capital structure and speed of adjustment: Panel data evidence on Malaysia Shariah compliant securities, *International Journal of Economics, management and Accounting*, 20(2), 87-107.

36. Harris, M. and Raviv, A. (1991). The Theory of Capital Structure, *The Journal of Finance*, 46(1), 297-355.

37. Hass, R and Peeters, M (2006). The Dynamic adjustment towards target

Capital Structure of firms in transition economics, *The Economics of Transition and Institutional Change*, 14(1), 133-169.

38. Hovakimian, A; Hovakimian, G and Tehranian, H (2009). Determinants of target Capital Structure: The case of dual debt and equity issues, *Journal of Financial Economics*, 71, 517-540; doi:10.1016/s0304-405x (03)00181-8

39. Hovakimian, A; Opter, T and Titman, S (2002). The Capital Structure Choice: New evidence for a Dynamic Trade-off model, *Journal of Applied Corporate Finance*, 15(1), 24-30.

40. Huang, G and Song, M (2006). The determinants of Capital Structure: Evidence from China, *China Economic Review*, 17(1), 14-36.

41. Jalivand, A and Harris, RS (1984). Corporate Behaviour in Adjusting to Capital Structure and Dividend Targets: An econometric Study, *Journal of Finance*, 39 (1), 127-145.

42. Jensen, GR; Solberg, DP and Zorn, TS (1992). Simultaneous Determination of Insider Ownership, Debt and Dividend Policies, *Journal of Financial and Quantitative Analysis*, 27(2), 247-263.

43. John, K; Kim, T-N and Palia, D. (2012). Heterogeneous speeds of Adjustment in Target Capital Structure, http://ssm.com/Abstract=2024357.

44. Jovanovic, B (2015). Determinants of corporate capital structure: Evidence from Macedonian Panel data, *Economic analysis*, National Bank of the Republic of Macedonia, http://hdl handle.net/10419/173732

45. Kayo, EK and Kimura, H (2010). Hierarchical determinants of capital structure, *Journal of Banking and Finance*, Elsevier, 35, 358-371.

46. Kjellman, A., & Hansén, S. (1995). Determinants of capital structure: Theory vs. practice. Scandinavian Journal of Management, 11(2), 91–102. doi:10.1016/0956-5221(95)00004-f

47. Kraus, A and Litzenberger, RH (1973). A State-Preference Model of Optimal Financial Leverage, *The Journal of Finance*, 28(4), 911-922.

48. Michaelas, N., Chittenden, F. and Poutziouris, P. (1999). Financial Policy and Capital Structure choice in U.K. SMEs: Empirical Evidence from Company panel Data, *Small Business Economics*, 12,113-130.

49. Modigliani, F and Miller, MH (1958). The Cost of Capital, Corporation Finance and the Theory of Investment, *The American Economic Review*, 48(3), 261-297.

50. Modigliani, F and Miller, MH. (1963). Corporate Income Taxes and the cost of capital: A Correction, *American Economic Review*, 53, 433-443.

51. Mokhova, N., & Zinecker, M. (2014). Macroeconomic Factors and Corporate Capital Structure. Procedia - Social and Behavioral Sciences, 110, 530–540. doi:10.1016/j.sbspro.2013.12.897

52. Mukherjee, S. & Mahakud, J. (2010). Dynamic adjustment towards target capital structure: Evidence from Indian companies. *Journal of Advances in Management Research*, 7(2), 250-266.

53. Myers, SC (1984). The Capital Structure Puzzle, *Journal of Finance*, 39(3), 575-592.

54. Myers, SC (2001). Capital Structure, *Journal of Economic Perspectives*, 15(2), 81-102.

55. Myers, SC and Majluf, NS (1984). Corporate Financing and Investment Decisions when Firms have information that investor do not have, *Journal of Financial Economics*, 13(2), 187-221.

56. Negash, M. (2002). Corporate Tax and Capital Structure: some evidence and implications, *Investment Analysts Journal*, 31(56), 17-27.

57. Nejad, N. and Wasiuzzaman, S. (2015). Multilevel determinants of capital structure: Evidence from Malaysia, *Global Business Review*, 16(2), 199-212.

58. Nunkoo, P.K. and Boateng, A. (2010). The empirical determinants of target capital structure and adjustment to long run target: Evidence from Canadian Firms, *Applied Economics Letters*, 17(10), 983-990.

59. Ozkan, A (2003). Determinants of Capital Structure and Adjustment to long run Target: Evidence from UK Company Panel Data, *Journal of Business Finance and Accounting*, 28 (1), 175-198.

60. Öztekin, Ö. (2015). Capital Structure Decisions around the World: Which Factors Are Reliably Important? *Journal of Financial and Quantitative Analysis*, 50(03), 301–323. doi:10.1017/s0022109014000660

61. Pinegar, J. and Wilbricht, L. (1989). What managers think of capital structure theory, *Financial Management*, 18, 82-91.

62. Putri, I G. A. P. T., Rahyuda, H. (2020). Effect of Capital Structure and Sales Growth on Firm Value with Profitability as Mediation, *International Research Journal of Management, IT & Social Sciences*, 7(1), 145-155, doi.org/10.21744/irjmis.v7n1.833

63. Qian, Y.; Tin, Y. and Wirjanto, TS. (2009). Do Chinese Publicly Listed Companies adjust their Capital Structure toward a target level, *China Economic Review*, 20(4), 662-676.

64. Rajan, RG and Zingales, L (1995). What do we know about Capital Structure? Some Evidence from International Data, *The journal of Finance*, 50(5), 1421-1460.

65. Ramchandran, A. and Candasamy, G. (2011). The Impact of Capital structure on Profitability with Special Reference to IT Industry in India, *Managing Global Transition*, 9(4), 371-392.

66. Ramjee, A. and Gwatidzo, T. (2012). Dynamic in Capital Structure determinants in *South Africa, Meditari Accountancy Research*, 20(1),52-67.

67. Rehman, A., Wang, M. &Yu, H. (2016).

Dynamics of financial leverage across firm life cycle in Chinese firms: An empirical investigation using dynamic panel data model. *China finance and economic Review*, 4(19), Online published.

68. Reinhard, L and Li, S (2010). A note on Capital Structure target Adjustment-Indonesian evidence, *International Journal of Managerial Finance*, 6(3), 245-259.

69. Serghiescu, L., & Văidean, V.-L. (2014). Determinant Factors of the Capital Structure of a Firm- an Empirical Analysis. *Procedia Economics and Finance*, 15, 1447–1457. doi:10.1016/s2212-5671(14)00610-8

70. Shyam-Sunder, L and Myers, C (1999). Testing Static tradeoff against pecking order models of Capital Structure, *Journal of Financial Economics*, 51(2), 219-244.

71. Smith Jr, CW and Warner, JB (1979). Bankruptcy, Secured Debt and Optimal Capital Structure: Comment, *The Journal of Finance*, 34(1), 247-251.

72. Sogorb-Mira, F (2005). How SME Uniqueness Affects Capital Structure: Evidence from a 1994-1998 Spanish Data Panel, *Small Business Economics*, 25, 447-457.

72. Taggart, R. A. (1977). A Model of Corporate Financing Decisions. *The Journal of Finance*, 32(5), 1467. doi:10.2307/2326804

73. Titman, S. and Wessels, R. (1988). The Determinants of Capital Structure choice, *The Journal of Finance*, 43(1), 1-19.

74. Tiwari, A.K. and Krishnankutty, R. (2014). Determinants of Capital Structure: Comparison of empirical evidence for the use of different estimators, *Theoretical and Applied Economics*, 21(12), 63-82.

75. Viviani, J (2008). Capital Structure determinants: an empirical study of French Companies in the Wine Industry, *International Journal of Wine Business Research*, 20(2),171-194.

76. Wang, Z and Zhu, W (2012). Equity financing regulation and the optimal capital structure: Evidence from China, *Scientific Research, Modern Economy*, 3, 508-517.

77. Warner, JB (1977). Bankruptcy Costs: Some Evidence, *The Journal of Finance*, 32(2), 337-347.

78. Welch, I (2004). Capital Structure and Stock Returns, *Journal of Political Economy*, 112(1), 106-132.

79. Voulgaris, F., Asteriou, D., & Agiomirgianakis, G. (2002). Capital structure, asset utilization, profitability and growth in the Greek manufacturing sector. Applied Economics, 34(11), 1379–1388. doi:10.1080/00036840110096822

Startup India- Energising Entrepreneurship

R. Ravishankar

Abstract:

It is a boom time for Startups in India. India has emerged as the 3rd largest startup ecosystem in the world. Fittingly, the Prime Minister of India has recently announced that 16th January will be celebrated as National Startup Day every year. However, it is found that nearly 80-90% of Indian startups fail within the first 5 years of their inception. This article discusses the causes for the failure of startups and indicates the key ingredients for their success, in more details with regard to funding options. The various sources of funds available for the different stages of the startups and the government initiatives in the recent years to boost the startup culture and their impact are also discussed.

Keywords:

Startups, Entrepreneurship, Unicorn, Accelerators and Incubators, Angel Investors, Venture Capitalists, Private Equity Firms, Department of Promotion of Industry and Internal Trade (DPIIT)

Preamble

The Oxford Dictionary defines a startup company as, "a company that is just beginning to operate".

But the term generally refers to high-tech companies founded by one or more entrepreneurs to create or develop a product or service which is unique based on innovation.

Facebook, Twitter, Uber, Netflix, Linkedin, Airbnb etc., are most popular startups. Of late, in India, Paytm, PharmEasy, Zomato, Swiggy, Byju's etc., are becoming widely popular and gaining momentum by exploiting modern technology.

Just as industrial revolution of the 18th Century caused fastest changes in the human society, the 21st Century is, now, witnessing Startup Revolution which is impacting the human life with novelty and technology such as Artificial Intelligence. This can be termed as an era of startup (or perhaps The Digital Era) which is generating entrepreneurship, employment, economic development and emergence of new way of life as well as changing the dynamics of how society operates and functions.

Origin

Though the term "startup" was originally coined in the early tech revolution of 1970s, referring to a new breed of small companies with astonishing growth potential, its origin can be traced back to the formation of Hewlett Packard in the late 1930s at a time when US started recovering well after Great Depression in a one-car garage by two Stanford students William Hewlett and David Packard inspired by their professor's appeal to turn the Bay Area into a national capital of high tech. This is where Silicon Valley came into existence. The invention of internet and other technologies created huge opportunities and acted as a catalyst for tech startups to enter the market and grow rapidly. It gathered momentum in 2000s. These technology-based companies (ie., the challengers) shook many industries and captured the market from the well-established traditional companies. Such challengers tend to create an uncontested market place through the use of Blue Ocean disruptions whilst traditional well-established players often tend to become a victim of their own success (a prime example being Kodak which failed to keep up with the rise of digital innovation in photography). Thus, such challengers are also known as disruptors.

Today, the startup phenomenon is not limited to Silicon Valley. It has spread not only beyond the borders of Silicon Valley but also beyond the borders of USA and has gone global. It is emerging as an engine of growth in Asia, more especially in China and India.

Basic features of Startups

The Startups are basically companies or establishments which are:

- small in size initially;

- funded by bootstrapping, friends and family members;

- employs only a very few people;

- not yet attracted the attention of big companies.

However, as soon as a startup shows hockey stick effect, the game plan changes and attracts outside investors.

The startups can be classified as under:

1. Small business startups. For eg., social media management, online sales, DTP, online coaching etc.

2. Buyable Startups. The main idea is that small teams, more especially in software technology, create a business model from scratch with an idea to sell it to big corporates. Bigger companies such as Amazon acquire small or early startups whose product or service appeals to them and then develop them to reap benefit.

3. Scalable Startups. These are companies which have great potential for expansion or upgradation quickly. The emphasis is on innovation, ie., value of product or service being introduced in the market, the size of the market, the business plan and personnel for its smooth operation, stability and growth.

4. Offshoot Startups. Such startups are established by big corporates to enter a new market or disrupt a small competitor.

5. Social Startups. These are businesses that focus on social and environmental issues with innovative ideas to earn profit which is ploughed back to improve the living standards of the local community. For example, Ethnotek is a company which designs and produces travel bags in many South East Asian and African countries and India using local craftmanship, embroidery etc., combining ethnology and technology.

6. Unicorn Startups. Unicorn is a mythological animal represented as a horse with a single straight horn from its forehead which is considered as pure creature with magical powers. The term was coined by a famous venture capitalist, Aileen Lee to represent a rare successful startup. These companies have potential to grow big very fast due to their special product and their powerful strategy. To attain unicorn status, the company must be quite successful and have a valuation of USD 1 billion or more equivalent of ₹ 7,500 crores.

Key ingredients of a Unicorn

The following are the key ingredients of a successful Unicorn company.

1. It should provide simple solution to an existing problem.

2. It should have a strong and highly marketable value proposal.

3. It should have a market large enough to stabilize and grow.

4. It should have a team which is keen to engage itself to put their time and effort to make the idea click and continuously upgrade the product or service to make it a part of the day-to-day life of the people.

5. It should have a corporate plan to achieve the goals of the company with a clear vision towards sustainable growth.

6. It should have an UX (User Experience) design which makes the users to easily operate and at affordable price.

7. Its business plan should consist of a timely and proper funding options.

8. Above all, the entire plan should be properly executed by exercising proper controls and mitigating the risks involved.

9. It should be a privately owned company.

In short, the ability to analyze data and use it to uncover new opportunities to improve revenues and operational efficiencies, to minimize costs and focusing on building brand and customer base are keys to the success of these startups.

Start-up Ecosystem

An ecosystem is a geographical area where plants, animals and other organizations as well as weather and landscape work together to form a bubble of life.

A startup ecosystem consists of a group of people, startups and related organizations formed in a limited area to enable creation and scaling of new startups.

Indian Scenario

According to the statistics available with the Department for Promotion of Industry and Internal Trade (DPIIT), more than 61,400 start-ups have been recognized so far in India including 14,000 units recognized during the year 2021 (compared to 733 new startups in 2016-17). There are likely to be many thousands more still not yet registered which may be operating as Micro Enterprises.

The following statistics from the Indian Economic Survey 2021-22 show that India is emerging as startup hub of the world.

From April 2019 to December, 2021 number of recognized startups added were as under:

Bengaluru   - 4,514

Delhi   - 5,000+

Maharashtra   - 11,308

In 2021, 44 startups reached the unicorn

status, thereby increasing the total of unicorn companies to 83 in India. Thus, India has become the third largest startup ecosystem in the world in number of startups behind US and China which occupy 1st and 2nd place. The total value of these unicorn startups in India stands at US$ 277.77 billion.

According to NASSCOM Tech Start-up Report 2021 released in January, 2022, the startup ecosystem in India has generated direct and indirect job opportunities, providing 6.60 lakhs direct jobs and 34.10 lakhs indirect jobs. Thus, startups have become the back-bone of India. Fittingly, the Prime Minister of India has recently announced that 16th January will be celebrated as National Startup Day every year.

Is Everything Bright?

While we celebrate the success of startups in India, it is also a time for concern for the startups which fail to reach their goals. It is found that nearly 80-90% of Indian startups fail within the first 5 years of their inception. According to the business owners, the reasons for failure are:

- Shortage of funds.

- Lack of Innovation

- Product Problem.

- Bad Partnership.

- Strong Competition.

- Pricing & Cost issues.

- Wrong Team.

- Bad Planning.

- Regulatory Issues.

Indian business environment is quite different as compared to their Western counterparts. Infrastructure is a constraint in India and the market is more price conscious here. The payments are usually delayed. As such, it is difficult to find out what exactly went wrong as the founders must have faltered on more than one parameter.

However, India has a huge market. The Government is very keen on promoting, encouraging and creating an enabling environment to take advantage of boom in the startup revolution. Right now, it is boom time for startups in India. So, let us now, look at the possibilities of energizing them.

Overcoming our Shortcomings

Every businessman or woman wants his or her business to be profitable with growth viability so as to see his or her initiative, investment and ingenuity pay off. No one goes to any examination with an intention to fail. Hence, in order to be successful, certain amount of preparation is a prerequisite. But most promoters overlook the importance of preparation and are guided by emotion. To become a super star like *Amitabh Bachchan* or a master blaster like *Sachin Tendulkar*, startups need passion, planning and efforts (PPE) just as industries require property, plant and equipment (PPE).

Now, let us come down to the brass-tacks. Let us now look into the major key ingredients which every entrepreneur should focus on.

1. Product/ Service

It is highly imperative for the entrepreneur to have not only a good idea to solve an existing problem but also should know how to do better than others who are already there. Facebook became very successful because it offered a better product than Google's Orkut. The product or service should be of value to the consumer. The necessity of building a Minimum Viable Product (MVP) is crucial to the successful venture. It helps to do course correction.

2. Funding

Cash to business is like oxygen to human body. Majority of the startups fold up early due to lack of funding. Before launching a startup, the entrepreneur has to do proper home work to estimate the fund requirement and ensure its availability on time. There are a lot of ways to raise funds other than bootstrapping or family and friends. Before we discuss about them, we should know that such finance providers look at the proposition with reference to its marketability, its market size, the profile of its promoters, their ability to steer the company, its team and their commitment, their ability to mitigate the risks, their costs and prices and their financial management and control system. In other words, the fund providers assess the overall business model presented to them. Just because one has raised money, it does not mean the end of the problem but is the beginning of the problem of its wise usage, allocation and careful monitoring of the progress.

3. Competition and Customer Focus

It has been noticed that nearly 1/5th of the startups fails due to inadequate marketing or due to lack of ability to face the competition. The founder should have clear idea about the purchasing habits of the consumers and also find out ways and means to fill in the gap left uncovered or untapped by the competitor. In other words, new market should be tried or a better product or service be launched. A marketing strategy should be evolved to correct any weakness. The companies can build a database through KYC approach and analyze the data. Instead of collecting data through surveys, it would be better to talk to the target customers either personally or by phone. This will help the company to fine tune its product or service. The strategy focused on customer is, therefore, essential for success.

4. Team

It has been noticed that 23% of the startups fail because of lack of talent and skill in the team. A committed workforce is the tonic for a successful startup. In fact, in initial stages, the employees should not mind working long hours including the founder. Devoted and dedicated team enables the company to operate the business profitably and make it grow fast. A joint survey conducted by MetLife and U. S. Chamber of Commerce found that the owners log in 14+ hours in working days. Therefore, the promoter should take enough care to build a comprehensive team consisting of good idea generators, result oriented marketing professional, finance people capable of

working out a good business model and putting into action as well as monitoring and reporting. As people are assets to the company, the promoters should motivate them by developing a culture of ownership through rewards for achievements such as ESOP to encourage collective responsibility.

5. Cost and Pricing

We have noted above that the Indian market is highly price conscious. Hence, there is a paramount need for effective cost control to minimize waste. It is essential to avoid unnecessary costs. One should be aware of 'unit economics' which is essentially the profit made on each unit. It has to be positive and must generate enough volume for the sustainable growth of the company.

Startup Funding

As we have seen above, adequate and timely finance is crucial for the success of any startup. There are many avenues to raise funds for startups in India now as innumerable incubators, accelerators angel investors, venture capitalists and private equity firms have come up on the scene and are keen to invest in startups which have high potential. Moreover, SME stock exchange platform also helps companies to raise needed funds. Let us, now, look at these various sources of funds.

1. Incubators & Accelerators

Just as premature or underweight babies are put in incubators to make them survive, startups in their early stages are similar kind of infants and need support and nourishment to survive and grow. Hence, we do have incubators for startups as well. These incubators provide financial help, infrastructural and technical facilities and mentoring support. Initially, universities and state counties set up incubators to promote and develop startup phenomenon in USA. They provided furnished offices at subsidized rents, mentoring and network facilities to startups. Some of them even provided small initial funding. In India, some of the academic institutions such as *IIT- Mumbai (SINE), IIT- Delhi (FITT) and IIM-A (CIIE)* set up incubators to allow the entrepreneurs to work on their products for a period of 3 years.

The accelerators aid the already existing startups to improve them for a shorter period with a little more funding and advisory and mentorship. Because of the networking, they are able to invite potential investors. Here, in India companies like *Mahindra & Mahindra, ICICI Bank* etc., have launched accelerator programmes to nurture the startups which are of interest to them in their field.

2. Angel Investors

Angel Investors (simply known as -Angels) are wealthy people seeking for new investments which are likely to yield better rate of return as compared to traditional investments. They are called "*Angels*" because they come as angels to help when you are in dire need. Most of the angels work in groups and hence they are known as "Angel Network".

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The startup entrepreneur can get from Rs. 50 lakhs to Rs. 2 crores from the angel network, with individual angel contributing from Rs. 5 lakhs or more.

In India, we have many angel networks like Mumbai Angels, Chennai Angels, Hyderabad Angels, Jaipur Angels, Chandigarh Angels and so on. Also, there are a lot of *High Net Worth Individuals* like Ratan Tata and Azim Premji known as" *Super Angels*" who do not need any network, and they come up with entire money required by the startups.

3. Venture Capitalists (VC)

Venture Capitalists are private equity investors who provide equity capital to startup companies and SMEs with high growth potential. They manage funds taken from either high – net- worth- individuals or organizations. While angel investors invest their own money, VCs invest other people's money. Also, they invest money at a later stage as compared to angel investors to companies which have stabilized to some extent and need more money to grow further. They analyze and assess the value of the company in order to minimize the risks as they deal with others' funds. There are, now, more than 100 large venture capital and private equity firms like ICICI Venture Fund, SAIF Partners, Aditya Birla Private Equity etc., to name a few.

The investments by VCs are categorized as Series A, Series B, Series C and so on. Series A is considered as seed funding ranging somewhere between 1 to 3 million dollars. Series B refers to funding between US$ 3 and 5 million and Series C refers to funding from US$ 5 to 10 million etc.

4. SME Stock Exchanges

At present, there are only 2 SME Stock Exchanges in India which are known as BSE SME Platform (BSE Ltd) and EMERGE Platform (National Stock Exchange). These platforms have been launched to encourage and promote MSMEs and Startups. As of now, 363 companies are listed in BSE SME and they have raised a total amount of Rs. 3841 crores. Out of these companies 131 have moved to the main board.

5. IPO

Initial Public Offer (IPO) is an excellent source of fund raising for companies which have become big and are aiming to be Unicorn companies. The companies with good management team and strong performance and financial record attract large number of subscribers to IPO.

6. Government Initiatives

The Government of India has taken several measures to support startups such as:

- Broadening the definition of startups;
- Simplifying regulations;
- Giving income tax exemption;
- Setting up of Rs. 10,000 crores Fund of Funds (FoF) by Small Industries Development Bank of India.
- Launching Startup India Seed Fund Scheme (SISFS) with an outlay of ₹945 crores.

As per the Economic Survey Report 2020-21, FoF has invested Rs. 4,509.16 crores in 384 startups.

Startup India is a flagship initiative of Government of India started in 2016 to promote startup culture and build a strong and inclusive ecosystem for innovation and entrepreneurship in India. Department of Promotion of Industry and Internal Trade (DPIIT) acts as the nodal department for the startup initiative. The entrepreneurs now have options to avail benefits across a range of laws, regulations, fiscal and infrastructural support. A total of 1,424 incubation offers have been given to startups as a part of this.

The sectors that had the maximum registered startups were Food Processing, Product Development, Application Development, IT Consulting and Business Support Services. 45% of the startups have women entrepreneurs as leaders which is a very welcome trend.

7. Debt Financing

Loan or Debt funding is also available through commercial banks. Such loans carry interest burden which is additional cost to the new entrepreneur. Further the promoter must have a collateral property and provide a personnel guarantee. The Government of India has introduced the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) under which loans can be obtained without any collateral or personal Guarantee. Similarly, the Pradhan Mantri MUDRA Yojana was set up by the government through Micro Units

Development and Refinancing Ltd which is a subsidiary of SIDBI. This scheme offers 3 types of loans.

A. Shishu : offers loans up to ₹50,000 to the individuals who are looking to start a business or are at the early stage of operation.

B. Kishor: offers loans up to ₹5 lakhs to established businesses for expansion.

C. Tarun: offers loans up to ₹10 lakhs for fully established businesses.

The interest rate is based on MCLR (Marginal Cost Lending Rate) of RBI. This helps the borrowers to avail loan and benefit from apex bank's rate cuts.

Conclusion

It is heartening to note that DPIIT which is playing a pivotal role in strengthening startups has organized several programmes such as:

- National Startup Awards;
- Global VC Summit;
- Prarambh: Startup India International Summit.

DPIIT should continue its good work to improve the strength of the Indian Startup Ecosystem. A wide publicity through print media, visual media and social media should be given by the Department to bring awareness to the budding and potential entrepreneurs about the benefits accruing to them. Similarly, private equity and VC groups may also organize seminars and workshops and create a sound environment to attract and energize the young

entrepreneurs to come forward with unique ideas. India with a population of more than 130 crores need such a programme to create jobs and opportunities. The focus should be on making the public aware of the opportunities in our country arising out of startup boom and educating them on the requisites for successful operation of the enterprises.

References:

1. The websites of Ministry of Commerce and Industry, MUDRA loan scheme.

2. News and reports from Economic Times, Times of India and the New Indian Express.

3. Websites on startups in internet such as IFT etc.

4. Startup Idea to IPO by Rajan Bhatia/ Adhyyan Books.

5. Funding Your Start-Up by Dhruvnath & Sushanto Mitra/Penguin Random House

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- The authors must declare that the article is the result of their faithful work.

- The article should preferably be relating to the research work carried out during the last five years and not being considered for publication in any other research bulletin or journal.

- The manuscript including figures, table & references should be preferably within 5000 words for Research Papers including an abstract, 2000 words for Case Studies and 1000 words for Book Reviews.

- Soft Copy of the full paper should be submitted in double space, 12 fonts, Times New Roman, keeping a margin of 1 inch in four sides, MS Word (.doc) format.

- The Cover Page should contain the title of the paper, author's name, designation, official address, contact phone numbers, e-mail address.

- An abstract of not more than 150 words should highlight the findings of the research work. It should be in clean and concise English. Abbreviations should be avoided in the abstract.

- Title should be short, specific and informative.

- The main text should not contain name of the author and footnotes. References should be given at the end of the manuscript and should contain only those cited in the text of the manuscript.

- 5-6 key words suitable for indexing should be given in the alphabetical order.

- Figures and tables should be numbered consecutively and should appear near the text where they are first cited. The figures should be accommodated within two thirds of A4 size paper. Captions of the tables/figures/charts at the top and sources at the bottom are to be given. The heading of sections & sub-sections should start from the left hand margin.

- Soft copy (in MS Word format) of the manuscript is to be sent.

- The contributions sent for publication may be referred for review. Correspondence and proofs for correction, if required, will be sent to the first named author unless otherwise indicated. Corrected proofs should be returned within specified days as may be communicated from Editorial Desk.

- The final decision on the acceptance or otherwise of the paper rests with the Advisory Board and it depends entirely on its standard and relevance. The final draft may be subjected to editorial amendment to suit the bulletin's requirement.

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After an amendment passed by Parliament of India, the Institute is now renamed as "The Institute of Cost Accountants of India" from "The Institute of Cost and Works Accountants of India". This step is aimed towards synergizing with the global management accounting bodies, sharing the best practices and it will be useful to large number of trans-national Indian companies operating from India and abroad to remain competitive. With the current emphasis on management of resources, the specialized knowledge of evaluating operating efficiency and strategic management the professionals are known as "Cost and Management Accountants (CMAs)". The Institute is the 2nd largest Cost & Management Accounting body in the world and the largest in Asia, having more than 5,00,000 students and 90,000 members all over the globe. The Institution operates through four regional councils at Kolkata, Delhi, Mumbai and Chennai and 113 Chapters situated at important cities in the country as well as 11 Overseas Centre headquartered at Kolkata. It is under the administrative control of Ministry of Corporate Affairs, Government of India.

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✓ Soft Copy of the full paper should be submitted in double space, 12 font size, Times New Roman, keeping a margin of 1 inch in four sides, MS Word (.doc) format.

✓ Each paper should be preferably within 5000 words including all.

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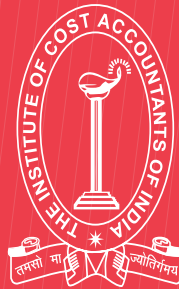
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