

**Project Report On**  
**Application of Beneish Model On**  
**Selected Financial Statements**

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*On*  
*“Application of Beneish Model on*  
*Selected Financial Statements”*

**Submitted to**

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# Letter of Transmittal

05<sup>th</sup> June, 2018

Ishrat Jahan

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Dear Ma'am,

It is an honor and awesome delight for me to present my project report on “*Application of Beneish Model on Selected Financial Statements*”. This report was assigned to me for the partial fulfillment of the requirement of BBA Program authorized by Accounting & Information System (AIS), United International University.

The study I conducted enhanced my knowledge to make an executive report. This report has given me an exceptional experience that might have immense uses in the future endeavors.

I sincerely hope that it would be able to fulfill your expectations. I value your participation and I trust you will call upon me with any inquiries occasioned by this report.

Thanking you and looking forward to receive your cordial approval of my submission.

Yours Sincerely,

---

Md. Mesbahul Islam

BBA in AIS

# Acknowledgement

At first, I offer millions of heartfelt thanks to almighty Allah for his kindness on me in accomplishing this report. I am also thankful to my supervisor Ms. Ishrat Jahan. The achievement and ultimate result of this task required a considerable measure of direction and help from my supervisor Ms. Ishrat Jahan and I am greatly advantaged to have this up and completion of my project. All that I have done is just because of such supervision and help and I would not forget to express gratitude toward her.

## Abstract

The point of this study is to appraise the likelihood of fraud and earnings management for the selected textile companies, Square Textile limited, Evince Textile Limited, Saiham Textile Mills Limited, Alhaj Textile Mills Limited and Tosrifa Industries Limited are the five selected textile companies which are used for my analysis. In this report I have provided the vast knowledge of financial statement fraud and discussed the application of Beneish Model on selected financial statement. In the context of financial statements, the Beneish model is used to detect fraudulent behavior. My findings reveal that, Square Textile Limited, Evince Textile Limited, Alhaj Textile Mills Limited and Tosrifa Industries Limited are the non-manipulator companies because their M-score is less than -2.22. So, they don't engage any manipulation with their earnings in the financial year of 2016-2017. But the M-score of Saiham Textile Mills Limited is more than, -2.22 which proves that the organization is probably going to be a manipulator in the context of financial reporting year 2016-2017. Results also show that Saiham textile Mills Limited have a problem in their accounting practices, through the misrepresentation of Day's sales in receivables index and Depreciation Index. Next, it is showed that the Sales Growth index and Leverage index have increased the possibilities of manipulation. So, the using of the Beneish model may have detected fraudulent behavior, through the year of 2016-2017 of Saiham Textile Mills Limited. I have also discussed the other successful application of Beneish Model.

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# **Chapter 1**

## Introduction

# Introduction

Financial statements is a formal reporting activity of a company providing information about its financial results and position. There are many users of company's financial statements like: investors, employees and group of people, customers, lenders and suppliers, governments and their agencies and general public. Managers also use financial statements for internal decision making process. The financial report are most valuable source of information for analysis any company for this reason it is a publicly accessible documents in majority of countries.

The aim of the report is to apply and interpret Beneish M-Score as a fraud detection model on financial statements of selected Textile companies.

This model can be helpful for banks, investors, creditors for entering a new business relationship. They can find the probabilities of manipulation exist or not using this model.

## **Chapter 2**

### Organization Background

# Organization Background

## Square Textile Limited:

In 1997, Square entered the textile sector with its manufacturing facilities of cotton yarn. Combining modern technology with skilled manpower under Square's unique inspiring, atmosphere, this new Square venture soon rose to the top of the local textile industry. Square has more than 12 long periods of involvement in yarn spinning. The business is one of the biggest maker of sewing and weaving yarns in Bangladesh. Now it has a standout amongst the most refined vertically incorporated set-ups by which they are creating 90,000 kg of yarns each day. They are perceived by their esteemed clients through quality items with conferred administrations.

### Mission

Their main goal is the shaft star of their vision for expansion of creation of value lifesaving items and services entirely on moral and good gauges at least expenses to the general public guaranteeing ideal advantages to the purchasers, the investors and different partners.

### Vision

Their origination of business developed from the vision which considers it to be a way to the prosperity of the speculators, partners, workers and individuals from the general public everywhere by making new riches as products and ventures that go to fulfill the needs of every one of them without conveying or harming the socio-natural adjust of the mother earth and the procedure of human progress prompting quiet Co-presence of all the living creatures.

## Evince Textile Limited

### Company Overview

Evince Textile Limited was incorporated as a private Limited Company on June 03, 1999 under the Companies act 1994. It was converted into a public Limited Company on June 04, 2013. The commercial operation of the company started on May 02, 2003. The company manufactures and sells cotton yarn dyed woven fabrics for brands and retailers. It also offers readymade garments. The company also exports its products.

### Mission:

To be the most admired company in the textile industry of Bangladesh by producing and supplying quality products to customers of competitive prices while following ethical business processes so that.

### Vision:

- To gain market leadership in the yarn dyed woven fabric manufacturing industry.
- Use innovation and speed as the driving factors for progress.
- To produce various types of premium yarn dyed fabrics for global retailers and brands.

- To be a good corporate citizen
- Ensure environment friendly and ethical process flow

## **Saiham Textile Mills Ltd**

Saiham Textile Mills Limited was incorporated on March 27, 1981 as a public Limited company. They have successfully positioned their selves as a leading integrated cotton manufacturer, trusted by some of the largest global brands in Bangladesh and world across.

### **Vision:**

They seek to keep up our authority position in the Textile Industry by creating the best quality different tallies of yarns and turning into a dependable business accomplice of their purchaser and providers.

- Protect the enthusiasm of our investor through feasible development and esteem creation
- Preserve the trust of all our partner by receiving moral business rehearses
- Support the general public through corporate social duty activity.

### **Mission:**

Trust: Preserve the faith and goodwill of all our Shareholders buyers, suppliers and the society at large.

For the Society: Contribute to the well-being of the society in general by acting as a responsible corporate citizen

Their goal: Long term maximization of shareholders value in a society responsible manner.

## **Alhaj Textile Mills Limited**

### **Company Overview**

Alhaj Textile Mills Limited manufacturers and sells cotton yarns in Bangladesh. It offers cotton, polyester spun, poly viscose blend, poly cotton blend, and viscose spun yarns. The company also exports its products primarily to South American market, which includes Peru, Brazil, Columbia, Chile, Ecuador, Guatemala, Argentina, and other countries. Alhaj Textile Mills Limited was incorporated in 1961 and is headquartered in Dhaka, Bangladesh.

### **Vision**

They are focused on turning into the head fabricating association in the material business keeping up advertise authority in the present business and differentiating into esteem included tasks with the question of amplifying returns for every one of the partners.

### **Mission**

- To turn into a main and dependable material industry, which comprehends the human prerequisites and acts to adjust these necessities by creating world-class items, keeping in see the social, monetary and ecological worries of the country.

- To remain at the front line of mechanical prevalence by receiving, absorbing, understanding, actualizing crisp imaginative ideas for the advancement of the Industry, Community and the Country.

## **Tosrifa Industries ltd**

### **Company Overview:**

Tosrifa Industries Limited (TIL) is a 100% export oriented readymade knit garments manufacturing Company .The Company was incorporated on August 27,2002 as a private limited Company under the Companies Act 1994. It commenced commercial operation in 2005.

### **Mission**

- Exceed their client's desires conveying right items in opportune time with exceed expectations quality and client benefit.
- Develop their Human Resource and transform them into asset.
- Take a part to the enhancement of our Society and Green Marketing
- To maximize share value

### **Vision**

They are engaged to be the most favored name to their partners – clients, representatives, providers, investors and society.

## **Chapter 3**

### Objective of the Report

# Objective of the Report

## Primary Objective

- ✓ To accomplish the partial requirement of BBA Program authorized by Accounting & Information System (AIS), United International University.

## Secondary Objective

- ✓ To know about the financial statement fraud and fraud detections models of financial statement.
- ✓ To know about the Beneish Model and gather a clear idea of its application
- ✓ To prove my theoretical knowledge in real practical field.
- ✓ To estimate the probabilities of manipulation of the selected companies



## **Chapter 4**

### Methodology of the Study

# Methodology

It refers to the specific procedures or techniques used to identify, select, process, and analyze information applied to understanding the problem, thereby, allowing the reader to critically evaluate a study's overall validity and reliability. Here, the object of the study were financial statements of five companies. For this study I chosen textile companies.

**Types of Data:** There are two types of data.

**Primary Data:** When the data is collected from a source of origin where the data generate then it is known as primary data. In this study I didn't use any primary data.

**Secondary Data:** When the data is collected from a secondary source like the source of reservation storage where the data is collected by one person and used by other agency then it is known as secondary data.

This report is based on secondary data. There is no use of primary data.

## Secondary Data

- Annual report of Selected Companies
- Companies official website

## Data Collection Procedure

I had used documents and records technique for collecting the specific data for my analysis. I had visited the official websites of selected companies for downloading the annual report.

Target Source:

The target source of information is Official Websites of the selected companies.

Population:

The population is annual report of the selected companies.

Sample Size

Population	Sample Unit	Sample Size
Annual Report	Financial Statements	5

## Data Processing

Computer system and analysis technique (Beneish Model) were used for processing the data and this detail analysis work is included in the report.

## **Scope of the Report**

The area of my report is focused on Application of fraudulent detection model Beneish M-Score on Selected Financial Statements. I had selected Textile companies for this analysis. The model helps to find out the companies who are manipulating with their earnings. The data of financial statements was used for calculating variables in the context of financial year 2016-2017. Two years data were used for calculations.

## **Limitation of the Report**

In the way of finishing this report I had faced a little bit of problems and limitations and those are given bellow

- Lack of opportunity to access to internal data
- Only secondary data is used for preparing this report
- Missing amounts hamper the variables calculations

## **Chapter 5**

### **Financial statement Fraud**

# Financial statement Fraud:

Financial statement fraud is the deliberate misrepresentation of the information used to prepare the financial statements in order to mislead the users of financial information and create a rosy picture of the company's financial position, performance, and cash flows. The frauds are generally done for achieving financial target, sales or budget projections. The reason of this misrepresentation are to expand share costs of freely recorded organizations or to acquire back on more positive conditions. Another reason can be demonstrated a lower assessable pay with a specific end goal to decrease an expense risk. The financial statement is prepared by the management so most of the time they are involved with these fraud.

Numerous speculators and consultants rely upon quarterly or month to month comes about produced by an organization, particularly open association. The financial statement's information is very important for these investors so company officers pay more attention. Sometimes they can do anything for achieving desired result. Sometime those actions are fraudulent.

There are many types of fraud in the world wide and it can be vary from company to company or limited to the area or person within the organization. Generally they fall into either sales or expense manipulation (profit and loss figures), or asset valuation and hiding liabilities.

There are two objective of these fraud.

1. To make the performance look better than reality (to entice investment or to make the figures)
2. To make the performance look worse (to lower the company's tax liability).

Investors, shareholders or financiers are the main victim of these frauds. When the fraud are exposed the share prices fall and for this reason they lose the value of their investment. In this situation the company is not the main offender but some people from the top management are the main culprit.

## Methods of Financial Statement fraud

Common types of fraud are classified into two types:

1. Manipulation Timing
2. Falsifying Entries

Manipulation Timing:

According to the matching principle in accounting, revenue should be recorded when the revenue is earned and expense should be recorded when the expense is occurred. There are two different ways of controlling planning. The two strategies influence the present time frame to look great, yet will make issues in the following time frame.

1. The Early Recognition of Revenue- It gets revenue from a later period into the current period and increase the revenue for the current period.
2. Postponing Expense- It records the current expense in the next period which decreases the current expense and increases the profit for the current period.

The option is to invert these techniques to aggravate the present time frame look and the following time frame look better.

### *(I) Early Recognition of Revenues*

Organizations will have a strategy expressing when income ought to be recorded. The early acknowledgment of incomes is accomplished by controlling these strategies to either record deals that were made in the early piece of the following time frame in the present time frame, or record exchanges that ought to not yet be perceived as deals.

Sales can be recorded whilst stock is distributed to clients, so some schemes contain shipping stock to clients whilst that stock has now not been ordered and knowing that it'll be again. The sale is recorded while the stock is shipped, and reversed while the stock is again early in the subsequent quarter, but the earlier length has been closed and the consequences mentioned. if you cannot ship the stock at once to the consumer – for worry or elevating suspicion – you could ship it to a third party warehouse to ‘preserve’ for the purchaser. It could live there almost indefinitely.

A transection might be recorded when the receipt is issued. To be capable record a deal early, a receipt is issued early, notwithstanding when there is no deal and no exchange of stock. Sending the receipt to the wrong address, so it will be come back to you some days after the fact, or holding it in a base draw, will spare sending the receipt to the client. This is usually utilized when the stock is to be conveyed in a later period, however somebody needs the deal recorded in this period.

In the event that the account strategy cannot be controlled, the fraudster may just record a deal in view of some other activity. The more typical methodologies are:

### *(ii) Postponing Expenses Status:*

- (a) Recording a sale when there are still items or services to be provided;
- (b) Recording a sale before the sale contract has been finalized and before shipment to customers
- (c) Recording a sale when items are sent on consignment, on approval, or with a right of return;
- (d) Recording sales transection to related gatherings; or
- (e) Recording a deal when a request is gotten
- (f) Issuing solicitations for non-existent deals and recording the exchange.

Recording expenses in a later period is similarly as basic. Bookkeeping gauges express that costs ought to be perceived in the period in which the related advantage is perceived. Costs and

their related liabilities ought to be recorded when a legitimately restricting commitment has been made. Most organizations will likewise have strategies about when costs ought to be recorded and paid.

The fraud involves suspending the recording of fees until the following length. The business may additionally only file costs after the bill arrives from the supplier. To put off the charges, the receipt of the bill is not diagnosed. It could be held in an Inbox till the start of the brand new duration.

Expenses might be recorded when the cost is usually paid, wherein case the cost isn't paid until the ensuing time frame and recorded by then. expansive charges might be shamefully promoted and discounted over a length instead of being costs inside the forefront time frame, or promoted costs can be composed off (deteriorated or amortized) over a broadened length than suitable. This reduces the sum recorded as costs inside the front line time frame and puts a portion of the cost is later periods.

These movements raise up the income every cutting-edge duration. Doing the plan backward (postponing recording deals and recording costs early) brings down an income with an end goal to limit an expense risk.

### **Falsifying Entries:**

Falsifying entries are those entries that create a fake illustration of any transaction which is not always exist.

- (i) Fictitious revenues
- (ii) Manipulating liabilities and expenses
- (iii) Valuing assets

#### *(i)Fictitious Revenues:*

These revenues may be generated 2 different way:

- a) Inventing sales transactions; or
- b) Classifying other income or gain as sales.

Enterprises can also go for any transactions that on paper take region to be sales however the income don't fulfill the substance or do not create any advantage. In the event that that trigger is the payload of stock, one character ships stock to another and report a deal, though that the stock transformed into not the slightest bit requested and will be bring down back. The record receivable related with that deal might be turned around at some later stage. Recording the return of the stock as a rate and not contrary to wage will hold the high deals arrange.

In the event that salary are recorded when orders are set by method for providers, imaginary requests might be made. Stock can be dispatched on committal, anyway reserved as a deal. Issuing imaginary solicitations for deals that never occurred for can make recordable deals in the present term. They might be switched in a future length.

Entire exchanges can be developed that supply the apparition of an exchange that makes income. Little nonpublic associations don't have the administrative our bodies take a gander at their measurements.

An entry into Sales (Cr) and Debtors (Dr) as an end of period adjustment makes the company look healthier. That is normally achieved when the organization desires to send information to a financier to aid loan programs. That is less complicated in a service oriented organization, as there may be no movement of inventory in any transaction.

Distinctive non-income additions will likewise be recorded as deals. Venture pay, capital increases at the offer of advantages and other onetime additions might be recorded as deals to influence the inside business to appear to be healthy. Things like decreases and refunds from providers and distinctive non-deals infusions of money from advances et cetera. May likewise be recorded as wage.

#### *(ii) Manipulating Liabilities and Expenses*

Controlling or adulterating liabilities and costs is improved the situation an indistinguishable two reasons from alternate plans:

1. To improve the organization hope to expand share costs or for speculation purposes; or
2. To minimize the duty risk. This can be done in a variety of ways.

- Transferring a brief time period liability to long time liability improves the working capital figures at the balance sheet. It is also used to signify solvency when that might not be the reality.
- Now not writing off property while suitable – typically borrowers that come to be uncollectible, or investments, inventory or other belongings so as to depreciate or differ in price – keeps an ‘asset’ within the balance sheet when it has no or little worth. Those belongings ought to be expensed when their cost decreases.
- Transferring reserves from the balance sheet reduces rate accounts at the earnings and loss account.

Downplaying arrangements for unforeseen charges influences an adjusting to sheet appear to be more beneficial. A business undertaking need to both ascertain differing arrangements (for terrible obligations, deals returns, representative privileges, assessment et cetera.) and consider them inside the soundness sheet; or take into account perceived arrangements with a view to cover in excess of one accounting term.



### *(iii) Valuing assets*

There are numerous methods for swelling the estimations of or making resources. The ones said beneath are only a couple of them.

#### *Inventory*

Inventory can be the real resource claimed by a business and can be one of the simplest to control. There are a couple of methods for doing this.

1. Value the inventory at a higher price than appropriate (at an inflated selling or cost price) and count the correct amount.
2. Value the inventory at the correct amount and inflate the number of items.

There can be a few limitations on placing very excessive values on bodily objects of stock. Conventional gadgets could have a recognizable value. Valuing work in development has less limitations.

Gaining extra inventory for inventory takes is finished with the aid of either counting empty containers stacked high on shelves, shifting inventory among warehouses so that it is counted multiple instances, acquiring stock from a provider on consignment or underneath some right of go back, or borrowing inventory from a friendly provider.

Belongings or costs may be synthetic to hide cash that has been misappropriated, or 'investments' in different entities may additionally hide loans to numerous parties. This isn't always done to govern the economic position of the organization, however to cover the actual nature of sure transactions.

#### *Accounts Receivable*

Accounts receivable is the transaction which might be because of the enterprise, and which are anticipated to pay. So it becomes a bendy method as the hope of charge is relevant matter. A few corporations have loan provider which have connected with them for some periods.

Growing loan provider and income is a simple credit score income / debit borrower's access. Little gatherings that don't have their obligations inspected might be fit for break out with is while scanning for back. Growing false sales will usually have a longer effect of growing debtors.

## General Red Flags for Fraud

Association of Certified Fraud Examiners (ACFE) says, fraud offender shown minimum one of the criteria from these following red flags in almost 80% of all fraud cases:

- Living beyond their means
- Having personal financial difficulties, ongoing separation, or family issues
- Being surprisingly close with a seller or client
- Having "control issues" or being viewed as a "wheeler-merchant"

At a forensic level, the accompanying circumstances should raise worry as conceivable pointers of misrepresentation:

- Missing/adjusted reports
- Discrepancies and unexplained things on bookkeeping compromise
- Increasing income without a relating development in income
- A critical uptick in the organization's execution amid the last revealing time of the monetary year
- Significant or unordinary changes in resources or liabilities
- High income figures amid a period in which contenders are in a downturn
- Disclosures that seem to have no sensible business reason
- Loans or rewards with no legitimate clarification

### **Earning Management:**

Earning management is any other manner of manipulating accounting data and financial reporting done by way of the managers. Earning management is the misuse of accounting strategies to produce financial reports that display an excessively nice view of an employer's commercial enterprise activities and economic function. Agency's management desires many accounting regulations and principles for choice making. Earning management inquires benefit of ways accounting principles are used and generates economic statements that inflate earnings, revenue or total assets.

# Beneish Model

In 1999, Banish Model is developed by Professor Messod Daniel Beneish. It is a statistical model which conducts monetary proportions and eight factors to see if an organization has controlled its profit. The information of the organization's money related explanations is utilized for making the factors. When the variables are created they are calculated for developing an M-Score to narrate the degree to which the earnings have been manipulated. Beneish profiled firms that are likely to manipulate earnings (firms either charged with manipulation by the SEC, or admitted to manipulation in the public press) and developed a statistical model to discriminate manipulators from non-manipulators. Therefore, this model helps to uncover companies that are likely to manipulate their reported earnings. Furthermore, Beneish and Nichols (2009) refined this model with five and eight variables for detecting financial statement fraud.

The Beneish M-Score is calculated using 8 financial ratios. The eight variables are:

1. DSRI - Days' sales in receivable index
2. GMI - Gross margin index
3. AQI - Asset quality index
4. SGI - Sales growth index
5. DEPI - Depreciation index
6. SGAI - Sales and general and administrative expenses index
7. LVGI - Leverage index
8. TATA - Total accruals to total assets

## 1. Days Sales in Receivables Index (DSRI)

DSRI is the ratio of days sales in receivable in the first year in which earnings manipulation is uncovered (year t) to the corresponding measure in year t-1. This variable measures whether receivables and revenues are in or out-of-balance in two consecutive years. When days sales in receivables are increased it could be a result of increased in sales for sustaining the competitive market or a manipulation with amount of turnover. It is calculated by,

$$DSRI = (\text{Net Receivables}_t / \text{Sales}_t) / (\text{Net Receivables}_{t-1} / \text{Sales}_{t-1})$$

## 2. Gross Margin Index (GMI)

GMI is proportion of the gross edge in a year ago (t-1) to the gross margin in current year (t). At the point when GMI is more prominent than 1, it demonstrates that gross margin have fell. This result indicates that firm is engaged in earnings manipulation. It is calculated by,

$$GMI = [(\text{Sales}_{t-1} - \text{COGS}_{t-1}) / \text{Sales}_{t-1}] / [(\text{Sales}_t - \text{COGS}_t) / \text{Sales}_t]$$

### 3. Asset Quality Index (AQI)

Assets quality in a present year is the proportion of non-current resources other than property plant and hardware (PPE) to add up to resources and measures the extent of aggregate resources for which future advantages are conceivably less certain. AQI is the proportion of benefit quality in current year t, with respect to resource quality in a year ago t-1. If AQI is greater than 1 it indicates that the firm has potentially increased its involvement in cost deferral. This is a positive relation between AQI and the probability of earnings manipulation. It is calculated by,

$$AQI = [1 - (\text{Current Assets}_t + \text{PP\&E}_t + \text{Securities}_t) / \text{Total Assets}_t] / [1 - ((\text{Current Assets}_{t-1} + \text{PP\&E}_{t-1} + \text{Securities}_{t-1}) / \text{Total Assets}_{t-1})]$$

### 4. Sales Growth Index (SGI)

SGI is the ratio of sales in current year t to sales in last year t-1. If growth firms face tremendous decrease in stock prices then they may have greater incentives to manipulate earnings. It is a positive relation between SGI and the probability of earnings manipulation. It is calculated by,

$$SGI = \text{Sales}_t / \text{Sales}_{t-1}$$

### 5. Depreciation Index (DEPI)

DEPI is the proportion of the rate of devaluation in a year ago t-1 versus the comparing rate in current year t. The deterioration rate in a present year is equivalent to devaluation/(devaluation + net PPE). At the point when DEPI is more noteworthy than 1 it demonstrates that the rate at which resources are deteriorated has backed off - raising the likelihood that the firm has controlled with the devaluation technique for expanding the pay subsequently it shows the positive connection amongst DEPI and the likelihood of manipulation. It is computed by,

$$DEPI = (\text{Depreciation}_{t-1} / (\text{PP\&E}_{t-1} + \text{Depreciation}_{t-1})) / (\text{Depreciation}_t / (\text{PP\&E}_t + \text{Depreciation}_t))$$

## 6. Sales General and Administrative Expenses Index (SGAI)

SGAI is calculated as the ratio of SGA to sales in current year t relative to the corresponding measure in last year t-1. Disproportionate increase in sales indicates the positive relation between SGAI and the probability of manipulation. It is calculated by,

$$\text{SGAI} = (\text{SG\&A Expense}_t / \text{Sales}_t) / (\text{SG\&A Expense}_{t-1} / \text{Sales}_{t-1})$$

## 7. Leverage Index (LVGI)

LVGI is the ratio of total debt to total assets in current year t relative to the corresponding ratio in last year t-1. When a LVGI is greater than 1 indicating the increase in leverage. The variable is included to capture debt covenants incentives for earnings manipulation. It is calculated by,

$$\text{LVGI} = [(\text{Current Liabilities}_t + \text{Total Long Term Debt}_t) / \text{Total Assets}_t] / [(\text{Current Liabilities}_{t-1} + \text{Total Long Term Debt}_{t-1}) / \text{Total Assets}_{t-1}]$$

## 8. Total Accruals to Total Assets (TATA)

Total accruals are calculated as the change in working capital accounts other than cash less depreciation. It indicates that higher positive accruals (less cash) to be associated with a higher likelihood of earnings manipulation. It is calculated by,

$$\text{TATA} = (\text{Income from Continuing Operations}_t - \text{Cash Flows from Operations}_t) / \text{Total Assets}_t$$

### Formula

$$\text{M-Score} = -4.84 + 0.92 \times \text{DSRI} + 0.528 \times \text{GMI} + 0.404 \times \text{AQI} + 0.892 \times \text{SGI} + 0.115 \times \text{DEPI} - 0.172 \times \text{SGAI} + 4.679 \times \text{TATA} - 0.327 \times \text{LVGI}$$

### Interpretation

Once calculated, the eight variables are combined to achieve an M-Score for the company. An M-Score of less than -2.22 suggests that the company will not be a manipulator. An M-Score of greater than -2.22 signals that the company is likely to be a manipulator.

### Limitation

- Banish M-Score is a probabilistic model, so it cannot detect companies that manipulate their earnings with 100% accuracy.
- Financial institutions were excluded from the sample in Banish paper when calculating M-Score. It means that the M-Score for fraud detection cannot be applied among financial firms (banks, insurance)

# **Chapter 6**

## Analysis and Findings

## Square Textile Limited

### Input Variables

Information	Square Textiles Limited	
	2016-2017	2015-2016
Net Receivables	136,315,885	148,702,176
Sales	727,390,100	781,525,334
Cost of goods sold	645,540,587	656,634,783
Current Asset	332,639,675	454,527,735
Property plant and Equipment	3,058,480,897	1,869,752,426
Securities	-	-
Total Asset	7,511,324,947	6,695,189,114
Depreciation	168,141,655	148,339,646
Sales general and administration Expense	31,833,421	30,344,453
Current Liabilities	1,948,729,056	965,543,991
Total Long Term Debt	-	-
Income from Continuing operation	252,493,568	486,235,901
Cash flow from operations	28,755,482	353,619,329

### Calculations of M- Score

Indicator	Weight	Variable of Square Textile Ltd.(2016-2017)	Weight × Variable
Intercept	n/a	n/a	-4.84
DSRI	0.92	0.984928759	0.906134458
GMI	0.528	1.420161736	0.749845397
AQI	0.404	1.300472146	0.525390747
SGI	0.892	0.930731313	0.830212331
DEPI	0.115	1.410552026	0.162213483
SGAI	-0.172	1.127144703	-0.193868889
TATA	4.697	0.029786767	0.139908445
LVGI	-0.327	1.508977342	-0.588265591
M-score=Intercept+ $\sum$ (Weights × Variables)=			-2.308429619

## Comment on M-score:

The value of the M-Score of Square Textile Limited is -2.308429619 in 2016-2017. According to Beneish Model, when the value of the M- Score is greater than - 2.22 then the company is likely to be a manipulator. A massive growth in days' sales in receivables can be the end result of a change in credit coverage to be able to assist income, but a "no longer proportionate" growing in receivables for income can be a clean symptom of an "adjustment" of the earnings. This is happened when the profit is over sated. An SGI more than 1 shows that sales are growing over the preceding 12 months. If growth organizations face big inventory charge losses at the first indication of a slowdown, they will have more incentives than non-increase agencies to govern income. Though the indicators DSRI, GMI, AQI, DEPI and LVGI indicates significant change in receivables, sales, gross margin, asset structure, depreciation and debt of the company, the overall M-Score is less than -2.22. So the company did not manipulate its financial statements in the context of financial reporting of the year 2016-2017.

## Evince Textile Limited

### Input Variables

Information	Evince Textile limited.	
	2016-2017	2015-2016
Net Receivables	697,296,320	728,744,071
Sales	1,745,279,585	1,579,785,736
Cost of goods sold	1,289,622,650	1,167,336,407
Current Asset	1,504,395,643	1,598,924,298
Property plant and Equipment	2,030,408,973	2,038,479,697
Securities	-	-
Total Asset	3,932,574,675	3,774,472,931
Depreciation	141,288,153	143,746,735
Sales general and administration Expense	98,677,600	91,605,163
Current Liabilities	1,148,690,256	904,705,621
Total Long Term Debt	750,280,614	885,384,770
Income from Continuing operation	160,169,575	157,041,942
Cash flow from operations	465,774,379	73,017,735



## Calculations of M-score

Indicator	Weight	Variable of Evince Textile Ltd.(2016-2017)	Weight × Variable
Intercept	n/a	n/a	-4.84
DSRI	0.92	0.866114917	0.796825724
GMI	0.528	0.999998704	0.527999316
AQI	0.404	0.932724127	0.376820547
SGI	0.892	1.104757149	0.985443377
DEPI	0.115	1.0124922	0.116436603
SGAI	-0.172	0.975061045	-0.1677105
TATA	4.697	-0.077711125	-0.365009154
LVGI	-0.327	1.018175584	-0.332943416
M-score=Intercept+ $\sum$ (Weights × Variables)=			-2.902137503

### Comment on M-score:

The Beneish M-Score of the Evince Textile Limited is -2.902137503 in the year of 2016-2017. When the GMI is greater than 1, then the chances of manipulation is increased. The deterioration of gross margin is a bad sign which may drive managers to manipulate profits. In this case the GMI is less than 1. So this variable does not increase the possibility of manipulations. When AQI is more than 1, the company has doubtlessly improved its involvement in cost deferral. In this case AQI is less than 1. When a SGAI more than 1 indicates that the value of promoting, general and administrative expenses extended proportionally greater than income. In this case SGAI is less than 1. So, the result of eight variables did not have any significant changes and the value of M-score is less than -2.22, therefore it can be stated that based on the result of the Beneish M-Score, the Evince Textile Limited did not engage with any manipulation in the context of financial reporting year 2016-2017.

## Saiham Textile Mills Limited

### Input Variables

Information	Saiham Textile Mills Limited	
	2016-2017	2015-2016
Net Receivables	31,127,784	19,947,500
Sales	1,529,634,985	1,639,897,819
Cost of goods sold	1,297,995,301	1,442,917,395

Current Asset	2,468,784,623	2,109,435,840
Property plant and Equipment	1,879,452,117	1,929,529,957
Securities	-	-
Total Asset	4,348,236,740	4,038,965,797
Depreciation	43,336,028	45,094,956
Sales general and administration Expense	140,269,673	137,042,616
Current Liabilities	1,742,776,194	1,340,210,241
Total Long Term Debt	-	153,618,757
Income from Continuing operation	92,381,746	76,829,256
Cash flow from operations	68,160,929	(309,687,884)

### Calculations of M-Score

Indicator	Weight	Variable of Saiham Textile Mills Ltd.(2016-2017)	Weight × Variable
Intercept	n/a	n/a	-4.84
DSRI	0.92	1.672972148	1.539134376
GMI	0.528	0.793197111	0.418808075
AQI	0.404	1	0.404
SGI	0.892	0.932762375	0.832024039
DEPI	0.115	1.013271175	0.116526185
SGAI	-0.172	1.287329677	-0.188740704
TATA	4.697	0.045570262	0.026163521
LVGI	-0.327	1.083671689	-0.354360642
M-score=Intercept+∑ (Weights × Variables)=			-2.046445152

### Comment on M-score:

The calculated value of Beneish M-Score of Saiham Textile Mills Limited is -2.046445152 in the context of annual report 2016-2017. When days sales in receivables are increased it may be a final result of increased in sales for sustaining the competitive market or a manipulation with amount of turnover. In this case DSRI has significantly increased which increases the possibilities of manipulation. The result of GMI and AQI are okay. If growth firms face tremendous decrease in stock prices then they may have greater incentives to manipulate earnings. It is a positive relation between SGI and the probability of earnings manipulation. The result of SGI is poor which is positively increases the chance of manipulation. Though TATA has no significant change. At the point when the DEPI more prominent than 1 demonstrates that the cost at which unmistakable resources are being devalued has impeded

raising the open door that the organization has changed upward the appraisals of benefits' useful lives or took after another procedure this is benefits developing. In this case DEPI is more than 1 that increases the possibilities of manipulation. When a LVGI is greater than 1 indicating the increase in leverage. The variable is included to capture debt covenants incentives for earnings manipulation. Here, the LVGI is greater than 1 which increases the possibilities of manipulation. The overall value of the M-Score is -2.046545417 which is greater than -2.22. So the company is likely to be a manipulator.

## Alhaj Textile Mills Limited

### Input variables

Information	Alhaj Textile Mills Limited	
	2016-2017	2015-2016
Net Receivables	2,718,845	2,420,774
Sales	293,285,408	371,930,696
Cost of goods sold	251,184,421	330,364,349
Current Asset	448,222,910	402,727,563
Property plant and Equipment	104,057,958	115,705,869
Securities	-	-
Total Asset	553,281,709	519,434,273
Depreciation	1,501,184	1,697,436
Sales general and administration Expense	19,095,273	19,929,290
Current Liabilities	154,757,962	143,258,393
Total Long Term Debt	139,123,633	139,123,633
Income from Continuing operation	32,003,317	25,644,972
Cash flow from operations	14,541,927	102,309,216

### Calculations of M-score

Indicator	Weight	Variable of Alhaj Textile Mills Ltd.(2016-2017)	Weight × Variable
Intercept	n/a	n/a	-4.84
DSRI	0.92	1.42430097	1.310356892
GMI	0.528	0.778534772	0.41106636
AQI	0.404	1.000118101	0.404047713
SGI	0.892	0.788548542	0.703385299
DEPI	0.115	1.0166583	0.116915705
SGAI	-0.172	1.215082069	-0.208994116
TATA	4.697	0.031559673	0.148235784
LVGI	-0.327	0.977056385	-0.319497438
M-score=Intercept+∑ (Weights × Variables)=			-2.274483801

### Comment on M-score:

The M-Score of Alhaj Textile Mills Limited is -2.274483801 that is less than -2.22 signals that the company did not manipulate its earnings in the context of financial reporting of the year 20106-2017. When GMI is greater than 1, it indicates that gross margins have collapsed. This result indicates that firm is engaged in earnings manipulation. Here, the GMI of this company is less than 1 which indicates that there is no involvement of earning manipulation. In the event that AQI is more noteworthy than 1 it shows that the firm has conceivably expanded its association in cost deferral. In this case the AQI of this company is not greater than 1. When SGI is greater than 1 that increases the chances of manipulation. In this case SGI of this company is less than 1. When DEPI is greater than 1 that indicates the possibilities of manipulation. Here, the DEPI of this company is equal to 1 which does not create any significant impact on the model. Furthermore, other variables do not create any significant chances of manipulation.

### Tosrifa Industries Limited

#### Input Variables

Information	Tosrifa Industries LTD	
	2016-2017	2015-2016
Net Receivables	153,890,622	250,774,035
Sales	1,206,899,302	1,424,008,994
Cost of goods sold	979,938,645	1,187,684,691
Current Asset	699,369,310	1,074,644,924
Property plant and Equipment	1,265,129,038	1,211,662,868
Securities	-	-

Total Asset	2,955,416,948	2,448,915,608
Depreciation	45,277,194	21,647,875
Sales general and administration Expense	133,048,787	130,334,525
Current Liabilities	568,918,753	304,867,294
Total Long Term Debt	262,585,727	36,319,832
Income from Continuing operation	83,338,359	110,891,969
Cash flow from operations	116,906,987	64,670,625

### Calculations of M-score

Indicator	weight	Variable of Tosrifa Industries Ltd.(2016-2017)	Weight × Variable
Intercept	n/a	n/a	-4.84
DSRI	0.92	0.724054544	0.66613018
GMI	0.528	0.882502836	0.465961497
AQI	0.404	0.711986946	0.287642726
SGI	0.892	0.847536292	0.756002372
DEPI	0.115	0.508006422	0.058420739
SGAI	-0.172	1.204462109	-0.207167483
TATA	4.697	-0.011358339	-0.053350118
LVGI	-0.327	1.019421695	-0.660350894
M-score=Intercept+ $\sum$ (Weights × Variables)=			-3.52671098

### Comment on M-score:

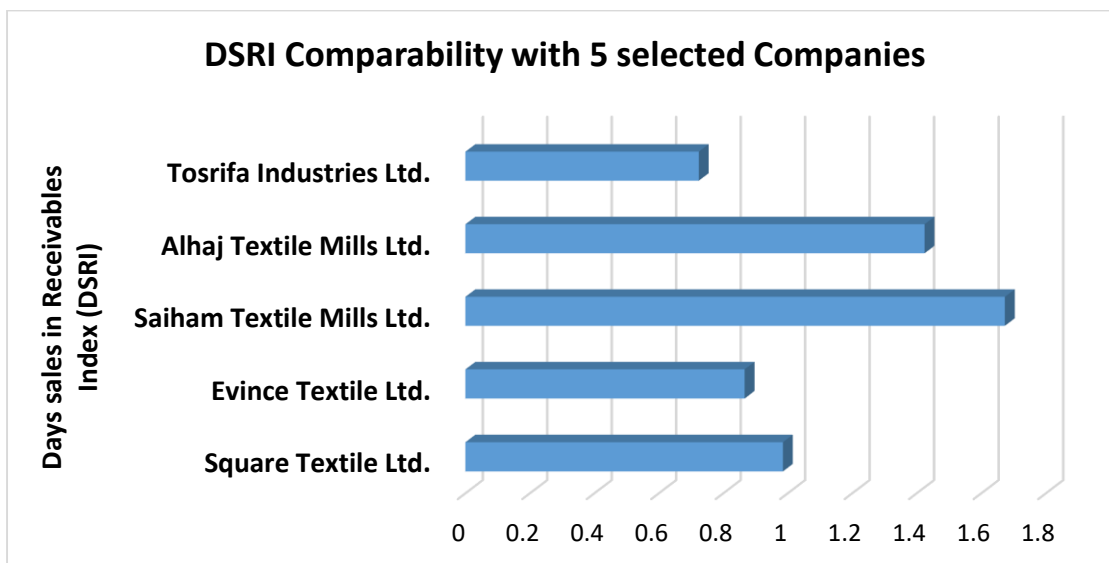
The M-Score of Tosrifa Industries Limited is -3.52671098 that is less than -2.22 signals that the company did not manipulate its earnings in the context of financial reporting of the year 2016-2017. A large growth in day's sales in receivables can be created the chance of credit coverage to be able to assist income. So, increasing DSRI causes a positive sign of manipulation. In this company DSRI is okay which does not involve any manipulation. When GMI is greater than 1 which increases the possibilities of manipulation. In this case GMI is less than 1 that indicates that GMI of this company is good. When AQI is more than 1, the company has doubtlessly improved its involvement in cost deferral. Here, AQI of this company is less than 1 which is good for the company. When SGI is greater than 1 it indicates the chances of probability of earnings manipulation. In this case SGI is less than 1 which shows that there is no possibility of manipulation. When DEPI is greater than 1 it indicates that company may be manipulated with the depreciation methods for increasing income. In this case DEPI is less than 1 which indicated that there is no manipulation with these depreciation methods. Unbalanced increment in deals shows the positive connection amongst SGAI and the likelihood of control. Here, SGAI of this company has no significant impact on the M-score.

## Comparability of Eight Variables with Five Selected Companies

In this report, I have compared each variable's result with five selected companies. I have represented these comparability result with the help of Bar Chart. These chart are as follows:

### 1. Days Sales in Receivables Index (DSRI)

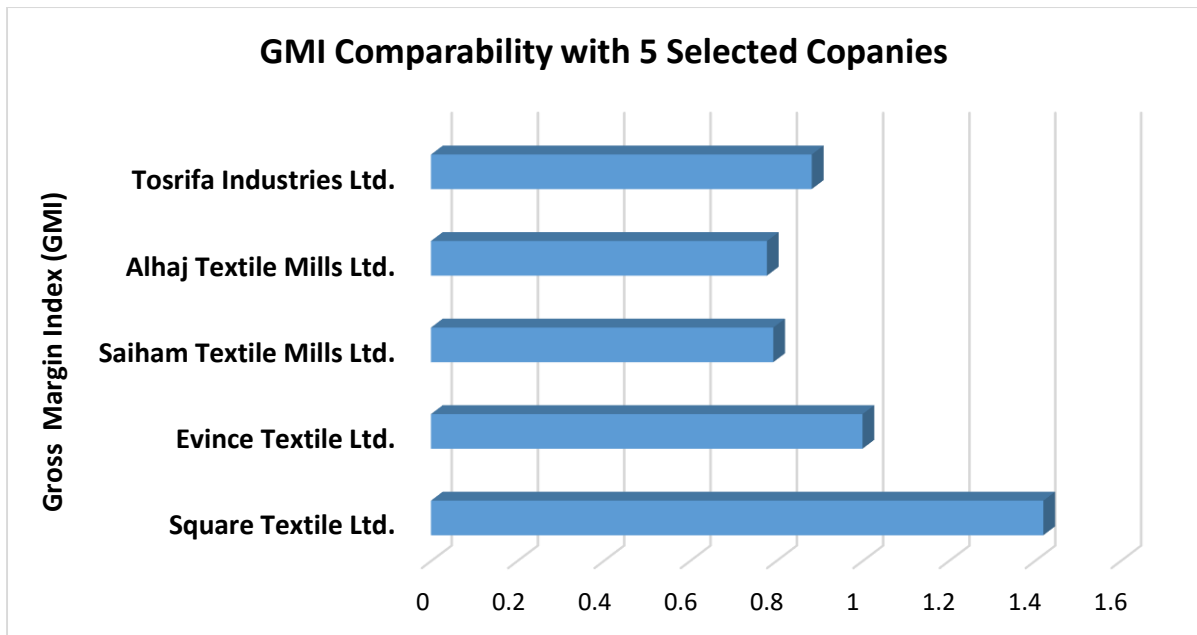
Days sales in Receivables Index (DSRI)				
Square Textile Ltd.	Evince Textile Ltd.	Saiham Textile Mills Ltd.	Alhaj Textile Mills Ltd.	Tosrifa Industries Ltd.
0.984928759	0.866114917	1.672972148	1.42430097	0.724054544



The greater DSRI increases the possibilities of manipulation. In this bar chart, the DSRI of Tosrifa Industries Ltd., Evince Textile Ltd., Square Textile Ltd. are lower than Alhaj Textile Mills Ltd. and Saiham Textile Mills Ltd. So, Alhaj Textile Ltd. and Saiham Textile Mills Ltd. have increased the possibilities of earning manipulation.

### 3. Gross Margin Index (GMI)

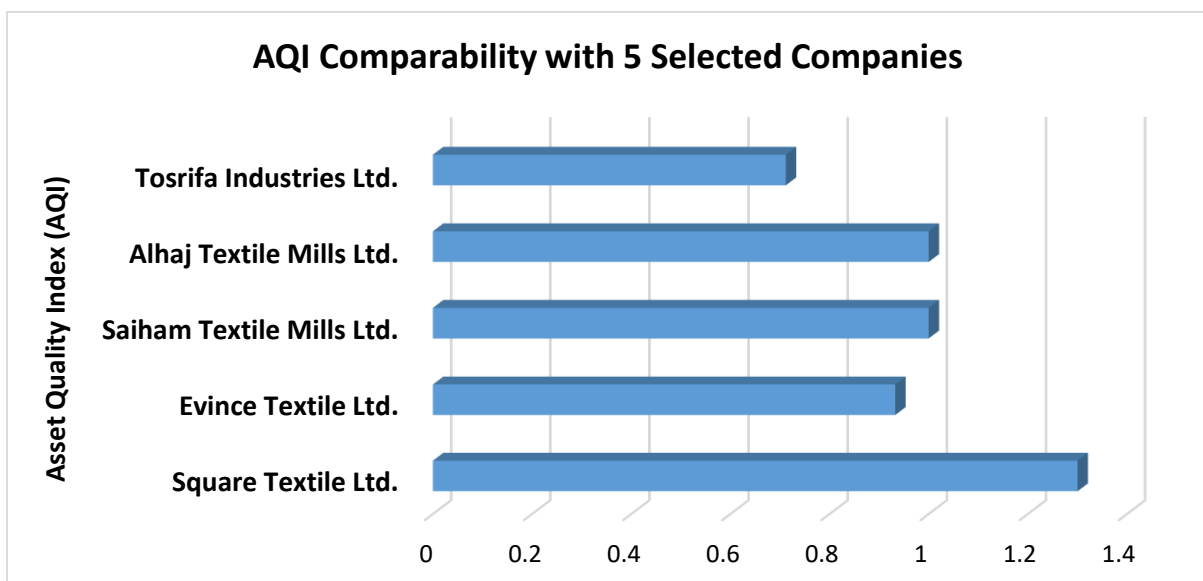
Gross Margin Index (GMI)				
Square Textile Ltd.	Evince Textile Ltd.	Saiham Textile Mills Ltd.	Alhaj Textile Mills Ltd.	Tosrifa Industries Ltd.
1.420161736	0.999998704	0.793197111	0.778534772	0.882502836



When GMI is greater than 1 that increases the chance of earning manipulation. In this bar chart, GMI of Square Textile Ltd. is greater than 1 and other four company's GMI are less than 1. So Square Textile has increased the possibilities of manipulation.

### 3. Asset Quality Index (AQI)

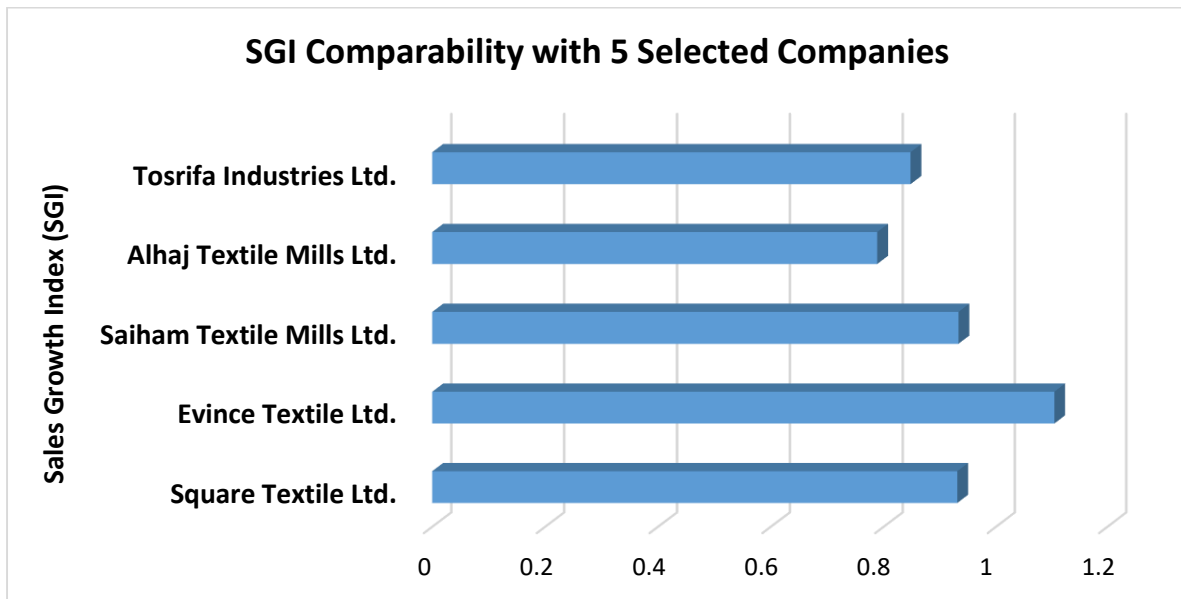
Asset Quality Index (AQI)				
Square Textile Ltd.	Evince Textile Ltd.	Saiham Textile Mills Ltd.	Alhaj Textile Mills Ltd.	Tosrifa Industries Ltd.
1.300472146	0.932724127	1	1.000118101	0.711986946



In this bar chart, AQI of Square Textile Ltd. is greater than 1 which increases the chance of manipulation and other four company's AQI are equal to 1 or less than 1 which indicates that there is a lower possibility of manipulation.

#### 4. Sales Growth Index (SGI)

Sales Growth Index (SGI)				
Square Textile Ltd.	Evince Textile Ltd.	Saiham Textile Mills Ltd.	Alhaj Textile Mills Ltd.	Tosrifa Industries Ltd.
0.930731313	1.104757149	0.932762375	0.788548542	0.847536292

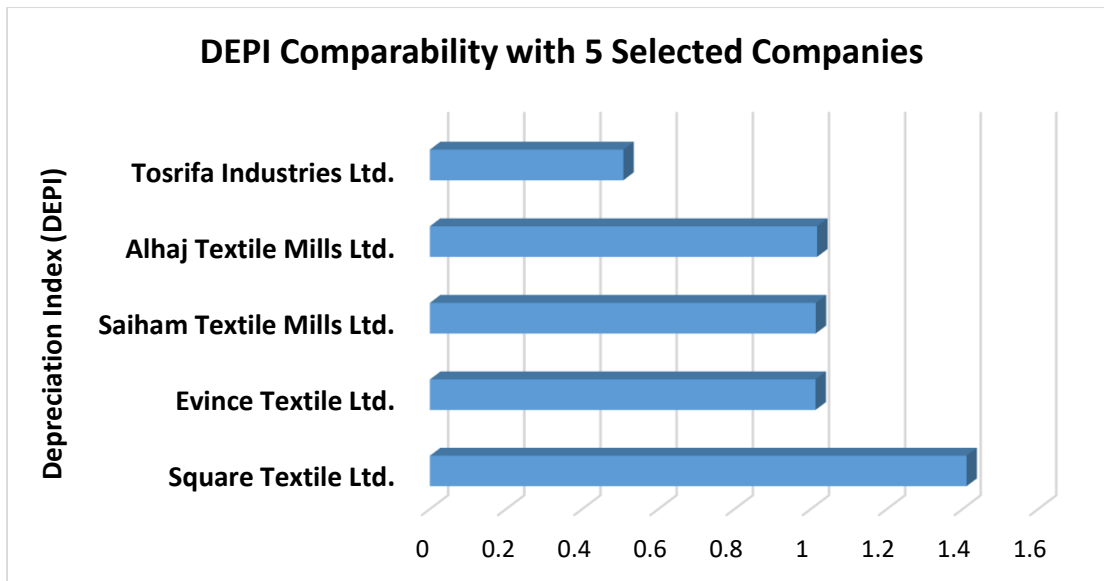


Massive increase in SGI indicates a possibility of earning manipulation. In this bar chart, SGI of Saiham Textile, Evince Textile and Square Textile have higher SGI and have increased the possibilities of manipulation and other company have lower SGI.

#### 5. Depreciation Index (DEPI)

Depreciation Index (DEPI)				
Square Textile Ltd.	Evince Textile Ltd.	Saiham Textile Mills Ltd.	Alhaj Textile Mills Ltd.	Tosrifa Industries Ltd.
1.410552026	1.0124922	1.013271175	1.0166583	0.508006422

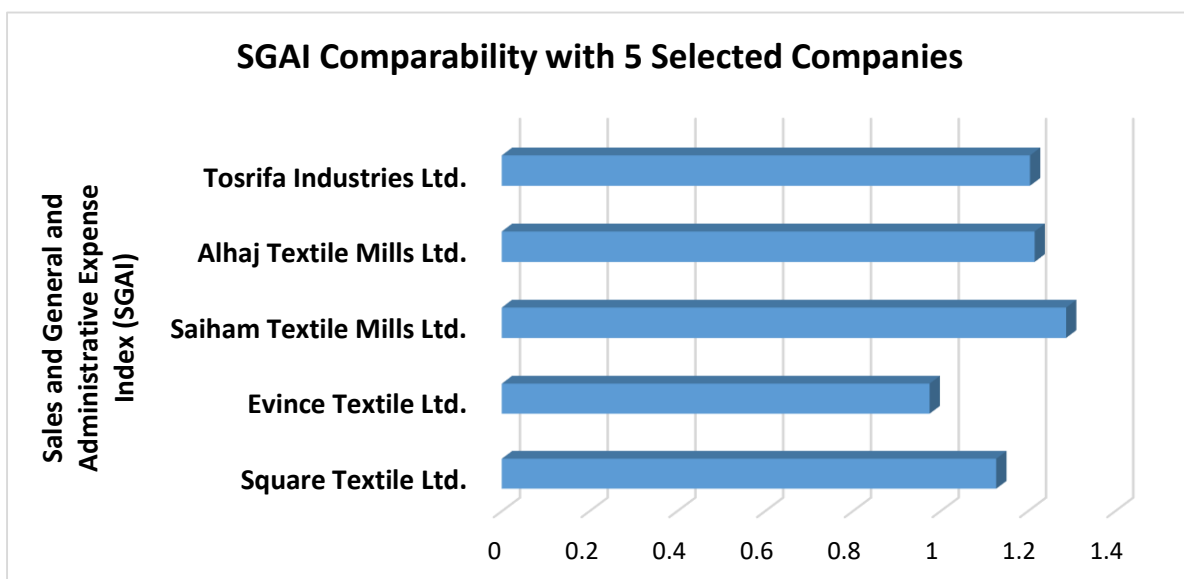




In this bar chart, only the DEPI of Tosrifa Industries Ltd. are less than 1 which decreases the possibility of manipulation. The other four companies increases the possibilities of manipulation because the DEPI is equal to 1 or greater than 1 which increases the chance of manipulation.

#### 6. Sales General and Administrative Expenses Index (SGAI)

Sales and General and Administrative Expense Index (SGAI)				
Square Textile Ltd.	Evince Textile Ltd.	Saiham Textile Mills Ltd.	Alhaj Textile Mills Ltd.	Tosrifa Industries Ltd.
1.127144703	0.975061045	1.287329677	1.215082069	1.204462109



In this bar chart, Evince textile Ltd. has decreased the chance of manipulation and other four companies have increased the chance of manipulation. Because the lower SGAI decreases the chance of manipulation and the higher SGAI increases the chance of manipulation.

### 7. Total Accruals to Total Assets (TATA)

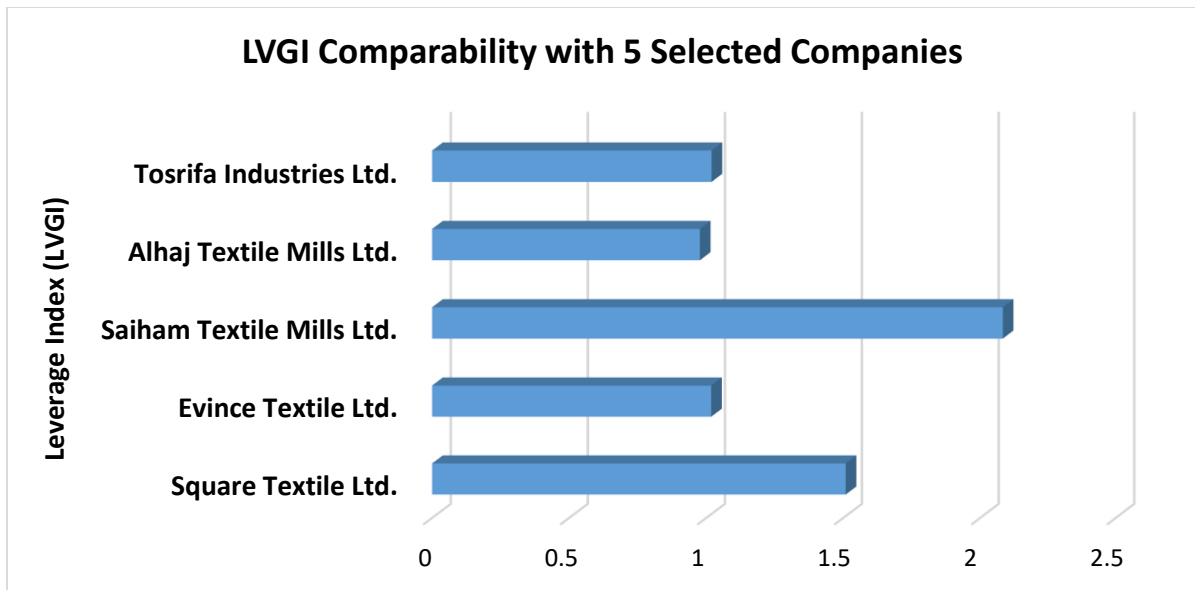
Total Accruals to Total Assets (TATA)				
Square Textile Ltd.	Evince Textile Ltd.	Saiham Textile Mills Ltd.	Alhaj Textile Mills Ltd.	Tosrifa Industries Ltd.
0.029786767	-0.077711125	0.045570262	0.031559673	-0.011358339



TATA indicates that higher positive accruals (less liquidity) to be related with a higher probability of income control. In this bar chart, Tosrifa Industries Ltd. and Evince Textile Ltd. have negative TATA and other three companies have positive TATA. So, Alhaj Textile Ltd., Saiham Textile Mills Ltd and Square Textile Ltd. have increased the possibilities of manipulation and other company has decreased the chances of manipulation.

### 8. Leverage Index (LVGI)

Leverage Index (LVGI)				
Square Textile Ltd.	Evince Textile Ltd.	Saiham Textile Mills Ltd.	Alhaj Textile Mills Ltd.	Tosrifa Industries Ltd.
1.508977342	1.018175584	2.083671689	0.977056385	1.019421695



When a LVGI is more than 1 indicating the increase in leverage. The variable is incorporated to catch obligation pledges motivating forces for income control. In this bar chart, Saiham Textile Mills Ltd. has higher LVGI than other four companies. So, Saiham Textile has the higher possibilities of manipulation.

# **Chapter 7**

## Conclusion

## Conclusion

Fraud is a serious problem that has plagued the business community. The concerns of preventing fraud are mounting as the occurrences and negative impact of fraud have escalated over the years. Financial statement fraud is found to be the most worrying as it involves management of the company and causes the highest loss to investors. Several mathematical models have been developed to help regulators and auditors to detect fraud early. In this report, Beneish M-Score model is used to detect financial fraud. It is commonly used by Large and small accounting firm in their Audit process. The model is a screening model that help about risk of fraud. As a result If anyone assess high risk of fraud one can try to compensate for the measured Assessment of the risk to avoid in fact having a real case of fraud Or to avoid legal problems.

# **Chapter 8**

## Appendix

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