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## Огляд якості бухгалтерського обліку в фармацевтичних компаніях Індії

Огляд фінансової звітності корпорації актуалізує питання якості представленої у ній інформації внаслідок застосування компаніями практики так званого креативного обліку. Керівництво компаній часто вважає, що користувачі фінансової звітності, зокрема акціонери, легко повірять наведеним в ній цифрам. В даному дослідженні акцентується увага на «якісному» аспекті бухгалтерського обліку прибутку. Зокрема, зроблена спроба показати, як рівень бухгалтерського обліку прибутку впливає на інформацію, що представлена у фінансовій звітності фармацевтичних компаній в Індії. Здійснено аналіз практики креативного обліку у фармацевтичних компаніях Індії, яка досі залишається маловивченою. Аналіз здійснюється за трьома ключовими параметрами: якість доходів, якість прибутку, рівень стабільності компанії. Оцінено зміну ринкових показників цих компаній по відношенню до фактору якості. Як свідчать отримані результати, коефіцієнт якості доходів і прибутку є досить низьким у компаніях, які були обрані для оцінки. Автор висловлює сподівання, що дане дослідження допоможе акціонерам краще розуміти інформацію про фінансові результати, яка розкривається у фінансовій звітності компанії.

**Ключові слова:** якість обліку, якість доходів, якість прибутку, операційний прибуток, креативний облік, фармацевтична промисловість.

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## Обзор качества бухгалтерского учета в фармацевтических компаниях Индии

Обзор финансовой отчетности корпораций актуализирует вопрос качества представленной в ней информации в результате применения компаниями практики так называемого креативного учета. Руководство компаний часто считает, что пользователи финансовой отчетности, в том числе акционеры, легко поверят приведенным в ней цифрам. В данном исследовании акцентируется внимание на «качественном» аспекте бухгалтерского учета прибыли. В частности, сделана попытка показать, как уровень бухгалтерского учета прибыли влияет на информацию, которая содержится в финансовой отчетности фармацевтических компаний в Индии. Осуществлен анализ практики креативного учета в фармацевтических компаниях Индии, которая до сих пор остается малоизученной. Анализ осуществляется по трем ключевым параметрам: качество доходов, качество прибыли, уровень стабильности компании. Оценено изменение рыночных показателей этих компаний по отношению к фактору качества. Как свидетельствуют полученные результаты, коэффициент качества доходов и прибыли является достаточно низким в компаниях, которые были выбраны для исследования. Автор выражает надежду, что данное исследование поможет акционерам лучше понимать информацию о финансовых результатах, которая раскрывается в финансовой отчетности компаний.

**Ключевые слова:** качество учета, качество доходов, качество прибыли, операционная прибыль, креативный учет, фармацевтическая промышленность.

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## Quality Accounting in Indian Pharmaceutical Companies: A Review

Quality earnings are free from discretionary choices by the management and most valued by shareholders. The present study highlights the “quality” aspect of accounting (earnings) by analyzing the creative accounting practices of pharmaceutical companies in India, untouched so far. It has been analyzed on three key parameters:

*quality of earnings, quality of revenue and z score for stability. Further, the market performance of these companies has been regressed with respect to quality factor for finding out the market reaction. The results show that the quality factor of revenue and earnings is low in these companies. It is hoped that the study improves shareholders' perception about the financial results reported by the companies.*

**Keywords:** *quality accounting, quality of earnings, quality of revenue, operating income, creative accounting practices, pharmaceutical companies.*

**1. Introduction.** Financial reporting by corporate has raised issues about the quality of reported numbers on account of creative accounting practices. The management often assumes that the users of the financial statements and other information, particularly shareholders, in their financial reports are easily going to believe these numbers. The informational perspective (Schipper, 1989) is a key element underpinning the study of the creative accounting phenomenon. Managers may choose to exploit their privileged position for private gain, by managing financial reporting disclosures in their own favour.

Companies with poor quality accounting might have a big leap but they do not reach very far. That's why quality accounting (earnings) becomes significant in the present times on account of growing shareholders awareness for ethical corporate practices. Creative accounting has emerged as one of the burning issues for regulators and shareholders in the last decade.

"Creative accounting is a process of manipulating the numbers by accountants in financial statements to report the desired figures of business"<sup>1</sup>. (Goel, 2012) indicates the presence of accruals management (earnings management) in the Indian corporate enterprises. The Indian pharmaceutical industry is no exception to it.

"The Indian Pharmaceutical industry is highly fragmented with about 24,000 players (330 in the organised sector). The top ten companies make up for more than a third of the market. Globally, the Indian pharma market (IPM) is ranked 3rd largest in volume terms and 10th largest in value terms"<sup>2</sup>. "It is expected to touch US\$ 45 billion by 2020, according to McKinsey & Company. In the period 2002-2012, the country's healthcare sector grew three times in size, touching US\$ 70 billion from US\$ 23 billion. India's pharmaceutical market experienced a similar boom, reaching US\$ 18 billion in 2012 from US\$ 6 billion in 2005"<sup>3</sup>.

The accounting literature has examined the effects of accounting quality on financial statements and financial statement users. But, they have focused largely on developed markets.

The present study contributes by analyzing how the level of accounting (earnings) affects the reported numbers on the financial statements of the pharmaceutical companies in India. It primarily evaluates the earnings quality for earnings management in these companies. It examines the effect with the help of quality aspect of earnings and revenue which is more relevant from shareholders' perspective. Pharmaceutical sector has not really been touched in India for earnings management and of late the sector has experienced fluctuating earnings stream. Therefore, it becomes

significant to analyze earnings management in the sector. The results indicate a low level of quality of earnings is low in these companies. The strong interrelationship between quality variables further verifies the fact.

#### **Objective of the study.**

The study specifically aims at the following:

– To examine the creative accounting practices among the units on the basis of quality of earnings and quality of revenue.

– To analyze creative accounting behaviour of the corporate with the help of Altman z model.

It has five main sections: Section I above gives an introductory overview of creative accounting and presents the objective and contribution of the study. Section II discusses the relevant literature and the gap analysis for study. Section III discusses the research methodology adopted for the study. Section IV analyzes the units' earnings practices for creative accounting and discusses the results. Section V concludes with implication for the corporate.

#### **2. Literature Review.**

**Conceptual part.** (Penman, 2002) addresses the notion of accounting quality and suggests that the term be discussed in terms of shareholders' interests and the usefulness of accounting information in assisting them. Consistent with this view, then, one obvious component of accounting quality is earnings quality. (Cohen, 2003) defines earnings quality as the extent to which accounting figures accurately portray the underlying financial health of a firm and the degree to which they result in future operating cash flows.

(Schipper and Vincent, 2003) consider earnings quality as the degree to which reported earnings represent income. (Chan et al., 2004) view earnings quality as the extent to which operating fundamentals are captured by reported earnings. (Yee, 2006) considers that earnings quality has two components – (1) as a fundamental attribute of the firm and (2) as a financial reporting attribute. Firms report a potentially noisy signal, their earnings. This is the financial reporting attribute. The proximity of reported to fundamental, or true earnings, is the quality of earnings.

The concept of creative accounting is usually used to describe the process through which the accounting professionals use their knowledge in order to manipulate the figures included in the annual accounts. Accounting has been defined as "the art of faking a balance sheet". Authors like (Stolowy and Breton, 2003) suggested a theoretical framework for the understanding of the accounting manipulation practices.

<sup>1</sup> Creative accounting is also referred to also as 'earnings management'.

<sup>2</sup> <http://www.equitymaster.com/research-it/sector-info/pharma/Pharmaceuticals-Sector-Analysis-Report.aspx> accessed 3rd September, 2014.

<sup>3</sup> <http://www.ibef.org/industry/pharmaceutical-india.aspx> accessed 3rd September, 2014.

**History and motivation.** The creative accounting appeared in the Anglo-Saxon literature in the 1970s, most often in the papers about the bankruptcy of enterprises and those written by (Watts and Zimmerman 1986, 1990) which represent the foundation of the positive accounting theory. This research trend made the object of several empirical works trying to explain the accounting choices starting from the problem of the political costs that the enterprises are exposed to.

Research studies have examined the issue of management motivation towards creative accounting behaviour. Half a century ago, (Hepworth, 1953) identified several motivations including the existence of tax levies based on income, confidence by shareholders and workers in management that is able to report stable earnings and psychological expectations relating to increases or decreases in anticipated income. Tax is mentioned as a significant motivator also by (Niskanen and Keloharju, 2000) in a Finnish context and in Japan by (Herrmann and Inoue, 1996). (Healy, 1985) examines managers' earnings manipulations motives where executive compensation is linked to income measurement.

**Techniques.** Consequently, the purpose of accounting data management is to change these two measures: the variation of the result per share and the relation liabilities/assets. Creative accounting is used, according to the opinion issued by (Burlacu and Pătroi, 2005) for the "consolidation" of the economic-financial indicators of the economic entities, distorting yet their informational content.

An important differentiation (Jones, 2011) must be made between fair presentation where the flexibility within accounting is used to give a true and fair picture of the accounts; creative accounting where the flexibility within accounting is used to manage the measurement and presentation of the accounts to serve the interests of preparers.

Many research studies examine a particular aspect or technique of creative accounting. All tend towards the conclusion that creative accounting using that particular technique does exist. (McNichols and Wilson, 1988) model the nondiscretionary component of the bad debts provision (so as to identify the discretionary element of the accrual). (Barnea et al., 1976) discuss classificatory smoothing with the use of extraordinary items; their results, based on a study of 62 US companies, indicate that classificatory smoothing does take place.

So, accounting quality implies earnings quality, i.e. the extent to which reported earnings matches the fundamental or true earnings of the firm. Since true earnings are unobservable, unmanaged earnings have been considered as a proxy for high quality earnings. Evidence of earnings management (creative accounting) has been used as a proxy for low earnings quality, a measured used for quality aspect of earnings and revenue.

The accounting quality by corporate houses is a potential area for academic research in Indian perspective, particularly in a pharmaceutical sector. Most of these studies have analyzed creative accounting with the help of accounting choices, in the form of accruals management. The present study extends this by examining this effect with the help of quality aspect of earnings and revenue.

**3. Research Methodology of the Study.** Following are the main aspects of the research methodology used in the present study:

**Sample Design.** The present study covers the top ten pharmaceutical companies in India on the basis of their financial performance, cost-containment, capital structure, and efficiency. These include Sun Pharmaceuticals, Wockhardt, Cipla, Ranbaxy, Lupin, Cadila, Glenmark, Torrent, Dr. Reddy's and Aurobindo<sup>4</sup>. Torrent and Aurobindo could not be included in the final sample on account of incomplete data.

The top 8 to 10 companies including Sun Pharma, Lupin, Dr. Reddy's Labs and Cipla occupy 70 to 80 percent of the Indian pharmaceutical market space<sup>5</sup>.

**Period of the study.** The period to be covered in the present research study is of three years, ranging from 2010 to 2012. Tyagi et al. (2014) pointed out, "although branded pharmaceutical products accounted for nearly two-thirds of global spending on medicines in 2011, a further erosion is expected after a significant amount of drugs have gone off-patent in 2012." Also, it is reasonably long enough to reveal the short-term and long-term changes and permit the valid conclusions thereof.

**Data.** For the purpose of the present study, the main data used is secondary in nature, keeping in view the nature of the study. The study employs both accounting and market data. The accounting data was obtained from the annual reports of the units and other relevant records for the period. Market data was obtained from the BSE's website.

**Tools/techniques.** *Quality of earnings.* Quality of earnings of the firm is used, specifically to estimate the extent of creative accounting. It can be found out by computing the percentage of operating cash flows to net income of a firm. Higher the quality of earnings, lower the chances of earnings manipulation.

*Quality of revenue.* Quality of revenue is another important determinant which supports earnings' quality score in regard to determining earnings manipulation. It can be found out by computing the percentage of collection of sales in cash. Higher the quality, lesser the chances of earnings manipulation.

*The Altman z-score.* It is a measure of a company's financial strength that uses a weighted sum of several factors. It is used as a 'Predictor of bankruptcy'. Safe companies, i.e. companies having a low probability of bankruptcy have Altman Z score greater than 3.0. Z-score below 1.80 indicates a higher probability of Financial Catastrophe.

<sup>4</sup> PharmaLeaders: Top 10 Pharmaceutical Companies in India Benchmark Report - Competitive Analysis of the Leading Players in 2013, Aug 22, 2013, <http://www.prnewswire.com/news-releases/pharmaleaders-top-10-pharmaceutical-companies-in-india-benchmark-report---competitive-analysis-of-the-leading-players-in-2013-220701871.html> accessed on 24th October, 2015.

<sup>5</sup> <http://business.mapsofindia.com/india-company/pharmaceutical.html#sthash.wMlwYjTg.dpuf> accessed on 24th October, 2015.

**Бухгалтерський облік**

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1.0X5$$

Here,

X1 = Working Capital / Total Assets

X2 = Retained Earnings / Total Assets

X3 = EBIT / Total Assets

X4 = Market Value of Equity / Total Liabilities

X5 = Sales / Total Assets

**4. Results and Discussion.**

**Quality factor of Revenue.** The quality analysis of revenue of the sample companies is presented in table 1.

Table 1

**Quality of Revenue score**

	FY10	FY11	FY12	Average
<b>Sun Pharma</b>	-1.7%	3.0%	-12.5%	<b>-3.7%</b>
<b>Wockhardt</b>	6.2%	-0.8%	-3.3%	<b>0.7%</b>
<b>Cipla</b>	5.3%	1.2%	-0.9%	<b>1.8%</b>
<b>Ranbaxy</b>	-6.7%	2.6%	-13.9%	<b>-6.0%</b>
<b>Lupin</b>	-1.9%	-2.2%	-6.7%	<b>-3.6%</b>
<b>Cadila</b>	0.3%	-6.4%	-2.3%	<b>-2.8%</b>
<b>Glenmark</b>	-10.9%	-1.8%	-2.8%	<b>-5.1%</b>
<b>Dr. Reddy's</b>	-5.6%	1.1%	-10.5%	<b>-15.0%</b>

From the above table, it is clear that the quality of revenue of Sun Pharma is quite volatile, and has been below the benchmark level of 1%. It is a poor indicator. Wockhardt has shown declining quality of revenue, as it has fallen sharply in the past 2 years which is below the benchmark level. The average quality of revenue of Cipla has been above the benchmark 1% level but it has shown a continuous declining trend. In FY12, it became negative. Ranbaxy's quality of revenue has been poor as it has shown great fluctuations over the past 3 years with mostly negative values. In FY12, the quality of revenue is highly negative.

Lupin's quality of revenue has been poor, as it has been negative throughout and quite volatile. Cadila has shown poor quality of revenue, below the 1% benchmark level. As such, the quality of revenue needs to be improved considerably. While Glenmark's quality of revenue has shown an improvement, it is still very poor as it is below the benchmark level of 1% with negative trend. The quality of revenue for Dr Reddy's is also poor, since it has been very volatile, fluctuating between 1.1% and -10.5% over the past three years. It has also been below the acceptable levels.

**Quality factor of Earnings.** The quality analysis of earnings of the sample companies is presented in table 2.

Table 2

**Quality of Earnings score**

	FY10	FY11	FY12	Average
<b>Sun Pharma</b>	-106.5%	203.3%	173.2%	<b>90.0%</b>
<b>Wockhardt</b>	19.8%	670.6%	346.7%	<b>345.7%</b>
<b>Cipla</b>	96.3%	106.0%	150.1%	<b>117.5%</b>
<b>Ranbaxy</b>	-52.2%	101.5	-21.8%	<b>9.2%</b>
<b>Lupin</b>	96.7%	90.7%	63.0%	<b>83.5%</b>
<b>Cadila</b>	131.3%	92.7%	73.7%	<b>99.2%</b>
<b>Glenmark</b>	106.5%	203.3%	173.2%	<b>161.0%</b>
<b>Dr. Reddy's</b>	374.1%	75.6%	124.0%	<b>191.2%</b>

As evident from table 2, the quality of earnings of Sun Pharma is also very volatile, ranging from 107% in FY10 to 203% in FY11. However, it has been above the benchmark level of 100%. While Wockhardt has a high quality of earnings, well above 100%, the volatile nature and great variation YoY is a cause of concern for the company. Cipla's quality of earnings has been improving, and has improved from 96% in FY10 to 150% in FY12. However, the rapid rise in the quality of earnings may be a signal for regulators to check. Ranbaxy's quality of earnings has been very poor, as it has been negative and very volatile. In FY12, the company suffered a loss and as such, the quality of earnings is poor.

Lupin's quality of earnings has been consistently below 100%, representing inadequate operating cash flow

relative to net profit. As such, Lupin has shown poor quality of earnings. Cadila's quality of earnings has been declining YoY for the past 2 years, as growth in operating cash flow is not in line with net profit. As such, the quality of earnings is a cause of concern for Cadila Healthcare. The quality of earnings for Glenmark has been strong as it is above 100%. However, it is inconsistent and has shown great fluctuations over the past 3 years. Dr Reddy's has shown fluctuating quality of earnings, varying between 374% and 76%. As such, the quality of earnings is poor and not consistent over the last 3 years.

**Altman Z score.** The stability score of the sample companies is presented in table 3.

Table 3

## Altman Z score

	FY10	FY11	FY12	Average
<b>Sun Pharma</b>	5.89	5.49	5.43	<b>5.60</b>
<b>Wockhardt</b>	5.65	4.35	2.47	<b>4.16</b>
<b>Cipla</b>	5.87	5.59	6.63	<b>6.03</b>
<b>Ranbaxy</b>	2.84	3.81	4.17	<b>3.61</b>
<b>Lupin</b>	5.98	6.12	4.19	<b>5.43</b>
<b>Cadila</b>	4.70	6.02	5.89	<b>5.54</b>
<b>Glenmark</b>	4.05	3.54	3.69	<b>3.76</b>
<b>Dr. Reddy's</b>	5.60	7.00	8.20	<b>6.93</b>

Table 3 depicts that Altman's Z score for Sun Pharma has been comfortable, above the safe 2.99 level. However, the large contribution from market value of equity/total assets is a cause of concern. While the Altman's Z score of Wockhardt has been improving, it is generally low as compared to peers. An Altman Z score of less than 2.99 in FY10 puts it in the grey area. The large contribution from market value of equity/total assets is also a cause of concern. Cipla has a healthy Z score, consistently above the safe zone of 2.99. However, here also the biggest component in Z score is market value of equity/total assets, which is a cause of concern. Ranbaxy's Z score is in the grey zone, as it lies between 1.81 and 2.99. The fall in Z score in FY12 is mainly due to the operating loss the company suffered during the year.

Lupin has a comfortable Z score of above 2.99 which is quite safe for a manufacturing company. However, like its peers, the high contribution from market value of equity/total assets needs to be analyzed for future. The YoY decline in FY12 is due to lower contribution from EBIT/Total Assets and Sales/Total Assets. Cadila

Healthcare's Altman Z score fell in FY12, due to lower contribution from market value of equity/total assets component in the Z score. However, the Z score was still above the safe zone of 2.99 and is comfortable for a manufacturing company. The Altman's Z score of Glenmark is in the safe range of greater than 2.99 and acceptable for a manufacturing company. However, a concern is that market value of equity/total assets is the single largest component of the Z score, and the Z score may be volatile depending on market movements. Dr Reddy has a comfortable Z score, with a score of above 2.99 and very safe for a manufacturing company. However, as with most other pharmaceutical companies, the fact that market value of equity/total assets is the biggest component of the Z score is a cause of concern.

**Market Performance.**

**1. Correlation analysis.** In the following table 4, the correlation of the market capitalisation of the companies with quality of revenue, quality of earnings and Altman's Z is computed. This is done to find out the relationship between quality factor and the market performance of the companies.

Table 4

## Correlation result of Companies

Companies	Correlation of Market Cap with		
	Quality of Revenue	Quality of Earnings	Altman's Z Score
Glenmark	0.32	0.22	0.80
Divis	-0.51	-0.87	0.99
Wockhardt	-0.65	-0.07	0.76
GSK	0.41	0.92	-0.71
Cadila	0.99	0.62	-0.13
Ranbaxy	-0.73	-0.99	0.04
Lupin	-0.95	-0.90	0.18
Dr Reddy's	-0.98	0.44	-0.26
Cipla	0.29	0.42	0.78
Sun Pharma	0.88	0.53	0.13

**Quality of Revenue:** Though, there is no concrete trend of correlation with the market capitalization of companies but some companies display strong negative correlation, whereas some display strong positive correlation with respect to quality of revenue and market cap.

**Quality of Earnings:** There is a strong positive correlation between quality of earnings and market cap. This is due to great importance put on operating cash flows. However, there is an exception of Ranbaxy.

**Altman's Z score:** There is a strong positive correlation between Altman's Z score and market cap, due to the large component of market value of equity of equity/total assets in Altman's Z score. However, exception exists in the form of loss-making companies, where the EBIT/Total assets component pushes down the Z score.

**2. Regression analysis.** Regression analysis is used to model the market price of the shares as a function of the following independent variables: Quality of Revenues,

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quality of earnings and Altman's Z score. The model is based on last 3 years stock prices and monthly data points.

(a) *Sun Pharmaceuticals*

The model is as follows:

$$\text{Stock Price} = 713.927 - 171.873 * \text{Quality of Earnings} + 1091.335 * \text{Quality of Revenue}$$

Z score has no impact/relatively little impact on this model. Since the R square value is relatively high, the model is a good fit.

Table 5

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.917	.840	.830	43.45173

Table 6

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	713.927	30.815		23.168	.000
	Quality_Earn	-171.873	18.145	-.662	-9.472	.000
	Quality_Rev	1091.335	108.872	.701	10.024	.000

a. Dependent Variable: Stock\_Price

(b) *Wockhardt Ltd.*

The model is as follows:

$$\text{Stock Price} = 374.721 - 22.557 * \text{Quality of Earnings} - 3649.675 * \text{Quality of Revenue}$$

Z score has no/little impact on this model. The model is a good fit, as the R Square value (degree of fit) is relatively high.

Table 7

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.814	.662	.642	77.80991

Table 8

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	374.721	30.652		12.225	.000
	Quality_Earn	-22.557	7.283	-.468	-3.097	.004
	Quality_Rev	-3649.675	501.654	-1.098	-7.275	.000

a. Dependent Variable: Stock\_Price

(c) *Cipla*

The model is as follows:

$$\text{Stock Price} = 606.655 - 49.750 * \text{Z Score} + 225.583 * \text{Quality of Revenue}$$

Quality of Earnings has negligible impact/relatively little impact on this model. Since the R square value is low, the model is not a good fit.

Table 9

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.558	.311	.269	27.19063

Table 10

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	606.655	106.367		5.703	.000
	ZScore	-49.750	18.356	-.697	-2.710	.011
	Quality_Rev	225.583	323.336	.179	.698	.490

a. Dependent Variable: Stock\_Price

(d) *Ranbaxy*

The model is as follows:

$$\text{Stock Price} = 953.364 - 125.495 * \text{Z Score} + 835.177 * \text{Quality of Revenue}$$

Quality of earnings has no impact/relatively little impact on this model. Since the R square value is very low, the model is a not a very good fit.

Table 11

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.599	.359	.320	78.83349

Table 12

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	953.364	119.006		8.011	.000
	ZScore	-125.495	30.106	-.748	-4.168	.000
	Quality_Rev	835.177	242.397	.618	3.445	.002

a. Dependent Variable: Stock\_Price

(e) *Lupin*

The model is as follows:

$$\text{Stock Price} = -166.30 + -1470.449 * \text{Z Score} + 88.756 * \text{Quality of Revenue}$$

Quality of Earnings has no impact/relatively little impact on this model. Since the R square value is high, the model is a good fit.

Table 13

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.907	.822	.811	47.78849

Table 14

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-166.303	50.949		-3.264	.003
	ZScore	88.756	10.109	.719	8.780	.000
	Quality_Rev	-1470.449	376.837	-.319	-3.902	.000

a. Dependent Variable: Stock\_Price

(f) *Cadila Healthcare*

The model is as follows:

$$\text{Stock Price} = 1484.166 - 22785.353 * \text{Quality of Revenue} - 159.073 * \text{Z Score}$$

Quality of earnings has no impact on this model. Since the R Square value is low, the model is not a very good fit.

Table 15

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.657	.432	.398	120.55107

Table 16

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1484.166	190.957		7.772	.000
	ZScore	-159.073	35.192	-.617	-4.520	.000
	Quality_Rev	-2785.353	838.008	-.454	-3.324	.002

a. Dependent Variable: Stock\_Price

(g) *Glenmark*

The model is as follows:

$$\text{Stock Price} = 160.615 + 42.372 * \text{Z Score} + 757.523 * \text{Quality of Revenue}$$

## Бухгалтерський облік

The model is a relatively good fit, as the R Square value is high. However, the quality of earnings has no impact on the model.

Table 17

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.793	.629	.606	26.48101

Table 18

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	160.615	79.035		2.032	.050
	ZScore	42.372	20.768	.218	2.040	.049
	Quality_Rev	757.523	109.549	.738	6.915	.000

a. Dependent Variable: Stock\_Price

(h) Dr Reddy's Labs

The model is as follows:

$$\text{Stock Price} = 1711.589 + -233.398 * \text{Quality of Earnings} + -1847.708 * \text{Quality of Revenue}$$

Z Score has no impact/relatively little impact on this model. Since the R square value is high, the model is a good fit.

Table 19

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.875	.766	.751	168.03005

Table 20

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1711.589	53.289		32.119	.000
	Quality_Earn	-233.398	22.486	-.918	-10.380	.000
	Quality_Rev	-1847.708	646.191	-.253	-2.859	.007

a. Dependent Variable: Stock\_Price

**Conclusion.** In the present analysis, the units have been found to be having low revenue and earnings quality. Quality of revenue of almost every company has been volatile during the period under study. Similarly, the quality of earnings of the companies has also been quite volatile, ranging from 76% to 203% during the period under study, though above 100%. Such high volatility is not encouraging. In particular, Ranbaxy, Lupin, Cadila and Dr. Reddy's quality of revenue and earnings has been poor with great fluctuating trend over the past 3 years and with negative values.

The companies have also witnessed a volatile operating profit and sales growth. Altman's Z score for the companies has been comfortable, above the safe 2.99 level, but the large contribution from market value of equity/total assets is a cause of concern. Ranbaxy's Z score is in the grey zone, which is an alarming sign. A strong positive correlation and impact has been found out between quality of revenue and earnings and market cap with few exceptions. This highlights the importance of quality factor for market performance.

So, low quality accounting (earnings) in financial reporting system signals earnings manipulation by the management. This necessitates the relevance of fair and

ethical accounting practices by the management for the investors globally.

**Limitations of the Study and Implications for Future Research.** There are some limitations of this study which could be categorized as under:

The present study could be confined to only select leading pharmaceutical companies in India, leaving all other enterprises due to data non-availability. Creative accounting scope can be further examined in other sectors and for other motivational parameters in the light of growing investors' awareness about accrual reported numbers.

The review sought to answer the following questions:

- What information do the investors use to make financial decisions and assess stewardship?
- How reliable is this information?
- How important are financial statements for the investors' decision making and assessing stewardship?
- What is the role of regulators and standard setters in ensuring quality accounting by the management?

The findings of this study are significant not only for organisations that function in India but also for other companies that are based in economies with relatively mature markets. "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<sup>6</sup>.

#### 4 References

- Barnea, A., Ronen, J. and Sadan, S. (1976). Classificatory smoothing of income with extraordinary items, *The Accounting Review*, January, 110-122.
- Burlacu, Gh., Pătroi, D. (2005). Criminalitatea economico-financiară între național și transfrontalier, *Editura Paralela 45*, Pitesti.
- Chan, K. et al. (2004). Earnings quality and stock returns, *Working Paper*, University of Illinois at Urbana-Champaign.
- Cohen, D. (2003). Quality of financial reporting choice: determinants and economic consequences, *Working Paper*, New York University.
- Goel, Sandeep. (2012). Demystifying earnings management through accruals management: An Indian Corporate Study, *Vikalpa*, January-March, 37 (1), 49-56.
- Goel, Sandeep. (2014). The quality of reported numbers by the management: A Case Testing of Earnings Management in Corporate India, *Journal of Financial Crime*, 21(3), 355-376.
- Healy, P. M. (1985). The effect of bonus schemes on accounting decisions, *Journal of Accounting and Economics*, 7, 85-107.
- Hepworth, S. R. (1953). Smoothing periodic income, *The Accounting Review*, January: 32-39.
- Hermann, D. and Inoue, T. (1996). Income smoothing and incentives by operating condition: an empirical test using depreciation changes in Japan, *Journal of International Accounting Auditing and Taxation*, 5 (2), 161-78.
- Jones, M. (2011). Creative accounting, fraud and international accounting scandals. Chichester, USA: John and Wiley Sons Inc.
- McNichols, M. and Wilson, G. P. (1988). Evidence of creative accounting from the provision for bad debts, *Journal of Accounting Research*, 26, Supplement, 1- 33
- Niskanen, J. and Keloharju, M. (2000). Earning cosmetics in a tax-driven accounting environment: evidence from Finnish public firms, *The European Accounting Review*, 9(3),443-452.
- Penman, S. (2002). The quality of financial statements: perspectives from the recent stock market bubble, *Working Paper*, Columbia University.
- PharmaLeaders: Top 10 Pharmaceutical Companies in India Benchmark Report - Competitive Analysis of the Leading Players in 2013, Aug 22, 2013, <http://www.prnewswire.com/news-releases/pharmaleaders-top-10-pharmaceutical-companies-in-india-benchmark-report---competitive-analysis-of-the-leading-players-in-2013-220701871.html> accessed on 24th October, 2015
- Schipper, K. (1989). Commentary on creative accounting, *Accounting Horizons*, December, pp. 91-102.
- Schipper, K.; Vicent, L. (2003). Earnings quality, *Accounting Horizons*, 97-110.
- Stolowy H., Breton G. (2003). Accounts Manipulation: A Literature Review and Proposed Conceptual Framework. available on-line at: <http://www.emeraldinsight.com>.
- Tyagi, Shilpi., Mahajan, Varun. And Nauriyal, D. K. (2014). Innovations in Indian Drug and Pharmaceutical Industry: Have they Impacted Exports? *Journal of Intellectual Property Rights*, 19, July, 243-252
- Watts, R. L., and Zimmerman, J. L. (1986). Positive Accounting Theory, Englewoodcliffs: Prentice-Hall,
- Watts, R. L., Zimmerman J. L.(1990). Positive accounting theory: A ten-year Perspective, *Accounting Review*, 65, 131-156.
- Yee, K. (2006). Earnings quality and the equity risk Premium: a benchmark model. *Contemporary Accounting Research* 23:3.
- <http://www.equitymaster.com/research-it/sector-info/pharma/Pharmaceuticals-Sector-Analysis-Report.aspx> accessed 3rd September, 2014.
- <http://business.mapsofindia.com/india-company/pharmaceutical.html#sthash.wMlwYjTg.dp> accessed on 24<sup>th</sup> October, 2015.
- <http://www.ibef.org/industry/pharmaceutical-india.aspx> accessed 3rd September, 2014 & 5<sup>th</sup> April, 2016.
- <http://www.marketwatch.com/story/pharmaleaders-top-10-pharmaceutical-companies-in-india-benchmark-report-competitive-analysis-of-the-leading-players-in-2013-2013-08-22>.

<sup>6</sup> <http://www.ibef.org/industry/pharmaceutical-india.aspx> accessed April, 2016.