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Research on Relationship between EVA and EPS

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ABSTRACT

Economic Value Added (EVA) is a financial measurement tool that company can use to measure the financial performance of their unit. EVA determines if a business is earning more than its true cost of capital. EVA is an estimate of the true economic profit (not accounting profit). EVA is highly accurate because it includes the cost of debt financing and equity financing. EVA is more than just performance measurement system, it is also marketed as a motivational, compensation-based management system that facilitates economic activity, and accountability at all levels in the firm.

Keywords: *economic value, profit, accounting, trade*

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INTRODUCTION

EPS is one of the criteria for measuring the performance of a company. If EPS is increases, the possibility of a higher dividend paid by the company is also increases. However, it should be kept in mind that EPS of different companies may vary from company to company due to following of different practices followed by different companies regarding stock in trade, depreciation etc.

Economic Value Added (EVA) and one traditional performance measurement tool i.e. Earnings Per Share (EPS) to measure economic value and per share earnings of 5 pharmaceutical companies which are Sun pharmaceutical, Dr. Reddy's Laboratories, Cipla, Cadila Healthcare, Lupin Ltd. [1].

SECTION 1 OVERVIEW OF WORLD PHARMACEUTICAL MARKET

The global pharmaceutical market is expected to grow from about $ 1 trillion in 2015 to $ 1.3 trillion by 2020, representing a 4.9 percent annual growth rate. Several global demographic and economic trends are driving pharmaceutical consumption, including rapidly aging world population and associated rise in chronic diseases, increased urbanization and higher disposable incomes, higher government spending on health care, and increasing demand for more effective treatments shown in Table 1.

The worldwide pharmaceutical industry is a significant part of the world economy today, giving around one trillion US dollars in incomes every year. The American pharmaceutical industry represents about 40% of these incomes. Notwithstanding, China is quick making up for lost time as having the quickest development in the business. European pharmaceuticals have additionally demonstrated high incomes in medicine deals.

Supposed drug store nations—creating nations where utilization of pharmaceuticals is developing rapidly—

are relied upon to see the quickest development in all out medication spending throughout the following three years, making them appealing focuses for medication creators [2].

Table 1. *Global pharmaceutical market segmentation*

Region	Value in US million $
US	$339,694
Japan	$94,025
China	$86,774
Germany	$45,828
France	$37,156
Brazil	$30,670
Italy	$27,930
UK	$24,513
Canada	$21,353
Spain	$20,741
India	$20 billion

Interest for medications in pharmaceutical markets will extend at a compound yearly development rate of as much as 11% through 2018, While that would be a slight stoppage from the previous five years, it's tremendously quicker than development over the significant markets in Europe and Japan, where development is relied upon to be level and up to 4%, individually. Pharmaceutical markets will represent about half of supreme development in medication spending in 2018.

SECTION 2 CONCEPTUAL FRAMEWORKS OF EVA AND EPS

Economic Value Added: Concept

Economic Value Added (EVA) is a monetary estimation device that organization can use to quantify the money related execution of their unit. EVA decides whether a business is gaining more than its actual expense of capital. EVA is a gauge of the genuine economic benefit (not bookkeeping benefit). EVA is exceedingly precise in light of the fact that it incorporates the expense of obligation financing and value financing.

EVA is the innovation of Stern Stewart and Co., a worldwide counseling firm, which propelled EVA in 1989. EVA is Economic Value Added, a proportion of economic benefit. It is determined as the contrast between the Net Operating Profit after Tax and the open door cost of contributed Capital. This open door cost is controlled by the weighted Average expense of Debt and Equity Capital (WACC) and the measure of Capital utilized [3].

What isolates EVA from other execution measurements, for example, EPS, EBITDA, and ROIC is that it quantifies the majority of the expenses of maintaining a business—working and financing. This makes EVA the soundest presentation metric, and the one most firmly lined up with the making of investor value. Truth be told, EVA and Net Present Value mathematically tie, so organizations can be guaranteed that expanding EVA is dependably something to be thankful for its speculators—unquestionably not the situation with EPS or Free Cash Flow. Many even contend that EVA is a superior choice device than NPV in light of the fact that it catches the period-by-period value creation or demolition of a given firm or speculation, and makes it simple to review execution against the board projections

Given the handiness of the measure, numerous organizations have embraced it as a component of an exhaustive administration and motivation framework that drives their choice procedures. They endeavor to expand their EVA by;

- Increasing the NOPAT created by existing capital.
- Reducing the WACC
- Investing in new tasks where the arrival surpasses the WACC
- Divesting the capital where the arrival is beneath the WACC

Such spotlight on value creation has served the investors of these organizations well. An organizations contributed capital increased by WACC gives the base

dimension of working benefits the organizations ought to create to fulfill investors. EVA measures how much networking benefit (balanced for expense and furthermore called NOPAT) surpasses the capital charge. Numerically, EVA can be assessed concentrating both on Management of Capital just as the Management of Profits.

The utilization of this recipe will deliver either a positive or a negative EVA number. A positive EVA mirrors that the organization is expanding its value to its investors, while a negative EVA mirrors that it is decreasing its value to its investors. EVA depends on the rule that since an organization's administration utilizes value funding to win a benefit; It must pay for the utilization of this value capital. As the executive's specialist Peter Drucker stated,—Until a business restores a benefit that is more prominent than its expense of capital, it works at a misfortune. The undertaking still returns less to the economy than it eats up in asset. Up to that point it doesn't make riches; it decimates it [4].

PROFIT PER SHARE: CONCEPT

This is the most significant factor in essential examination of a stock. This combined with a couple of the related proportions should give you a reasonable thought regarding the value of a stock. Profit per share as the name shows is the 'per share incomes of an organization in a detailed period.

EPS can be utilized to break down an organization in the accompanying ways:

- Compare most recent 5 years EPS.
- Look for a development design
- If the EPS is fluctuating from positive to negative and the other way around, it may not be a decent spot to contribute
- If the organization works in a patterned industry, the annualized quarterly EPS may not be contrasted and the standard EPS
- Compare the development rate with that of the business
- Compare the development rate with that of market and industry files.

Notwithstanding contrasting the income of one organization with another truly doesn't bode well, looking at the situation objectively. Income will disclose to you nothing about what number of offers the organization has. Since you don't have the foggiest idea what number of offers an organization has, you don't have the foggiest idea what number of parts that organization's income must be partitioned into. On the off chance that the organization has more offers, the profit will be partitioned into more parts.

For instance, organizations An and B both procure Rs.100, however organization A has 10 shares remarkable, so each investor has in actuality earned Rs.10.

Then again, if organization B has 50 shares remarkable and they also have earned Rs.100 then every investor has earned Rs.2. So you see it is essential to comprehend what is the all-out number of remarkable offers are just as the income.

In this manner it bodes well to take a gander at income for every offer (EPS), as an examination device. You ascertain income per share by taking the net profit and gap by the exceptional offers [5].

EPS = Net Earnings/Outstanding Shares

So taking a gander at the EPS proportion, you ought to go purchase Company A with an EPS of 10, isn't that so? EPS isn't the main premise of contrasting two organizations; however, it is one of the techniques utilized.

EPS is one of the criteria for estimating the exhibition of an organization. On the off chance that EPS is expands, the likelihood of a higher profit paid by the organization is likewise increments. In any case, it ought to be remembered that EPS of various organizations may fluctuate from organization to organization because of following of various practices pursued by various organizations with respect to stock in exchange, deterioration and so on.

Another most significant thing about income per share proportion is that each organization ought to require referencing essential profit per share and weakened profit per share in its review report agreeing Indian Accounting Standard 20. The target of this bookkeeping standard is as under:

The goal of this Standard is to endorse standards for the assurance and introduction of profit per share which will improve correlation of execution among various undertakings for a similar period and among various bookkeeping periods for a similar endeavor. The focal point of this Standard is on the denominator of the income per share estimation. Despite the fact that income per share information has constraints as a result of various bookkeeping arrangements utilized for deciding profit', a reliably decided denominator upgrades the nature of budgetary announcing [6].

RESEARCH METHODOLOGY

Introduction to the Topic

Maximizing the shareholder value is considered as one of the fundamental goals of all businesses. In United States, top management is expected to maximize shareholder value. There are a number of value based management frameworks. Shareholder value analysis (SVA) Rapport (1986) and Economic Value Analysis (EVA) developed by Stern Stewart (1990) are the two well-known ones. Maximizing shareholders value is becoming the new corporate standard in India. The corporate, who gave the lowest preference to the shareholders inquisitiveness, are now bestowing the utmost inclination to it. Shareholders 'wealth is measured in terms of the returns they receive on their investment. The returns can either be in the form of dividends or in the form of capital appreciation or both. Capital appreciation in turn depends on the subsequent changes in the market value of shares. This market value of shares is influenced by a number of factors, which can be company specific, industry specific and macro-economic in nature.

Problem of the Study

The problem of my study is to analyze the relationship between Economic Value Added and Earnings per Share in pharmaceutical companies. So my study is focusing on

To study the relationship between economic value-added and earnings per share of top 5 Indian pharmaceutical companies

OBJECTIVES OF THE STUDY

This research paper studies selected Indian pharmaceutical companies' profiles to demonstrate a direct correlation between Economic Value Added and Earnings per Share. The purpose of this paper is to introduce an appropriate way of evaluating pharmaceutical firms performance and also see which selected pharmaceutical firm have been able to create (or destroy) shareholders wealth since 2006–07.

The overriding message of this paper is that firms must always strive to maximize shareholders value without which their stocks can never be fancied by the market.
The main objectives of analysis are as follows:

- To establish which pharmaceutical firm has created shareholders value in each of the reporting periods since 2013–13 to 2017–18.

- To describes the concept of EVA and EPS.
- To analyze the relationship between EVA and EPS.
- To judge the relation between EVA and change in per share earnings.
- To establish that EVA and EPS are better measures of performance.
- To give the framework to the investors to use EVA and EPS, considering both its favorable and unfavorable features in determination of the value created on their investments.

DATA COLLECTION METHOD

This study is mainly based on secondary data. All the data of 5 pharmaceutical companies are collected from the annual reports of respective firms and various web sites.

HYPOTHESIS OF THE STUDY

H0: There is no significant relationship between EVA and EPS.
H1: There is significant relationship between EVA and EPS.

ANALYSIS AND INTERPRETATION

1. Net Operating Profit after tax (NOPAT)
Net Operating Profit after Tax is calculated by following way.

NOPAT = Profit after Tax as per P&L account (+) Interest on Long Term Borrowing Adjusted for Tax Where, Interest on Long term borrowings adjusted for tax can be calculated by multiplying interest on long term borrowing with (1-tax rate). Amount of NOPAT for selected pharmaceutical firms is as under.

As per the Table 2, the following interpretation has been made.

Comparing all the five selected pharmaceutical firms for analysis, we can prelude that Lupin leads the race among all the 5 firms by holding the highest Net Operating Profit After tax of Rs.22794.50 million in 2017–18, 24444.30 in 2016–17 and 18695.00 in 2015–16. In the competition, Dr. Reddy's stood second with NOPAT of Rs.13545.00 million in 2017–18, 16794.00 million in 2016–17 and 19328.00 million in 2015–16. Then in the third number, Cadila comes with Net Operating Profit after Tax of 19773.00 in 2017–18, 12711.00 million in 2016–17 and 8036.00 million in 2015–16. Then in the fourth position, Cipla comes with the Net Operating Profit after Tax of Rs.13980 million in 2017–18, 11810.90 million in 2016–17 and 13883.40 million in 2015–16. Then in fifth number, sun pharmaceutical comes with the Net Operating Profit after Tax of Rs.-10733.60 million in 2017–18, -14741.30 million in 2016–17 and -28285.20 in 2015–16.

This ranking is given on the basis of all the 5 pharmaceutical firms. If we go to the year by year comparison, result will be following. In the year of 2017–18, the sequence of ranks will be Lupin, Cadila, Cipla, Dr. Reddy's, and Sun Pharmaceutical respectively. In the year of 2016–17, the sequence of ranks will be Lupin, Dr. Reddy's, Cadila, Cipla and Sun Pharmaceutical respectively. And In the year of 2015–16, First comes Dr. Reddy's, Lupin, Cipla, Cadila and Sun Pharmaceutical respectively.

Capital Employed (CE)

Capital Employed is calculated by following way.
Capital Employed = Equity Share Capital + Preference Share Capital + Long Term Borrowings
Amount of total capital employed for all the 5 pharmaceutical firms in each year is as under.

From Table 3, the following interpretation has been made.

Sun Pharmaceutical has the highest capital employed of Rs.21699.30 million in the

year 2017–18, then 13774.40 million in 2016–17 and 2117.60 million in 2015–16. Dr. Reddy's has the highest capital employed of Rs.10797.00 million in 2017–18, then 10243.00 million in 2016–17 and 9866.00 million in 2015–16. CIPLA has the highest capital employed in the year in 2015–16 of 1610.10 million, 1610.00 million in 2016–17 and 1608.10 million in 2017–18. Cadila has the highest capital employed of Rs.14646.00 million in 2015–16, 6860.00 million in 2016–17 and 5324.00 million in 2017–18. Lupin has the highest capital employed in the year 2017–18 of Rs.54640.20 million, 2406.40 million in 2015–16 and 1917.30 million in 2016–17.

If we go the year wise analysis, ranking will be as follows. In the year of 2017–18, the highest is Lupin, then Sun Pharmaceutical, then Dr. Reddy's, then Cadila and at last is Cipla. In the year of 2016–17, first is Sun Pharmaceutical, second is Dr. Reddy's, third is Cadila, fourth is Lupin, and fifth is Cipla. And in the year of 2015–16, ranks are Cadila, Dr. Reddy's, Lupin, Sun Pharmaceutical and Cipla respectively.

Weighted Average Cost of Capital (WACC)

Weighted Average Cost of Capital is calculated by following formula.

WACC = (Equity Capital * Cost of Equity / Capital Employed) + (Preference Capital * Cost of Preference / Capital Employed) + (Long Term Borrowing * Cost of Debt / Capital Employed)

There are mainly two components of WACC. Namely, (a) Cost of Equity, (b) Cost of Debt

Now first we will discuss both this components of WACC. Than we move to the discussion of WACC. Details regarding both components are as follows.

Cost of Equity

Cost of Equity can be calculated by following formula.

Cost of Equity (Ke) = Rf + β (Rm – Rf)

Risk Free Rate of Return (Rf) is that Percentage of return which any individual can get on his investment in government securities. At Present, Rf is 4.60%.

Market Rate of Return (Rm) is calculated by following formula.

Rm = Sum of change in nifty/Number of months

Market Rate of Return for the year of 2017–18 is 1.46, for the year of 2016–17 is -0.66 and for the year of 2015–16 is 2.05.

Beta is calculated by following formula.

β = (Number of months * Total of xy) – (Total of x * Total of y) /(Number of months * total of x2) – (Total of x)2

Beta factor for all the selected firms in each year is as follows shown in Table 4.

After deriving values of Market Rate of Return, Risk free Rate of Return and Beta Factor, we can get the Cost of Equity. Cost of Equity for all the selected pharmaceutical firms in each year is as under

As per the Table 5, the following interpretation has been made.

Sun Pharmaceutical has highest cost of equity in the year 2017–18 that is 7.99%, then in 2015–16 that is 3.68% and minimum in 2016–17 with 3.39%. Dr. Reddy's has highest cost of equity in 2016–17 that is 6.34%, then 3.94% in 2015–16 and minimum in 2017–18 that is 3.46%. Cipla has highest cost of equity in the year 2016–17 that is 9.47%, second highest in 2015–16 that is 4.78%, and minimum in 2017–18 that is 4.61%. Cadila has highest cost of equity in 2017–18 that is 9.26%, second highest in 2016–17 with 5.05% and minimum in 2015–16 that is 4.10%. Lupin has highest cost of equity in 2017–18 with 4.71%, second highest in 2015–16 with 3.57% and minimum in 2016–17 that is -0.69%.

If we go to the year wise analysis, ranking will be as follows. In the year of 2017–18,

the highest is Cadila, then Sun Pharmaceutical, then Lupin, then Cipla, then Dr. Reddy's at last. In the year of 2016–17, first is Cipla, second is Dr. Reddy, third is Cadila, fourth is Sun Pharmaceutical, fifth is Lupin. And in the year of 2015–16, ranks are Cipla, Cadila, Dr. Reddy's, Sun Pharmaceutical, and Lupin respectively.

Cost of Debt

Cost of Debt can be calculated by following formula.

Kd = Interest on Long Term Borrowing * (1 – Tax Rate) * 100 /Long Term Borrowing

Cost of Debt for all the selected pharmaceutical firms in each year are as follows in Table 6.

As per the Table 6, the following interpretation has been made.

Sun Pharmaceutical has highest cost of debt in the year 2015–16 that is 8.24%, then in 2017–18 that is 8.23% and minimum in 2016–17 with 7.43%. Dr. Reddy's has highest cost of debt in 2016–17 that is 8.16%, then 8.10% in 2015–16 and minimum in 2017–18 that is 8.00%. Cipla has highest cost of debt in the year 2017–18 that is 7.95%, second highest in 2016–17 that is 7.93%, and minimum in 2015–16 that is 7.80%. Cadila has highest cost of debt in 2016–17 that is 8.66%, second highest in 2015–16 with 8.57% and minimum in 2017–18 that is 8.24%. Lupin has highest cost of debt in 2016–17 with 7.06%, second highest in 2015–16 with 6.63% and minimum in 2017–18 that is 6.61%.

If we go to the year wise analysis, ranking will be as follows. In the year of 2017–18, the highest is Cadila, then Sun Pharmaceutical, then Dr. Reddy's, then Cipla, and Lupin. In the year of 2016–17, first is Cadila, second is Dr. Reddy's, third is Cipla, fourth is Sun Pharmaceutical, and fifth is LUPIN. And in the year of 2016–17, ranks are Cadila Sun Pharmaceutical, Dr. Reddy's, Cipla, and LUPIN respectively.

After deriving values of Cost of Debt and Cost of Equity, we can get the value of weighted average cost of capital.

Table 2. *Net operating profit after tax (NOPAT)*

	2017–18	2016–17	2015–16
Sun Pharmaceutical	-10733.60	-14741.30	-28285.20
Dr. Reddy	13545.00	16794.00	19328.00
Cipla	13980.30	11810.90	13883.40
Cadila	19773.00	12711.00	8036.00
Lupin	22794.50	24444.30	18695.00

(Data Source: Compiled Data)

Table 3*. Capital Employed (CE).*

	2017–18	2016–17	2015–16
Sun pharmaceutical	21699.30	13774.40	2117.60
Dr. Reddy's	10797.00	10243.00	9866.00
Cipla	1608.10	1610.00	1610.10
Cadila	5324.00	6860.00	14646.00
Lupin	54640.20	1917.30	2406.40

(Data Source: Compiled Data)

Table 4*. BETA*

	2017–18	2016–17	2015–16
Sun pharmaceutical	1.08	-0.23	-0.36
Dr. Reddy's	-0.36	0.33	-0.26
Cipla	0.00	0.93	0.07
Cadila	1.48	0.09	-0.20
Lupin	0.04	-1.01	-0.41

(Data Source: Compiled Data)

Table 5*. Cost of Equity (Ke)*

	2017–18	2016–17	2015–16
Sun pharmaceutical	7.99	3.39	3.68
Dr. Reddy's	3.46	6.34	3.94
Cipla	4.61	9.47	4.78
Cadila	9.26	5.05	4.10
Lupin	4.71	-0.69	3.57

(Data Source: Compiled Data)

Table 6. *Cost of Debt (Kd)*

	2017–18	2016–17	2015–16
Sun pharmaceutical	8.23	7.43	8.24
Dr. Reddy's	8.00	8.16	8.10
Cipla	7.95	7.93	7.80
Cadila	8.24	8.66	8.57
Lupin	6.61	7.06	6.63

(Data Source: Compiled Data)

Weighted Average Cost of Capital
WACC of all the 5 selected firms in each year is as follows in Table 7.

As per the Table 7, the following interpretation has been made.

Sun Pharmaceutical has highest WACC in the year 2017–18 that is 8.21%, then in 2016–17 that is 6.82% and minimum in 2015–16 with 3.78%. Dr. Reddy's has highest WACC in 2016–17 that is 8.01%, then 7.74% in 2015–16 and minimum in 2017–18 that is 7.64%. Cipla has highest WACC in the year 2016–17 that is 9.46%, second highest in 2015–16 that is 4.79%, and minimum in 2017–18 that is 4.61%. Cadila has highest WACC in 2017–18 that is 8.44%, second highest in 2015–16 with 8.26% and minimum in 2016–17 that is 8.12%. Lupin has highest WACC in 2017–18 with 6.58%, second highest in 2015–16 with 5.49% and minimum in 2016–17 that is 3.43%.

So from the above analysis we can say that most of the firms have highest WACC in the year of 2016–17, then second highest in the year of 2017–18 and minimum in the year of 2015–16. If we go to the year wise analysis, ranking will be as follows. In the year of 2017–18, the highest is Cadila, then Sun Pharmaceutical, Dr. Reddy's, then Lupin, then at last Cipla. In the year of 2016–17, first is Cipla, second is Cadila, third is Dr. Reddy's, fourth is Sun Pharmaceutical, and fifth is Lupin. And in the year of 2015–16 the ranks are Cadila, Dr. Reddy's, Lupin, Cipla, and Sun Pharmaceutical respectively.

Economic Value Added (EVA)
Economic Value Added can be calculated from the following formula:
EVA = Net Operating Profit after Tax – (WACC * Capital Employed)
We have the value of all the components of EVA that is NOPAT, WACC and Capital Employed. Now the amount of Economic Value Added is as under Table 8.

From the Table 8, we can come to the following interpretations.

Sun Pharmaceutical has the lowest EVA in 2015–16 of Rs.-28361.33 million, second lowest in the year 2016–17 of Rs.-14811.50 million and third lowest in 2017–18 of Rs.-10925.86 millions. Dr. Reddy's has the highest EVA in 2015–16 of Rs.19294.48 million, then 16739.99 million in 2016–17 and 13515.46 million in 2017–18. Cipla has highest EVA in 2017–18 of Rs.13906.20 million, second highest in 2015–16 of Rs.13806.65 million and minimum in 2016–17 of Rs.11658.86 million. Cadila has highest EVA in 2017–18 of Rs.19678.21 million, then in 2016–17 of Rs.12659.25 million and at the last 2015–16 of Rs 7994.02 million. Lupin has the highest EVA in 2016–17 of Rs.24450.50 million, then in 2017–18 Rs.22752.03 million, then in 2015–16 Rs.18663.01 million.

So from above analysis, we can interpret that most of the firms have highest EVA in the year of 2017–18, then in 2016–17 and minimum in 2015–16. If we go to the year wise analysis, ranking will be as follows. In the year of 2017–18, first is Lupin, second is Cadila, third is Cipla, Fourth is Dr. Reddy's, and fifth is Sun Pharmaceutical. In the year of 2016–17, ranks will be Lupin, Dr. Reddy's, Cadila, Cipla and Sun Pharmaceutical respectively. And in the year of 2015–16, first is Dr. Reddy's, then Lupin, then Cipla, then Cadila, and then Sun Pharmaceutical.

Analysis of EPS
Earnings per Share can be calculated by following formula:
Earnings Per Share = Net Profit/Number of Equity Shares
Earnings per Share for all the 5 pharmaceutical firms in each year will be as follows in Table 9.

From the Table 9, following interpretations can be made.

Sun Pharmaceutical has lowest EPS in 2015–16 of Rs.-13.66, second lowest in 2016–17 of Rs.-7.12 and third lowest in 2017–18 of Rs, -4.46. Dr. Reddy's has highest EPS of Rs.113.67 in 2015–16, then 98.61 in 2016–17 and at the last Rs 79.42 in 2017–18. Cipla has maximum EPS in the year of 2017–18 of Rs.174.01, then in 2016–17 of Rs.147.08 and minimum in the year of 2015–16 of Rs 17.29. Cadila has highest EPS in 2017–18 of Rs.19.31, then 12.41 in 2016–17 and 7.85 in 2015–16. LUPIN has highest EPS in 2016–17 of Rs.53.46, then in 2017–18 of Rs.50.39 and minimum in 2015–16 of Rs.40.95.

If we go to the year wise analysis, ranking will be as follows. In 2017–18, first rank is given to the Cipla, second to Dr. Reddy's, third to the Lupin, fourth to the Cadila, fifth to the SUN Pharmaceutical. In 2016–17, highest EPS is of Cipla, then Dr. Reddy's, then Lupin, then Cadila, then at last Sun Pharmaceutical. And in the year of 2015–16, ranks are Dr. Reddy's, Lupin, Cipla, Cadila, and Sun Pharmaceutical respectively.

HYPOTHESIS TESTING

Sun Pharmaceutical

HO = There is no significant relationship between EVA and EPS
H1 = There is significant relationship between EVA and EPS

Decision Rule: In the Table 10, value of t is greater than calculated value of t than null Hypothesis is accepted otherwise rejected.

In Sun Pharmaceutical, table value of t at 5% level of significance is 2.776445 and calculated value of t is -3.41074. Hence, table value of t is less than calculated value of t, so the null hypothesis is rejected and alternate hypothesis is accepted. It means there is significant relationship between EVA and EPS. Mean value of EVA in study period is -18032.9 and mean value of EPS in study period is -8.41126. Variance of EVA is 83781978 and variance of EPS is 22.39907. From this analysis, we can say that any change in EVA will leads to that change in EPS also. If EVA increases, EPS will also increase and vice versa.

We can also see in chart that in 2017–18 EVA is -10925.86 and EPS is -4.46. Then in 2016–17, EVA is -14811.50, EPS is -7.12. And then in 2015–16, EVA is-28361.33, EPS is -13.66. It shows that there is positive relationship between EVA and EPS.

So we can conclude that EVA and EPS are positively correlated. Any change in one Factor results in change in second factor also. If EVA increases than EPS will also Increase and of EVA decreases than EPS will also decrease. And EVA and EPS have significant relationship.

Dr. Reddy's

HO = There is no significant relationship between EVA and EPS
H1 = There is significant relationship between EVA and EPS

Decision Rule: In the Table 11, value of t is greater than calculated value of t than null Hypothesis is accepted otherwise rejected.

In Dr. Reddy's, table value of t at 5% level of significance is 2.776445 and calculated value of t is 9.820105. Hence table value of t is less than calculated value of t, so the null hypothesis is rejected and alternate hypothesis is accepted. It means there is significant relationship between EVA and EPS. Mean value of EVA in study period is 16516.64 and mean value of EPS in study period is 97.23214. Variance of EVA is 8386657 and variance of EPS is 294.6306. From this analysis, we can say that any change in EVA will leads to that change in EPS also. If EVA increases, EPS will also increase and vice versa.

We can also see in chart that in 2017–18 EVA is 13515.46 and EPS is 79.42062. Then in 2016–17, EVA increases to 16739.99, EPS also increases to 98.60842. And then in 2015–16, EVA is further increases to 19294.48, EPS also further increases to 113.6674. It shows that there is positive relationship between EVA and EPS.

So we can conclude that EVA and EPS are positively correlated. Any change in one factor results in change in second factor also. If EVA increases than EPS will also increase and of EVA decreases than EPS will also decrease. And EVA and EPS have significant relationship.

Cipla

HO = There is no significant relationship between EVA and EPS

H1 = There is significant relationship between EVA and EPS

Table 7. *Weighted Average Cost of Capital (WACC)*

	2017–18	**2016–17**	**2015–16**
Sun pharmaceutical	8.21	6.82	3.78
Dr. Reddy's	7.64	8.01	7.74
Cipla	4.61	9.46	4.79
Cadila	8.44	8.12	8.26
Lupin	6.58	3.43	5.49

(Data Source: Compiled Data)

Table 8*. Economic value added (EVA).*

	2017–18	**2016–17**	**2015–16**
Sun pharmaceutical	-10925.86	-14811.50	-28361.33
Dr. Reddy's	13515.46	16739.99	19294.48
Cipla	13906.20	11658.86	13806.65
Cadila	19678.21	12659.25	7994.02
Lupin	22752.03	24450.50	18663.01

(Data Source: Compiled Data)

Table 9*. Earnings per Share (EPS)*

	2017–18	**2016–17**	**2015–16**
Sun pharmaceutical	-4.46	-7.12	-13.66
Dr. Reddy's	79.42	98.61	113.67
Cipla	174.01	147.08	17.29
Cadila	19.31	12.41	7.85
Lupin	50.39	53.46	40.95

(Data Source: Compiled Data)

Table 10. *Sun Pharmaceutical*

	EVA	**EPS**
2017–18	-10925.86	-4.46
2016–17	-14811.50	-7.12
2015–16	-28361.33	-13.66
Mean	-18032.9	-8.41126
Variance	83781978	22.39907
Observation	3	3
Degree of freedom	4	
Table Value of t	2.776445	
Calculated Value of t	-3.41074	

Table 11. *Dr. Reddy's*

	EVA	**EPS**
2017–18	13515.46	79.42062
2016–17	16739.99	98.60842
2015–16	19294.48	113.6674
Mean	16516.64	97.23214
Variance	8386657	294.6306
observations	3	3
Degree of freedom	4	
Table Value of t	2.776445	
Calculated Value of t	9.820105	

Table 12. *Cipla*

	EVA	**EPS**
2017–18	13906.2	174.0142
2016–17	11658.86	147.0847
2015–16	13806.65	17.29244
Mean	13123.9	112.7971
Variance	1612236	7022.155
Observations	3	3
Degree of freedom	4	
Table Value of t	2.776445	
Calculated Value of t	17.70993	

Decision Rule*:* In the Table 12, value of t is greater than calculated value of t than null Hypothesis is accepted otherwise rejected.

In Cipla, table value of t at 5% level of significance is 2.776445 and calculated value of t is 17.70993. Hence table value of t is less than calculated value of t, so the null hypothesis is rejected and alternate hypothesis is accepted. It means there is significant relationship between EVA and EPS. Mean value of EVA in study period is 13123.9 and mean value of EPS in study period is 112.7971. Variance of EVA is 1612236 and variance of EPS is 7022.155. From this analysis, we can say that any change in EVA will leads to inverse change in EPS. If EVA increases, EPS will decrease and vice versa.

We can also see in chart that in 2017–18 EVA is 13906.2 and EPS is 174.0142. Then in 2016–17, EVA is decreases to 11658.86, EPS also decreases to 147.0847. And then in 2015–16, EVA further increases to 13806.65, but EPS decreases to 17.29244. It shows that there is inverse relationship between EVA and EPS.

So we can conclude that EVA and EPS are negatively correlated. Any change in one Factor results in inverse change in second factor also. If EVA increases than EPS will decrease and of EVA decreases than EPS will increase. And EVA and EPS have significant relationship.

Cadila

HO = There is no significant relationship between EVA and EPS
H1 = There is significant relationship between EVA and EPS

***Decision Rule**:* In the Table 13, value of t is greater than calculated value of t than null hypothesis is accepted otherwise rejected.

In Cadila, table value of t at 5% level of significance is 2.776445 and calculated value of t is 3.955222. Hence table value of t is less than calculated value of t, so the null hypothesis is rejected and alternate hypothesis is accepted. It means there is significant relationship between EVA and EPS. Mean value of EVA in study period is 13443.83 and mean value of EPS in study period is 13.1901. Variance of EVA is 34591740 and variance of EPS is 33.29669. From this analysis, we can say that any change in EVA will leads to that change in EPS also. If EVA increases, EPS will also increase and vice versa.

We can also see in chart that in 2017–18 EVA is 19678.21 and EPS is 19.30957. Then in 2016–17, EVA is decreases 12659.25 to, EPS also decreases to 12.41309. And then in 2015–16, EVA is decreases to 7994.025, EPS also decreases to 7.847656. It shows that there is positive relationship between EVA and EPS.

So we can conclude that EVA and EPS are positively correlated. Any change in one factor results in change in second factor also. If EVA increases than EPS will also increase and of EVA decreases than EPS will also decrease. And EVA and EPS have significant relationship.

Lupin

HO = There is no significant relationship between EVA and EPS
H1 = There is significant relationship between EVA and EPS

***Decision Rule**:* In the Table 14, value of t is greater than calculated value of t than null Hypothesis is accepted otherwise rejected.

In Lupin, table value of t at 5% level of significance is 2.776445 and calculated value of t is 12.75468. Hence table value of t is less than calculated value of t, so the null hypothesis is rejected and alternate hypothesis is accepted. It means there is significant relationship between EVA and EPS. Mean value of EVA in study period is 21955.18 and mean value of EPS in study period is 48.27039. Variance of EVA is 8849984 and variance of EPS is 42.50847. From this analysis, we can say that any change in EVA will leads to that change in EPS also. If EVA increases, EPS will also increase and vice versa.

We can also see in chart that in 2017–18 EVA is 22752.03 and EPS is 50.39. Then in 2016–17, EVA increases to 24450.5, EPS also increases to 53.46. And then in 2015–16, EVA further decreases to 18663.01, EPS also further decreases to 40.95. It shows that there is positive relationship between EVA and EPS.

Table 13. *Cadila*

	EVA	EPS
2017–18	19678.21	19.30957
2016–17	12659.25	12.41309
2015–16	7994.025	7.847656
Mean	13443.83	13.1901
Variance	34591740	33.29669
Observation	3	3
Degree of freedom	4	
Table Value of t	2.776445	
Calculated Value of t	3.955222	

Table 14. *Lupin*

	EVA	EPS
2017–18	22752.03	50.39
2016–17	24450.5	53.46
2015–16	18663.01	40.95
Mean	21955.18	48.27039
Variance	8849984	42.50847
Observations	3	3
Degree of freedom	4	
Table Value of t	2.776445	
Calculated Value of t	12.75468	

So we can conclude that EVA and EPS are positively correlated. Any change in one factor results in change in second factor also. If EVA increases than EPS will also increase and of EVA decreases than EPS will also decrease. And EVA and EPS have significant relationship.

FINDINGS

Economic Value Added is showing positive values maximum times. 4 out of 5 firms are showing are positive values of EVA, only one firm that is Sun Pharmaceutical is having negative value due to negative profit after tax in all the 3 years under study. EVA of all the five firms does not follow any kind of trends. That is not increasing every year or not even decreasing every year. Thus the trend is not uniform. The firm with all-time highest value among the 5 firms in 3 years is Lupin with Rs.24450.50 in 2016–17.

Earnings per Share is also showing mix trend. It means sometimes it is increasing year by year or sometimes it is increasing and sometimes it is decreasing year by year. EPS of 2 firms that is Lupin, and Cipla shows upward trend that is EPS of 2017–18 is more than EPS of 2016–17 and EPS of 2016–17 is more than 2015–16. Another 3 firms that is Sun Pharmaceutical, Dr. Reddy's and Cadila does not show any constant trend.

Hypothesis is tested through t Test. In all 5 firms that is Sun Pharmaceutical, Dr. Reddy's, Cipla, Cadila and Lupin null hypothesis is rejected and alternate hypothesis is accepted. It means there is significant relationship between EVA and EPS. Increase in one leads to increase in other and vice-versa.

CONCLUSION

EVA is the performance measure that is tied most directly to the creation of shareholder wealth or destroyed shareholder wealth. In this study, all the firms all 4 have created shareholder's wealth as EVA is positive in all the 4 firms in each year, only Sun Pharmaceutical shows negative EVA in all the 3 years. EPS is a tool for measuring financial performance and per share earnings for the equity shareholders. From this study, I can conclude that there is significant relationship between Economic Value Added and Earnings per Share. As Economic Value Added is based on Economic Profit and Capital Employed and Earnings per Share is also based on Net Profit and Number of Equity Shares, both are interrelated. And it is proved through t test. Null hypothesis is rejected in all the firms. It means all the firms having significant relationship between Economic Value Added and Earnings per Share.

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