THE ANALYSIS OF LEVERAGE IN INDONESIA'S FOOD AND BEVERAGE PROCESSING COMPANIES TO THEIR PROFITABILITY

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ABSTRACT

Leverage is a method used by companies to increase their earnings by taking risk in debt, level of fixed asset, and the combination of both. Those methods can affect company's profitability due to the risk they taken by applying this method. The greater risk company take by using leverage, their expected return should also be greater. The purpose of this research is to create comparison about leverage usage in sample companies and to analyze is there any difference in the profitability of the food and beverage companies after they applied financial leverage, operating leverage, and total leverage to maximize profit. This research used quantitative analysis by one-way Anova. Samples are the six public companies listed in Indonesian Stock Exchange and classified in Indonesia's food and beverage processing industry. The conclusion is Indofood Sukses Makmur applied highest financial leverage and Charoen Pokphand Indonesia applied highest operating and total leverage. One-way Anova was conducted for financial, operating, and total leverage but shows no significant difference between the sample companies. Although leverage exists and used by company, it is not strong enough to affect company profitability. The management of company should maximize leverage in order to maximize their profit as well.

Keywords: financial leverage, operating leverage, total leverage, profitability

INTRODUCTION

Research Background

Indonesia is such a big country with a lot of cultures involved in its people. One of the cultures that are still exists among the Indonesian people is their passion related with food. Food industry is keep growing in Indonesia nowadays, ranging from street food stalls until big companies with factories spread through the country. This industry starts to take an important role in daily life of Indonesian people. Foods and beverage processing with agrifood companies is also building their names in Indonesia's growing economy.

Increasing demand within the country, new flavors and products have been made for the market, aggressive promotional activities, growing modern retail outlets, and increasing health awareness are factors that support their sales to go up almost every year (Rangkuti, 2009). The demand for food and beverage within the country cannot be avoided due to the growing busy and modern lifestyle of Indonesian people. This lifestyle makes them want to buy food and beverage as they go. Companies also come up with innovation for their product, attracting more and more customers. Retail outlets have become cozy and modern which drive people to buy their food; not just cook them at home. Meanwhile increasing health awareness make people become selective in choosing what food and beverage to consume and buy in the supermarket. Product from the industry is well known for its nutrition, so people are getting used to buy and consume them. These are promising industries backed up with the passion of Indonesian people with food; both traditional and packaged foods. Some producers in this food and beverage processing industry has been analyzed in this research to find out about their financial mix and to see the impact of those ratios to company's profitability.

Research Objectives

This research aims to find out:

1. The comparison of leverage usage by food and beverage processing companies.
2. Whether there is significant difference in food and beverage processing companies' profitability or not (measured using leverage ratio).

THEORETICAL FRAMEWORK

Theories

Financial Leverage

Al-Haddad, et al. (2011) explains that financial leverage is about how far company able to finance their debt. If interest rates are low, financial leverage can be seen as a good idea for company because it means the debt will not be much burden for them. The limitations of financial leverage can be pretty harmful, so it is important to use it properly. With more debt, more risk and higher interest rates to be paid also come with it in one package. So for a public company, stockholders will be concerned about the situation and can influence the share price. The degree of financial leverage (DFL) defined by Alaghi (2011) as "the percentage change in earnings per share that results from a given percentage change in earnings before interest and taxes (EBIT)."

When company applies debt while the total capital does not change, it means they are trying to use their resources efficiently – by finding less expensive fund source with the same value to replace the expensive one. Since they use financial leverage, their return on shareholders equity will be low enough. The end result is return on equity and earnings per share are maximized. But it is important to remember that the condition described above is applicable when company has the ability to make their cost of financing less than their return on investment. If they can maintain this situation, then when financial leverage increases, return on equity or earnings per share will experience the same thing. The moment company cannot collect more than their financing cost but still doing more financial leverage, there is no excess to create magnification of their ROE and EPS so these two will go down. As company use leverage to add more numbers on their profit, the higher financial leverage helps to increase earnings per share, and less financial leverage results in lower earnings per share (Bhayani and Ajmera, 2011).

Operating Leverage

As company has fixed operating cost, they will use it to maximize the effect created by changes in sales on their EBIT. So whenever company keep paying fixed operating cost as expenses even though not producing product, operating leverage is exist (Chandrakumarmangalam and Govindasamy, 2010). Keown, et al. (2005:523) also said that when company engaged in higher degree of operating leverage, profit also will be different depends on the percentage change in sales.

Vasilescu and Giurescu (2006) stated that the effect created by changes in revenues on profit or cash flow is another definition of operating leverage. When a company is able to able to increase their revenue and keep the operating expenses almost unchanged, then operating leverage will increase.

Because net income is created after subtracting variable and fixed cost from sales, it is beneficial to employ higher operating leverage when sales increase, as net income will also increasing faster thanks to leverage support. But when sales decrease, high operating leverage will cause net income decrease more than the normal position (Saleem, et al., 2013).

Total/Combined Leverage

If business already exposed in high level of risk in their activity, it is good to have lower financial leverage sot that earning fluctuations due to changes in sales can be minimized. Company that is already engaged in low fixed operating cost might employ higher level of financial leverage to increase Earnings per Share and rate of return on their investment (Keown, et al., 2005:530).

When operating and financial leverage are combined and multiplied, both of them will create wide variations in Earnings per Share as sales also changes. Operating leverage will give its influence on EBIT and EPS will be affected by financial leverage. This is the reason why the company must find a balance between financial and operating leverage. High level of leverage is not advised to company that experience wide

fluctuations in sales because it only will increase their level of risk (Chandrakumarmangalam and Govindasamy, 2010).

Eakins (2005:353) stated that combined leverage will be pushed to higher level whenever changes exist in both EPS and sales. The same thing will occur whenever company decides to employ more fixed cost or debt. If one of the two leverages increases, company total risk will be affected, since total leverage combine business risk from operating leverage and financial risk comes from financial leverage (Rafique, 2011).

Previous Research

Chandrakumarmangalam and Govindasamy (2010) with the title Leverage – An Analysis and Its Impact on Profitability with Reference to Selected Cement Companies in India tried to analyze and understand the impact of leverage on the profitability of the firm. They investigated relationship between financial, operating, and combined leverage and earning per share; and also explain the relationship between debt equity ratio and earning per share. They proposed that fixed operating expenses and the financing mix decisions of the firm are significantly influencing the earning capacity of the firm. The leverage effect is positive when the earnings of the firm are higher than the fixed financial charges to be paid for the lenders. The leverage is an important factor which is having impact on the profitability of the firm and the wealth of the shareholders can be maximized when the firm is able to employ more debt.

Research Hypotheses

H_0 :   There is no significant difference in profitability of food and beverage processing companies.
H_a :   There is significant difference in profitability of food and beverage processing companies.

RESEARCH METHOD

Types of Research

In this study the researchers used a type of conceptual study that creating a framework in order to get scientific answers of problem researched. Existing company data are used in order to get scientific answers and provide explanation about variables related to the research theoretically.

Place and Time of Research

The located of this study was in Manado city, North Sulawesi, Indonesia. The study was conducted in Manado from April – May 2014 (a month).

Population and Sample

This research, the population refers to Indonesia's food and beverage processing with agrifood industry which is listed in Indonesian Stock Exchange. The samples are six selected companies to be analyzed for their respectively recent eight years financial statement (from 2006 – 2013). Those data then will be processed further to measure the degree of financial, operating, and total leverage for each company. The six companies are: PT Nippon Indosari Corpindo, Tbk., PT Indofood Sukses Makmur, Tbk., PT Ultra Jaya Milk Industry and Trading Company Tbk., PT Charoen Pokphand Indonesia, Tbk., PT Japfa Comfeed Indonesia, Tbk., and PT Unilever Indonesia, Tbk.

Operational Definition and Measurement of Variables

1.   Financial Leverage (Variable X_1) is "the potential use of fixed financial costs to magnify the effects of changes in earning before interest and taxes (EBIT) on the firm's earnings per share (EPS)" (Eakins, 2005:527).
2.   Operating Leverage (Variable X_2) is "the potential use of fixed operating costs to magnify the effects of changes in sales on the firm's earnings before interest and taxes (EBIT)" (Eakins, 2005:529).
3.   Total /combined Leverage (Variable X_3) is "the potential use of fixed costs, both operating and financial, to magnify the effect of changes in sales on the firm's earnings per share (EPS)" (Eakins, 2005:535).

Data Analysis Method

Degree of Leverage Formula

a)   Degree of Financial Leverage from base EBIT level:

$$DFL_{EBIT} = \frac{\text{Percentage change in earnings per share (EPS)}}{\text{Percentage change in EBIT}}$$

b)   Degree of Operating Leverage from the base sales level:

$$DOL_{s} = \frac{\text{Percentage change in EBIT}}{\text{Percentage change in sales}}$$

c)   Degree of Combined/Total Leverage:

DTL = DOL * DFL

Source: Keown, et al. (2005:525,520,528)

Anova Analysis Method

The one-way analysis of variance (Anova) is used to find out if there is any significant difference between the means of three or more independent groups. The one-way Anova does it by comparing the means between the groups used for the research and recognize if the mean of certain group(s) are different from the others. Basically, the null hypothesis tested is:

$$H_O: \mu_1 = \mu_2 = \mu_3 = \cdots = \mu_k$$

where μ = group mean and k = number of groups. At least two group means are significantly different from each other when significant result comes up, and alternative hypothesis (H_A) will be accepted. One-way Anova is quite robust regarding normality assumption. It means that violation to its normality assumption is tolerated quite well. One-way Anova can tolerate non-normal (skewed or kurtotic distributions) with small effect to Type I error rate regarding the group data normality. When the assumption of homogeneity of variances is violated (p value of Levene test < 0.05), Anova table cannot be used. Then robust tests of equality of means table (Welch test) will be used to test hypothesis. The rules are the same with one-way Anova testing, if sig. value is less than or equals to 0.05, then null hypothesis is rejected. (http://statistics.laerd.com/statistical-guides/one-way-anova-statistical-guide-3.php).

RESULT AND DISCUSSION

Result
Leverage Ratio Result
Table 1. Degree of Financial Leverage

Year	CPIN	ISM	JCI	NIC	ULTJ	UNVR
2006	-0.97	23.28	14.21	0.39	18.54	0.98
2007	0.39	1.02	-0.38	2.36	8.62	0.98
2008	0.25	0.08	0.37	-0.49	4.98	0.96
2009	4.83	14.87	1.72	0.8	0.28	1.17
2010	0.99	1.17	1.22	1.13	1.65	1.45
2011	1.1	0.47	1.2	0.65	-10.45	1.02
2012	0.93	23.08	1.15	0.92	1.19	0.96
2013	-1.74	10.44	-5.02	0.36	-3.35	1.03
Mean	0.7225	9.3013	1.8088	0.7650	2.6825	1.0688
Std. Deviation	1.94168	10.10860	5.45688	0.81024	8.53490	0.16856

Source: Data processed, 2014

Table 1 shows the mean score comparison for Degree of Financial Leverage. It can be seen by the means of each company that the highest score in degree of financial leverage is Indofood Sukses Makmur (M = 9.3013, SD 10.11), which makes them the company that relies most on debt to earn profit when compared to the other five remaining companies.

Table 2. Degree of Operating Leverage

Year	CPIN	ISM	JCI	NIC	ULTJ	UNVR
2006	1.63	1.06	1.74	1.48	0.47	1.48
2007	0.76	1.73	2.75	1.6	0.33	1.31
2008	1.87	1.3	0.97	1.99	-9.12	0.97
2009	12.12	-1.8	7.36	1.62	-15.7	1.33
2010	10.87	13.45	-5.42	2.06	2.79	0.98
2011	0.32	0.49	-2.47	0.39	-0.15	1.18
2012	0.8	0.02	3.6	0.65	4.42	1.02
2013	0.17	-0.14	0.4	0.62	0.09	0.81
Mean	3.5675	2.0138	1.1163	1.3013	-2.1087	1.1350
Std. Deviation	4.93873	4.74744	3.86060	0.65372	6.77991	0.22672

Source: Data processed, 2014

Table 2 shows the mean score comparison for Degree of Operating Leverage. The highest score in degree of operating leverage is Charoen Pokphand Indonesia (M = 3.5675, SD = 4.94), which makes them the company that relies most on high level of fixed asset or proportion of fixed cost in total operating cost to earn profit when compared to the other five remaining companies.

Table 3. Degree of Total Leverage

Year	CPIN	ISM	JCI	NIC	ULTJ	UNVR
2006	-1.58	24.68	24.72	0.58	8.71	1.45
2007	0.3	1.76	-1.04	3.78	2.84	1.28
2008	0.47	0.1	0.36	-0.98	-45.42	0.93
2009	58.54	-26.77	12.66	1.3	-4.4	1.56
2010	10.76	15.74	-6.61	2.33	4.6	1.42
2011	0.35	0.23	-2.96	0.25	1.57	1.2
2012	0.74	0.46	4.14	0.6	5.26	0.98
2013	-0.29	-1.46	-2.01	0.22	-0.3	0.83
Mean	8.6612	1.8425	3.6575	1.0100	-3.3925	1.2063
Std. Deviation	20.51527	14.88925	10.27605	1.46454	17.42566	0.26854

Source: Data processed, 2014

Table 3 shows the mean score comparison for Degree Total Leverage. The highest score in degree of total leverage is also Charoen Pokphand Indonesia (M = 8.6612, SD = 20.51), which means they combine financial and operating leverage in order to get more profit. This also means they are the most risky company among sample companies.

Hypothesis Testing

Financial Leverage
One-way Anova Test
    In order to perform one-way Anova, one of the assumptions is normally distributed data (even though it is quite robust against normality assumption). In this research, Shapiro-Wilk test is used to check the normality of data. If the Sig. values of Shapiro-Wilk is greater than 0.05, then data is normally distributed. It was found that there are 3 companies whose financial leverage data are non-normal (skewed / kurtotic).

Table 4. Normality Test for Degree of Financial Leverage

Company		Shapiro-Wilk		
		Statistic	df	Sig.
DFL	CPIN	.869	8	.149
	ISM	.815	8	.041
	JCI	.744	8	.007
	NIC	.932	8	.532
	ULTJ	.964	8	.851
	UNVR	.703	8	.002

Source: Data processed by SPSS, 2014

Table 5. Test of Homogeneity of Variances

DFL			
Levene Statistic	df1	df2	Sig.
7.928	5	42	.000

Source: Data processed by SPSS, 2014

    The p value for Levene test is 0.000 which is less than 0.05. The assumption of homogeneity of variances is violated, so Anova table will not be used.

H_0: The DFL position of the companies does not differ significantly
H_a: The DFL position of the companies differs significantly

Table 6. Robust Tests of Equality of Means

	DFL			
	Statistic[a]	df1	df2	Sig.
Welch	1.220	5	16.651	.343

Source: Data processed by SPSS, 2014.

The Welch's Robust Anova (F(5,16.6) = 1.22, p = 0.34) indicating no significant mean difference among the companies (p value is greater than 0.05). This way, null hypothesis is accepted. DFL position of Charoen Pokphand Indonesia, Indofood Sukses Makmur, Japfa Comfeed Indonesia, Nippon Indosari Corpindo, Ultrajaya, and Unilever Indonesia does not differ significantly.

Operating Leverage
One-way Anova Test
In this research, Shapiro-Wilk test is used to check the normality of data. If the Sig. values of Shapiro-Wilk is greater than 0.05, then data is normally distributed. It was found that there are 3 companies whose operating leverage data are non-normal (skewed / kurtotic).

Table 7. Normality Test for Degree of Operating Leverage

Company		Shapiro-Wilk		
		Statistic	df	Sig.
DOL	CPIN	.684	8	.001
	ISM	.643	8	.001
	JCI	.979	8	.959
	NIC	.878	8	.179
	ULTJ	.802	8	.030
	UNVR	.955	8	.758

Source: Data processed, 2014

Table 8. Test of Homogeneity of Variances

	DOL		
Levene Statistic	df1	df2	Sig.
4.246	5	42	.003

Source: Data processed by SPSS, 2014

The p value for Levene test is 0.003 which is less than 0.05. The assumption of homogeneity of variances is violated, so Anova table will not be used.

H_0: The DOL position of the companies does not differ significantly
H_a: The DOL position of the companies differs significantly

Table 9. Robust Tests of Equality of Means

	DOL			
	Statistic[a]	df1	df2	Sig.
Welch	.776	5	17.030	.580

Source: Data processed by SPSS, 2014

The Welch's Robust Anova (F(5,17.03) = 0.78, p = 0.58) indicating no significant mean difference among the companies (p value is greater than 0.05). This way, null hypothesis is accepted. DOL position of Charoen Pokphand Indonesia, Indofood Sukses Makmur, Japfa Comfeed Indonesia, Nippon Indosari Corpindo, Ultrajaya, and Unilever Indonesia does not differ significantly.

Total Leverage
One-way Anova Test
        In this research, Shapiro-Wilk test is used to check the normality of data. If the Sig. values of Shapiro-Wilk is greater than 0.05, then data is normally distributed. It was found that there are 2 companies whose total leverage data are non-normal (skewed / kurtotic).

Table 10. Normality Test for Degree of Total Leverage

Company		Shapiro-Wilk		
		Statistic	df	Sig.
DTL	CPIN	.542	8	.000
	ISM	.876	8	.173
	JCI	.849	8	.093
	NIC	.928	8	.497
	ULTJ	.635	8	.000
	UNVR	.937	8	.582

Source: Data processed by SPSS, 2014

Table 11. Test of Homogeneity of Variances

DTL			
Levene Statistic	df1	df2	Sig.
2.315	5	42	.061

Source: Data processed by SPSS, 2014

        The p value for Levene test is 0.061 which is greater than 0.05. The assumption of homogeneity of variances is met, so Anova table will be used.

H_0: The DTL position of the Companies does not differ significantly
H_a: The DTL position of the Companies differs significantly

Table 12. Anova Table

ANOVA				
DTL				
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	621.375	5	124.275	.707	.621
Within Groups	7378.236	42	175.672		
Total	7999.611	47			

Source: Data processed by SPSS, 2014

        There is no statistically significant difference in the mean of degree of total leverage ($F(5,42) = 0.707$, $p = 0.62$) to six sample companies, (p value is above 0.05). This way, null hypothesis is accepted. DTL position of Charoen Pokphand Indonesia, Indofood Sukses Makmur, Japfa Comfeed Indonesia, Nippon Indosari Corpindo, Ultrajaya, and Unilever Indonesia does not differ significantly.

Discussion
        From one-way Anova conducted in this research, it was found that financial leverage, operating leverage, and total leverage do not have significant effect to the six sample companies. These findings also support Pachori and Totala (2012) research which found that there is no significant influence from financial leverage to shareholder's return. Amiri and Zade (2014) also found that indexes of earning quality have no significant correlation with operating leverage. Internal factors like capital structure and risk management of each company and external factors like economic growth of Indonesia can affect sample companies' profitability more than leverage does.

The highest level of financial leverage among these six companies is Indofood Sukses Makmur which implies they are the most risky in terms of financial risk, while Charoen Pokphand Indonesia is the least. Looking at the balance sheet of Indofood Sukses Makmur, their percentage change in long term debt is large enough to push their degree of financial leverage to increase. For Charoen Pokphand Indonesia, their balance sheet shows some relatively slight changes in long term debt. Charoen Pokphand Indonesia is the company that applied operating leverage the most among the six companies; meanwhile Japfa Comfeed Indonesia does not rely much on operating leverage to increase their earnings. From Japfa Comfeed Indonesia's income statement, there is relatively small percentage change in their fixed operating costs that decrease their degree of operating leverage. As for Charoen Pokphand Indonesia, their fixed operating costs fluctuate with quite large gap compared to the other 5 companies. This is possible also because this company has to invest much in fixed assets, since they have a large division producing poultry food.

Charoen Pokphand Indonesia is the most risky company compared to the rest, influenced by the operating leverage that took part in most of company's total risk. Ultrajaya also exposed to a quite high risk, since their DFL and DOL data shows some extreme changes due to great percentage change of their EPS, EBIT, and sales. Indofood Sukses Makmur and Japfa Comfeed Indonesia are also at high level of risk, only they are still at a lower rate than Charoen Pokphand Indonesia and Ultrajaya. Unilever Indonesia and Nippon Indosari Corpindo are quite calm and composed in terms of total risk.

Financial leverage in Anova test shows no significant effect to all the six companies is predicted due to economic growth rate in Indonesia. From 2006 until 2013, there are ups and downs (the trend is increasing with exception in 2009 due to global financial crisis and also in 2013), but so far the economic growth rate that is ranging from 5% to 6.5% plays a role in determining a stable enough interest rate of debt for the company. This economic growth rate can be backed up by the high demand within the country, especially for food and beverage processing industry. Even though inflation rate also plays a role in the demand for products, due to global economic condition and some government policies, but people still afford to create high enough demand contributing to nation's economic growth rate. This condition makes company earn relatively low level of financial leverage so it does not gain more power to affect company profitability further.

Operating leverage in Anova test shows no significant effect to all the six companies is predicted due to the nature of food and beverage processing industry. The estimated fixed assets in the industry are ranging from 2 up to 40 years (some are based on natural usage; external factors such as natural disasters are excluded). That number is the common life expectancies applied. So even though each company has their level of fixed assets vary throughout the recent eight years (it could be increases or decreases), the amount will not be large enough since they still can use another portion left of their fixed assets to run the production process. This can help companies maintain their fixed cost in a stable way so that it will not cause high operating leverage and then affect their profitability.

Total leverage in Anova test also shows no significant effect to all the six companies is predicted due to influence caused by the combination of economic growth, debt interest rate, and the nature of industry. Total leverage is the combinations of financial and operating leverage, so it is pretty clear that when financial and operating leverage does not really affect the companies, so does the total leverage. Total leverage represents risk that company will have by combining business/operating and financial risk. Looking at the result of this research, it seems like the industry has relatively low risk. The reason is even though financial and operating leverage exist, they do not have strong effect for company's profitability.

CONCLUSION AND RECOMMENDATION

Conclusion

The conclusions that can be drawn from this research are:

1. PT Indofood Sukses Makmur, Tbk. used financial leverage the most compared to other companies due to highest mean score of Degree of Financial Leverage, meanwhile PT Charoen Pokphand Indonesia, Tbk. used operating and total leverage the most compared to other companies due to highest mean score of both Degree of Operating Leverage and Degree of Total Leverage.
2. There is no significant difference between profitability of companies in food and beverage processing industry when measured using leverage ratio. This finding indicates that even though financial, operating, and total leverage are used, they do not strong enough to affect profitability of the companies.

Recommendation

Recommendations that can be given are as follows:

1. Investor should assess company's return after measuring the amount of risk company applied when leverage exist before making investment decision. That way, they can realize whether the company manages to generate more profit with more leverage or not.
2. This research is limited only to food and beverage processing industry, so only six companies are used as samples and the variables used are only leverage and profitability in general. Therefore, further studies should widen the sample size and add more dependent and independent variable with comparison to this research. Thus, the application and implication of leverage in Indonesia's company should be examined clearer.

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