DHII

A Journal by the Department of MBA, MCA and M.Com (FA)

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Message

Effective people are not problem-minded; they are opportunity-minded. They feed opportunities and starve problems.

-Dr. Stephen Covey

It gives me immense pleasure to present to you the sixteenth issue of the Research journal - '*Dhii*' April 2018. It is a journal by the students of MBA/MCA/M.COM (FA) that has both internal and external expert reviewer teams. The journal publishes articles on current research in the areas of Finance, Marketing, Human Resource and Information Technology. This issue has fifteen articles.

The time spent at the Masters Degree must make a difference. In a way it is a stepping-stone to a different life altogether. Since, this is the ideal time for study and teaching learning thrives in an ambience wherein new knowledge is created, the course has been planned carefully to enable the students for further academic pursuits.

Encouraging students at their master's degree level to develop an interest in research is the first step in creating a culture of research. To make research a part of their curriculum, to start early to generate the interest in the young academicians is the purpose of this journal.

In their final year, the students have the opportunity to work on a research project in an area of their choice, under the guidance of one of the faculty members. This is to encourage independent study in the students giving them an opportunity to engage with research and prepare them for higher levels of academia. The work that they put in towards the compilation and release of these journals, which they incidentally contribute articles to as well as edit, teaches them valuable lessons on research.

While '**Dhii**' hones the research skills in the students, it challenges the staff to keep abreast with the latest areas of research which in turn helps improve the quality of their teaching.

My sincere appreciation goes to our student contributors, who worked with ease, enthusiasm and joy. I thank my dear staff, who journeyed with our students and worked towards successful release of the sixteenth issue. Congratulations to the staff and students of MBA/ MCA/M.COM (FA).

In our constant striving for excellence, we continue to march ahead keeping in mind the college motto'***Let Your Light Shine***'.

God Bless You

Dr. Sr. Lalitha Thomas
Director, Post Graduate Centre
Jyoti Nivas College Autonomous

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DHII

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Volume XVI **April 2018**

SECTION I (MCA)

SECTION II (MBA)

SECTION III(M.COM(FA))

SECTION I (MCA)

Foreword

'Definiteness of purpose is the starting point of all achievement'

– W. Clement Stone

*The purpose of this journal is to foster and reward the scholarly efforts of our students as well as to provide a valuable learning experience. The first section of April 2018 edition of **'DHII'** showcases 5 outstanding research papers from the field of computer science focusing the active areas of research namely neural networks, image processing and text recognition.*

*The first paper of **Dhii** is based on Identification of Diabetic Retinopathy.*

Diabetic Retinopathy is one of the most common diabetic diseases that are caused by changes in the blood vessels of the retina. In some people with diabetic retinopathy, blood vessels may swell and leak fluid. In some other people, abnormal blood vessels may grow on surface of retina. Diabetic retinopathy is one of the complications caused by diabetes. As indicated by the name, diabetic retinopathy appears in the retina, which is the tissue responsible for vision in the eye. Since diabetic retinopathy causes changes in the eye, the disease may affect the vision. Diabetic Retinothearpy in-patient can be identified with the help of one of the Digital Image Processing algorithms-K-Means Clustering algorithm

The second paper of Dhii focuses on restoration of damaged mural. Many Mural paintings, especially old ones, suffer from breaks in the substrate, the paint, or the varnish. These patterns are usually called cracks and be caused by aging, drying and mechanical factors. The appearance of cracks on painting deteriorates the perceived paintings quality. One can use digital image processing techniques to detect and eliminate the cracks on the digitized paintings. The main objective of this study is to present the digital image processing technique that can be applied to the virtual restoration of artistic paintings, which serves many purposes. The methods implemented on this paper are based on studying the digital image processing technique used for cracks identification and removal.

The third paper is based on MHealth. MHealth (also written as m-health) is an abbreviation for mobile health, a term used for the practice of medicine and public health supported by mobile devices. The mobile app is part of the rapidly growing field of mobile health. The mobile app replaces paper-based documentation in a healthcare facility with an electronic record. The mHealth field operates on the premise that technology integration within the health sector has the great potential to promote a better health communication to achieve healthy lifestyles, improve decision-making by health professionals and enhance healthcare quality by improving access to medical and health information and facilitating instantaneous communication in places where this was not previously possible. It follows that the increased use of technology can help reduce health care costs by improving efficiencies in the health care system. This paper concerns developing health care apps for detecting size and color of wounds of a pressure ulcer.

The fourth paper is based on "Handwriting Recognition". Handwriting Recognition is considered as one of the most important techniques in neural network research. Neural Networks are being used for handwriting recognition from last many years. This paper presents creating the Handwriting Recognition System in which Creating a Character Matrix and a corresponding suitable Network Structure is key. We have attempted to recognize handwritten English characters by using a multilayer perception with one hidden layer.

The fifth paper is based on checking the quality of food grains using image-processing technique. The quality of the food grain we consume is of more importance, as people are becoming educated their demand for quality of grains is increasing. There is possibility of adulteration of food grains by the traders. Generally, the quality assessment is carried by visual inspection, which is manual process. In this work, an image processing technique is used as an attempt to automate the process, which overcomes the drawbacks of manual process. This paper provides the quality assessment of rice grains based on its size. Based on the size the grains are graded as (grade 1, grade 2 and grade3). Here we considered different varieties of rice grains for testing like Basmati, boiled rice, egg rice etc. The system is developed using 105 set of images and are classified using decision tree based classification technique. The results are found to be encouraging.

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IDENTIFICATION OF DIABETIC RETINOPATHY

~Asma Farheen, Karima S

Abstract

Diabetic Retinopathy is one of the most common diabetic diseases that are caused by changes in the blood vessels of the retina. In some people with diabetic retinopathy, blood vessels may swell and leak fluid. In some other people abnormal blood vessels may grow on surface of retina. Diabetic retinopathy is one of the complications caused by diabetes. As indicated by the name, diabetic retinopathy appears in the retina, which is the tissue responsible for vision in the eye. Since diabetic retinopathy causes changes in the eye, the disease may affect the vision. It can be detected with the help of K-Means Algorithm in Digital Image Processing

1. INTRODUCTION

Diabetic retinopathy is an eye disease, which has been caused due to high blood sugar level. In early days many people facing the Diabetic retinopathy problem. Diabetic retinopathy damage to the retina caused by complications of diabetes, which can eventually lead to blindness. There are three main type of retinopathy. First is Background Retinopathy second is Pre-proliferative Retinopathy and third one is Proliferative Retinopathy.

Small red dots will appear on retina due to tiny swellings in the blood vessel walls. If you have been diabetic 30 years, even with the best control, these may develop. But most people who have background retinopathy have not been diabetic that long, and need better control as per these targets. BDR consists of:

- Microaneurisms: these are usually the earliest visible change in retinopathy seen on exam with an ophthalmoscope as scattered red spots in the retina where tiny, weakened blood vessels have ballooned out.
- Hemorrhages: bleeding occurs from damaged blood vessels into the retinal layers. This will not affect vision unless the bleeding occurs in or near the Macula.
- Hard Exudates: caused by proteins and lipids from the blood leaking into the retina through damaged blood vessels. They appear on the ophthalmoscope as hard white or yellow areas, sometimes in a ring like structure around leaking capillaries. Again vision is not affected unless the macula is involved.

2. PROPOSED ALGORITHM

The purpose of this design document is to explore the logical view of architecture design, sequence diagram, data flow diagram, user interface design of the software for performing the operations such as pre-processing, extracting features and classifying the exudates.

The scope of this design document is to achieve the features of the system such as pre-process the images, feature extraction, segmentation and classifying the exudates.

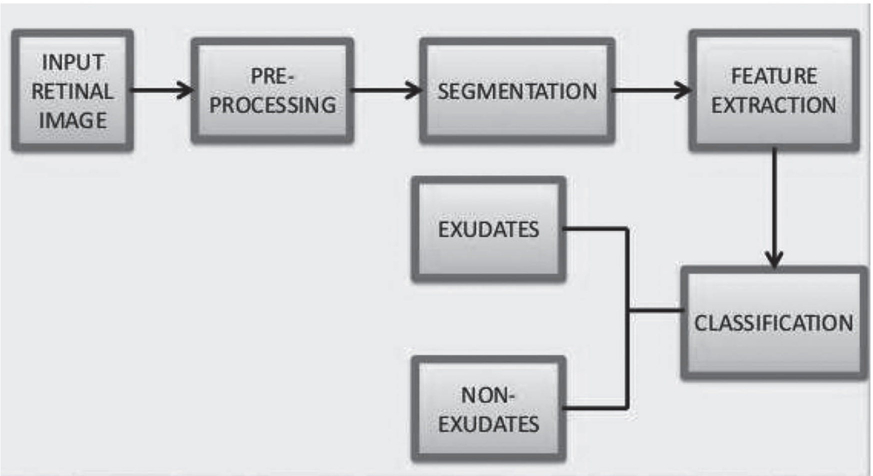
3. TECHNIQUES:

Pre-processing.

- Segmentation.
- Feature Extraction.
- Classification of exudates.

Block Diagram and Algorithm

The proposed methodology uses some techniques to remove the background noise, and features extraction to detect and classify the exudates.



Block Diagram of a proposed system

➢ **Pre-processing**

The pre-processing is a series of operations performed on scanned input image. It essentially enhances the image rendering it suitable for segmentation. The role of pre- processing is to segment the interesting pattern from the background. Generally, noise filtering, smoothing and normalization should be done in this step. The pre-processing also defines a compact representation of the pattern. Binarization process converts a gray scale image into a binary image.

Steps in pre-processing

➢ Image Segmentation

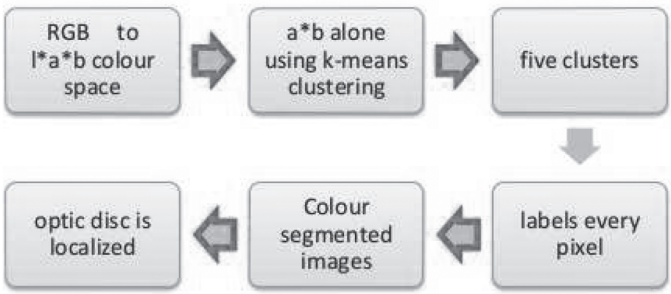


Image segmentation is one of the mostly used methods to classify the pixels of an image correctly in a decision-oriented application. It divides an image into a number of discrete regions such that the pixels have high similarity in each region and high contrast between regions. It is a valuable tool in many field including health care, image processing, traffic image, pattern recognition etc. There are different techniques for image segmentation like threshold based, edge based, cluster based, neural network based.

From the different technique, one of the most efficient methods is the clustering method. Again, there are different types of clustering: K-means clustering, Fuzzy C-means clustering, mountain clustering method and subtractive clustering method

➢ Feature Extraction

On the basis of color and texture orientation, features are extracted using GLCM. The features were extracted using Gabor and GLCM feature extraction methods. These methods give the information about texture of the image based on shapes of the objects in the images. Gabor filter is a direct filter used for edge detection. In this proposed method they were extracting 24 features which include mean, variance and standard deviation at different orientation by using gabor filter. A gray level co-occurrence matrix (GLCM) contains information about the position of pixels having similar gray level values. They were extracting 12 different statistical features like dissimilarity, contrast, correlation, cluster, prominence, cluster shade, energy, entropy, homogeneity, and maximum probability, sum of square, auto correlation, and inverse different moment.

- **Classification**

The final step is classification of given input as exudates (or)non-exudates by naïve bayes classifier.

K-means Algorithm:

Step 1: Read the RGB Image available for classification.

Step 2: Convert available image from RGB color space to L*a*b* color Space

Step 3: Classify the colors in 'a*b*' space using K-means clustering algorithm

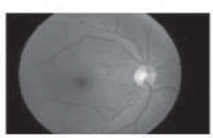
Step 4: Label every pixel of the image using the results from K-means algorithm

Step 5: Create images that segment the image by color.

4. RESULTS & DISCUSSIONS.

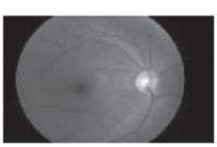
Applying the above techniques in the sampled lot of input images and the exudates of the eye are extracted. To extract the exudates over the time, this example uses k-means algorithm.

PRE-PROCESSED OUTPUT

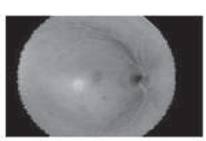


Input retinal image

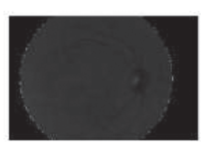
HSI Components



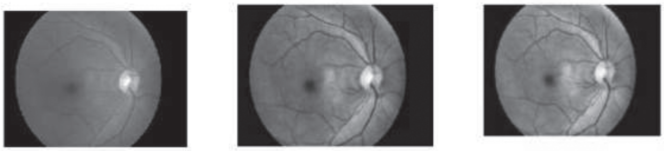
H component



S Component



I Component



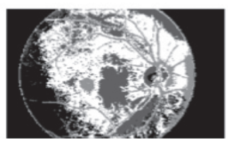
Filtered I component CLAHE image Pre-processed image

SEGMENTATION OUTPUT

LAB colour space images

a. L channel b. A channel c. B channel

Image Labeled By Cluster Index



5. CONCLUSION

Automatic detection and classification of exudates using k-means clustering algorithm has been presented in this paper. The proposed method has yielded encouraging result. The proposed method has successfully classified the exudates as hard and soft exudates. The method successfully detects the exudates for retinal images wherein OD is visible completely. However, the method fails to identify the OD in case of retinal images where OD is partial visible.

Comparing the results with the method presented, the proposed method classifies the exudates as soft and hard as to identifying only hard exudates. Such classification helps the ophthalmologists in diagnosing the retinal diseases. The system is developed in MATLAB .

6. FUTURE WORK

A novel approach for the retinal vessel segmentation has been presented which shows accurate results for the database used in this system. Exact detection of the condition of a retina whether it is normal or abnormal was determined successfully. Regarding the high ability of CLAHE for retinal image contrast improvement and prepared better for segmentation step. Because of the high sensitivity of structure elements to the edges in all directions, blood vessel edges ware detected successfully by using the structure elements morphology.

Our future work is to replace the simple threshold method with a more proper approach in order to increase the accuracy of this method and deal with the problem of the presence of severe lesions in retinal fundus images.

Detection of Micro-aneurysm and maculopathy be predicted and performance can be compared.

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RESTORATION OF DAMAGED MURAL

~Shiny Elizabeth, Kadkol Sai Jyoti

Abstract

Many Mural paintings, especially old ones, suffer from breaks in the substrate, the paint, or the varnish. These patterns are usually called cracks and be caused by aging, drying and mechanical factors. The appearance of cracks on painting deteriorates the perceived paintings quality. One can use digital image processing techniques to detect and eliminate the cracks on the digitized paintings. The main objective of this study is to present the digital image processing technique that can be applied to the virtual restoration of artistic paintings which serves many purposes. The methods implemented on this paper are based on studying the digital image processing technique used for cracks identification and removal.

1. INTRODUCTION

Manual recording and detection of aging seem less efficient, given the increasing number of collections and electronic based approaches seems to be the best choice. Different types of materials are used for paintings and frames. For this use varnish, paint, glue, canvas, wood, metal, gilding and plaster. When both are used then it produces complex structure which can be easily damaged if knocked or dropped. Materials are damaged by different surrounding materials and they are sensitive too. In addition, when there is a change in environmental conditions then they also produce changes in the paintings and frames. Light and dirt also produce change in images. Many paintings, especially old ones, suffer from breaks in the substrate, the paint, or the varnish. These patterns are usually called cracks or craquelure. Age cracks can result from non-uniform contraction in the canvas or wood-panel support of the painting, which stresses the layers of the painting. The appearance of cracks on paintings deteriorates the perceived image quality. So solution for this one can use digital image processing technique can be used in this process. Old paintings are cultural assets for country which can be preserved by computer-aided analysis and processing. Digital image processing techniques used to detect and eliminate the cracks on digitized paintings. So this type of processing images are used in museum, provide clues to art historians, and the general public on how the painting would look like in its initial state, i.e., without the cracks.

2. TECHNOLOGY

The technology currently used for conducting a virtual autopsy comprises of:

- **Patch-based techniques:-**A patch-based anisotropic diffusion techniques combined with a novel high-frequency generating technique that can enhance line/brush strokes is also proposed.
- **Morphological algorithm:-**morphological algorithm detects only the cracks and missing area in the wall painting image, contour shape based methods are work only the limited number of fragments, top hat transform technique only detect the cracks which are removed by training the neural network through MRBF but it is very difficult and time consuming task.
- **Texture generation scheme:-**texture generation scheme and HF enhancing**,** It would help artist to do the restoration process very quickly and amateur people can also restore efficiently as the user needs to select only some source and target windows where the texture is to be generated

- **K-means clustering**:-The algorithm consists of four major steps as described in the paper. A new line detection and extraction technique using correlation followed by convolution with different templates is implemented.
- **Morphological top-hat transform:-**The cracks are detected by thresholding the output of the morphological top-hat transform. Afterward, the thin dark brush strokes which have been misidentified as cracks are removed using either a median radial basis function neural network on hue and saturation data or a semi-automatic procedure based on region growing. Finally, crack filling using order statistics filters or controlled anisotropic diffusion is performed.

3. IMPLEMENTATION

The methods implemented on this paper are based on studying the digital image processing technique used for cracks identification and removal.

We choose a 3-step approach:

1. Crack Detection
2. Crack Classification
3. Crack Filling

Step 1: Crack Detection: Concept:

Cracks usually have low luminance and thus can be considered as local intensity minima with rather elongated structural characteristics. Therefore, a crack detector can be applied on the luminance component of an image and should be able to identify such minima.

Step 2: Crack Classification:

In some paintings, certain areas exist where brush strokes have almost the same thickness and luminance features as cracks. The hair of a person in a portrait could be such an area. Therefore, the top-hat transform might mis-classify these dark brush strokes as cracks. Thus, in order to avoid any undesirable alterations to the original image, it is very important to separate these brush strokes from the actual cracks, before the implementation of the crack filling.

Step 3: Crack-Filling Methods:

a) Using Modified Mean filter and Using Modified Median filter:

The mean filter is a simple sliding-window spatial filter that replaces the center value in the window with the average (mean) of all the pixel values in the window.

The median filter is a simple sliding-window spatial filter that replaces the center value in the window with the median value of all the pixel values in the window.

Finding white spots and crack after applying filter

4. CONCLUSION

Image restoration is a process of reconstructing a blurred or a noisy image that results into an uncorrupted image. Restoration of wall painting is a process of recover the wall paintings which are corrupted by many natural phenomena like unfavorable weather conditions, dust, smoke etc. due to which the wall paintings affected by many problems like cracks, white spots etc. Any deterioration or destruction of these wall paintings may cause a great loss to our cultural heritage. There are many algorithms that are used for the restoration of wall paintings..

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SIZE AND COLOR DETECTION OF SMARTPHONE IMAGES OF CHRONIC WOUNDS FOR HEALTHCARE APPLICATIONS

~Angel Christina T, Soumya P H

Abstract

MHealth *(also written as* ***m-health****) is an abbreviation for* ***mobile health****, a term used for the practice of medicine and public health supported by mobile devices. The mobile app is part of the rapidly growing field of mobile health. The mobile app replaces paper-based documentation in a healthcare facility with an electronic record. The mHealth field operates on the premise that technology integration within the health sector has the great potential to promote a better health communication to achieve healthy lifestyles, improve decision-making by health professionals and enhance healthcare quality by improving access to medical and health information and facilitating instantaneous communication in places where this was not previously possible. It follows that the increased use of technology can help reduce health care costs by improving efficiencies in the health care system. This paper concerns developing health care apps for detecting size and color of wounds of a pressure ulcer.*

1. INTRODUCTION

Health Care apps are growing rapidly with latest technologies, which enable users to get access to doctors and medicines easily. This research paper "**Size and Color Detection of Smartphone Images of Chronic Wounds for Healthcare Applications**" is about algorithms used for detecting the size and color of a Chronic wound for healthcare apps. A wound is an injury that causes a break in the skin. There may also be damage to nearby tissues. Chronic wounds are wounds that do not heal completely in 6 weeks. Examples of wounds that can become chronic are deep ulcers (open sores), large burns, and infected cuts. A chronic wound is a wound that does not heal in an orderly set of stages and does not heal within a predictable amount of time. These wounds occur in places, which cannot be easily seen like foot, back of arm, back of neck etc. Chronic wounds may never heal or may take years to do so. These wounds cause patients severe emotional and physical stress and create a significant financial burden on patients and the whole healthcare system. **The most common type of chronic wounds are-** *Arterial ulcers: Venous ulcers: Diabetic ulcers: Pressure ulcer:* Measuring of these wounds manually in hospitals causes' pain as the patient has to travel often to the hospitals and methods used will also cause pain. First the wound will be cleaned with water and to measure its size for further analysis like to find out how deep the wound is and in which stage it is methods used are as follows:

- Digital Photography
- Scanner Capture Approach
- Pinch Zoom
- Grid Capture

2. BACKGROUND STUDY

➢ Digital Photography in Chronic Wounds

Wound photography is recognized for its utility in the care of chronic wounds. Wound area calculated from a digital photograph of a wound, either by tracing it with computer software or photographing a manual contact tracing, was demonstrated to be a quicker and more accurate method than contact tracing of the wound itself in the cases of venous and diabetic foot ulcers.

The first step in digital wound photography is to remove all dressings and cleanse the wound with saline. The entire wound is photographed to include healthy skin, surrounding cellulites, and/or callus. To minimize error, the camera lens is oriented parallel to the plane of the wound. The photograph is framed by altering the distance between the lens and the wound or using the zoom function if present and focused using the auto-focus feature. A flash is used in all settings to ensure adequate and consistent lighting. Following capture, the photograph can be viewed on the digital display screen. Once uploaded, files are opened in Adobe Photoshop and cropped to remove unwanted footage (e.g., the ruler is beyond the necessary markings, excessive areas of healthy skin, etc), and rotated so that the ruler is along the bottom edge of the photograph. Photographs are resized according to database and software requirements. Once saved, photographs are opened with Wound Imager 2.0 to determine the area, length, and width. To calibrate these measurements on each individual photograph, the user marks a known length on the ruler and then traces the wound edge around the area of ulceration with the computer mouse. The enclosed areas are filled automatically, and the program calculates the total wound area. Length and width are measured manually on the screen.

- **Scanner Capture approach**

In the existing scanner capture approach, a box with two mirrors inside is placed at 45 degrees relative to the horizontal, with openings for a Smartphone and an LED light source and this configuration acts as a scanner to scan the wound. The configuration ensures a constant light source location and intensity, and a constant known distance is maintained between the camera and the wound, facilitating area calculations. The image capture box will keep a constant distance and will be known; hence, the ratio of the size of the wound image will be also constant. This method again relies on auxiliary devices (the box and mirror) and will be cumbersome and impractical for wounds on certain parts of the body. As a contact-based design, this method may have less utility when serving as a measurement procedure for a large number of patients.

➢ *Pinch-zoom*

This method uses the device itself as a reference and compares it side by side with the objecting to achieve size via ratio. The method has high mobility; however, accuracy is somewhat user-dependent and not systematic. The same person doing the same size estimation with the new image may generate variable results.

➢ **Grid capture**

In the grid capture approach, a transparent double layer lm with a marked grid (1 1cm) is placed on the wound and the wound contour is traced with a black permanent marker, upon which the length and the width can be easily calculated by a Smartphone application. The area of the wound can be calculated by the factor between the grid and the pixel. The advantage of this method is that the transparent film is placed directly on the wound, keeping the traced wound at the near dimension and orientation as the real wound underneath, minimizing distortion or uncertainty of the wound image area.

3. PROPOSED WORK

GrabCut algorithm was designed by Carsten Rother, Vladimir Kolmogorov & Andrew Blake from Microsoft Research Cambridge, UK in their paper, **"GrabCut": interactive foreground extraction using iterated graph cuts** .

Starting with a user-specified bounding box around the object to be segmented, the algorithm estimates the color distribution of the target object and that of the background using a Gaussian mixture model. This is used to construct a Markov random field over the pixel labels, with an energy function that prefers connected regions having the same label, and running a graph cut based optimization to infer their values. As this estimate is likely to be more accurate than the original, taken from the bounding box, this two-step procedure is repeated until convergence.

***Steps*:**

1. The user input three things: The foreground, background, and the unknown part of the image that can be either foreground

or background. This is normally done by selecting a rectangle around the object of interest and mark the region inside that rectangle as unknown. Pixel outside this rectangle will then be marked as known background.

2. The computer creates an initial image segmentation, where the unknown pixels are placed in the foreground class and all known background pixels are classified as background.
3. The foreground and background are modeled as Gaussian Mixture Models (GMMs).
4. Every pixel in the foreground assigned most probable Gaussian component in the foreground GMMs. The same process is done with the pixels in the background but with components of the background GMMs.
5. New GMMs are learned from the pixel sets that where created in the previous step.
6. A graph is built and Graph Cut is used to find a new classification of foreground and background pixels.
7. Repeat step 4-6 until the classification converges.

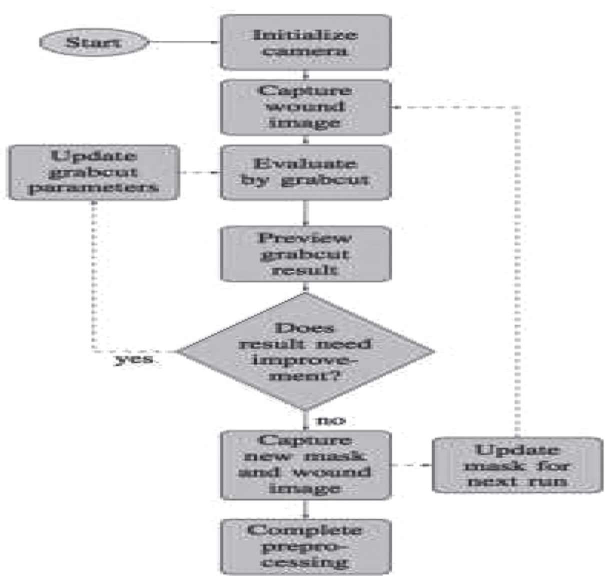
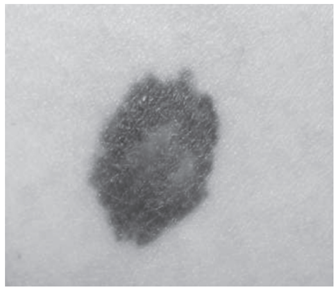
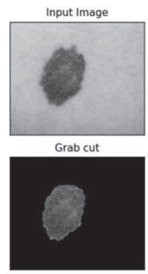


Image acquisition and preprocessing flowchart

4. RESULTS AND DISCUSSIONS





This algorithm is implemented in Python with Open CV. The results produced proved that Grab Cut completely depends on background and foreground pixels. If the pixels are similar the Grab Cut would mistakenly include or deletes those pixels.

Grab cut algorithm segments it iteratively to get the best result. But in some cases, the segmentation won't be fine, like, it may have marked some foreground region as background and vice versa. In that case, user needs to do fine touch-ups. Just give some strokes on the images where some faulty results are there. Then in the next iteration, you get better results.

- User inputs the rectangle. Everything outside this rectangle will be taken as sure background. Everything inside rectangle is unknown.
- Computer does an initial labeling depending on the data we gave. It labels the foreground and background pixels.
- Now a Gaussian Mixture Model (GMM) is used to model the foreground and background.
- Depending on the data we gave, GMM learns and create new pixel distribution. That is, the unknown pixels are labeled either probable foreground or probable background depending on its relation with the other hard-labeled pixels in terms of color statistics.
- A graph is built from this pixel distribution. Nodes in the graphs are pixels. Additional two nodes are added, **Source node** and **Sink node**. Every foreground pixel is connected to

Source node and every background pixel is connected to sink node.

- The weights of edges connecting pixels to source node/ end node are defined by the probability of a pixel being foreground/background. The weights between the pixels are defined by the edge information or pixel similarity. If there is a large difference in pixel color, the edge between them will get a low weight.
- Then a mincut algorithm is used to segment the graph. It cuts the graph into two separating source node and sink node with minimum cost function. The cost function is the sum of all weights of the edges that are cut. After the cut, all the pixels connected to Source node become foreground and those connected to sink node become background.
- The process is continued until the classification.

5. CONCLUSION

Grab Cut works well when the object of interest has another color distribution compared to the background. If that is not the case the segmentation could be problematic, with the statistical models. There are some cases that make GrabCut fail completely. This is because the models for the background and foreground will be similar.

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HANDWRITING RECOGNITION

~H Srinavya B, Raksha

Abstract

Handwriting Recognition is considered as one of the most important techniques in neural network research. Neural Networks are being used for handwriting recognition from last many years. This paper presents creating the Handwriting Recognition System in which Creating a Character Matrix and a corresponding suitable Network Structure is key. We have made an attempt to recognize handwritten English characters by using a multilayer perceptron with one hidden layer.

1. INTRODUCTION

The purpose of this paper is to take handwritten English characters as input process the character. Train the neural network algorithm. To recognize the pattern and modify the rector to a beautified version of the input. This paper is aimed at developing software, which will be helpful in recognizing characters of English language. This paper is restricted to English characters only. It can be further developed to recognize the characters of different languages. It engulfs the concept of neural network. One of the primary means by which computers are endowed with human like abilities is through the use of a neural network. Neural networks are particularly useful for solving problems that cannot be expressed as a series of step such as recognizing patterns. Classifying them into groups. Series prediction and data mining. Pattern recognition is perhaps the most common use of neural networks. Neural network is presented with a target vector and also a vector which contains the pattern information. this could be an image and hand written data The neural network then attempts to determine if the input data matches a pattern that the new. Network has memorized. A neural network trained for classification is designed to take input samples and classify them into groups.

2. OBJECTIVES:

- To provide an easy user interface to input the object image.
- User should be able to upload the image.
- System should be able to pre-process the given input to suppress the background.
- System should detect text regions present in the image.
- System should retrieve text present in the image and display them to the user.

3. THE BACKGROUND STUDY

Objective of Handwritten Character Recognition using Neural Network is to recognize the characters in a given scanned documents and study the effects of changing the Models of ANN. Today Neural Networks are mostly used for Pattern Recognition task. The paper describes the behaviors of different Models of Neural Network used in OCR. OCR is widespread use of Neural Network. They have considered parameters like number of Hidden Layer, size of Hidden Layer and epochs. They have used Multilayer Feed Forward network with Back propagation. In Preprocessing, we have applied some basic algorithms for segmentation of characters, normalizing of characters and De-skewing. They have used different Models of Neural Network and applied the test set on each to find the accuracy of the respective Neural Network.

4. PROPOSED WORK

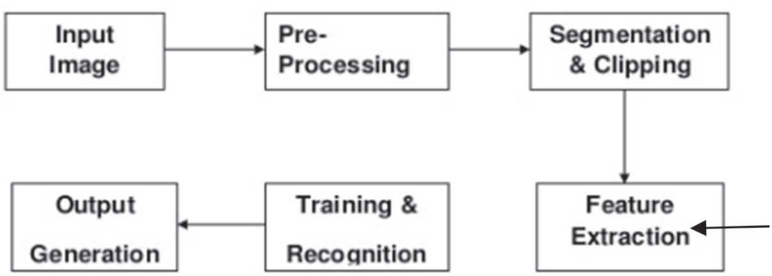
4.1 Purpose and Scope

The purpose of this design document is to explore the logical view of architecture design, sequence diagram, data flow diagram, user interface design of the software for performing the operations such as pre-processing, extracting features and displaying the text present in the images.

The scope of this design document is to achieve the features of the system such as pre-process the images, feature extraction, segmentation and display the text present in the image.

4.2 Block Diagram and Algorithm

The proposed methodology uses some techniques to remove the background noise, and features extraction to detect and classify the handwritten text.



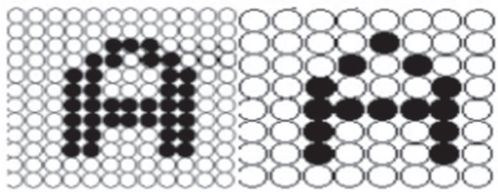
Pre-processing

The pre-processing is a series of operations performed on scanned input image. The role of pre- processing is to segment the interesting pattern from the background. Generally, noise filtering, smoothing and normalization should be done in this step. Binarization process converts a gray scale image into a binary image. Dilation of edges in the binarized image is done using sobel technique.

Segmentation

In the segmentation stage, an image of sequence of characters is decomposed into sub-images of individual character. The pre-processed input image is segmented into isolated characters by assigning a number to each character using a labeling process. This labeling provides information about number of characters in the image. Each individual character is uniformly resized into pixels.

Normalization: After extracting the character, we need to normalize the size of the characters. There are large variations in the sizes of each Character hence; we need a method to normalize the size.



Original Image Normalize Image

Figure 5.1.2.1 Normalization of Image

Character Extraction Algorithm

- Create a Traverse List: - List of pixels, which have been already traversed. This list is initially empty.
- Scan row Pixel-by-Pixel.
- Whenever we get a black pixel check whether the pixel is already in the traverse list, if it is simply ignore and move on else apply Edge-detection Algorithm.
- Add the List of Pixels returned by Edge-detection Algorithm to Traverse List.
- Continue the steps 2 - 5 for all rows.

Edge Detection Algorithm

The Edge Detection Algorithm has a list called traverse list. It is the list of pixel already traversed by the algorithm.

EdgeDetection(x, y, Traverse List);

1. Add the current pixel to TraverseList. The current position of pixel is (x, y).
2. NewTraverseList= TraverseList + current position(x, y).

   If pixel at (x-1, y-1) then

   Check if it is not in TraverseList.

Edgedetection(x-1, y-1, NewTraverseList);

end if

If pixel at (x-1, y) then

Check if it is not in TraverseList.

Edgedetection(x-1, y+1, NewTraverseList);

end if

If pixel at (x, y+1) then

Check if it is not in TraverseList.

Edgedetection(x, y+1, NewTraverseList);

Endif

3. return

Feature Extraction

There are two techniques employed based on the efficiencies obtained, while training the neural network.

Gradient Feature Extraction

The gradient measures the magnitude and direction of the greatest change in intensity in a small neighbourhood of each pixel. (In what follows, "gradient" refers to both the gradient magnitude and direction). Gradients are computed by means of the Sobel operator. The Sobel templates used to compute the horizontal (X) & vertical (Y) components of the gradient are shown in Fig.

1	2	1
0	0	0
-1	-2	-1

Horizontal Component

-1	0	1
-2	0	2
-1	0	1

Vertical Component

Figure 5.1.3.2.1: Sobel masks for Gradient

5. CONCLUSION

The effectiveness of the method that uses gradient technique from scanned images containing handwritten characters is presented. The gradient method have performed well in classification when fed to the neural network and preprocessing of image using edge detection and normalization are the ideal choice for degraded noisy images.

The method of training neural network with extracted features from sample images of each character has detection accuracy to a greater extent. The proposed methodology has produced good results for images containing handwritten text written in different styles, different size and alignment with varying background

The system is developed in MATLAB and evaluated for a set of sample images containing handwritten text on the computer. The method is advantageous as it uses nine features to train the neural network twelve features using gradient technique.

6. FUTURE WORK

As the feature extraction methods such as gradient technique used in the method does not classify characters of different language, the method can be extended for language independent classification from the images of other languages with little modifications. The performance of the method has been tested for classifying English text written in upper case, but needs further exploration.

Refinement of the segmented characters can be done in order to achieve higher accuracy rate. The performance of the neural network can be increased by adding some more features other than the existing ones. The classification rate can be increased by training the neural network with more number of test images.

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QUALITY ANALYSIS AND GRADING OF RICE GRAIN IMAGES

~J Megha, Shweta D. G

Abstract

The quality of the food grain we consume is of more importance, as people are becoming educated their demand for quality of grains is increasing. There is possibility of adulteration of food grains by the traders. Generally, the quality assessment is carried by visual inspection which is manual process. In this work, an image processing technique is used as an attempt to automate the process, which overcomes the drawbacks of manual process. This paper provides the quality assessment of rice grains based on its size. Based on the size the grains are graded as (grade 1, grade 2 and grade3). Here we considered different varieties of rice grains for testing like Basmati, boiled rice, egg rice etc. The system is developed using 105 set of images and are classified using decision tree based classification technique. The results are found to be encouraging.

1. INTRODUCTION

The demand for quality of food products we consume is increasing day by day. As the literacy rate is increasing in India so is the need for quality of food products is increasing. India is the second largest producer of rice grains first being China. As the production of rice is increasing so is the demand for its quality. This demand for quality of food grains is increasing because some of the traders cheat the shopkeepers by selling poor quality food grains which contains foreign particles like stones, sand, leaf, broken and damaged seeds etc. This kind of low quality of rice is sold without being noticed even and there is no special scheme to find such poor-quality grains. Therefore, it is being a problem for both consumers and sellers.

As the technology is growing, wider people are adopting the new technologies rather than using the old techniques. The growth in technology is making people more demanding towards the things they use and consume, this is the reason why everything is becoming automated. The use of Image processing techniques for testing the quality of rice grains is inexpensive and is less time consuming. The quality of grain is tested based on its colour, size, shape and texture features in this method.

Further, biological methods (DNA technique etc) and chemical methods (alkaline tests etc) can be used for the identification of rice grain seed varieties and quality. But these methods are very expensive and time consuming. On the other hand, the machine vision or the digital image processing is a non-destructive method (i.e. after assessment the grains can be used), it is a very fast and inexpensive process compared to the biological methods.

AGMARK is an organization, which is used in rating of these food products. There are different organizations, which also involve in rating of quality of food grains like ISO, FDA etc. These organizations help the famers to provide certificates for the quality of grains they produce. There is the AGMARK laboratory, which is centrally, located, which acts as the testing and certifying centre for the food products. Various tests are conducted in these laboratories which include biological tests, alkaline tests, test for pesticide content etc on products like groundnuts, maize, wheat, jowar etc II

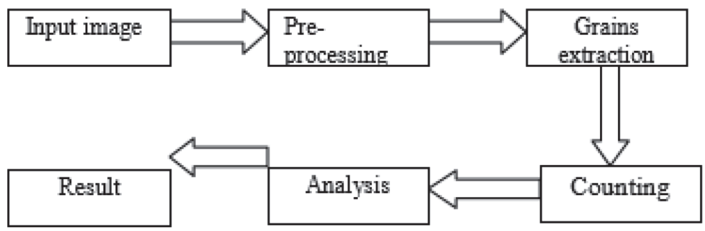
2. BACKGROUND STUDY

Food grains are the farming product, which requires the supervision to identify the quality. This quality estimation will help in audit system as well as to protect it from insect infection. However, a false report or a wrong sampled based observation can completely fail this analysis process. These situations occur because of lack of availability of such quality measure labs in near region. In this paper, different digital image processing steps such as gray scale conversion, segmentation, morphological feature extraction and training and testing through feed forward propagation algorithm and k-mean clustering are used and find out the best algorithm for quality analysis of food grains.

Food is one of the basic requirements of every living being on earth. Rice is grown in many regions across India. For about 65% of the people living in India, rice is a staple food for them. There are more than 40,000 different varieties of rice, which is cultivated in over 100 countries and on every continent except Antarctica. The food grain types and their quality are rapidly assessed through visual inspection by human inspectors. In the present grain-handling system, grain type and quality are rapidly assessed by visual inspection. This evaluation process is, however, tedious and time consuming. The decision-making capabilities of a grain inspector can be seriously affected by his/her physical condition such as fatigue and eyesight, mental state caused by biases and work pressure, and working conditions such as improper lighting, climate, etc and also to recognize the growing low quality defining characteristics for identification is desirable as fraudulent mislabeling of rice grain varieties. The farmers are affected by this manual activity. There are also several Machine Vision Computerized techniques already developed but they are not so accurate to determine the quality of food grains.

3. PROPOSED WORK

In the proposed method, we have considered three varieties of rice grains namely Basmati, Delhi and Boiled. Each of these grains are further classified and graded into grade 1, grade 2 and grade3. In the Manual process, an expert inspects the individual grains. Based on the features like major axis length, minor axis length and its area, experts grade the grains. The same features are used in automated method for grading of the grains.



Images are acquired using high resolution. The rice samples are placed on the sheet of the paper and the images were captured. The camera was placed at a position normal to the rice samples. The images were stored in JPG format. A data set of different set of images was created manually classified. Fig 1 shows the flow diagram for grading of rice grains, the steps involved here are input image, pre-processing, grain extraction, counting, analysis and results.

Shows two qualities of rice grains we consider for grading, here we have considered Basmati rice and Delhi rice for grading.

Pre-processing is an important step. The images acquired from the first step were pre-processed here for background subtraction, and are converted into binary image.

Based on the following criteria the grains were graded: If the length of grain is >=3/4th the length of grain then it's considered a whole grain and is graded as grade 1. If the length of grain<=3/4th the length of grain then it's considered as broken grain and is graded as grade 2.

Counting of grains is done using region props, which gives the count of grains present in the object.

Counting of connected components using region props. Count of number of full, medium and broken grains. Percentage of whole sound grains in the sample is given by, Percentage of whole sound grains = (N * 100) / W where, N = Number of whole sound grains (i.e. grains having area ≥ 3/4th biggest grain area are considered as whole sound grains) present in an image, W= Total number of grains in a given sample image. If percentage of whole sound grains is ≥

75% then it is graded as ‘A’, between 50-75% means grade ‘B’, below 50% means grade ‘C’.

4. RESULTS AND ANALYSIS

Input: Rice sample input image.

Output: Classified grain quality grade.

Steps of algorithm:

Step1: Pre-process the images of rice to remove background noise

Step2: Convert the pre-processed image to binary image using Otsu method.

Step3: Region label the binary image.

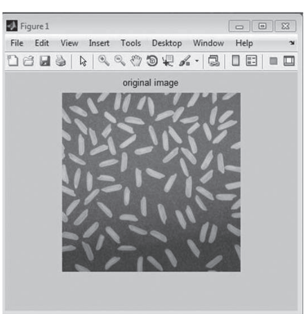
Step4: Segment/crop the individual grains present in the image.

Step5: Extract the geometric features major axis, minor axis and area of all the individual grains

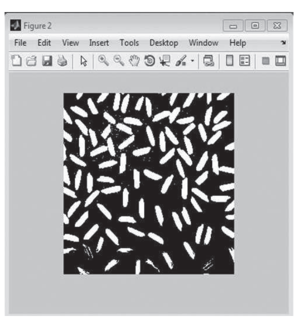
Step6: Perform analysis on the quality using the average values of the features extracted

Step7: Classify the sample for the Type and grade based on the analysis

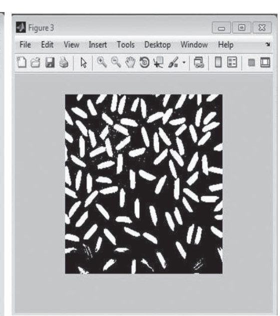
Stop



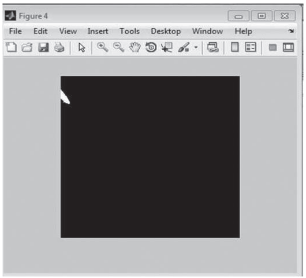
Original image of the rice



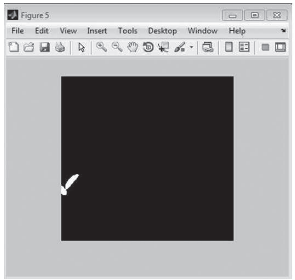
Pre-Processing of the rice image



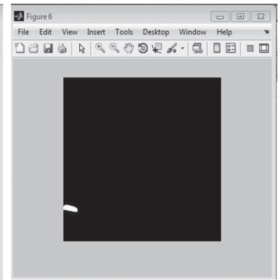
Pre-Processing of image



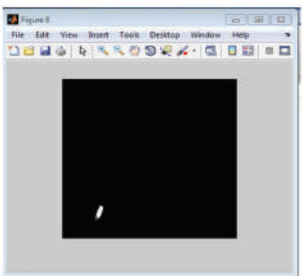
Labelling of the rice grain 1



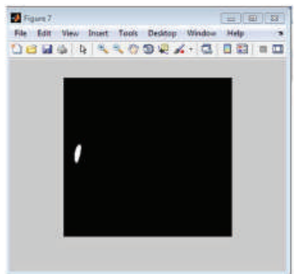
Labelling of the rice grain 6



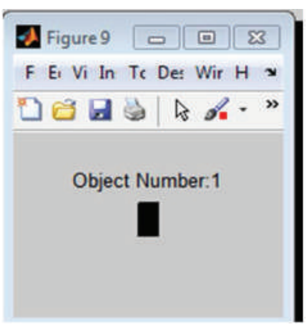
Labelling of the rice grain 7

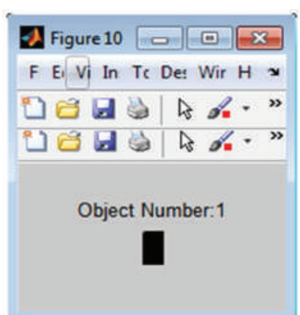


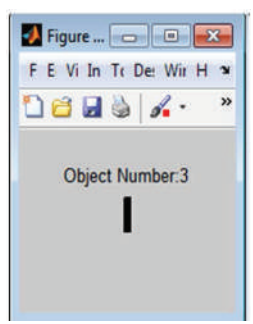
Labelling of the rice grain 17

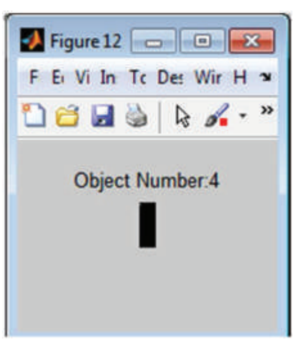


Labelling of the rice grain 47









Shows the Object Number in the image

5. CONCLUSION

Today's consumers are very quality conscious about the food grains they buy and consume as more and more adulteration in the food grains are reported in the media. In this paper an attempt is made to grading of rice grains based on morphological techniques using image processing. The image is initially subjected to pre-processing and the individual grains are segmented. The geometric features of the grain such as area, major axis length and the minor axis length are extracted and are subjected to classification the result are found to be encouraging. Based on the length of the grain the rice is graded as grade 1, grade 2 and grade 3. Even though the problem being worked upon is not completely new, the earlier approaches employed very large number of color, textural and morphological features that made the algorithm extremely slow because of the intensive computation. The average accuracy of classification is found to be 93%.

The rate of accuracy can reach 100% especially for bigger and very small grains, such as big rice, brown rice, Delhi basmati rice, broken rice and Sona Masuri Jeera rice etc. The future work may include the rice image acquisition in bulk amount and with varying backgrounds.

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SECTION II (MBA)

Foreword

"Research is to see what everybody else has seen and to think what nobody else has thought"

By Albert SG

The exploration of our MBA students in the field of Marketing, Finance and Human Resource Management finds expressions as a garland of research articles, which we are happy to publish in the post graduate journal Dhii 2018.

Ms. Akhila of second MBA, in her article "The Study on Work Life Balance of Female Nurses at Narayana Health Centre" was conducted to learn and understand the stress and pressure that the nurses are facing in order to balance the work and the family life. The study also helped in understanding the motivational and beneficial factors that is provided by the organization to help nurses to balance their routine life.

Ms. Anusha Vijay of second MBA, in her article "Comprehensive Study on Performance Appraisal at Air India" The study was conducted to understand the gaps and the methods adopted at Air India towards Performance Appraisal and how different are their policies and practices being a Public Sector Undertaking.

Ms.Tasmiya Mariam of second MBA, in her article 'A Study on Employee Satisfaction Relating to Performance Appraisal System at Redeem Software Private Limited' reveals the importance of Performance Appraisal and the employee satisfaction in the organization in order to increase employee efficiency, productivity, knowledge and all such factors that result to retaining employees and achieving organizational goals which comes through the contentment of the human resource.

Ms. Saba Anjum in her article on employee engagement level she focused on the aspects of working life at Greytip Software Private Limited. such as meaningfulness of tasks within the role, aspects of feeling towards the role, individual perceived performance levels, the amount of effort given by employees and the level of employee satisfaction with aspects such as working environment, co- workers and management.

Ms. Quazia Badr in her study she focused on the portfolio construction. Investing in equities requires time, knowledge and constant monitoring of the market. For those who need an expert advice to manage their investment, portfolio management services (PMS) is the option.

In conclusion, I place on record that all our student researchers realize that research is all about search for new knowledge and efforts to create new knowledge.

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WORK LIFE BALANCE OF FEMALE NURSES AT NARAYANA HEALTH CENTRE

~Akhila

Abstract

The ability to balance work and personal obligation of life, time spent at work places, worry about work when not in work place, feel reluctant or tired mentally due to work pressure at job, family support for the work and time spent with the family, able to get time to attend social functions, get maternity leave/ paternity leave, Motivation from immediate supervisor, flexibility of time and recognition and reward for better performance. Demand for nurses is ever increasing because of their attitude in taking care of the patients, which cannot be seen so much in other professions. Because they bring back smiles on the faces of patients with their unselfish and dedicated service. They work as operation theatre assistants, health advisors, counsellors, supervisors etc. Hence, keeping them happy and content is also utmost important.

INTRODUCTION:

Work-life balance refers to the levels of prioritization between personal and professional activities in an individual's life and the level to which activities related to their job are present in the home. Stress is common feature of a poor work life balance. In the information economy mental stress has been identified as a significant economic and health problems, causing by a perceived need of employees to do more in less time. Women in the early centuries were mostly confined to their kitchens and those who were employed worked in factories, farms, or shop works. Very few women had the access to higher education and they were forced to be at the mercy of their fathers or husbands attitude towards women and work. The fast developing knowledge economy has given place for more number of women to be enlightened by higher education.

Education has not only empowered them but also has given them robust careers. With brain power being the requisite skill in this knowledge era rather than endurance or physical strength, the women worker seem to flood into every industry on pair with men. But this has indeed become a tough challenge for women as they have to perform lot of duties in home and office as well. Due to high work pressure in private sector jobs, it has also become difficult for women to maintain a healthy family life. Hence, it is assumed that work – life balance can help in bringing a huge transformation in as individual's life. This will further help the individuals in realizing their dreams also. For implementing the work-life balance practices, it is essential for the employers to understand its importance. For supporting work-life balance, the employers may have to incur additional costs in implementing such policies.

Work life balance helps in describing a balance between person's person and working life. The term work life balance is given preference as it includes the experiences of working mothers and helps in exploding new ways of working and living for them. Managing a balance between the family and the work life is the biggest challenge for the working people and the organizations. Particularly for nurses, it has become more difficult to strike a balance between the two. They will be able to give their best only when clinics and hospitals have work-life balance policies for them. Work-life balance policies and programs will help them in balancing the personal and professional schedules. This will ultimately give them the feeling of satisfaction.

Following are some of the strategies that will help nurses in managing her professional and family life:

- Effectively scheduling at time at work.
- Exploring the availability of flexi- timing.
- Fruitfully planning for the weekends.
- Planning activity with friends and family.
- Staying focused at office work without having any type of distraction or interruption.

FACTORS AFFECTING WORK LIFE BALANCE:

A. Work Family Conflict:

From the perspective of most employees, they would see that there paid work & all-important aspects of their life, such as family, community activities, voluntary work, personal development, leisure and recreation, etc.

B. Emotional intelligence & Work Life Balance:

In general, employees who possess emotional intelligence would be able to monitor their own emotions, and thus effectively manage feeling & emotions of others.

C. Job engagement & Work Life Balance:

Job engagement has a positive impact on work performance because engaged employees are fully involved in day-to-day work and able to perform better in their job. However, the relationship between, job engagement and work life balance could be rather tricky.

D. Organizational support & Work Life Balance:

Organizational support is important in maintaining a good work life balance. Organizations that did not understand the important of work-life balance might abuse their employee's hard work and effort. On the other hand, organizations that care about the wellbeing of their employees would show support by implementing program and policies that emphasis on work life balance.

E. Work overload & Work Life Balance:

Workload also describes the perception that one has too much to do. Individual who perceive their workload to be more than they can handle are likely to experience exhaustion and fatigue, which may negatively influence ones motivation to respond to the demands of other domains.

F. Work time & Work Life Balance:

Working for long hours is a major factor that affects the work life balance. Employees who worked for long hours had higher level of stress. How work hours mesh with other family members' schedules as well as with when community facilities are open.

G. Relocation & Work Life Balance:

The inflexibility of many jobs makes balancing work/family demands even more difficult, and women may have no choice but to "bend" parenting rather than job responsibility.

LITERATURE REVIEW:

- TYMON et al. (2011) suggests that employees can improve their perceived success by balancing the long and short – term goals, improving their competence, and communicating openly with their managers.

- MC DONALD et al. (2005) elaborates the five dimensions that effect organizational work-life culture - these are lack of managerial support for work-life balance; perception of negative career consequences; organizational time expectations; the gendered nature of policy utilization; and perceptions of unfairness by employees with limited non – work responsibilities whereas changing the habits of the employees does not necessarily imply a change in "work-life balance" particularly if the culture of the work environment does not change.

- HERZBERG et al. (1959) developed two distinct lists of factors: one is task-related which caused happy feelings or a good attitude within the worker and Herzberg called these as motivators.

- SPECTOR (1997) emphasized that Job Satisfaction is the degree with which people like their jobs where some people enjoy work and find it to be a central part of life and others hate to work and do so only because they must.

- MURPHY (2003) "Preserving an organization's capital due to loss of key employees is a global problem". However, there is lower level of turnover intention when organizational socialization is prominent and adequate range of opportunities that satisfy career aspirations exist within the organization.

- MOHAN AND ASHOK (2011) explained that "Stress is often developed when an individual is assigned the major responsibility without proper authority and delegation of power, inter personal factors such as group cohesiveness, functional dependence, communication frequency, relative authority and organizational difference between role sender and focal persons."

  - GALINSKY et al. (1990) elaborated that some of the leading corporations and universities are aware of the dramatic changes in the family, the work force, and the economy, and have developed supportive human resource policies. At this time, the measures of productivity, the structures of work, and the culture of the organizations are undergoing increasing scrutiny and change.

- **K. SANTHANA** et al. (2012) addressed the Work Life Balance related issues and to support the female nurses to manage their work life balance which would add to the performance of the staff members. Their need to be a periodical review in terms of their work and personal life satisfaction, otherwise, they would be subjected to severe stress.

OBJECTIVES OF THE STUDY

Primary Objective:

In a challenging healthcare landscape, NH has been able to grow significantly; and reach out to so many people in such a short time with the help of following: The intellectual capital comprises 2,632 doctors and more than 13,000 employees. Globally affordable model leads to economies of scale; benefiting a wide cross-section of the population. It conduct more surgeries and transplants with a significant success rate. Aggressive use of information technology to reach the remotest corners of the country faster makes quality healthcare available to those in need. Constant effort to reach out to the masses through education initiatives, healthcare, financial support, and many other CSR initiatives facilitate holistic well-being of the nation. 2,632 full time doctors, consultants and student doctors.13, 557 full-time Employees, 62% of employees are women.402 daily average surgeries / procedures in 2015-16.

Secondary Objective:

Work-Life Balance is an omnipresent issue concerning all sections of the organizations and society including research scholars and business leaders for obvious reasons. Maintaining a high quality of work-life is imperative to achieve the goals of the organization as well as for individual satisfaction. The quality of work-life hinges mainly on support both from society and organization, work-life balance policies and programs, and various other dimensions such as job satisfaction, rewards and benefits, recognition, individual commitment, proper grievances handling, participative management, welfare facilities, work environment, and safety. Maintaining a flexible work-life balance, given its already complex nature, is a more arduous task in case of women employees, especially in the manufacturing sector, where such challenges exist that are beyond one's imagination. Literature has revealed the extent of tokenism dealt with by the women employees and the words of disapproval they hear from within the organization and the society. However, there has been little research aimed at conceptualizing, designing, developing, implementing and maintaining feasible work-life balance models, programs and procedures to help deal with these challenges and strike a balance between work and life.

STATEMENT OF THE PROBLEM:

- One of the greatest problem that most of the employees are facing is the work pressure and stress
- Due to the effect of stress they are unable to complete their respective tasks on scheduled time
- On all these impacts she may also face financial problems
- Women may also undergo depression`
- Frustration due to work overload
- Employees who worked for long hours had higher level of stress.
- The inflexibility of many jobs makes balancing work/family demands even more difficult, and women may have no choice but to "bend" parenting rather than job responsibility.
- The cumulative effect of increased working hours is having an important effect on the lifestyle of a huge number of people, which life likely to prove damaging to their mental well-being.
- When the establishment of boundaries between the work and life will failed, the chances of absenteeism will be in a hike.

RESEARCH METHODOLOGY:

METHOD: Convenience Method

Convenience sampling technique may prove to be effective during exploration stage of the research area, and when conducting pilot data collection in order to identify and address shortcomings associated with questionnaire design.

Sampling Size: 50

Units for the questionnaire: Women questionnaire

Actual Data Collected:

The data collected are from cardiac building with 6 floors of varied departments. The samples i.e., Nurses are available at a varied time as they will have double shifting. A certain time was allotted to collect the data.

The questionnaire were issued one by one and asked to fill and return it back. Few questionnaires were distributed to one person asked them to collect it back from the respective sample.

LIMITATIONS OF THE STUDY:

1) The study is limited to Female Nurses who are working in Narayana Health City, Bangalore.

2) The availability of time to circulate the questionnaire and collecting the required response from the female nurses is hardly 2 hours a day.

3) The survey is limited to Naraya Health [NHBlock] Cardiac department in Narayana health centre.

4) Collection of feedback with very less time permit will be a challenge to gather the accurate data.

5) Research will be confined to working mothers who has at least one dependent and Family.

6) Sample size will be 70 samples of Female Nurses from various departments.

7) Availability of nurses at the given time is a challenging job.

8) Making the nurses to fill the questionnaire is a challenge because of lag in time

FINDINGS:

7) On the Analysis, the age between 20 to 25 are unmarried, they claim that they are facing the issue of Time Schedule.

8) Critical analysis showed the increase of Stress due to Work Load.

9) Critical analysis mentioned that most of them are not able to attend important family events due to work.

10) They are not getting enough time to spend with their family member especially with their siblings' and elderly family members.

11) The longer hours of work are causing different kinds of health issues.

12) The lack of flexibility in job is creating imbalance between work and family.

13) Majority of them urged that they would look for a job, indicates the fact that the organization is not efficient in maintaining the personals.

14) The respective job is making difficult in order to fulfill the family responsibility.

15) The research revealed that most of them feel emotionally drained due to hectic workload.

16) Most of them mentioned the demand for work interferes with the home and family life.

17) Majority of them feel overburdened at the end of their job.

18) Most of them feel fatigued when they get up in the morning.

19) Maximum candidates feel rushed in order to finish the job assigned.

SUGGESTIONS:

- Most of the candidates strongly agree to the fact that they are getting inspired by the job performance, which is motivational aspect of the organization.
- Critical analysis also clearly stated that the Nurses have a lot of freedom to decide to set how to carry out the performance of the assigned job.
- The nurses also strongly urged that they could schedule their own time for completing the assigned tasks.
- Most of them mentioned that they have authority to initiate projects at their own job.
- Narayana have introduced various motivational factors such as, Sodexo coupons, Marital holidays, Maternal leaves, Paid holidays, etc
- I strongly believe that narayana should introduce some events where the entire staff family will come together.
- Work life balance can be improved with the introduction of Yoga, off jobs, flexitime, etc.
- The main reason for attrition is that workload, double shifting and low pay system.

- ➢ Providing satisfactory provisions at work place would stop the attrition issue.
- ➢ The issue of physical fatigueness can be addressed by introducing events which entertaining.
- ➢ The canteen should be maintained in such a way that it should attract all the fellow personnels.

CONCLUSION:

It is essential for every organization to acknowledge the dual responsibilities of women executives and to develop a system where they can establish a balance and best utilize their potential. The organization should be sensitized at all level to the work life issues that lead to overall organizational effectiveness. The current study is designed for examining the work-life policies and practices of private hospitals that would provide support to nurses in balancing their work and non-work life.

From the study it was found that the organization inspires to the very best in the form of job performance. Most of the nurses working in Narayana are under that age of 25 and with maximum of 2 – 3 years of experience. More than 60% of them are facing the pressure and stress due to work related commitments. They had strongly agreed to the fact that they would even look for another hospital over Narayana.

I strongly urge that the organization must introduce few activities such off job, family get together, Yoga, counceling, etc. in order to sustain them for longer life at the hospitals.

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COMPREHENSIVE STUDY ON PERFORMANCE APPRAISAL AT AIR INDIA

~*Anusha Vijay*

Abstract

In this study, the operative function in the human resource department is analyzed with the contribution of employees and their opinion about the functions performed by the employees and their opinion about the function performed by the HR Department in Air India HAL complex Bangalore. The employees in the organization are given questionnaire where information about performance appraisal is collected. The data's are analyzed through the percentage analysis. Air India provides a lot of amenities to their employees. Being a Public sector Undertaking they do not have the authority to make any major changes in the organization structure. Though the company is not incurring much profits the company is keen in keeping up its standards and value for money. Air India is known for its good conduct and its status.

INTRODUCTION

Performance appraisal is an integral part of HRM and HRM deals with personnel is people. "People" is the important and valuable resource that every organization or institution has in the form of its employees. Dynamic people can build dynamic organization. Effective employees can contribute to the effectiveness of the organization. HRM has multiple goals, which include employee's competency development, employee motivation development and organization development. Employees require a variety of competencies, knowledge, attitude, skills in technical area; Managerial areas, behavioral and human relations areas and conceptual area to perform different tasks or functions required by their jobs.

Human resource management aim at constantly the competency requirements of different individual to perform the job assigned to them, effectively and provides opportunities for developing these competencies. As HRM deals with humans it is necessary to keep a check on their performance after regular interval of time given jobs, it is necessary to have corrective actions term or there is need to have appraisal on their performance. The process of appraising for doing their work effectively is it is very essential to understand and improve the employee's performance appraisal is the basis for HRD. It was viewed that performance appraisal was useful to decide upon employee promotion, transfer, salary determination and the like. Its roots in the early 20th century can be traced to Taylor's pioneering Time and motion studies. As a distinct and formal management procedure used in the evaluation of work performance, appraisal really dates from the time of the Second World War - not more than 60 years ago. Yet in a broader sense, the practice of appraisal is a very ancient art. In the scale of things historical, it might well lay claim to being the world's second oldest profession. Performance appraisal measures the qualitative and quantitative aspects of job performance known as performance appraisal system.

Performance appraisal also means an appraisal of the growth potential of an employee, with a view to providing information to the organization leading to positive action and enabling feedback to the individual aimed at his performance improvement, personal growth and job satisfaction. In short, we can say that performance appraisal to result in an assessment.

LITERATURE REVIEW

- Eichel and Bender (1981) state that past performance was used to guide or justify management actions in dealing with the employee. At the time, according to these authors performance appraisal provided the basis for salary, retention, discharge, or promotional decisions.

- Maddux (1987) Performance appraisal provides a periodic opportunity for communication between the person who assigns the work and the person who performs it, to discuss what they expect from the other, and how those expectations are being met.

- Cascio (1988) defines Performance appraisal as a process to improve employee's work performance by helping them realize and use their full potential in carrying out the organization's missions and to provide information to employees and managers for use in making work related decisions.

- Horton and Farnham (1999) the overall aim of performance management is to establish a high performance culture. In this employees would visualize as part of their function the requirement to continually assist in improving the performance of the organization. They will also perceive that they can influence important aspects of overall performance.

- Edwards (2000) defines Performance appraisal system as the formal, systematic assessment of how well employees are performing in their jobs in relation to established standards, including communication of that assessment to the employee and the organization. Edwards notes that the goal of the performance appraisal process is to improve the quality of work and the individual employees involved in the work.

- Marchington & Wilkinsion (2007) Performance Management is a structured method of review which aims to link together individual goals, departmental purpose and organizational objectives. In this, there is a clear strategic link between employee behaviour and the performance of the organization.

- Donald L. Caruth (2009) has discussed that the purpose of this paper is to demonstrate the need for and propose a more aligned and integrated standard for performance evaluation to enhance effective strategic control. The paper reviews the various issues creating discontent with the performance appraisal systems within many organizations and demonstrates how these problems inhibit successful strategic control.
- Sahoo and Mishra (2012) a performance Appraisal system consists of clear definition of job description, proper selection process, performance standards, measurement techniques and results, training & development, mentoring and feedback, performance development
- Barr, (1993) each employee should be allowed to participate in periodic sessions to review performance and clarify expectations. Both the supervisor and the employee should recognize these sessions as constructive occasions for two-way communication. Sessions should be scheduled ahead of time in a comfortable setting and should include opportunities for self-assessment as well as supervisor feedback.
- Marion E. Haynes: Performance appraisal system are "home work "that provides the information you need in order to make appropriate administrative recommendations, hold meaningful feedback discussions with staff members, and determined were performance improvement is required.
- John D.Drake: The effectiveness of an appraisal system is determined by the quality of communications between the manger and the staff members, not by multiple raters, complex scoring methods or the form used.
- Robert Dacal: One of the main reason Performance appraisal and performance management fail is that too much time is

spent on appraisal performance using vague criteria and not enough time and effort put into helping employee understands what his job is about and his goals and objectives he is expected to achieve to be successful.

- Brumbrach, 1988: Performance can be actions as well as consequences. Behavior originated from a performer and convert performer performance from a concept to an act. Not just the instruments for results, behaviors are also outcomes in their own right - the product of mental and physical effort applied to tasks - and can be judged apart from results.
- Noe et al (2006) define performance management as "the process through which managers ensure that employees' activities and outputs are congruent with the organization’s goals"
- Reznick and Mehrman, (1981): Performance appraisal behaviors are more positive and functional when the job of the person being appraised has well specified duties and priorities.
- Dobbins, Candy and Plat-Vieno, (1990): Performance Appraisal satisfaction deals with such issues as employees evaluating timeliness, accuracy, goal setting procedures and feedback mechanisms.

BACKGROUND OF THE STUDY

Performance appraisal is the process of making an assessment of the performance and progress of the employees of an organization. Once an employee has been inducted into the organization and given the necessary training, the next step is to assess his performance periodically. Such assessment would indicate whether he is efficient or not. Performance appraisal is also known as “merit rating” or “efficiency rating”. The following factors are given in evaluating the performance and progress of an employee.

- Knowledge of work
- Extent of co-operation with colleagues and superiors.
- Initiative
- Quality of work.
- Target attainment.
- Aptitude.
- Degree of skill.
- Discipline.
- Punctuality.
- Honesty.
- Ambition.
- Crisis management, etc.

Performance appraisal to performance development:

In fact, performance appraisal, in recent times, emerged as performance analysis and development. Performance analysis and development is a departure from the traditional and controlling approach. It views from the development aspect of the employee. Therefore, the main purpose of performance analysis and development is to analyse the present performance of the employee from multiple viewpoints, observe the gap/developmental needs and develop the employee.

Performance appraisal is also a technique of HRD. The performance interview and the process of the performance analysis help the subordinate to interact closely with his superior. The interaction helps particularly subordinates learn from his superior the job related and behaviour related aspects. This process becomes a training/ development /educational process. Thus, performance appraisal is closely related to HRD. In fact, performance appraisal helps employee development.

OBJECTIVES OF THE RESEARCH

- To study about the current performance appraisal system of the organization and identify gaps between the current state and desired state.
- To find out the performance dimensions relevant to the strategic plan of the company.
- To identify the potential areas for the scope of improvement in the current system and thereby in the organizational performance.
- To identify the key performance indicators and critical success factors for achieving organizational excellence.
- To clarify job objectives.
- To extract suggestions and views of the employees.
- To facilitate dialogue between managers and employees, teams regarding progress and performance and development objectives.

Statement of the problem

To understand the factors influencing performance appraisal in the organization and suggesting the remedial measures to address the indifference between the organization and the employees and to select smooth functioning of the organization. To adapt or improve performance appraisal methods.

Methodology Used

Descriptive research method was used in this study, which is also called as statistical research. The main goal of this type of research is to describe the data and characteristics about what is being studied. The idea behind this type of research is to study frequencies averages. It is used to obtain information concerning the status of the phenomena to describe "what exists" with respect to variables or conditions in a situation.

Sample Technique

Convenience sampling is taken as a sampling technique for the research. It is a statistical method of drawing representative data by selecting people because of the ease of their volunteering or selecting units because of their availability of easy access. The advantages of this type of sampling are the availability and quickness with which data can be gathered. The disadvantage is the risk that the sample might not represent the population as a whole and it might be biased.

Research Instruments

They are the tools for data collection. They include Questionnaire, Interview, Observation and Reading. Essentially the researcher must ensure that the instrument chosen is valid and reliable. The validity and reliability of any research project depends largely on the appropriateness of the instruments. Whatever procedure one uses to collect data, it must be critically examined to check the extent to which it is likely to give you the expected results.

Actual collection of data

The instrument used in this study is questionnaire. Questionnaire is distributed to employees of various departments and the response is collected.

Limitations of the Study

- The study restricts to only this organization
- Employees are hesitant to provide information.
- Employees are busy in there day to day work so it's very difficult to collect data.
- The limited size of the sample for the study may not provide a relevant response.

Findings & Suggestions

- From the data interpretation, we could analyze that the majority of the employees belong to the age group above 40.

- Among the respondents majority of the employees are above the grade of 10th standard.
- Majority of the employees have experience above 10 years. We can understand that the organization has very low attrition rate as Air India being a public sector company the employees leave the organization only when they attain the age of retirement.
- The respondents of Air India do not get any pay hike after performance appraisal. This is due to the different policies and procedures the Public sector Company follows in the area of performance appraisal.
- The respondents feel that the performance appraisal is not a transparent system to evaluate them. They want a better and transparent way for evaluating their performance.
- The respondents feel that the feedback given to them is not honest.
- Majority of the employees are not satisfied with the criteria used to evaluate them. They need a mechanism to evaluate their performance on their overall productivity.
- The respondents are aware of the areas of improvement post performance appraisal. This makes the employees work on their areas of improvement and makes that as their strength.
- The respondents feel that the top level is partial in performance appraisal.
- Majority of the respondents say that they are not provided proper training to improve their skills.
- The respondents say that the performance appraisal methods keep the employees motivated if it is linked to appropriate reward system.

- The respondents are satisfied with the welfare policies provided to them such as the passage tickets for the immediate family members and medical policy for the entire family during the tenure and post retirement.
- The respondents do not have any provision to rate themselves the employees do not have a provision to give a feedback on their performance.

Conclusion

Performance appraisal has many intended benefits for both the organization and the employee. If the process is not carefully implemented and managed, it can result in employee dispute. Constructive criticism can help improve performance, but there is a fine line between providing helpful feedback and upsetting an employee. Hence the researcher conducts a research study regarding employees opinion on performance appraisal system. The research findings give good findings and valuable suggestions regarding performance appraisal system and it's necessity among the employees.

From this study we come to know that the majority of the employees are not satisfied with the performance appraisal system provided by the company. Management should always make sure to recognize and reward excellent performance to avoid coming off as too negative. Employee who works hard and take pride of their work will have a hard time correctly utilizing the feedback if none of their accomplishments or positive contributions are noticed and appreciated. Hence, performance appraisal system needs to be effective in improving or sustaining employee performance, otherwise they are a tremendous waste of time and money spend on development and implementation.

Air India provides a lot of amenities to their employees. Being a Public sector Undertaking, they do not have the authority to make any major changes in the organization structure. Though the company is not incurring much profits the company is keen in keeping up its standards and value for money. Air India is known for its good conduct and its status.

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A STUDY ON "EMPLOYEE SATISFACTION RELATING TO PERFORMANCE APPRAISAL SYSTEM" AT REDEEM SOFTWARE PRIVATE LIMITED, BANGALORE.

~Tasmiya Mari

Abstract

The overall findings and conclusions of Redeem Software revealed many positive aspects about the quality of Human Resource plans and implementations provided to the employees especially the plans and ideas associated to our study topic i.e. Performance Appraisal. First, it is essential to note that focus group participants gave very positive responses to questions regarding the quality of the Performance Appraisal System followed by the company. Secondly, further studies revealed that employees are more satisfied with their peer group showing a positive plus friendly working environment. In critical areas such as instructional effectiveness, advising, favoring and team work concerned by the individual, service, excellence, recruitment and financial aid. Furthermore, employees are highly satisfied with the working and reputation of the company. They gave high satisfactory ratings to the Performance Appraisal System being followed in their company. They also expressed their ability to experience intellectual growth and development in performance at the Company post to the appraisal process. In view of these positive results. The primary purpose of this study was to

identify the factors affecting Employee satisfaction on the quality of Performance Appraisal System adopted by the company and make recommendations for improvements in order to enhance the quality of Appraisal Process adopted by the company and instruction for those employees, it was essential to identify and respond to their concerns (if necessary). The employee satisfaction survey findings are striking in that leads to identify the need for improvements in just a few areas; however, these findings are not surprising and the interpretations and recommendations are quiet general ones provided to cement minor gaps.

1. INTRODUCTION

Performance Appraisal- It is the process of evaluating the performance and qualifications of employees in terms of requirement of the job for which one is employed, for the purpose of administration including placement, selection for promotions, providing financial rewards and other actions which require differential treatment among the members of group as distinguish from actions affecting all members equally.

2. LITERATURE REVIEW

- Diane Shaffer (May 11, 2009) has written in his article writer has discussed that motivation and performance appraisal are interrelated. Motivation is dependent on performance management. Employees who are motivated and happy with their jobs want to stay connected with the company for a long time. Many organizations have not implemented correct performance appraisal system to evaluate the performance of employees. Author has discussed here that they should implement a successful appraisal method/system and also give reward to employees who perform good in the organization. Through this practice employee become motivated towards their jobs and improve their performance and performance of organization as a whole will also improve.

- Donald L. Caruth (2009) has discussed that the purpose of this paper is to demonstrate the need for and propose a more aligned and integrated standard for performance evaluation to enhance effective strategic control. The paper reviews the various issues creating discontent with the performance appraisal systems within many organizations and demonstrates how these problems inhibit successful strategic control. It attempts to cogently incorporate the performance appraisal characteristics needed for the exercise to function as a critical organizational control metric and a useful feedback mechanism for strategic management of the firm.

- H.C. Shiva Prasad (2010) in this research paper, have done work to check the performance of Indian software professionals (SPs) Data were collected from 441 software and senior software engineers from eight Indian software firms. The team leaders assessed the performance of software and senior software engineers on 16 items. The exploratory and confirmatory factor analyses of scores on 16 items of the instrument suggest 6 dimensions of performance. They are work-efficiency, personal resourcefulness, inter & intra-personal sensitivity, productivity orientation, timeliness, and business intelligence. SPs having more years of experience, higher need for achievement, and higher need for social power are high performers. Human resource managers can evaluate the performance of SPs holistically on 6 dimensions for training, reward administration, job rotation, and promotion decisions.

3. RESEARCH METHODOLOGY

Objectives of the Study-

The study is aimed at projecting the **"Employee's Satisfaction Relating to Performance Appraisal System at Redeem Software"** at Koramangala, Bangalore. The main objective of the study is to know the satisfaction of employees towards the appraisal done by the company.

- To study the extent to which the employees are satisfied with performance appraisal system existing in Redeem Software.
- To study the need for appraisal in the company.
- To know whether the appraisal done by the company, is motivating or encouraging the employees to improve their performance.

Limitation of the Study-

It is most widely used method for collecting the information because the researcher gets first hand and direct information from the respondent.

The main limitations of the study are:-

1. The data collected in some cases might be biased.
2. Certain respondents were not co-operative in answering the questionnaire; thus, hampering the results.
3. The study is based on the inputs collected from a limited sample set - the staff members of the personnel department.
4. Some of the information was difficult to obtain as they were seen to sensitive information and breach of confidentiality.
5. It was difficult to obtain information on Union meetings etc. as they were beyond the reach of an outsider to the firm.

Type of Research-

The random survey has been used in the study to research that is, a questionnaire having closed ended questions was prepared by covering various aspects. Primary data as well as secondary data provided the basis of the study. The questionnaire methodology was adopted to collect information & data directly from employees. It also includes the company for the collection of various information & data.

Sources of Data-

There are two types of data

a. Primary Data b. Secondary Data

For a researcher, it is almost necessary to collect two types of data as the conclusions are drawn on basis of these data only.

1. Primary Data-

- Data collected through interactive and exchange of information with the concerned employees and executives.
- Visited different departments and so with the company guide.
- This data collected through questionnaire from 30 respondents.

2. Secondary Data-Secondary data has collected from:

- Books.
- Manuals.
- Company handbooks.
- Internet.

Instruments used for Research-

- ✓ Face-to-face interview.
- ✓ Questionnaire.
- ✓ Bar diagram.
- ✓ Pie chart.

4. FINDINGS AND SUGGESTIONS

1) The company's process of performance appraisal is ideal. The company has given its importance for individual meeting for Manager Appraisal to analyze the individual performance. This makes an employee to feel the sense of belongingness

with the company. Overall, we find that employees show the contentment with the Performance Appraisal System adopted by the company

2) The researcher can also interpret that the company indulges itself in an appropriate judgement of ability and talents of the employees during the appraisal period coming up with accurate results that plays a major role in boosting up the employee satisfaction.

3) The researcher also interprets that the employees agree with the Appraisal Process being conducted once a year and not twice or thrice a year as the employees can get sufficient time to showcase their performance and enhance it by understanding the needs and demands of the job assigned and then have their performance get documented for evaluation.

4) The researcher also finds that majority of the employees show satisfaction with Performance Appraisal Results to be considered for promoting an employee in the company rather than by any other perspective like Seniority, Merit or Examination and since the company is standing according to the expectations of the employees, there is contentment being expressed by the employees.

5) The researcher also interprets that performance must be given the ultimate importance and considered as the 'Basis of Promotion' following what will be the Qualification and Experience respectively according to the employees.

6) The appraisal done by Peer and Personnel Manager are more opted by the employees respectively for company's Performance Appraisal Process indicating the employer-employee relation in the company along with the positive and friendly environment existing in the work place.

7) The researcher also interprets that according to the employees, the Performance Appraisal Process consumes quiet a normal or a long time but fortunately not a very long or less time.

8) Employees are satisfied with this step of the management of effectively using the data collected about the employees during the appraisal period to upgrade their skills and knowledge and also an effective training is provided to employees along with necessary suggestions to improve the performance.

9) The researcher also interprets that there is no space for bias or favouritism in the company during appraisal process and the Performance Appraisal Process has an impact on the Performance of the employees. But overall employees are satisfied well enough that they necessarily need not require revamps in the Appraisal System adopted by the company.

The following are the recommendation that can be applied for the future benefits of the organizations.

In the future personnel management should occupy a significant Position in the organization because of the following reasons.

- It has direct connection with manpower planning, recruitment, career development, management development, training, wages and salary structure and many more hosts other personnel issues and jobs.
- It concerns the forceful energy of group's behavior, inter-personnel and inter-group relations.
- The management movement, rapid changes the thinking of the management itself and the change in political economic and social climate, call for new roles for personnel executives.
- Employees are also to be involved in daily management meetings.

- Conducting more and more development and welfare activities for the growth of the employees.
- The company must have its own vehicle, so it is helpful to employer to contact employees in case of emergency.
- The company has to concentrate on marketing activities to enter in the global world.

5. RECOMMENDATIONS

1. The researcher recommends to the management to review the existing Performance Appraisal Systemand think of redesigning it, in order to make it more attractive and motivating, so that the employees will derive greater satisfaction.

2. The researcher recommends the management to ensure that the appraisal done in the company must strongly stick to the proper judgement of ability and talents of the employees and also ensure that the employees are well aware of the fact.

3. The researcher appreciates the management for coming up with such a satisfactory Performance Appraisal System in the company. The researcher recommends the company to know and understand the expectations of non-satisfied respondents and take their feedbacks into consideration in order to come up with a cent percent satisfaction of the respondents for the coming appraisal practices.

4. The researcher recommends to the company that it is indeed beneficial for the company to conduct the performance Appraisal ones yearly. Therefore, the researcher appreciates the idea of the company of conducting the appraisal ones in a year so that the employees get sufficient time to give the best of their performance for the appraisal and even the company can rate the performance appropriately after examining the year’s performance.

5. The researcher recommends the management to consider all the four areas mentioned above and not just Performance

Appraisal Results as the basis of promotion especially the Merit and Examination which indicates the talents and abilities of an employee and even Seniority as it indicates the years of work experience the respondent has

6. The researcher recommends to the management to take up measures that can help the company to find out the lackings in 'Basis of Promotion', get the feedbacks and opinions of the employees who aren't satisfied with the 'Basis of Promotion' in the company and consider those opinions and ideas to redesign the entire promotion strategy to earn the cent percent satisfaction of the employees with the 'Basis of Promotion' adopted by the company.

7. The researcher recommends to the company that even though there are 80% of the total respondents who think that Performance of an employee must be the 'Basis of Promotion', in addition to this, about 10% and 6% of the total employees think that qualification and experience must be the 'Basis of Promotion' respectively, in the company hence, they must also partly be given some consideration.

8. The researcher recommends to the company that, since the majority of the respondents feel Peer Appraisal to be the 'Best Possible Assessment' and then comes Manager Appraisal with 30% of consideration as 'Best Possible Assessment' hence the company can take up Peer Appraisal along with Manager Appraisal instead of Self-Appraisal which is least preferred by employees as sometimes Self-Appraisal becomes too difficult to think over about one self and many a times not so true.

9. The researcher recommends to the management that the Performance Appraisal process should not take a very long time and that attempts must be made to complete the appraisal process within a period of 15 days so that the management is able to keep the track of the outcomes and findings of the appraisal system and be able to compile the important findings of the appraisal quickly so that the management is able to use the data to improve future performances and growth of the company.

10. The researcher recommends to the management that the Performance Appraisal data which is being effectively used to upgrade skills and knowledge is notified to every respondent in the organization so that every employee becomes aware of the strengths and weaknesses and be able to refine themselves in course of time.

11. The researcher recommends to the management to come up with the effective training and suggestions with whose help the respondents can recognize and bridge the gaps to give the best of their performance in a smooth manner for the coming years. The researcher appreciates the management that about 80% of the respondents are of opinion that the management provides effective training and suggestion post to appraisal process to improve their performance.

12. The researcher recommends to the management to have pivotal focus on the quality of employee's performance, as 77% of the total respondents prefer Quality to be taken as the basis of promotion in the company. Quantity must be given the second preference as 13% of the total employees feel so and also human resources who give the performance in an appreciative quantity also must get the credit hence it is a wise choice to consider Quality and Quantity to be considered simultaneously as the basis of promotion in the company.

13. The researcher appreciates the management for not giving any space for bias at the time of appraisal and possessing the quality of impartiality in the judgment of performance of the employees.

14. The researcher recommends to the management that Performance Appraisal being a method which includes documenting and evaluating the employee's performance, finding out the strengths and weaknesses of the employees, their capabilities, achievements, skills and lacks. The primary factors that needs to be focused on are the weaknesses and lacks, keeping this in mind, it becomes the responsibility of management to take measures that help their employees to overcome their weaknesses and be able to give their best performances in time to come.

15. The researcher recommends to the management to hold on to the existing Performance Appraisal System adopted by the management as about 90% of the total respondents are satisfied with it and find no reason to bring about any kind of revamp but keeping in mind that the appraisal must be conducted perfectly once a year and not once in 13-14 months. Apart from Salary increments, management must also provide the employees with non-financial rewards like annual company-sponsored trips, other forms of recognition as a reward for appreciative performance.

6. CONCLUSION

Redeem is an organization where Personnel department plays a very critical role in managing and looking after the welfare of large mass of employees. The opportunity to meet the skilled Personnel officials gave an idea of the HR practices being followed at the organization especially the Performance Appraisal Practices. This stint provided an opportunity to measure the Performance of every individual, Quality of Work, Satisfaction of employees, etc. Training & development before and after appraisal for all the employees and improving the Work environment are the two key factors that should be stressed upon by the department.

The company should concentrate on such appraisal techniques which are accepted by majority of the workers. Those appraisal techniques which hurt the personal feelings of the workers should be avoided & techniques which are to be used by the organization should be explained & convinced to the workers and in addition to this, they should be motivated to accept the appraisal techniques & co-operate with their appraiser. The organization should ensure that the appraiser in sufficiently trained to appraise the workers. A common basis or criteria should be used to appraise the workers.

After completing the research study, the researcher arrives at the conclusion that appraisal facilities influence the performance of the employees and also job satisfaction.

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A STUDY ON THE ENGAGEMENT LEVEL OF EMPLOYEES AT GREYTIP SOFTWARE PVT. LTD

~Saba Anjum.

Abstract

The study is attempting to delve into the prevailing attitudes and employee engagement within the Greytip Software Private Limited. A lot of importance is given to employee engagement in Greytip Software Private Limited. The researcher seeks to understand the aspects of working life at Greytip Software Private Limited. Aspects such as meaningfulness of tasks within the role, aspects of feeling towards the role, individual perceived performance levels, the amount of effort given by employees and the level of employee satisfaction with aspects such as working environment, co- workers and management. The research was carried out by using questionnaire, circulating it to the employees of Greytip. The dissertation aims to measure engagement and look at the areas where management interventions can be implemented to increase the overall level of employee engagement

OBJECTIVES OF THE STUDY

Primary Objectives:-

- To determine the level of engagement of the employees at Greytip.
- To study employee engagement activities at Greytip.

Secondary Objectives:-

- To evaluate the level of employee satisfaction towards their job.
- To find out the employee engagement activities adopted by the company.
- To know the working environment of the employees in Greytip.
- To understand the role of employee engagement i.e. how it helps to fill the gap between the management and the employee.

STATEMENT OF PROBLEM

To understand and learn about employee engagement activities practiced in the Greytip Software, to keep their employees motivated and engaged with their work. This will also focuses on various job related problems, increase motivational activities also help to develop the employee morale. The study also focuses on five factors that is job related, compensation, growth and development, peers and teamwork relationship, and working relationship with the manager.

RESEARCH METHODOLOGY

Primary Method:

Questionnaires: The questionnaire was designed keeping in mind the employees of the organization. It is critical part of primary data collection method. Questionnaire was prepared using 5 point Likert scale, 1 representing strongly disagree, 2- Disagree, 3- Neutral, 4- Agree and 5 -strongly agree.

Secondary Method:

The secondary information is collected from websites, articles, textbooks, other records of the company.

SAMPLING SIZE

The total number of sample units taken up for the study is 50.

SAMPLING TECHINIQUE

Simple Random Sampling-

In a simple random sample, individuals are chosen at random and not more than once to prevent a bias that would negatively affect the validity of the result of the experiment.

Stratified Sampling-

Stratified sampling is a method of sampling that involves the division of a population into smaller groups known as strata. In stratified random sampling, the strata are formed based on members shared attributes or characteristics.

Sampling Unit-

The basic units of the study are employees of Greytip Software.

Limitations of the Study

- The study was purely based on the information given by the employees and there are chances for giving wrong data.
- The employees are very busy in their work so they gave answers very much in a questionnaire form.

DATA ANALYSIS:

JOB RELATED CONVENIENCES

TABLE NO 1: Represents the opinions of 50 respondents regarding satisfaction level towards their job in Greytip

Options	No of respondents	Percentage
Strongly Agree	26	52%
Agree	11	22%
Neutral	9	18%
Disagree	4	8%
Strongly Disagree	0	0%
Total	**50**	**100%**

ANALYSIS:

37 respondents out of total number of 50 that is 74% have expressed,(strongly agree-26 and agree-11) that they are satisfied with their job, and whereas 26% (i.e. neutral -9 and disagree- 4) of respondents are not satisfied with their job.

TABLE NO 2: Represents the opinions of 50 respondents regarding the overall satisfaction towards the working environment in Greytip.

Options	No of Respondents	Percentage
Strongly Agree	24	48%
Agree	13	26%
Neutral	11	22%
Disagree	2	4%
Strongly Disagree	0	0%
Total	**50**	**100%**

ANALYSIS: 37 respondents out of total number of 50, that is 74 % of them are satisfied with the working environment by combining the strongly agree- 48% and agree- 26%.13 respondents out of total number of 50, 26% of respondents not satisfied with the working environment

TABLE NO 3: Representing the opinions of 50 respondents regarding the satisfaction level towards their salary in Greytip.

Options	No of Respondents	Percentage
Strongly Agree	15	30%
Agree	18	36%
Neutral	8	16%
Disagree	8	16%
Strongly Disagree	1	2%
Total	**50**	**100%**

ANALYSIS

33 respondents out of total number of 50, that is 66% of employees have expressed that they are satisfied with the salary given to them.17

respondents out of 50, it was found that 34% of respondents are not satisfied (combining Neutral-16%, 16% - disagree and 2%- strongly disagree).

TABLE NO 4: Represents the opinions of 50 respondents regarding the opportunities given to employees to share their opinions and ideas in the company.

Options	No of Respondents	Percentage
Strongly Agree	11	22%
Agree	13	26%
Neutral	20	40%
Disagree	6	12%
Strongly Disagree	0	0%
Total	**50**	**100%**

ANALYSIS:

24 respondents out of the total number of 50 that is 48 %(i.e. strongly agree-22% and agree- 26%) of respondents are happy that they get equal opportunities to share their opinions and ideas in the company.26 respondents that is 52% have expressed the view that they are not encouraged to share their opinions and ideas. (With neutral- 40% and Disagree- 12%).

TABLE NO 5: Represents the opinions of 50 respondents towards the employees working relationship with their manager.

Options	No of Respondents	Percentage
Strongly Agree	8	16%
Agree	23	46%
Neutral	11	22%
Disagree	7	14%
Strongly Disagree	1	2%
Total	**50**	**100%**

ANALYSIS:

31 respondents out of total number that is 62 %(strongly agree- 16% and agree- 46%) of them have expressed the view that the employees share a good rapport with their managers.

19 respondents that is 48% of employees have expressed that they do not share a good rapport with their managers. (With Neutral- 11, Disagree-7, Agree- 1).

FINDINGS:

1. The employees of Greytip Software Pvt. Ltd are very much satisfied with their job with 74%. The remaining 26% are neutral and dissatisfied.
2. Most of the employees are happy with the work environment. Greytip maintains a friendly work environment. This has resulted in retaining the employees for a longer duration.
3. 66% of employees are satisfied with the salary given to them. Most of the employees are satisfied with the benefits/ perquisites more than the salary (i.e. 70%) given to the employees. There are various benefits given: Every year there is an increment in the employee's salary, with that there are many benefits and perquisites like Superannuation**,** medical Insurance, and flexible benefit plan in compensation structure, data card**,** National Pension Scheme (NPS) etc.
4. 62% of employees said that they share a good rapport with their mangers. Equally they get a constructive feedback from their managers.
5. 78% of employees said that they share a good relationship with their peers. But they don't get a constructive feedback from their peers.

RECOMMENDATIONS:

1. One thing the researcher would like to suggest is to concentrate on those employees who have given a negative response towards their job satisfaction. In addition, to conduct some fun activities during the work, so that the employees do not get bored and start liking the work environment.
2. The researcher suggests focusing on the respondents who are not satisfied with their job. The researcher suggests the company to offer some level of flexibility to their employees

typically possess workers with high employee satisfaction. The company must offer flexibility by rearranging the work schedules to better suit employees. By this employee may become satisfied with their work.

The researcher also suggest the company to offer anonymous online surveys or mobile surveys to effectively track how employees feel about benefits, recognition, supervisor feedback and other aspects that contribute to employee satisfaction. This allows you to improve, tweak and monitor satisfaction levels to reduce employee turnover and increase productivity.

The researcher suggest the supervisors to concentrate on those employees who are not satisfied with the salary or benefits given to them, may be the employees is been suffering from financial crisis and expecting more increments in the salary. The manager must be able to understand their employee problems.

The researcher has suggested the employees to appreciate their coworkers and keep them giving a constructive feedback about their performances. This helps the organization in building a good peers and team work relationship.

The researcher has suggested the managers to concentrate on the employees who are not outspoken. Give them opportunities to learn and grow in their career. Keep them always engaged with their work. The manager has to understand what are the problems faced by their subordinates, try solving them, so that this helps in building a good relationship between the employer and employee.

The researcher suggests including more fun activities, so that it becomes more interesting and the employees are more engaged. Apart from fun activities done at Greytip, the researcher suggested to include Pictionary and treasure hunt in office.

CONCLUSION

The employees at Greytip are very dedicated towards their work and very much satisfied with their job. According to the researcher, the company is really doing well by making their employees motivated towards their work, creating a friendly environment and giving recognition to the employees. The research resulted in both positive and negative aspects of engagement. It was a positive aspect that so many employees were willing to come forward and be so honest in making suggestions that can be fed back up the business. The researcher hopes that this research adds to the body of knowledge which the HR department and the managers of Greytip have as part of the managerial kit in order to drive engagement levels up and to maintain the excellent customer service which drives the business forward.

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Jyoti Nivas College Autonomous

A STUDY ON PORTFOLIO MANAGEMENT

~Quazia Badr

Abstract

Investing in equities requires time, knowledge and constant monitoring of the market. For those who need an expert advice to manage their investment, portfolio management services (PMS) is the option. The business of portfolio management has never been an easy one. Juggling the limited choice at hand with the twin requirements of adequate safety and sizeable returns is a task with complexities. Given the unpredictable nature of the market it requires solid experience and strong research to make the right decisions. Making an investment on shares, debenture, and bonds are both profitable and exciting, but it involves a high amount of risk and it requires analytical skills. If an investor wants to make a profit out of securities, he must have considerable financial acumen as well as capable of facing risk. Most of the people have inclination to make an investment on various portfolios such as Shares, Debenture, Bonds. But, they are unable to manage them prudently.

1. INTRODUCTION:

A portfolio can be defined as different investment tools namely stocks, shares, mutual funds, bonds, cash all combined together depending specially on the investor's income, budget, risk appetite and the holding period. It is formed in such a way that it stabilizes the risk of non-performance of different pools of investment. The term portfolio management in common practice refers to selection of securities and their continuous shifting in what that the holder gets maximum returns at minimum possible risks. Portfolio management services are merchant banking activities recognized by SEBI. A portfolio manager by virtue of his knowledge and experience helps his clients to make investment in profitable avenues.

In the current scenario where there is quality money in the markets, portfolio management is indeed a preferred method of making investments. With the range of products available across different schemes, there is something to offer every individual as per the different criterion defined. This is one of the highly researched, tracked and appropriate methods of investment giving exposure across different options available.

2. RESEARCH METHODOLOGY

2.1. Statement of the Problem

An investor considering investment in securities is faced with the problem of choosing from among a large number of securities and how to allocate those funds over a group of securities. The hurdle that exists is that the investor has a problem of deciding which security to hold and how much to invest in each of them.

2.2. Need of the Study

Every investor undergoes confusion while selecting securities for his portfolio. He also faces dilemma while deciding about the proportion of investment to be made in security.

- Investor can generate highest return at a given level of risk.
- It helps to identify the non-performing securities in the investment process and for improving these areas.
- It helps the investors to choose the optimal portfolio.
- Effective utilization of resource.

2.3. Objectives of the Study

- To study the concept of portfolio management.
- To analyze the risk and return of various equity avenues of Larsen & Toubro Limited, Hindustan Unilever Limited (HUL), Maruti Suzuki India Limited, Bosch Group and Dr.Reddy Laboratories.
- To evaluate the performance of portfolio over a period.
- To construct an optimal portfolio using the Sharpe's Single Index Model.
- To calculate the proportion of investment to be made into each of the stock that is included in the portfolio.

2.4. Type of Research

A descriptive research is undertaken. Convenient sampling is done for easy analysis. In this research, we have very specific objective and data requirements. Information gathered is used for statistical inference on the stocks through data analysis. It can help an organization define and measure the significance of portfolio.

2.5. Sampling Techniques

Data is collected from secondary sources like money control, NSE, BSE, Annual Journals and other websites. Primary data from the representatives was collected and assistance from the mentors was taken for better understanding.

2.6. Sample Size, Sample Description

A sample of 5 companies Larsen & Toubro Limited, Hindustan Unilever Limited (HUL), Maruti Suzuki India Limited, Bosch Group, and Dr Reddy's Laboratories from different sectors is selected from NSE NIFTY 50, for which an analysis of five years will be done.

2.7. Limitations of the Study

- The data collected is confined to secondary sources, with very little amount of primary data associated with the project.

- There is constraint with regard to time allocated for the research study.
- The sample is limited to 5 stocks from 5 different sectors.
- Portfolio created for the study is of 2 stock combinations, for making study easier and understandable.
- While constructing portfolio the stock is given equal weightage, return and risk will change if weights are different.
- The data was collected for 5 financial years from April 2012 – March 2017.

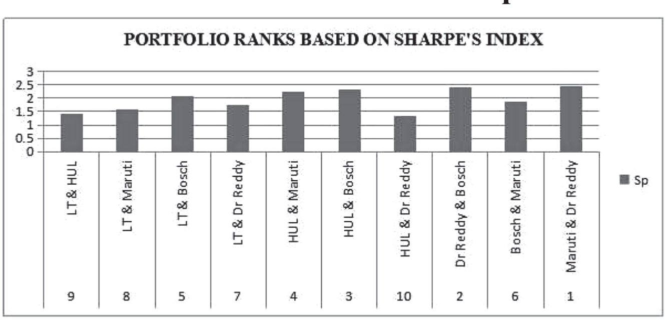
3. DATA ANALYSIS AND INTERPRETATION

3.1. Sharpe's Index – Sharpe's Performance Index

Table 3.1: Representation of Sharpe's Index

Port folio	Stocks Combination	Rp	T	SD	Sp	Rank
1	LT & HUL	23.73	6.48	12.19	1.42	9
2	LT & Maruti	40.09	6.48	21.25	1.60	8
3	LT & Bosch	55.89	6.48	23.62	2.09	5
4	LT & Dr Reddy	24.62	6.48	10.36	1.75	7
5	HUL & Maruti	42.02	6.48	15.82	2.25	4
6	HUL & Bosch	57.82	6.48	21.94	2.34	3
7	HUL & Dr Reddy	26.58	6.48	14.88	1.35	10
8	Dr Reddy & Bosch	58.71	6.48	21.66	2.41	2
9	Bosch & Maruti	74.18	6.48	36.19	1.87	6
10	Maruti & Dr Reddy	42.91	6.48	14.79	2.46	1

Graph 3.1: Portfolio Ranks Based on Sharpe's Index



Interpretation and Analysis

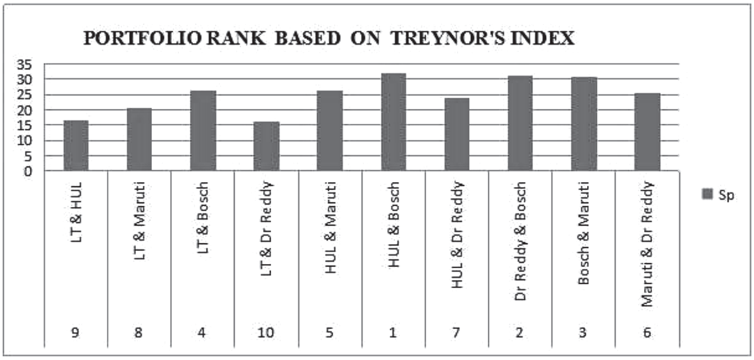
Sharpe ratio greater than 1 is acceptable to be good by investors. A ratio higher than two is rated as very good. The basic purpose of Sharpe ratio is to allow an investor to analyse how much greater a return one obtains in relation to the level of additional risk taken to generate that return. A Portfolio with highest Sharpe ratio Sp is best compared to other portfolios. As per Sharpe's Index Maruti & Dr Reddy, Dr Reddy & Bosch, HUL & Bosch, HUL & Maruti and LT & Dr Reddy are the top 5 performers with ranks 1, 2, 3, 4 & 5 respectively.

3.2. Treynor's Index – Treynor's Reward-to-Variability Measure

Table 3.2.: Representation of Treynor's Index

Port folio	Stocks Combination	Rp	T	βp	Tp	Rank
1	LT & HUL	23.73	6.48	1.03	16.75	9
2	LT & Maruti	40.09	6.48	1.62	20.75	8
3	LT & Bosch	55.89	6.48	1.87	26.42	4
4	LT & Dr Reddy	24.62	6.48	1.11	16.34	10
5	HUL & Maruti	42.02	6.48	1.35	26.33	5
6	HUL & Bosch	57.82	6.48	1.60	32.09	1
7	HUL & Dr Reddy	26.58	6.48	0.84	23.93	7
8	Dr Reddy & Bosch	58.71	6.48	1.68	31.09	2
9	Bosch & Maruti	74.18	6.48	2.19	30.91	3
10	Maruti & Dr Reddy	42.91	6.48	1.43	25.48	6

Graph 3.2.: Portfolio Rank Based on Treynor's Index



Analysis and Interpretation

A Portfolio with highest Treynor's Index, Tp is best compared to other portfolios. More volatile stocks have a beta greater than one, portfolio comprising of Bosch and Maruti has highest Beta value with 2.19 showing high risk and high volatility, whereas less volatile stocks have a beta lower than one, the portfolio with HUL and Dr Reddy has the Beta value of 0.84 making it less volatile.

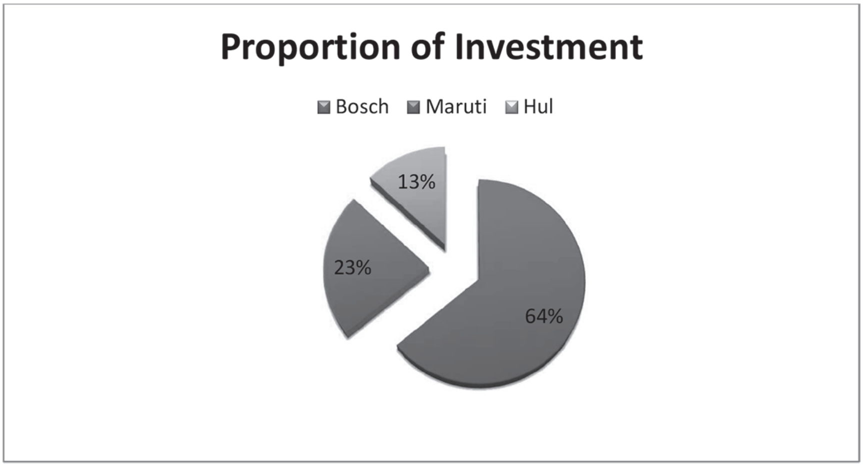
3.3. Construction of Portfolio

Table 3.3.: Calculation of Percentage of Investment.

Stocks	Zi	$\sum_{i=0}^{n} Zi$	Percentage of Investment
Bosch	0.553	0.859	64
Maruti	0.197	0.859	23
HUL	0.109	0.859	13

The table represents the proportion of investment to be made in each security. The three securities ranking from 1 to 3 are selected for the optimum portfolio. The percentage of funds to be invested in each security is represented in the graph.

Graph 3.3.: Proportion of Investment



Interpretation

In a sample of five companies, three companies have been selected for the optimal portfolio construction applying the single index model. Once the companies on which the investment is to be made are known, it is essential to know the proportion of investment to be made in each company's security. It represents the proportion of investment to be made by the investor to earn maximum returns. Graph shows that 64% of investment may be made in the Bosch stock (which means majority of the funds is to be invested in the stocks of this company), followed by 23% in Maruti and 13% in HUL stock.

4. FINDINGS

- Among the individual stock calculations, Bosch is better stock with return of 89.99% and risk of 65.76 and Beta of 2.44. In terms of returns, Maruti is also better with a return of 58.37% and risk of 43.39 and with beta of 1.93. Maruti can also be considered for investment.
- On portfolio construction an equal combination of Bosch and Maruti has given a better risk adjusted return of 74.18% with

risk of 36.19 and beta of 2.19. The correlation and covariance between the Bosch and Maruti are 0.88 and 2009.85 respectively.

- Dr Reddy & Bosch, HUL & Bosch and LT & Bosch are good enough in risk adjusted return. The return and risk of Dr. Reddy & Bosch 21.66 and 58.7% respectively and with beta 1.68 also the return and risk of HUL & Bosch are 57.82% and 21.94 with beta of 1.6. The return and risk of LT & Bosch are 55.89% and 23.62 with beta of 1.87. It is suggested to invest in Dr Reddy & Bosch or HUL & Maruti these stocks have considerable risk and return while LT & Bosch has high unsystematic risk compared to other stocks.

- A combination of LT & Dr. Reddy has a correlation of 0.26 and covariance of 155.03, has the least returns of 24.62 and risk of 10.36 with beta 1.11. This combination is suitable for the investors who avoid taking risks.

- On evaluating portfolio performance Maruti & Dr. Reddy ranks 1st in Sharpe's index and HUL & Bosch ranks 1st in Treynor's index, both these combinations are efficient in Jenson's index. On coming to Jenson's index all portfolios except HUL & Dr. Reddy are efficient, their return is higher than market return. The most efficient combination is Bosch & Maruti with return of 18.48%.

- We can state that a portfolio with Bosch is well performed.

- The Bosch Group has the highest return of 89.99% and Larsen & Toubro Limited has the lowest return of 21.80%. If the investor wants to earn a maximum return without considering the risk aspect then investment can be made on those securities which yield high returns. Even though the return is high, the risk involved in the stock return should be considered while taking investment decisions.

- The return from Bosch Group has the highest beta value of 2.44 which means that it is highly volatile; Larsen & Toubro Limited (1.29) and Maruti Suzuki India Limited (1.93) have the beta value greater than 1 which means that they are also volatile. But, they are less volatile compared to the Bosch Group stock's return.

- The excess return to beta ratio measures the additional return on a security per unit of systematic risk. The Bosch Group's stock return has the highest excess return to beta ratio of 34.23 and that of Larsen & Toubro Limited is the lowest at 11.88. This ratio provides the relationship between potential risk and reward involved in a security's return.

- The Bosch Group's stock return has the highest unsystematic risk σei2 of 65.76 and that of the Hindustan Unilever Limited has the least risk of 18.07. It is the unique risk affecting the firm due to certain factors affecting only the company issuing such security. It is the avoidable risk.

- The three securities ranking from 1 to 3 based on the Ci values were identified along with the proportion of investment to be made. The proportion of the investment to be made is 64% in Bosch Group's stock, 23% in Maruti Suzuki India Limited's stock, 13% in Hindustan Unilever Limited Company's stock. This implies that the majority of funds may be invested on the Bosch Group's stock.

5. SUGGESTION

- Bosch yields highest returns among the stocks and also carries high risk; the investor looking for high returns can make individual investment in the stocks of Bosch.

- It is found that all ten Portfolios are efficient of giving returns; best Portfolio that can be suggested is the combination of Bosch and Maruti.
- L&T and Dr.Reddy have a correlation of 0.26 which states that this portfolio is conservative and investors who are volatile to risk can invest in this combination.
- Sharpe's Performance Index ranks portfolio, the portfolio with highest Sharpe's index is best compared to other portfolios. Thus, combination of Maruti and Dr.Reddy can be considered for investment.
- Don't put your trust in only one investment. It is like "putting all the eggs in one basket". This will help to reduce the risk in long term.
- The risk can be reduced if the portfolio is diversified. The point of diversity is toachieve a given level of expected return while bearing the least possible risk.
- A portfolio with Bosch has performed well, giving high returns. So it is suggested to select a portfolio with Bosch for high returns.
- The optimal portfolio which is constructed is best as it has combination of Bosch, Maruti, and HUL.

6. CONCLUSION:

Constructing an optimal portfolio is a challenging task for the individual as well as the institutional investors. Among the five sample companies, only three were selected for optimal portfolio. The final decision of investing should be made only after considering all the factors affecting the stocks. These can be general economic factors or any other macroeconomic factors which govern the movement and action of the movement of these securities in the market. Many micro studies of this kind need to be conducted considering different types of samples. The results of the present study have more utility value to the fund managers of emerging economies like India where the capital markets are still in their developing stages and many foreign institutional investors are also interested to invest in the leading stocks traded through the stock exchanges of these countries.

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SECTION III M. COM (FA)

Foreword

"Accounting does not make corporate earnings or balance sheets more volatile. Accounting just increases the transparency of volatility in earnings"

– Diane Garnick

The purpose of this journal is to develop an interest in research and create culture of research. This also intended in encouraging students to incorporate independent Study in an area of their choice and gear them for higher levels of academia.

The third section of DHII comprises of five papers in the field of Finance and Accounting. The first paper talks about analyzing the potency of assets management through the connection between in operation cycle amount and profitableness of Fourenn Apparels Limited. To measure the Capital Management potency, operative cycle has been calculated and therefore the relationship is formed with margin quantitative relation.

The second paper of Dhii focuses on crucial Investment decisions using risk and return analyses. The investor and analyst are always interested in knowing historical performance of the major indices and therefore this relevant study focuses on learning what the return for each of NIFTY 50 companies during the last three years.

The third article provides insights about impact of M&A on Working Capital. Mergers and acquisitions enable a company to achieve varied objectives and financial strategies. The current study gives a clear view on the impact of merger of "STRIDES ARCOLAB" with "SHASUN PHARMACEUTICALS" on the working capital management. For this purpose various components relating to the working capital were selected from the financial statements of the company and their results were studied in detail.

The fourth paper of Dhii focuses on Mutual Funds. Mutual funds have become the attractive way for the investors to invest their money. The motto of the study is to obtain and analyses the performance of mutual fund using Sharpe's, Jensen's and Treynor's ratio models, and evaluate the relationship of selected mutual funds against the market using correlation, measuring the risk using *beta. The study also guides the investors in selecting the type of the scheme based on the investors risk bearing capacity.*

The fifth article in Dhii focuses Performance Analysis of Five Pharmaceutical Companies. The current study carried out to know the share price fluctuations of the selected companies and gives clarity to the investor to choose the better market to earn profit within short span of time. The reason behind the selection of the current study is that the values of the stocks keep fluctuating and it becomes difficult task for the investors to make decision regarding the selection of portfolio and investment.

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Jyoti Nivas College Autonomous

WORKING CAPITAL MANAGEMENT AT FOURENN APPARELS LIMITED

~Chettiar Kavya Ravi

Abstract

Decisions with reference to capital involve managing relationships between a firm's short assets and liabilities to make sure a firm is in a position to continue its operations, and have sufficient money flows to satisfy each maturing short debts and future operational expenses at lowest prices, increasing firm's gain. The capitals noticeably go along with the operative cycle. A poring over of the operative cycle reveals that funds endowed within the operation area unit recycled back in to money. The shorter the amount of operative cycle the larger are going to be the turnover of the funds endowed in varied functions. The shorter amount of operative cycle shows higher potency of a firm. The potency of assets management are often determined by the in operation cycle of the firm. This paper aims at analyzing the potency of assets management through the connection between in operation cycle amount and profitableness of Fourenn Apparels Limited. To measure the capital Management potency, operative cycle has been calculated and therefore the relationship is formed with margin quantitative relation.

Key Words: *Working Capital, Operating Cycle, Profitability, Operating Profit.*

1. INTRODUCTION

Working capital management refers to a company's managerial accounting strategy designed to monitor and utilize the two components of working capital: current assets and current liabilities, to ensure the most financially efficient operation of the company. The primary purpose of working capital management is to make sure the company always maintains sufficient cash flow to meet its short-term operating costs and short-term debt obligations.

There are two interpretations of working capital under the balance sheet concept. It is represented by the excess of current assets over current liabilities and is the amount normally available to finance the current operations.

Longer the period of the cycle, bigger will be the working capital requirements. Operating cycle means the cycle of raw materials to work in progress to finished goods to accounts payable and finally to cash. Operating cycle time is the time taken starting from raw material purchases to its conversion into cash.

The interplay of how and when a company pays for its inventory and monetizes its sales is called its cash cycle. Maximizing the frequency of the cycle is crucial to the efficient use of a company’s working capital. Three of these ratios are inventory turnover ratio, accounts receivable days and accounts payable days.

The project focuses on the industry profile, company profile, SWOT analysis, financial statements and mainly about working capital and the operating cycle. In addition to this concept the project also studies the overall organization role of different department functions of their respective departments, procedures and policies.

2. REVIEW OF LITERATURE

Dinesh M. (2008) explicates the concepts of working capital, the different challenges being faced by the business firms in managing working capital and the strategies to be adopted for its prudent management. The author concludes with the view that most of the businesses failed not for want of profit but for lack of cash. The fast growth in production and sales may cause the business to utilize all of the financial resources seeking growth and making assets such as inventories, accounts receivable and other assets as more illiquid.

Rahman Mohammad M. (2011) focuses on the co-relation between working capital and profitability. An effective working capital management has a positive impact on profitability of firms. From the study it is seen that in the textile industry profitability and working capital management position are found to be up to the mark.

Dr Panigrahi Ashok Kumar (2012) studies the relationship between working capital management and profitability of ACC Cement Company, the leading cement manufacturer of the country for assessing the impact of working capital management on profitability during the period 1999-2000 to 2009-10. The study is based on secondary data. The main objective of the study was to find whether the working capital management affects the performance of the firm. It can be deduced that there is a moderate relationship between working capital management and the firm's profitability.

Joseph Jisha (2014) closely examines the study of working capital management in Ashok Leyland and points out that the liquidity and profitability position of the company is not satisfactory, and needed to be strengthened in order to be able to meet its obligations in time.

3. RESEARCH METHODOLOGY

3.1 Background of the Study:

For any diversified company, the key to success is the proper distribution of its resources. So, it is necessary for the management to do a detailed evaluation of the financial statement. Financial statement contain a large volume of financial figures from a study of these absolute figures, it is not possible to form a precise idea about the financial significance and business position. To form a precise idea about the data contained in various financial statement, it is necessary to establish relationship between the financial figures.

The topic is efficiency of working capital management of Fourenn Apparels Limited. The financial analysis of the company is analyzed and suggestions are given. Balance sheet concept and Operating cycle concept are used to analyze the financial position of the company.

3.2 Statement of the Problem:

The company needs fund for its day-to-day operations. Adequacy or inadequacy of fund would determine the efficiency with which the daily business may be carried on. An excessive amount of working capital would mean that the company has ideal funds. Since funds have a cost, the company has to pay interest on such ideal funds, resulting in low profit or a low rate of return. On the other hand, inadequate working capital may result in the risk of insolvency.

Therefore, the main problem is to estimate and maintain working capital requirement, after taking into consideration risk, profitability and liquidity factors.

3.3 Need and Importance of the Study:

This project is helpful in knowing the company's position of funds maintenance and setting the standards for:

- working capital management
- operating cycle components such as inventory period, average receivable period and account receivable period
- It also helps the management to know present availability of funds.
- It helps to know the overall financial position of the company.
- To analyze the short-term financing policies and patterns which affect the working capital of the organization.
- It also helps to compare the previous year and the present year data.
- To study the factors that affects the working capital management at Fourenn Apparels Limited.

A study of working capital is of major importance to internal and external analysis because of its close relationship with the day-to-day operations of a business.

3.4 Objectives of the Research:

- To study the working capital management.
- To study the different components of working capital of the company.
- To know the sources of working capital.
- To study the working capital of an organization.
- To study the operating cycle of an organization.

3.5 Actual Collection of the Data:

This research is mainly based on the data of 4 years. There are various methods of data collections in that primary and secondary data are essential.

- **Primary data:** The information collected from personal interaction with manager, executives and other staffs.
- **Secondary data:** The annual report of the company.

3.6 Research Design:

The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring the blueprint for the collection, measurement, and analysis of data.

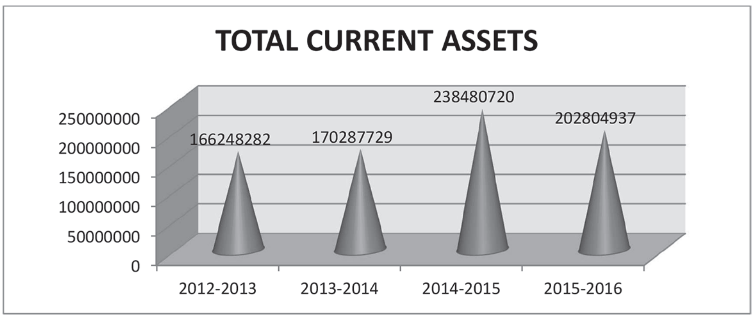
- **Analytical research-** it is a specific type of research that involves critical thinking skills and the evaluation of facts and information relative to the research being conducted. A variety of people use analytical research during studies to find the most relevant information. From analytical research, a person finds out critical details to add new ideas to the material being produced.

3.7 Limitations of the Study:

- The study is limited to 4 years of data for financial analysis.
- The study deals only with the impact of working capital without considering the risk involved.
- The project is mainly based on secondary data.

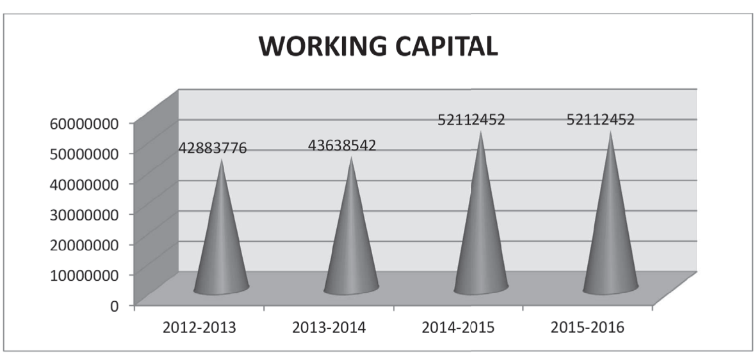
4. DATA ANALYSIS AND INTERPRETATION

Graph 4.1: Investments In Current Assets:



The above graph shows the total current assets of 4 years. It has been gradually increased year after year till 2014-2015. In the year 2015-2016 there has been a decrease in the current assets. There is highest growth of current assets in the year 2014-2015 of Rs. 23,84,80,720. Hence the company's gross profit is increasing with a decrease in the year 2015-2016.

Graph 4.2: Total Working Capital



The above graph shows the total working capital of 4 years. It has been gradually increased year after year from 2012 to 2016. The working capital for the year 2012-2013 is Rs 4,28,23,776; for the year 2013-2014 is Rs 4,36,38,542; and for the year 2014-2015 and 2015-2016 the working capital is Rs 5,21,12,452.

4.2: OPERATING CYCLE CONCEPT: From the financial statement of the firm we can estimate the inventory period, the accounts receivable period and accounts payable period.

Inventory period = $$\frac{\text{average inventory}}{\text{annual cost of goods sold}/365}$$

Average receivable period = $$\frac{\text{average accounts receivable}}{\text{annual } sales\ /365}$$

Accounts payable period = $$\frac{\text{average accounts payable}}{\text{annual cost of goods sold }/365}$$

Table 4.1: Cost of Goods Sold

Year	Cost of goods sold (Rs)	Inventory period (days)	Average receivable period (days)	Accounts payable period (days)	Operating cycle (in days)
2012-2013	40,67,98,575	28	111	38	139
2013-2014	47,06,69,330	20	103	48	123
2014-2015	45,01,94,041	42	142	82	184
2015-2016	50,98,46,102	26	100	46	126

Here the firm's operating cycle is fluctuating. The operating cycle has decreased from 139 days during 2012-2013 to 126 days during 2015-2016. The operating cycle of the firm is satisfactory because it has come down by 13 days.

Table 4.2: Cash Cycle

Year	Operating cycle	Account payable period	Cash cycle (in days)
2012-2013	139	38	101
2013-2014	123	48	75
2014-2015	184	82	102
2015-2016	126	46	80

The firm's cash cycle is also satisfactory as it has decreased from 101 days to 80 days during 2012-2013 to 2015-2016 respectively. However it is also observed that the debtor's collection period has decreased from 111 days to 100 days during the same period, whereas the creditor's collection period has increased from 38 days to 46 days during the time period of 2012-2013 and 2015-2016 respectively.

4.3: CALCULATION OF RATIOS:

The **gross profit ratio** reflects the efficiency with which management produces each unit of product. This ratio indicates the average spread between the cost of goods sold and the sales revenue. The ratio, which expresses the relationship between the working capital and sales, is called working capital turnover ratio. It is calculated as follows:

$$\text{Net current asset turnover ratio} = \frac{\text{sales}}{\text{working capital}}$$

Table 4.3: Gross Profit (In Rs)

Year	Net sales	Cost of goods sold	Gross profit	Gross profit ratio
2012-2013	41,08,32,628	40,67,98,575	40,34,053	0.98
2013-2014	47,25,26,579	47,06,69,330	18,57,249	0.39
2014-2015	45,32,59,305	45,01,94,041	30,65,264	0.67
2015-2016	50,71,99,613	50,98,46,102	(26,46,489)	-0.52

The gross profit ratio is not satisfactory because this ratio is not stable; it is fluctuating widely year by year from 2012-2013 to 2015-2016. The highest ratio is 0.98 and the lowest ratio is -0.52. Here the firm has higher the sales in 2012-2013 so the ratio is high and due to lower the sales or higher the cost of goods sold so in the year 2015-2016 it is in negative. This may be due to weak customer demand, heavy competition and investment made by the company.

Table 4.4: Working Capital Turnover Ratio

Year	Net sales (Rs)	Working capital (Rs)	Working capital turnover ratio
2012-2013	41,08,32,628	4,28,83,776	9.58
2013-2014	47,25,26,579	4,36,38,542	10.83
2014-2015	45,32,59,305	5,21,12,452	8.70
2015-2016	50,71,99,613	5,21,12,452	8.70

A working capital turnover ratio indicates that of high working capital turnover and low net working capital. Here in the firm there are fluctuations. In the last two years, there is constant working capital turnover ratio of 8.7, which is the least from 2012-2013 to 2015-2016. The highest working capital turnover ratio has been recorded in the year 2013-2014 of 10.83. The firm has to maintain in increasing the working capital turnover ratio.

5. FINDINGS:

1. The changes in working capital for the year 2012-2013 is Rs 3,73,09,110 and Rs 4,28,83,110 respectively. It shows working capital increase to Rs 55,74,666 in the year 2012 when compared to the year 2013. By increase in net working capital, the firm is satisfactory with its working capital.

2. The changes in working capital for the year 2013-2014 is Rs 4,28,83,776 and Rs 4,36,38,542 respectively. It shows working capital increase to Rs 7,54,766 in the year 2013 when compared to the year 2014. By increase in net working capital the firm is satisfactory with its working capital.
3. The changes in working capital for the year 2014-2015 is Rs 4,36,38,542 and Rs 5,21,12,452 respectively. It shows working capital increase to Rs 84, 73,910 in the year 2014 when compared to the year 2015. By increase in net working capital, the firm is satisfactory with its working capital.
4. The changes in working capital for the year 2015-2016 is Rs 5,21,12,452 and Rs 5,13,61,264 respectively. It shows working capital decrease to Rs 7,51,188 in the year 2016 when compared to the year 2015. By decrease in net working capital the firm is not satisfactory with its working capital.
5. Here the firm's operating cycle is fluctuating. The operating cycle has decreased from 139 days during 2012-2013 to 126 days during 2015-2016. The operating cycle of the firm is satisfactory because it has come down by 13 days.
6. The firm's cash cycle is also satisfactory, as it has decreased from 101 days to 80 days during 2012-2013 to 2015-2016 respectively.
7. However it is also observed that the debtor's collection period has decreased from 111 days to 100 days during the time period from 2012-2013 to 2015-2016 respectively.
8. The creditor's collection period has increased from 38 days to 46 days during the time period of 2012-2013 and 2015-2016 respectively.
9. The gross profit ratio is not satisfactory because this ratio is not stable. It is fluctuating widely year-by-year from the year 2012-

2013 to 2015-2016. The highest ratio is 0.98 and the lowest ratio is -0.52. Here the firm has higher the sales in 2012-2013 so the ratio is high and due to lower the sales or higher the cost of goods sold in the year 2015-2016 it is very low.

10. A working capital turnover ratio indicates that of high working capital turnover and low net working capital. Here in the firm there are fluctuations. In the last two years there is constant working capital turnover ratio of 8.7, which is the least from 2012-2013 to 2015-2016. The highest working capital turnover ratio has been recorded in the year 2013-2014 of 10.83. The firm has to maintain in increasing the working capital turnover ratio.

6. SUGGESTIONS AND RECOMMENDATIONS:

1. It can be said that the overall financial position of the company is high but it is required to be improved from the point of view of profitability.
2. Amongst current assets, the major portion has been occupied by the trade receivables and the inventories. The company should maintain a balance in holding these two current assets, as both are very crucial for the running of any business.
3. The company can increase their net profit by reducing the operating and other expenses. The company has incurred certain expenditure on brand building which will give benefits over a certain period. The company anticipates good growth in terms of increased sales in the coming years.
4. The gross profit ratio is not satisfactory because there are more fluctuations in the ratios, so the company needs to concentrate in its profits.
5. During the year 2015-2016, the company's working capital is decreased due to less current assets and more liability, so it has

to make proper use of its current assets to maintain the business transactions and take measures to improve it.

6. The company must adopt proper inventory control techniques like ABC (Activity Better Control) analysis, fixation of minimum, maximum order levels to ensure full utilization of resources, in order to make the inventory management more result oriented.
7. An effective assessment of use of working capital has to be maintained in order to maximize profits.
8. Effective learning and development programmes must be provided to the employees with respect to optimum utilization of resources.
9. Close monitoring and inspecting the activities and stocks of the borrowers from time to time can avoid the misuse of working capital.
10. The company should maintain consistency in performance.

7. CONCLUSION:

Working Capital Management is an important aspect of any business. Every business concern should have adequate working capital to run its business operation. Working Capital is the life blood of an organization.

In this study different tools such as schedule showing changes of Working Capital, operating cycle, cash cycle, gross profit ratio and Working Capital inventory turnover ratio were used to analyze the Working Capital Management at Fourenn Apparels Limited.

From the study of the company's performance of the past four years and the overall analysis of the organization, it is concluded that the firm has sufficient working capital to meet its current obligations and day-to-day operations. The company is doing best with its innovative ideas by introducing new products with high quality and by adopting good channels of distributions.

Working capital has emerged as a major factor in the profitability of the company. The goal of Working capital is to minimize the cost of Working capital while maximizing the firm's profit. The production value has increased during the years and the sales and sales volume are retrieving to increase. But at the same time the inventory turnover ratio is decreasing. The company should withdraw its investments from inventory and get rid of excess inventory so as to improve the turnover and reduce its inventory holding costs. This study helps us to know that the company's financial position is not appreciable because there is loss in the present year due to high expenses, so it has to control the costs.

By the analysis of financial statement, I conclude that the overall financial performance of the company is satisfactory except in the current year's scenario. The company should adopt some new trend management strategies that will help in greater productivity, inventory optimization and also better Working capital management. The company can also try to take some measures to increase profit by proper utilization of available resources.

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ANALYSIS OF THE INDIAN STOCK MARKET AND IT'S PERFORMANCE

~Janhavi.S

Abstract

Avenues for investment are abundant like bank deposits, property, shares etc. But taking an investment decision would be more crucial. Analyzing the risk associated with every investment option and evaluates the return out of investment become very crucial. The topic risk and return analyses relevant in this circumstances. The investor and analyst are always interested in knowing historical performance of the major indices and therefore this relevant study focuses on learning what the return for each of NIFTY 50 companies during the last three years. Before designing the portfolio, it is important for investors to known the relation between the nifty markets with each company return, because the benefit of diversification from investing different sums of money in different companies should be given some thought as well.

1. INTRODUCTION

Stock Market is a market for long-term funds. Stock market focuses on financing of fixed investment. Stock market channelizes household savings to the corporate sector and allocates funds to firms. It enables the valuation of firms on an almost continuous basis and plays an important role in the governance of the corporate sector. An efficient stock market is an important constituent of a sound financial system. A stock market deals mainly in corporate securities. The securities are chiefly in form of equity shares and debentures. The purpose of these securities is to raise long-term funds for companies engaged in production.

Most individual investors hold under diversified portfolios, which lead to higher risk. The aim of this paper is to examine the relationship between risk and return. This research helps the investors to choose which company and which sector to invest, by taking an amount of risk. But the return which we get is more compared to government bonds, treasury bills, bank deposits and post office savings.

These are few reasons why should investors invest in stock market

- Keep pace with inflation.
- Reach your financial goals with the right mix of investments.
- Reduce investing risk with a solid asset allocation strategy.
- Reduce risk with a well-planned strategy for buying and selling stocks.

2. LITERATURE REVIEW

1. According to Dr. S. Krishnaprabha, Mr. Vijayakumar "A STUDY ON RISK RETURN ANALYSISOF SELECTED STOCK"

This study states that risk and return analysis, plays a key role in most individual decision-making process. Every investor wants to avoid risk and maximize return. In general, risk and return go hand. If an investor, wishes to earn higher returns than the investor must appreciate that this will only be achieved by accepting a commensurate increase in risk. Based on risk and return analysis, high risk gives high returns with low risk gives to low return, based on this concept in Banking and Automobile sector high risk gives low return, and in Information Technology, Fast Moving Consumer Goods and in Pharmaceutical sector low risk gives high return. Alpha stock is positive and the companies are independent to market return and have a profitable return

And concludes by stating Long term investors were able to take advantage of the market as it less volatile. As there is less fluctuation in the shares when compared to market as well as its prices, the long-term investors are able to predict about when the share will raise. Majority of Information technology, Fast Moving Consumer Goods, Pharmaceutical Sectors gives more return while compared to Banking and Automobile sector.

2. According to Dr. R. Narayanasamy "Risk and Return Analysis of Equity Shares with Special Reference it Companies (NSE) Stock Index 1Dr. R. Narayanasamy"

Dr. R. Narayanasamy states that, Stock market research is essential to good financial and investment decision making. It will be able to determine the market price and trading volume for the stock, high and low price for the stock over different periods and the earnings for the company. To ascertain the right choice of a security or portfolio to an investor, it depends on the level of risk that the stock carries. An estimation of the risk return profile of a security or portfolio is an important aspect in investment management. The stock market research will allow one to assess the possible risk of a stock against the possible rewards the stock may offer. The present study in this context is relevant in explaining the parity between risk and return in the Indian equity market. It will definitely help the stakeholders to take appropriate decision regarding the time of investment, horizon of investment, quantum of investment and even portfolio selection.

3. According to, Ms. Anju Bala "INDIAN STOCK MARKET"

Ms. Anju Bala states that, Stock Market is one of the most vibrant sectors in the financial system, marking an important contribution to economic development. Stock Market is a place where buyers and sellers of securities can enter into transactions to purchase and sell shares, bonds, debentures etc. In other words, Stock Market is a plate form for trading various securities and derivatives. Further, it performs an important role of enabling corporate, entrepreneurs to raise resources for their companies and business ventures through public issues. Today long-term investors are interested to invest in the Stock market rather than invest anywhere. The Bombay Stock Exchange (BSE), the National Stock Exchange (NSE) and the Calcutta Stock Exchange (CSE) are the three large stock exchanges of Indian Stock Market. The main objective of present study is to present review of literature related to Indian Stock Market to study the Indian Stock Market in depth. The study would facilitate the reader to know the past, current and future trend or prospects of Indian Stock market. This study would provide guidelines to investor to maximize profit with minimize risks. High degree of volatility in the recent times in the Indian market has led to more development in the future.

3. RESEARCH METHODOLOGY

3.1 Statement of the Problem

The aim of investors is getting investment opportunities with minimum risk and maximum returns. Risk and returns are important variables that investors are looking for, at the time of investment decision making.

3.2 Need and Importance of the Study

To analyze NIFTY 50 companies risk, return, beta performance in order to understand and give the clear idea of stock market, about the making decision regarding the investment in stocks of different companies.

3.3 Limitation of the Study

- Study is completely based on historical data.
- Scope is limited only to Nifty 50 companies. Due to lack of time other than Nifty 50 other listed companies shares are not considered for the study.

3.4 Objectives of the Study

- To analyze the Nifty 50 companies movements along with the market.
- To analyze risk and return of the Nifty 50 companies.
- To suggest the investors which company they can invest, take into consideration risk and return.

3.5 Type of Research - The study is based on analytical research method.

3.6 Sampling Technique – The sampling technique selected for the study is Convenience Sampling.

3.7 Type of Data

For this research all nifty 50 company data is taken, for presenting the only companies in which investor wants to invest in it, is grouped sector wise .Only sectors has shown to make it precise and to avoid confusion.

4. DATA ANALYSIS AND INERPRETATION

Table No: 4.1: Pharmaceuticals Sector

	Return	Standard Deviation	Beta
CIPLA	0.42	16.33	0.98
SUN PHARAMA	0.54	15.03	1.14
AUROBINDO PHARMA	0.50	16.70	1.19
LUPIN	0.17	14.46	0.36
Dr. REDDYS LABS	0.06	30.44	0.25

Sun Pharma is performing well compared to other companies in pharmaceutical sector, as its return is 0.54% but it is not high, it is moderate. Even Aurbindo Pharma's return is also moderate. Rest companies returns are low. It is shown that Dr. Reddy Labs is having high Standard deviation (30.44) which means it has high risk compared to other companies followed by Aurbindo Pharma (16.70), Cipla (16.33), Sun Pharma (15.03) and Lupin (14.46). It is advisable to invest in Lupin since the risk factor is low in this company to have consistency in returns. From the table, it can be observed that Aurbindo pharma has highest beta value of 1.19 followed by Sun Pharma (1.14), Cipla (0.98), Lupin (0.36) and Dr. Reddys Lab (0.25). Aurbindo Pharma has highest beta value which indicates that this company's performance is more volatile than the market and Dr. Reddys Lab is less volatile since it has low beta value.

Table No: 4.2: Cement Sector

	Return	Standard Deviation	Beta
AMBUJA CEMENT	0.67	11.32	1.08
ULTRA TECH CEMENT	0.68	10.23	0.99
ACC	0.72	9.26	0.95

All three companies Ambuja Cement, Ultra Tech Cement, ACC have a moderate return - 0.67%, 0.68%, 0.72% respectively. The highest returns are of ACC ie. 0.72%. It is shown that Ambuja Cement have highest Standard deviation (11.32) which means it has high risk compared to other companies followed by Ultra Tech Cement (10.23) and ACC (9.26). It is advisable to invest in Ambuja cement since the risk factor is low in this company to have consistency in returns. From the table, it is observed that Ambuja Cement has highest beta value of 1.08 followed by Ultra Tech Cement (0.99) and ACC (0.95). Ambuja Cement has highest beta value which indicates that this company's performance is more volatile than the market. ACC is less volatile since it has low beta value.

Table No: 4.3: Banking Sector

	Return	Standard Deviation	Beta
HDFC	0.91	7.12	0.92
ICICI BANK	0.77	8.90	0.96
INDUSLND BANK	0.71	12.89	1.30
HDFC BANK	0.90	7.20	0.92
AXIS BANK	0.78	16.29	1.80
KOTAK MAHINDRA	0.54	11.37	1.30
YES BANK	0.80	18.31	2.07
SBI	0.75	18.43	1.95
BANK OF BARODA	0.42	15.72	0.93
INDIABULLS HSG	0.72	25.10	2.55

There is only one bank, which gives lower return. Bank of Baroda who's return is 0.42%. India bulls HGS, Indus Ind Bank, Kotak Mahindra returns are moderate. HDFC and HDFC bank returns are high, 0.91 and 0.90 respectively. It is shown that Indian Bulls HSG have highest Standard deviation (25.10) which means it has high risk compared to other companies followed by SBI (19.43), YES bank (18.31), AXIS bank (16.29), Bank of Baroda (15.72), IndusInd Bank (12.89), Kotak Mahindra (11.37), ICICI bank (8.90), HDFC bank (7.20), and HDFC (7.12). It is advisable to invest in HDFC since the risk factor is low in this company to have consistency in returns. From the table, we can observe that India bulls HGS has highest beta value of 2.55 followed by YES bank (2.07), SBI (1.95), AXIS bank (1.80), IndusInd Bank (1.30), Kotak Mahindra bank (1.30), ICICI bank (0.96), Bank of Baroda (0.93) and HDFC (0.92). India bulls HGS has highest beta value which indicates that this company's performance is more volatile than the market and HDFC is less volatile since it has low beta value.

5. FINDINGS:

5.1. Pharmaceutical Sector:

- Sun pharmacy has highest return 0.54%. It is less risky, as its standard deviation is 15.03%. But stock is volatile than the market
- Dr. Reddish Labs had low return and also is high risky, but less volatile, as it had low beta value.

5.2. Cement Sector Returns:

- The highest returns are of ACC 0.72%. ACC (9.26) has less risk. It is moderately affected by market
- Returns are low in Abuja Cement, it is shown that Abuja Cement have highest Standard deviation (11.32) which means it has high risk. Abuja Cement has highest beta value which indicates its going against the market

5.3. Banking and Finance Sector:

- There is only one bank, which gives lower returns, Bank of Baroda whose return is 0.42%. India bulls, HGS, IndusInd bank, Kotak Mahindra returns are moderated and HDFC bank returns are high, 0.91 and 0.90 respectively.

- It is shown that Indian Bulls HSG have highest Standard deviation (25.10) which means it has high risk compared to other companies followed by SBI (19.43), YES bank (18.31), AXIS bank (16.29), Bank of Baroda (15.72), IndusInd Bank (12.89), Kotak Mahindra (11.37), ICICI bank (8.90), HDFC bank (7.20), and HDFC (7.12).
- The BETA performance of selected companies on the basis of Banking & Financial sector. From the table, we can observe that India bulls HGS has highest beta value of 2.55 followed by YES bank ,SBI, AXIS bank, IndusInd Bank, Kotak Mahindra bank, ICICI bank, Bank of Baroda and HDFC .India bulls HGS has highest beta value which indicates that this company's performance is more volatile than the market and HDFC is less volatile since it has low beta value

The other companies risk is high and returns are low or the return is not correlating with market. The sectors mentioned were doing comparatively better.

6. SUGGESTIONS AND RECOMMENDATIONS:

- If the investors want to invest based on the returns, the investor can go for banking sector because the banks have given more weightage to Nifty 50.
- If the investor wants to invest based on risk the investor can go for Banking and Cement sector because these companies has lower risk as compared to other sectors.
- If the investor wants to invest with respect to beta the investor can go for Finance, Pharmaceuticals and Metal sector because they move along the market.

7. CONCLUSION:

The banking sector gives more weightage to Nifty 50 as compared to other sectors. Clear study was made based on the historical data of the NSE stock market to identify the flow and changes which happens in stock market for each sector in NIFTY 50 COMPANIES. From the three years data, which had commenced from April 2014 and up to March 2017.To conclude, from the research done, investing in the Banking Sector in stock market will always give profitable solutions to the investors. Risk and return go hand in hand therefore the risk should not be too high or too low as they may give lower returns.

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IMPACT OF MERGER ON WORKING CAPITAL MANAGEMENT

~Swetha P

Abstract

Mergers and acquisitions enable a company to achieve varied objectives and financial strategies, and this in turn contributes negatively or positively towards its working capital management. The study on "Impact of merger on working capital management" gives a clear view on the company's profile, their products and services; the motive of the current study is to bring out the impact of merger of "STRIDES ARCOLAB" with "SHASUN PHARMACEUTICALS" on the working capital management. For this purpose various components relating to the working capital were selected from the financial statements of the company and their results were studied in detail. The results so obtained are represented using Graphs, Histogram and Pie charts, further the few suggestions and recommendations are made to improve the working capital position of the company.

1. INTRODUCTION

Corporate restructuring refers to broad array of activities that expand or contract a firm's operations or substantially modify its financial structure or bring about a significant change in its ownership structure. Interlaid, it includes activities such as mergers, purchases of business units, takeovers, slump sales, demergers and equity carve outs. Refer to these activities collectively as mergers, acquisitions and restructuring or just corporate restructuring. A merger refers to the combination of two or more companies into one company. It may involve absorption or consolidation. In an absorption, one or more companies combine to form a new company, on the other hand consolidation refers to, two or more companies combine together to form a new company.

Decisions relating to working capital and short-term financing are referred to as Working capital management. These involve managing the relationship between the firm's short-term assets and short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital will depends on the criteria like: Cash management - identify the cash balance which allows for the business to meet their day to day expenses, but reduces cash holding costs, Inventory management - Identify the level of inventory which allows for uninterrupted production but reduces the investment in raw materials and minimizes reordering costs and hence increases cash flow. Besides this, the lead times in production should be lowered to reduce work in progress and similarly, the finished goods should be kept on as low level as possible to avoid over production. Debtor's management - Identify the appropriate credit policy i.e., credit terms which will attract customers, such that any impact on cash flows and the cash conversion cycle will offset by increased revenue and hence return on capital. Short term financing - Identify the appropriate source of financing, given the Cash conversion cycle - the inventory is ideally financed by credit granted by the supplier; however, it may be necessary to utilize a bank loan or over draft or to convert debtors to cash.

2. LITERATURE REVIEW

1. *Safi, Hijazi, Tahir and Kamal (2005)*, in their study investigated the relationship between measures of working capital management and the corporate profitability of non-financial firms.

2. According to *Sagner (2007)*, one goal of merger is to improve the efficiency of working capital management and improve the utilization of current assets and liabilities. Many companies hoard cash hoping to discover or develop capital project with superior returns, while those opportunities may never appear. Merger plays an important role in the improvement of the efficiency of working capital management because of new mixture of board members which may include directors from different companies and countries.

3. According to *Lau and Block (2012),* found that founder firms hold a significantly higher level of cash than other firms do. In addition, they found a positive interaction effect between founder management and cash holdings on firm value, suggesting the presence of founders as managers helps to mitigate the agency cost of cash holdings.

4. *Lalit Kumar Joshi and Sudipta Ghosh (2012),* their study empirical findings reveal significant positive trend growth in most of the selected performance indicators. Further the selected ratios show satisfactory performance during the study period. Motaals test was also used to indicate significant improvement in liquidity performance during the said period.

3. RESEARCH METHODOLOGY

3.1 Background of the Study

The Indian Pharmaceuticals market is the third largest in terms of volume and thirteen largest in terms of value, as per a report by equity master. India is the largest provider of generic drugs globally with the Indian generics accounting for twenty per cent of global exports in terms of volume. Of late, consolidation has become an important characteristic of the Indian pharmaceutical market as the industry is highly fragmented. India enjoys important position in the global pharmaceuticals sector. As pressures on Drug manufacturing, research and development and regulatory aspects have been on the rise because of the competitive business environment in the last decade, the pharmaceutical industry worldwide growth has reached a saturation point. Strides Shasun is one of the leading pharmaceuticals companies in India, by studying the working capital management of this company it helps to know how efficiently the company manages the working capital and whether the merger has impact on it or not. In today's competition, it becomes mandatory to keep large current assets in the form of inventories so as to ensure smooth production, and also investment into the liquid assets also play crucial role in this scenario. The study of working capital management helps to know the levels of optimum working capital and the relating assets to be maintained. These assets which have an impact on day-to-day operations of the business not only affect the liquidity position but the profitability and the position of the company as a whole.

3.2 Statement of the Problem

For this purpose, the analysis is done on the various aspects which relates to the working capital of the company, while studying these aspects one can know the impact of various assets and liabilities on the working capital. In this case the company whose working capital is analyzed is an Export oriented unit whose sales are 100% on credit basis. There are a number of factors that are responsible for the improper management of a firm through this study those factors which are hurdle in the way of working capital can be disclosed and further steps can be taken to correct the same. When the company fails to manage the working capital it affects the fundamental health and operational success of the business. The Working capital not only covers the financial obligations but also helps to boost their earnings. It also influences the Return on capital, Credit profile and solvency, Profitability, Liquidity, Business value, Financing conditions, Productions, Demand and Competitive advantage.

3.3 Need and Importance of the Study

To provide a clear picture of Working capital management of the company before and after merger, by understand the importance of assets and liabilities management in the company. To bring the various problems faced by a company in managing the working capital of the company and recommend remedies in case of any discrepancies. The difficulties faced by the company to perform its day-to-day operations can be revealed at the end of the study.

3.4 Limitations of the study

- The balance sheet and statement of profit and loss for the year 2011-12 to 2015-16 is analyzed to study the working capital management, which indicates what happened in the past which does not indicate current market valuation. Various sensitive information is regarding the policies of working capital other plans cannot be disclosed by the company, which is a limitation to the study. To know the effect of the merger only the statement of the year 2015-16 was used which will not give a clear picture of the impact of merger.

- Analyst has to make interpretation and draw conclusions on his own, but different people interpret the same analysis in different way. From the year, 2012-13 the company changed its system of maintaining accounts from calendar year to financial year and prepared another statement according to financial year, hence the financial results of this year 2012-13 lacks accuracy.

3.5 Objectives of the Research

- To study the impact of merger on working capital management of the company.

- To evaluate the liquidity, current assets, current liabilities asset usage, efficiency, asset turnover and working capital structure of the company. To evaluate various components relating to working capital management. To suggest measures for effective management of working capital.

- To understand the cash and operating cycle of the company and how well the debtors or creditors are managed. To study the proportion of various current assets to total assets and various current liabilities to total liabilities. To understand the impact of inventory holding on sales and profit of the company.

3.6 Hypothesis

- **Null Hypothesis:** There is no impact on the working capital due to the merger.

- **Alternative hypothesis:** There is a significant impact on the working capital management due to merger.

The financial statements of the past 5 years of Strides Shasun limited is used for this purpose.

3.7 Type of Research

- ➢ This research is a quantitative research involving calculation of various financial ratios relating to various components of working capital are computed to see its effect on the management of current assets and current liabilities.

- ➢ The aim of the study is to find out the relationship between the event of merger of "STRIDES ARCOLAB" and "SHASUN PHARMACEUTICALS" on the working capital management of the firm, this is a correlation research, and the study seeks to know the relationship between the same.

- ➢ Besides knowing the relationship, this study also obtained an estimate of possible impact of the independent variable to the dependent variables. The data is collected from the annual reports of the companies.

- ➢ The dependent variable will be the event when Merger and Acquisition takes place, while the independent variable is the ratios relating to working capital.

3.8 Research Instruments

The research instruments that were used are the financial statement analysis from the company's annual report. The data collected from the website of www.moneycontrol.com, Face to face interview was conducted with various heads and employees of different departments in Strides Shasun limited. The interaction with the human resources for the purpose of departmental studies. Various department studied are Finance, Human resource, Information technology and Marketing.

3.9 Sources of Data

- ***Primary data*:** There was no primary data involved in the study, as they are lengthy process and quality declines due to lot of errors in the data.

- ***Secondary data:*** The secondary data involved in the study are from the annual reports of the company from 2011-12-2015-16 from the head office of Strides Shasun. The sources are Websites, Annual reports, Textbooks and Journals related to the study.

3.10 Tools Used for Analysis

The tools used are Ratio analysis of the financial statements with Liquidity ratios, Management of current assets, Management of current liabilities, Operating and Cash Conversion Cycle, Asset Usage Turnover, Efficiency, Debtors/Creditors Turnover Ratio used to analyze working capital structure.

4. ANALYSIS AND INTERPRETATION

Table 4.1: Measure of Liquidity

Years	Current ratio	Quick ratio	Cash ratio
2011-12	0.66:1	0.46:1	0.09:1
2012-13	0.99:1	0.77:1	0.14:1
2013-14	0.99:1	0.77:1	0.14:1
2014-15	1.58:1	1.36:1	0.22:1
2015-16	1.69:1	1.52:1	0.06:1

The Current ratio is on an increasing trend from 2011-12 to 2015-16, in the year 2012-13 and 2013-14 the ratio was approaching toward optimality and stood at 1.58:1 in 2014-15 to and is 1.69:1 in 2015-16, this indicates that the company is improving in its ability to pay its current obligations in time and the merger in 2015-16 has also positively impacted the company, and the scenario of the quick ratio also remains same which is on an increasing trend, but in comparison with the current ratio it is always below the current ratios which shows that the company, that the company's current assets are highly dependent on inventory, also the ratio being less than 1:1 is a caution that the company does not have enough liquid assets to pay their current liabilities. The Merger of the company has significantly affected the cash ratio of the company the ratio was on an increasing scale from 2011-12 to 2014-15 and fell to 0.06:1 in 2015-16, which shows company's merger is increasing the efficiency of cash utilization.

Table 4.2: Management of Current Assets & Current Liabilities

Years	Payables Turnover	Receivables Turnover
2011-12	7.31	9.68
2012-13	5.41	5.66
2013-14	5.41	5.66
2014-15	8.39	6.99
2015-16	7.11	6.07

The decreasing turnover of receivables indicate that the company's collection of accounts receivable is not efficient and the company. The overall management of current assets of the company is satisfactory.

The payables turnover ratio is on a fluctuating scale the highest payable turnover ratio is 8.39 in the year 2014-15 the reason being there was no deferred tax liability during the year and the company efficiently utilized this cash to meet its payables, however with the merger in 2015-16 the deferred tax liability stood at Rs.361 million which again impacted the payables turnover.

Table 4.3: Operating Cycle and Cash Conversion Cycle

Years	Operating cycle	Net operating cycle
2011-12	150	100
2012-13	159	92
2013-14	288	221
2014-15	113	70
2015-16	139	88

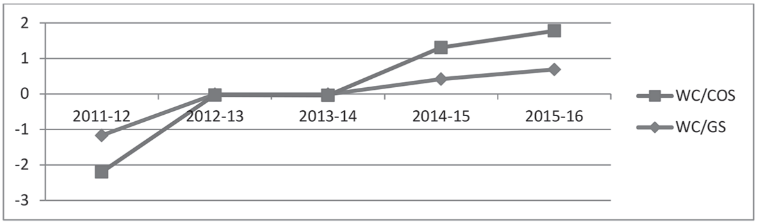
The inventory days is also fluctuating from 112 days to in 2011-12 to 95 days in 2012-13 and it stood at 79 days in 2015-16 this shows that the inventory sits on the company's shelf for a longer period and the company is advised to correct the same, and the number of days of payables fluctuate but tend to remain high due to the funds blocked in debtors, are unable to meet its payables, the operating and net operating cycle increased from 2011-12 to 2013-14 but decrease and then increase in 2014-15 due to the merger, this suggests that the company is in greater need for liquidity.

Table 4.4: Asset Usage Ratios

Years	Fixed assets turnover	Current assets turnover	Capital employed turnover	Working capital turnover
2011-12	1.55	1.56	1.40	(0.86)
2012-13	1.11	0.86	0.62	(113.69)
2013-14	1.01	0.79	0.56	(104.20)
2014-15	1.86	0.87	0.89	2.36
2015-16	1.76	0.76	0.52	1.42

The asset turnover ratios suggest that the company has utilized the fixed, current assets and capital employed very advantageously, the working capital turnover faces negative from 2011-12 to 2013-14 the reason being current liabilities exceeding the current assets.

Graph 4.1: Efficiency Ratios



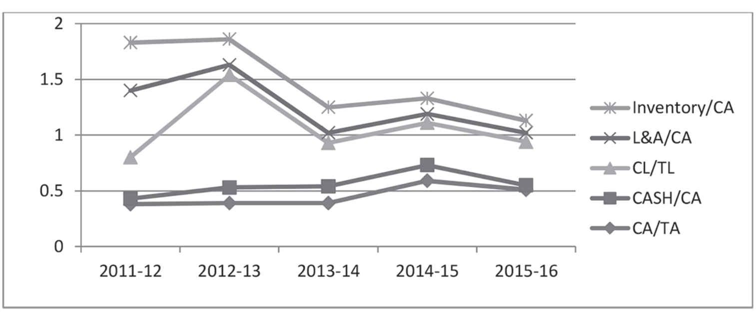
The efficiency ratios are computed using working capital to gross sales and working capital to cost of sales where negative figures from 2011-12 to 2013-14 due to exceeding current liabilities.

Table 4.5: Debtors/ Creditors Turnover Ratios

Years	Debtors Turnover	Debtors Collection Period	Creditors Turnover	Creditors Payment Period
2011-12	10.35	35	1.67	215
2012-13	2.77	130	0.41	878
2013-14	2.54	142	1.26	286
2014-15	3.17	114	2.35	153
2015-16	3.069	117	3.086	117

The debtors and creditors turnover ratios and collection period suggests the company is improving its policy on debtors collection for the period 2014-15 to 2015-16

Graph 4.2: Ratios to Analyze Working Capital Structure



The ratios used to analyze the working capital suggest that the company's current liabilities are piling up, but the loans and advances have decreased tremendously from 0.60 in 2011-12 to 0.08 in 2015-16.

Table 4.6: Correlation Between Merger And Working Capital Management 2015-16 Vs 2016-17

X		Y		(X)(X)	(Y)(Y)	XY
P/E Ratio	73.72	**Working Capital Ratio**	1.69	5,434.64	2.86	124.59
EV/ sales	5.08	**Working Capital Turnover**	1.42	25.81	2.02	7.214
	78.8		3.11	5,460.45	4.88	131.804

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}}$$

From the calculation, it is observed that "r" 0.20 which is positive one. As the correlation came a positive one, which ensures that, the merger has an impact on working capital management.

5. FINDING & SUGGESTIONS

- The other current liabilities during the year 2012-13 stood at Rs.6,516.55 million during the year and seemed to decrease during 2013-14 but gradually increased during the year 2015-16 to Rs. 5,024.67million, it has affected the working capital/ current ratio of the company.
- The increase in current liability is an alarm for the company it has impacted the total liability during the years and the company is advised to reduce the same.
- During the year 2012-13 the company has a inventory worth Rs. 4,823.30 million which suggests that the company had the difficulty in realizing its stock through sales and this in turn is evidenced in the operating profit margin which was 11%, which is lowest compared to all the years, similar situation can

be seen in the year 2015-16 where the operating profit margin is 18%.The company is advised to plan its inventory realization better in order to boost its sales.

- The company's long term loan during the year 2015-16 stands at Rs29,598 million which comprises more than 80% of the total borrowing, this might affect the solvency position of the company in future and the company is advised to reduce the same.
- The company is also advised to raise its funds through short-term borrowings.
- Since the company makes 100% credit sales, the funds of the company are blocked in its debtors and the company also seems not to have taken steps to realize them in the year 2012-13 debtors seem to decrease but increased gradually and stands at 10,965.31 during 2015-16, the company is advised to take proper steps to correct the same. The company's current liability is exceeding the current assets, which in turn affects the working capital of the company, hence it is suggested that the company should take suitable measures to overcome the same.
- Since the company is an Export oriented unit, it is advised to maintain sufficient cash to meet its requirements of cost of sales. The company is also advised to increase its internal funds by further issue of shares.

6. Conclusion

- The overall analysis of the financial statement suggests that the company has an efficient management of working capital. The analysis also proved that the merger has impacted on the working capital management of strides shasun.

- The working capital which showed a negative figure during the initial years improved and turned to positive over the years which are a sign that the company is taken action against its working capital management improvement. The ratio analysis has also analyses the overall standing of the company.

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PERFORMANCE EVALUATION OF MUTUAL FUNDS ON SELECTIVE BOND

~ Tara

Abstract

Primary Investment objective of any individual or organization is to maximize the return and minimizing the market risk and credit risk through diversification. A mutual fund has become the attractive way for the investors to invest their money. The first priority of every individual is bank investment and the second priority goes to mutual fund and other revenues. The Mutual fund pools resources from a large number of speculators and afterward enhances its investment into a wide range of holding, for example, stock, bonds or government securities with a specific end goal to give high relative wellbeing and great returns. The main objective of study is to obtain and analyses the performance of mutual fund using Sharpe's, Jensen's and Treynor's ratio models.

The paper gives a brief idea about the development of mutual fund industry, the broad idea about the organizations and theory of mutual funds.

1. INTRODUCTION

A mutual fund is like a bridge or a financial intermediary that allows a group of investors to pool in their money together with a pre-determined investment objective and then this gathered money is invested by the fund manager into specific securities (stocks or bonds). Investments in securities are spread across a wide cross-section of industries and sectors and thus the risk is reduced. Investors of mutual funds are known as “unit holders”. The profits or losses are shared by the investors in proportion to their investments. The mutual funds normally come out with a number of schemes with different investment objectives which are launched from time to time. A mutual fund is required to be registered with Securities and Exchange Board of India (SEBI) which regulates securities markets before it can collect funds from the public.

Debt schemes are also known as income schemes. Their objective is to provide regular and steady income to investors. Investment is generally made in fixed income securities like bonds and debentures. These debt schemes are less sensitive to the market forces. They are less risky as compared to the equity schemes. Investors who want regular returns with less risk prefer to invest in these funds.

1.1 Working of a Mutual Fund

A Mutual Fund trusts that, the store funds of different speculators who share a typical monetary objective. The trade out along these lines accumulated is then placed assets into capital business division instruments, for instance shares, debentures and distinctive securities. The compensation earns during the endeavors and the capital thanks recognized are shared by its unit holder in degree to amount of units guaranteed through them. Thusly Mutual Fund is mainly appropriate theory for the essential man as it offers an opportunity to place assets into a widened, efficiently administered mutual fund.

2. REVIEW OF LITERATURE

An attempt was made in this section to review the past research done in the area of performance analysis of selected Mutual funds.

1. **Youguo Liang, Sanjay Ramchander and Jandhyala L. Sharma, “The Performance Of Stocks: Professional Versus Dartboard Picks Behaviour Finance”, Vol. 8, No. 1, 1995.**

"This paper evaluates the performance of a portfolio formed on proficient advice (also called pros picks) with another portfolio picked at random (also called random or dart picks). We study public announcements of professionals' recommendations and random picks from the Investment Dartboard column in the Wall Street Journal. Results propose that the pros selection statistically outperforms the random collection only in the one-week period. More than a six-month holding period, the random stocks perform better than the pros recommendations."

2. "Price Earnings Ratio Predict Future Falls Of Stock Price?" University Of Economics in Prague, 31 August 2. Marian Vorek, Does High 2009

"This paper examines the approach of value investing and its further possibilities for forecast of stock performance, especially in link with falls in stock prices. The research revealed that the investments into stocks with low price to earnings ratio achieved higher than average returns. Based on the above of mentioned methodology and the outcomes of empirical studies, this paper focuses on the other side of that relation, whether the high price to earnings ratio predicts the future falls in stock prices and whether the price to earnings ratio could act as an indicator of the coming bear market"

3. Marc M. Kramer, "Financial Advice and Individual Investor Portfolio Performance" Volume 41, Issue 2, Pages 395–428, summer 2012

"This paper investigates whether financial advisers add value to individual investors' portfolio decisions by comparing portfolios of advised and self-directed (execution-only) Dutch individual investors. The results indicate important differences in characteristics and portfolios between these investor groups, but no proof of differences in risk-adjusted performance. The findings indicate that portfolios of advised investors are improved diversified and carry significantly less idiosyncratic risk. In addition, evidence from an analysis of investors who control to advice taking indicates that these findings (at least in part) replicate the effect of advisory interference."

4. **Jain Pratima, Bangur Peeyush, Sharma Kapil, "Investor View of Stock Performance of Indian Banks: Evidence Using the CANSLIM Approach", IUP Journal of Bank Management,Volume:10**

"Low risk and high return is the only essential aim of any investor. Through CANSLIM approach, this goal can be achieved easily. CANSLIM approach was first discussed by O'Neil in the US for investment point and also for investor safety. It is a growth stock investment strategy which involves performance of both technical analysis and fundamental analysis. A performance ranking model was applied to identify the best performing bank among the 10 banks on the foundation of CANSLIM approach and its parameters. For this use, the data pertaining to the quarter ended March 2007 to the quarter ended March 2008 was used."

3. RESEARCHMETHODOLOGY

An exploratory study is used to find the problems in further research and its testing with statistical tools. The tools are Performance measure, Treynor's Index, Sharpe's Index, Jensen's Index and the statistical techniques Mean and Standard deviation.

3.1 Ways to Measure the Mutual Fund Risk

The wholesalers have a vast assortment of items to offer to the imminent financial specialists. In any case, there is gigantic number of organizations offering comparative items to the speculators. In this way, there ought to be a few variables, which will think about these AMCs. These similar elements are:

3.1.1 Treynor's ratio

Treynor's measure is called as 'Risk to Volatility' ratio. Treynor's ratio consider portfolio beta as calculation of risk.

TR= (RP-RF)/ β

Where, RP= Expected return, RF= Risk free return, β = Beta of the portfolio

3.1.2 Sharpe ratio

The Sharpe proportion is the profits produced more than the danger free rate, for each unit of danger. Hazard in this study is taken to be supports standard deviation. A higher Sharpe proportion is in this way better as it demonstrates a higher return produced for each unit of danger.

$$S = \frac{R - RF}{\sigma}$$

Where, R= Expected return, RF= Risk free return, σ = Standard deviation

3.1.3 Beta

A measure of the instability or efficient danger of security or a portfolio in contrast with the business sector list in general. In this study, past information of benchmark lists BSE 200, NIFTY CNX-500, SENSEX and NAV execution of every assets have been gathered.

Beta is computed by following formula: Beta= Covariance (Stock, Index)/ Variance (Index). Where, Covariance (Stock, Index) means covariance between scheme and market returns, while Variance (Index) means variance of Index.

3.1.4 Co-effective of determination (R-squared)

R-squared calculate the bond between a portfolio and its benchmark. It ought to be thought, as a % from 1 to 100. R-squared is not a measure of the execution of a portfolio. A phenomenal portfolio can have a low R-squared. It is basically a measure of the relationship of the portfolio's benefits to the benchmark's benefits. R-squared can be used to find the immensity of a particular beta or alpha. Generally, a higher R-squared will demonstrate a more accommodating beta quality.

3.1.5 Standard Deviation

The Standard Deviation (SD) of a normal is the sum by which the numbers that goes to a normal digress from that normal. An elevated requirement Deviation is a measure of instability. **SD** has been calculated with the usage of MS excel 2010 STDEV" function where the cell range caters to the monthly fund returns over the period under study.

3.1.6 Jensen alpha measure: This measure developed by Michael Jensen.

The formula for Jensen measure is: $Rp – Rf = \alpha + [ßp * (R m – Rf)]$ Where, Rp = Portfolio return, Rf = Risk free return, ßp = Portfolio beta and Rm = Market return.

4. DATA ANALYSIS AND INTERPRETATION

Table 4.1: Return & Risk Analysis of Selected Mutual Funds

SL. No	Name of the Scheme	Return of schemes	Bench-mark index	Standard Deviation (σ)	Beta(β)	corre-lation (R)
1	L&T Short term income fund	0.4797	0.6042	0.00338	0.043	0.1718
2	DHFL Pramerica Short term income fund	-1.4658	0.6042	0.00402	0.0394	0.2839
3	BNP Paribas Short term income fund	-0.1723	0.6042	0.00523	-0.0013	0.0784
4	HSBC Short term income fund	0.6716	0.6042	0.00424	0.0319	0.1468
5	Baroda Pioneer Short term income fund	0.5881	0.6042	0.0052	-0.0013	0.0905
6	IDBI Short term income fund	-1.476	0.6042	0.00436	0.0577	0.2958
7	Peerless Short term income fund	0.5856	0.6042	0.00229	0.0291	0.3183
8	Invesco Short term fund	-01.4734	0.6042	0.03291	0.005	0.1382

Table 4.2: Ratio's - Sharpe, Treynor, and Jenson Model for the year 2012

Sl. No	Name of The Scheme(2012)	Sharpe	Treynor	Jenson
1	L&T Short term income fund	52.36964	129.6276	0.06524
2	DHFL Pramerica Short term income fund	40.58295	-59.63059	0.19545
3	BNP Paribas Short term income fund	-984.129	-94.78287	-1.3291
4	HSBC Short term income fund	57.7125	175.5219	0.07988
5	Baroda Pioneer Short term income fund	21.7125	30.11366	0.19629
6	IDBI Short term income fund	87.59407	622.8214	0.11958
7	Peerless Short term income fund	212.1839	306.8659	0.17193
8	Invesco Short term fund	-75.6054	31.18296	-0.1706

Table 4.3: Ratio's - Sharpe, Treynor, and Jenson Model for the year 2013

Sl. No	Name of the Scheme 2013	Sharpe	Treynor	Jenson
1	L&T Short term income fund	-11.8356	-58.1137	-0.1095
2	DHFL Pramerica Short term income fund	-7.37048	-50.4624	-0.0486
3	BNP Paribas Short term income fund	-172.701	-115.7298	-1.1255
4	HSBC Short term income fund	-15.9768	202.0076	-0.1356
5	Baroda Pioneer Short term income fund	-6.63125	13.77371	-0.0704
6	IDBI Short term income fund	-16.1422	-124.4668	-0.1499

7	Peerless Short term income fund	27.96917	-20.04932	0.1179
8	Invesco Short term fund	66.96466	39.81409	0.19249

Table 4.4: Ratio's - Sharpe, Treynor, and Jenson Model for the year 2014

Sl. No	Name of the Scheme 2014	Sharpe	Treynor	Jenson
1	L&T Short term income fund	67.4465	-17.52932	0.09953
2	DHFL Pramerica Short term income fund	75.46228	-18.46404	0.1271
3	BNP Paribas Short term income fund	-743.507	22.05654	-1.3008
4	HSBC Short term income fund	185.701	-16.78901	0.82573
5	Baroda Pioneer Short term income fund	38.01698	-15.51334	0.04411
6	IDBI Short term income fund	66.73519	-19.20432	0.07789
7	Peerless Short term income fund	60.5188	-22.34359	0.04477
8	Invesco Short term fund	32.64222	-16.20004	0.048

Table 4.5: Ratio's - Sharpe, Treynor, and Jenson Model for the year 2015

Sl. No	Name of the Scheme 2015	SHARPE	Treynor	Jenson
1	L&T Short term income fund	-1315.58	-194.2293	-0.6857
2	DHFL Pramerica Short term income fund	-7.13437	-21.17035	0.01026
3	BNP Paribas Short term income fund	-30.0009	-17.27556	-0.0758
4	HSBC Short term income fund	-17.0339	-19.84158	-0.0144

5	Baroda Pioneer Short term income fund	-18.9571	50.39958	-0.0827
6	IDBI Short term income fund	-18.439	-22.68075	-0.0062
7	Peerless Short term income fund	-15.8812	-37.77865	-0.0067
8	Invesco Short term fund	-23.2171	-10.81413	-0.0484

Table 4.6: Ratio's - Sharpe, Treynor, and Jenson Model for the year 2016

Sl. No	Name of the Scheme(2016)	SHARPE	Treynor	Jenson
1	L&T Short term income fund	27.38123	-45.63925	0.09958
2	DHFL Pramerica Short term income fund	27.16645	-34.46098	0.11363
3	BNP Paribas Short term income fund	-33.0666	-11.02512	-0.3883
4	HSBC Short term income fund	6.151275	-38.08299	0.03407
5	Baroda Pioneer Short term income fund	37.27653	-36.24016	0.09346
6	IDBI Short term income fund	-3.44602	-40.98738	-0.0092
7	Peerless Short term income fund	-8.52318	-183.2359	-0.0312
8	Invesco Short term fund	10.31084	-43.99161	0.07727

5. SUMMARY OF FINDINGS

On the basis of average return

According to return analysis all the 8 Debt schemes have less returns than the benchmark and the returns are calculated on the basis of NAV for 5 years and the remaining 4 schemes have the worst returns showing negative value i.e DHFL, BNP , IDBI and Invesco.

On the basis of Standard deviation

According to risk analysis - All the schemes Standard deviation is less than the benchmark, hence all the schemes are at lower risk compared to market.

On the basis of Beta

The analysis shows that beta value on the basis of NAV in all the schemes is less than 1, which indicates that these are less sensitive to the market forces. BNP and Baroda are the schemes having negative Beta value.

On the basis of Coefficient of determination (R-Square)

The value of R^2 based on NAV is highest for the following funds - Peerless, IDBI, DHFL, L& T. According to R-square, these funds indicate that systematic risk is high as compared to other schemes.

According to Sharpe's ratio

All the schemes has performed well in the year 2012, 2014 and 2016. Among the schemes DHFL and HSBC has generated a good outcome.

According to Treynor's Ratio

In the year 2012 and 2015 all the Schemes has generated negative outcomes, where as in other years there is a good performance shown. Among these scheme Baroda has best result in all years.

According to Jensen Alpha measure

In all the years only in 2015 and 2013 the schemes have performed very low, generating negative value, where as in remaining years all the debt schemes have performance better.

6. SUGGESTIONS:

1. Under mutual fund industry, if the investor is not ready to take much risk. Then in that case he can prefer to go for selecting the public company schemes compared to private company schemes for the investment.

2. Here the reciprocal funds investor should be very careful on their market returns, because of their investing money its fully based or depend on market returns only, here if the market returns are in downtrend it means the reciprocal funds also

should goes down, for a while, if the market returns uptrend means as the same thing our reciprocal funds also increase in that time and vice versa.

3. Here the investors can consider a scheme, which is having a positive correlation with the market return for their investment because this leads to positive returns for the investor.

4. The investor's before investing in mutual fund, first they should look at the market return and the risk free return and then based on the company performance. Based on the company performance and the market returns the investors can get the better return than what they expect.

7. CONCLUSION

After analysing these selected Mutual funds under Debt short term schemes using Sharpe ratio model, Treynor ratio model and Jenson's alpha model found that 3 schemes i.e IDBI, DHFL Short term income fund and L & T has given consistence performance in all the models. It is also found that on the basis of return, Standard deviation, Beta also these three schemes shown consistence performance. Worst schemes is BNP Paribas short term Income fund.

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Jyoti Nivas College Autonomous

PERFORMANCE ANALYSIS OF PHARMACEUTICAL SECTOR IN INDIA WITH REFERENCE TO LKP SECURITIES, BANGALORE

~ *Vinaya Kumari*

Abstract

The company selected for the study is LKP SECURITIES LIMITED, Bangalore the major purpose of this study is to understand the performance of organization and to focus on the pharmaceutical industries. The industries based on pharmaceutical performance has a great exposure in the market in which it benefits the investors in investing great capital which helps in gaining knowledge in equity shares. The companies chosen for the study are Sunpharma, Cipla, Lupin limited, Dr. Reddy's laboratory and Aurobindo limited. The study is based purely on the information and other relevant data and materials obtained from the organization and internet I carried out my research on Performance Analysis of Five Pharmaceutical Companies.

The aim of the study is to know the share price fluctuations of the selected companies and gives clarity to the investor to choose the better market to earn profit within short span of time. An attempt is made in the current study to study different techniques in details and to get a sufficient knowledge about the industry from different aspects *and their contribution towards the achievement. The reason behind the topic selection is that the values of the stocks keep fluctuating and it becomes difficult task for the investors to make decision regarding the selection of portfolio and investment. For the analysis only five companies were chosen and it becomes difficult to give the clear picture about the investment decision to the investors on the overall industry. The computation carried out in the current study using Rate of Change, Relative Strength Index and Moving Average.*

1. INTRODUCTION

The inspection of financial Performance indicators is done through performance analysis such as return on equity and return on asset the results achieved by the competing firms by comparison are of the same size. Performance analysis which includes comparison between the pharmaceutical industries based on their equity investment, return on investment, assets and liabilities, and liquidity.

It is the process of measuring the results of a firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period and can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation.

Performance analysis includes gathering formal and informal information to clients and sponsors define and accomplish their objectives. Performance analysis reveals a few perspectives on a problem or opportunity, deciding any drives towards or barriers to execute performance, and proposing a solution system based on what is discovered. Performance analysis are a part of market research techniques that mainly emphasis on the analysis of customers attitude towards the product and services offered by the company and applied in several markets such as automotive, food, housing, education, health care, hospitality, industry tourism etc.

Indian pharmaceutical market as the industry is highly fragmented. The Indian pharmaceuticals market is the third largest in terms of volume and thirteenth largest in terms of value, as per a report by

Equity Master. India is the largest provider of generic drugs globally with the Indian generics accounting for 20 per cent of global exports in terms of volume. India enjoys an important position in the global pharmaceuticals sector. India also has a large pool of scientists and engineers who have the potential to steer the industry ahead to an even higher level. Presently over 80 per cent of the antiretroviral drugs used globally to combat AIDS (Acquired Immuno Defici Syndromencye) are supplied by Indian pharmaceutical firms.

Performance analysis of pharmaceutical industry helps in determining the health and stability of the industry and also helps the stock holders to understand how firm is managing and utilizing their man power, available resources etc.

2. REVIEW OF LITERATURE

1) Accoding to V.Vijayalakshmi[a] and M.Srividya **"A Study On Financial Performance of Pharmaceutical Industry In India"**

States that the development of the industry depends upon several factors like finance , personal technology , quality of the product and marketing and the researcher is mainly interested analyzing the financial performance of pharmaceutical industry and the main objective was to analyze the profitability position of selected pharmaceutical companies , factors influencing the profitability , and to offer findings suggestions and conclusion. For this purpose he selected 10 pharmaceutical companies , the period of study was of 5 years and to analyze the performance the ratios chosen gross profit ratio, net profit ratio , operating profit ratio return on equity, earning per share. Doing all the calculation with the help of ratios, she suggested that the financial health plays a significant role in the success of the management.

2) According to Amalendu Bhunia, **"Financial Performance of Indian Pharmaceutical Industry A Case Study"**

This research was conducted to determine the efficiency and performance of firms management with the help of records and reports and the researcher stresses on finding out the liquidity, profitability and other indicators and to assess the short term and long term solvency, liquidity and profitability position, efficiency and financial operation, factors determining behavior of liquidity and profitability. The study has been taken for 12 years.

3) According to Gopinathan Thachappilly (2009), **"Financial Ratio Analysis for Evaluating Performance"** in this article he has explained regarding the financial ratio analysis for evaluating the performance. It is examined is in a typical form to bring to understanding the vast volume of numbers being offered in companies business statement. This also guides in evaluating the performance of a company which helps the investor in taking decisions about to finance in that company here we look at diverse category of ratio in discrete articles in various phases according to their performance based on profitability ratios, performance ratios liquidity ratios, investment evaluation ratios and debt ratios.

3. RESEARCH METHODOLOGY

3.1 Background Study

Indian pharmaceutical industry diagram amongst India's science based commercial ventures with boundless abilities in the mind-boggling field of medication production and innovation an amazingly sorted out division the Indian pharmaceutical business sector is normal extend at a CAGR of 23.9% to contact US dollar 55 billion by 2020. India positions high amongst all the third world nations regarding advances quality and immense scope of drugs that are produces it ranges from straightforward cerebral pain pills to cutting edge anti-infection agents and inconveniences cardiovascular mixes, practically every sort of medication is presently made in the Indian pharmaceutical industry.

The Indians pharmaceutical part is profoundly disengaged with more than 20000 register units. The pharmaceutical has extended has radically in the most recent two decades. The pharmaceutical and substance industry in India is an effectively having been partitioned market with uniform value rivalry and government value control. They are genuinely near 250 extensive units and 8000 little scale units which from the basically piece of pharmaceutical industry in India (counting 5 focal open units).

3.2. Statement of the Problem

The stock's value continues changing or wavering making it hard for the financier to invest in preferred stocks. It is very necessary to study in what ways the prices keep fluctuating and what the performance of stock is. It simplifies the work of the investor for choosing or for the broker to advise the investor to invest in suitable stocks. Hence an analysis is conducted for interpreting the performance of the stock.

3.3. Need and Importance of the Study

To analyse the five-pharmaceutical company's performance in order to give the clear idea about the decision regarding the investment and portfolio selection.

3.4. Scope of the Study

The study binds almost the financial operations covered by the performance analysis of pharmaceutical industry in India with the special reference with Sun pharma, Cipla, Lupin limited, Dr. Reddy's laboratories and Aurobindu pharma limited. The study has been conducted with the data available in journals, financial reports and website links. The study tries to evaluate the financial performance of the company that includes sources of finance, solvency, profitability, activity or turnover and return on assets and equity. The 5year period data ranging from 2012 to 2016 of Sun pharma, Cipla, Lupin limited, Dr. Reddy's laboratories and Aurobindu pharma limited.

3.5. Limitation of the Study

The main limitation of the study is only five pharmaceutical industries are selected and five-year data are used to analyse the performance.

3.6. Objectives of the Research

- To study and analyse the performance of five pharmaceutical industries.
- To analyse the shares price fluctuations of five pharmaceutical industries.
- To give the investors idea about where to invest.

3.7. Type of Research

- **Descriptive Research**

The descriptive study will be a distinct examination that uses the review strategy. According the study will be a discovering examination with effective understanding. It will concentrate on particular viewpoints or measurements of the accepted pros and cons. The study is being suggest for the purpose to set up unobjectionable data. Information will be collected for the purpose of further upcoming meeting plans and talking the respondents. Information will be scrutinized utilizing suitable methods dependable with the goals of the study.

- **Sampling Techniques**

The sampling technique chosen for the study is Convenience/ judgemental sampling. The companies are randomly selected from top listed companies under pharmaceutical industries. This technique is applicable for the research because it is easy to conduct, high probability of achieving the representative sample.

- **Sample size, Sample Description**

Sample size determination is the act of choosing the number of observations or replicates to include in a statistical sample. The sample size is an important feature of an empirical study in which the goal is to make inferences about a population from a sample.

Sample size determination is the mathematical estimation of the number of subjects / units to be included in the study.

Optimal sample size plays a very important role as it allows to have appropriate analysis to provide the required level of accuracy to allow the validity of significance test

Sample size chosen is top 5 pharmaceuticals companies in India. Companies chosen are Sun pharma, Cipla, Dr. Reddy's labs, Lupin Limited, Aurobindu limited.

These companies are chosen because they are the leading companies in India and analysing their performance can be helpful to understand the growth of pharmaceutical companies.

➢ **Actual Collection of Data**

- **Primary Data**

Primary data helps in the use of presently available data in determining the existence of the market. Primary data can also be called as first-hand data as we collect the primary data collect the popular ways such as surveys, personal interviews and focus groups, which exhibits the direct relationship that exists between the potential customers and the companies.

In this study, the usage of primary data is not possible.

- **Secondary Data**

Secondary data is the source of reused and recycled data which is already collected through primary data as a mark for upgradation of the products and services.

The source of the secondary data can be studied and collected through various websites one such is money control.com, and other sources like journals, newspapers, business magazines etc.

3.8. TOOLS USED FOR THE ANALYSIS

Tools used for computing the performance analysis are:

- **Rate of Change**

The Rate of Change (ROC) is the speed at which a variable changes over a specific period. ROC is often used when speaking about momentum, and it can generally be expressed as a ratio between a changes in one variable relative to a corresponding change in another; graphically, the slope of a line represents the rate of change.

- **Rate of Change and its Relationship With Price**

The ROC is most often used to measure the change in a security's price over time. This is also known as the price rate of change. The price rate of change can be derived by taking the price of a security at time B minus the price of the same security at time A and dividing that result by the price at time A.

Price rate of change = (price at time B - price at time A) / price at time A

- **Relative Strength Index**

The relative strength index (RSI) is a momentum indicator developed by noted technical analyst Welles Wilder that compares the magnitude of recent gains and losses over a specified time period to measure speed and change of price movements of a security. It is primarily used to attempt to overbought or oversold conditions in the trading of an asset.

The relative strength index is calculated using the following formula:

RSI = 100 - 100 / (1 + RS)

- **Moving Average**

The Simple Moving Average is arguably the most popular technical analysis tool used by traders. The Simple Moving Average (SMA) is often used to identify trend direction, but can be used to generate potential buy and sell signals.

4. DATA ANALYSIS AND INTERPRETATION

4.1. SUNPHARMA

Table4.1: ROC

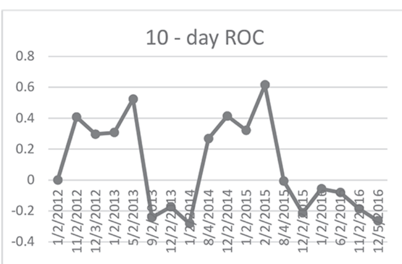


Table 4.2: RSI

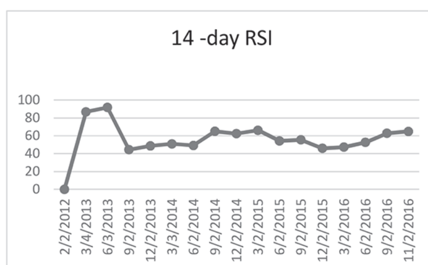
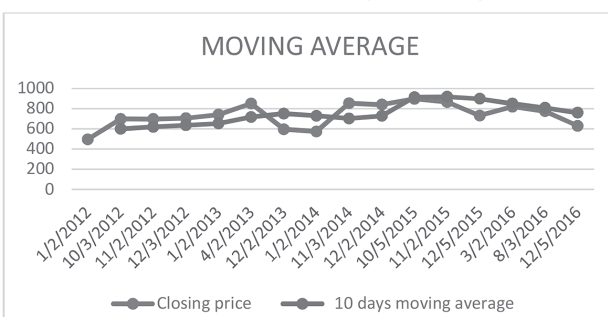


Table 4.3: Moving Average



ROC - ROC gives us the variances i.e., increments decrements in the stock price and ROC for the various months of the year. During the initial period, there is a positive fluctuation where it remains same from the year 2012 to 2013 and from august 2013 the value of ROC comes down leading to negative fluctuation and continues to fall down till April 2014. And then onwards the ROC showed a positive fluctuation and remained to increase and drastically fell down in the year 2016 and continued to fall.

RSI – the RSI level of the company is moving from bearish trend to bullish trend. The RSI is above 70 in the year 2013 which is depicting the bullish trend which indicated to buy the share and in the year 2014 onwards RSI level falls between 30 to 70 which indicates that hold the securities of the company.

Moving Average – from the above chart investor can take buy or sell signal based on, when the closing price is above the moving average it is the signal that indicated to buy and when the closing price touches or comes below the moving average it is the signal to sell.

4.2. CIPLA

Table 4.4: ROC

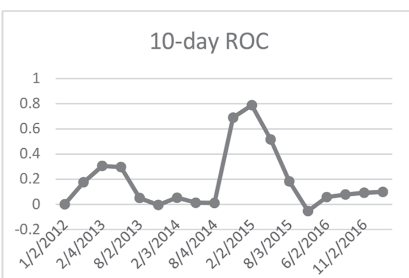


Table 4.5: RSI

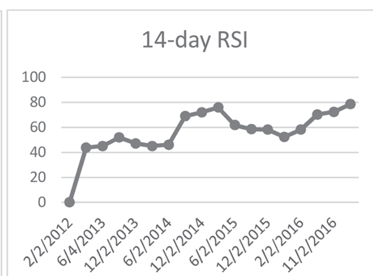


Table 4.6: Moving Average

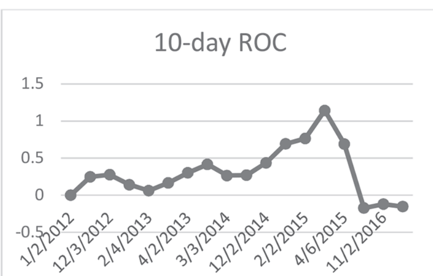
ROC – first there is a negative fluctuation in ROC value and further continued to increase till August 2014. Then a drastic and a major increase in the stock prices till August 2015 and became almost a constant with slight fluctuation till the end and there was a slight decrease in the value of ROC in the year 2016 and showed steady increase.

RSI – in the year 2013 to 2014 RSI is signaling the securities has to be held. In the month of March 2015, which clearly depicts that the securities of the company should be sold in order to earn high profit and in 2016, once again signaled to sell.

Moving Average - alternative years the graph is signaling to investors to buy and sell the shares. It indicates more than one year holding the security leads to loss. Alternatively, the investor has to shift from buy to sell or sell to buy.

4.3. LUPIN LIMITED

Table 4.7: ROC **Table 4.8: RSI**



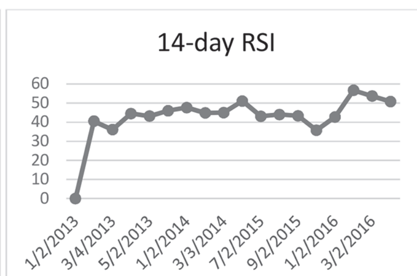
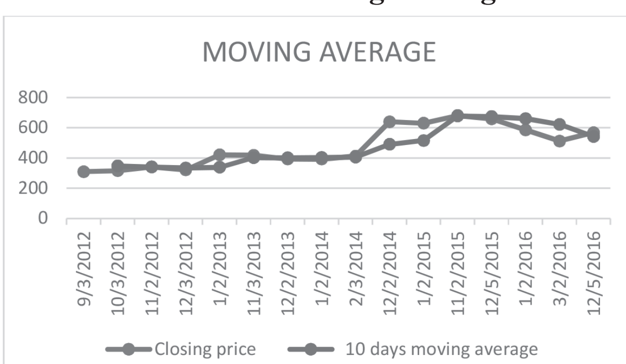


Table 4.9: Moving Average



ROC - company shows a positive fluctuation in the values. But in the year 2016 the values of the ROC started declining at lower rates.

RSI – in all the 5 years the RSI is in between 30 – 70 which means there is no bearish or bullish trend, the securities have to be held for some more time to make the decision regarding the purchase or sale of the securities.

Moving Average - in the years 2013 to 2015 the graph indicates to sell the shares whereas in the years 2012 and 2016 the moving average is above or same as that of closing prices which indicates the sell signal to earn higher profits

4.4. DR REDDY'S LABORATORY

Table 4.10: ROC

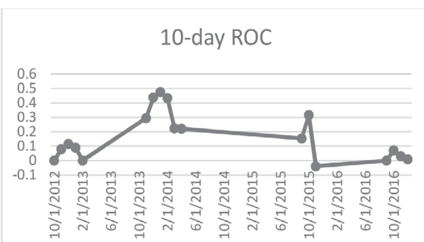


Table 4.11: RSI

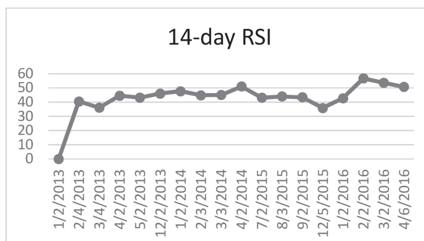
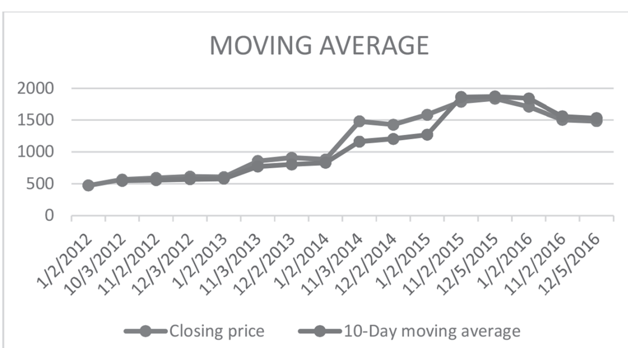


Table 4.12: Moving Average



ROC – the above chart shows a consistency of improvements in the value of ROC and kept on increasing till October 2015 and slightly fell down in the following months. The values of ROC kept increasing which depicts that company has performed better from the past 5 years.

RSI – 2013 signals to hold the securities and in 2015 RSI stands above 70 indicating to sell the securities in order to earn profits. RSI tends to gradually decreasing which indicates to hold the securities whereas in the month of November indicating to sell the shares

Moving Average – in all the years except 2016, moving average is below the closing prices which are indicating the buy signal to the investors.

4.5. AUROBINDO LIMITED

Table 4.13: ROC

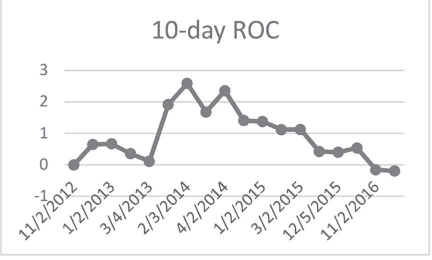


Table 4.14: RSI

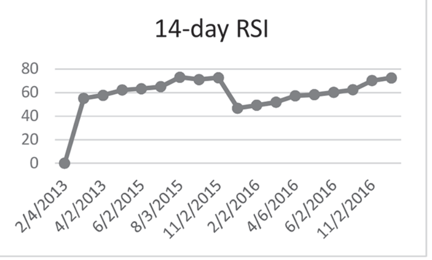
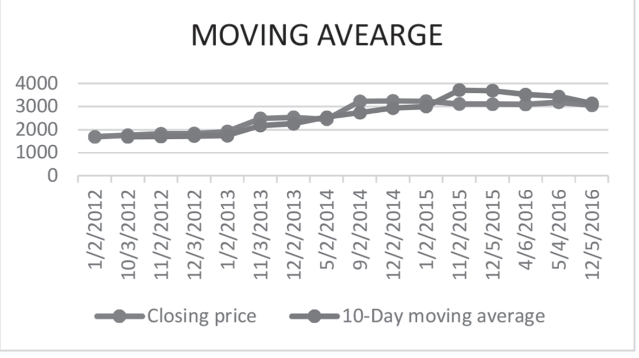


Table 4.15: Moving Average



ROC- the interpretation from the chart shows that the ROC of the company kept increasing from the year 2012 to 2015. The highest ROC was in the year 2014 and whereas in the year 2016 the ROC values of the company decreased at lower rates.

RSI – RSI in the all the years except 2013, stood in between 30 to 70 indicating to hold the shares for making the effective decisions.

Moving Average - out of 5 years, three years i.e., 2014 to 2016 the closing prices are above the moving averages, which indicate the buy signal.

5. SUMMARY OF FINDINGS

5.1. SUNPHARMA

- ❖ From above data, we can summarize that there was a huge increase in the prices in begin of the company and then the prices had been consistently increasing without any fluctuations.
- ❖ At the end, the prices have fallen continuously without increasing.
- ❖ On the other hand, looking through RSI it can be summarized that during the initial period there has been some constant fluctuations with a slight rise.
- ❖ Further the RSI index represents the overbought price during the end of the period
- ❖ Looking at the moving averages, it was below the closing prices in most of the years, which highly indicated the buy signal

5.2. CIPLA

- ❖ In Cipla notice that there has been a lot of positive increments in the beginning of the year
- ❖ In Cipla there had been a lot of fluctuations in prices that is the prices has fall down and again it has increased and again the prices have come down
- ❖ Whereas taking into consideration the RSI values during the initial period there was a constant movement of RSI index with slight rise
- ❖ After that, the RSI index indicated bought overbought price and at the end, the RSI index remained constant.
- ❖ With the moving average, it can be found that from the year 2012 to 2015 there is a huge demand for the stock to enter

the market and in 2016 there were high chances of exiting the market.

5.3. LUPIN LIMITED

- ❖ We can find that the there are lots of improvement in the performance from the year 2012 to 2016, the prices of the company started to increase drastically from the year 2013 and the company performed really well from the year 2015 and continued to grow in 2016 also.
- ❖ With the tool of ROC, it is identified that the values kept fluctuating again and again.
- ❖ RSI index showed an upward movement.
- ❖ Moving average and closing price were on the same range.

5.4. Dr. REDDY'S LABORATORY

- ❖ From the above information, provided we can conclude that there has been constant increase in prices over a period and again there was a slight fall which got recovered and again we can find there was a drastic fall in prices.
- ❖ Looking through the RSI index there has been a high fluctuation in the prices during the initial period and further there was a constant upward and downward movement in RSI index
- ❖ During the end period, the RSI index showed downward movement.
- ❖ Moving average of the company highly indicated buy signal.

5.5. AUROBINDO LIMITED

- ❖ In the beginning of the year 2012 share price was just 57.4 and within the span of 5 years the prices stood around 800.
- ❖ The share prices kept increasing each year depicting that the company performed very well.
- ❖ The ROC also showed positive fluctuation in the prices.
- ❖ The RSI indicated the downward movement

- ❖ Moving average indicated the sell signal where it indicated many chances of exiting the market.

6. SUGGESTIONS

- ➢ The returns on your investment cannot be judged, as investment activity itself is a risky venture. however, if have better trading operations in your area, you may end up with medium profits or you reach to send percent of the profits on the condition that the stock is being holder for a longer period of time
- ➢ With the help of technical indicator an investor can decide where the investment has to be done
- ➢ And the suggestions suggested by the brokers/ consultants may also be helpful in trading
- ➢ Investors can choose Dr. Reddy's laboratory and aurobindo limited for the purpose of investment as they have consistently performed well.

7. CONCLUSION

As we, all know that the activity of investment in securities is a risky venture. Share prices cannot be interrupted or predicted in future. Due to more fluctuations, the takes place the share prices whether it may be positive and negative fluctuations, which will make the investors to find difficulty in where to invest. One must be aware about the share market and share prices before the invest to earn profits. And advises of the brokers may be helpful for certain extent. Such tables and charts can help as in knowing about a performance of the stock.

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