
EVALUATING FINANCIAL PERFORMANCES OF TURKISH MANUFACTURING COMPANIES BEFORE AND AFTER REDENOMINATION**MENGEVALUASI KINERJA KEUANGAN PERUSAHAAN MANUFAKTUR TURKI SEBELUM DAN SESUDAH REDENOMINASI**

by
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Abstract: Redenomination is simplification of nominal value of currency without reducing the real value of the money. Over 30 countries in the world had redenominated their currency. Previous researches had been discussed the reason behind redenomination, the adaptation process, the impact from economy perspective and also from business perspective. This paper aims to discuss much further about the impact of redenomination from business perspective with real case and evidence, more than just a prediction and opinion. Turkish manufacturing companies are selected to be the sample of research to mirror what may occur in Indonesian manufacturing companies. Financial statement analysis is used to describe the performance of the companies before and after redenomination. Wilcoxon Test, Mann-Whitney U Test, and Multiple Linear Regression are used to analyze the data. This paper finds that redenomination does not have significant effect on the companies financial performance. The findings also suggest that profitability of firms decreases at the year of redenomination. Additionally, there is a significant increase in sales after redenomination due to the presence of money illusion. This research recommends that at the year of redenomination companies should be focusing on themselves instead of making strategies to face redenomination. Companies must be ready with the supply to make sure all demand will be fulfilled. Companies must also manage its operating cost, so the higher demand and sales will not result in an excessive operating cost.

Keywords: *redenomination, turkish companies, financial performance*

Abstrak: Redenominasi adalah penyederhanaan nilai nominal mata uang tanpa mengurangi nilai riil dari mata uang tersebut. Lebih dari 30 negara di dunia telah melakukan redenominasi pada mata uang mereka. Penelitian sebelumnya telah membahas alasan di balik redenominasi, proses adaptasi, dampak dari perspektif ekonomi dan juga dari perspektif bisnis. Penelitian ini bertujuan untuk membahas lebih jauh tentang dampak redenominasi dari perspektif bisnis dengan kasus yang nyata dan bukti, lebih dari sekedar prediksi dan pendapat. Perusahaan manufaktur Turki dipilih untuk menjadi sampel penelitian untuk mencerminkan apa yang mungkin terjadi di perusahaan manufaktur Indonesia. Analisis laporan keuangan digunakan untuk menggambarkan kinerja perusahaan sebelum dan sesudah redenominasi. Uji Wilcoxon, Mann-Whitney U Test, dan Multiple Linear Regression digunakan untuk menganalisis data. Penelitian ini menemukan bahwa redenominasi tidak memiliki pengaruh yang signifikan terhadap kinerja keuangan perusahaan. Hasil penelitian juga menunjukkan bahwa profitabilitas perusahaan menurun pada tahun redenominasi. Selain itu, ada peningkatan penjualan yang signifikan setelah redenominasi karena adanya money illusion. Penelitian ini merekomendasikan bahwa pada tahun redenominasi perusahaan harus fokus pada diri mereka sendiri daripada membuat strategi untuk menghadapi redenominasi. Perusahaan harus siap dengan pasokan untuk memastikan semua permintaan akan terpenuhi. Perusahaan juga harus mengelola biaya operasinya, sehingga permintaan dan penjualan yang lebih tinggi tidak akan menghasilkan biaya operasi yang berlebihan.

Kata Kunci: *redenominasi, perusahaan turki, kinerja keuangan*

INTRODUCTION

Research Background

The practice of Redenomination has been adopted by several countries across the globe. The reason behind redenomination is various and depends on the problem the country is dealing with. Redenomination is simplification of nominal value of a currency by reducing the digit (zero number), without reducing the real value of the currency (Pambudi, Juanda, and Priyarsono, 2014). In 2010, Governor of Bank Indonesia planned to conduct redenomination of rupiah. The plan was to reduce 3 digits of zero in rupiah, so Rp10.000 would become Rp10 with the same purchasing power, so people could still buy product costs Rp10.000 with Rp10.

There were over 30 countries in the world that already redenominated their currency. However, some countries succeeded while others failed because inflation happened to be higher after redenomination. In Indonesia, redenomination draft bill has been prepared by Bank Indonesia (BI) but still waiting to be discussed in the House of Representatives. Suppose that redenomination will happen 3 or 4 years from now, what will happen at that year? What will happen after redenomination? To be more specific, what will happen to the companies? In order to obtain a better picture of the future, it is better to see result from countries that already experienced redenomination.

Turkey's redenomination was one of the successful redenominations in history. Turkish Lira had been redenominated in 2005 by removing 6 zeros. The main reason behind redenomination in Turkey was the economic values that were expressed in terms of billions, trillions and even quadrillions. The enormous figures with all the zeros led to a variety of problems. For example, due to its high denominations, Turkish Lira lost prestige in the eyes of the general public (Ioana, 2005).

From business perspective, Prabawani (2017) indicated that redenomination may make business more dynamic and productive. This is because of market psychology that small nominal makes prices seem cheaper. Business will be more dynamic because of changes in consumer spending behavior. There may be a tendency for consumers to consume more product and service. Similar to Prabawani (2017), (Pambudi, Juanda, and Priyarsono, 2014) suggested that redenomination drives into bigger consumption behavior. New prices are perceived cheaper because of money illusion and consumers' willingness to pay increases.

Research Objective

Based on the research problem, the objective of this research is to evaluate the financial performances of Turkish manufacturing companies before and after redenomination

THEORETICAL REVIEW

Financial Management

Financial management is concerned with the acquisition, financing, and management of assets with some overall goal in mind. Financial management can be broken down into three major areas: the investment, financing, and asset management decisions. Investment decision begins with a determination of the total amount of assets needed to be held by the firm. Financing decision concerned with the makeup of the right-hand side of the balance sheet. The third important decision of the firm is the asset management decision. Once assets have been acquired and appropriate financing provided, these assets must still be managed efficiently (Van Horne and Wachowicz, 2008).

Financial Statement

According to Weygandt, Kimmel, and Kieso (2012), companies prepare four financial statements from the summarized accounting data which are, Income Statement, Owner's Equity Statement, Balance Sheet, and Statement of Cash Flows.

Financial Ratio

To evaluate a firm's financial condition and performance, the financial analyst needs to perform "checkups" on various aspects of a firm's financial health. A tool frequently used during these checkups is a financial ratio, or index, which relates two pieces of financial data by dividing one quantity by the other (Van Horne and Wachowicz, 2008).

Redenomination

Redenomination is a process whereby a country's currency is recalibrated due to significant inflation and currency devaluation. It usually involves the dropping of zeros from the old currency. Currency redenomination is usually done when countries are experiencing hyper-inflationary pressures which have the effect of making its local currency unattractive (Aziz, 2007).

The Purpose of Redenomination

Ioana (2009) indicated that multiple zeros cause difficulties in expressing monetary values, transactions at the cashier's office, book-keeping and statistical records, data processing software, payment systems and price tagging. Redenomination could be the solution to deal with this problems.

Driving Factors that Alter The Financial Performance

Redenomination will affect monetary terms, if monetary terms are affected financial indicators will be affected, and if financial indicators are affected, other things will be affected. For instance, Prasetya and Tasik (2017) in their research about the IN-OUT stocks in LQ-45, found that transaction volume has significant and positive influence to IN-OUT stocks in LQ-45. Another research about LQ-45 stocks by Antou and Tasik (2017) found that market capitalization has a significant and most consistent effect on the inclusion of shares in the LQ-45 stocks. Both market capitalization and transaction volume as financial indicators may be affected by redenomination. Reduction of zeros may increase credibility of rupiah, attracts investor, and increases market capitalization and transaction volume. If the market capitalization and transaction volume increase, it will give an opportunity for companies to be included in the LQ-45.

Ponto and Tasik (2017) in their research about infrastructure loan found that ROA increased after the simulation while ROE, NPL, and OEOI decreased. Similiar with Ponto and Tasik (2017), Standyarto and Simu (2016) in their research about stock return also found that ROA has an influence significant positive for stock returns. ROA, ROE, NPL, and OEOI as financial indicators may be affected by redenomination when money illusion happens. The condition of these financial indicators will determine whether it is feasible for banks to deliver infrastructure loan or not and also will influence the stock return of companies.

Previous Research

Pambudi, Juanda, and Priyarsono (2014) in their research examined whether the economic conditions at the time of redenomination may affect the success of currency redenomination. From economic's perspective, this research found that inflation will decrease and economic growth will rise higher after redenomination if previously a country has experienced high economic growth as well. From business perspective, Prabawani (2017) found that a strong comprehension of the redenomination policy appears to be a major success factor of redenomination in Indonesia. An understanding of redenomination significantly affects business readiness to survive with redenomination. Overall, Lianto and Suryaputra (2012) in their research suggested that, to make redenomination success the most important things are low inflation rate, stable economic growth, guarantee of price stability and good socialization to the society.

Conceptual Framework

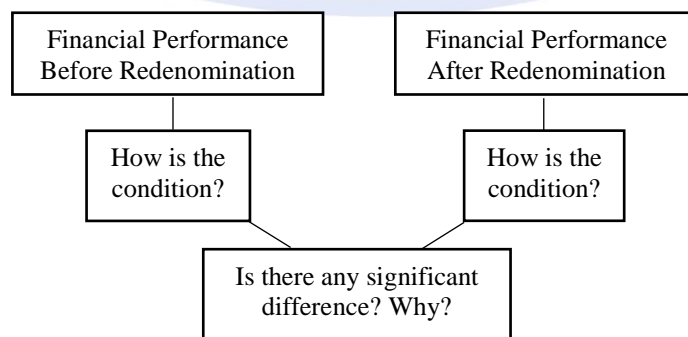


Figure 1. Conceptual Framework

Source: Data Processed, 2018

RESEARCH METHOD

Research Approach

This is a quantitative research and data are analyzed with descriptive analysis.

Population and Sample

The population of this research is Turkish manufacturing companies. The sample is the 20 big manufacturing companies in Turkey.

Sampling Technique

The sampling technique is Judgement Sampling Technique which is determining the sample based on the criteria. The criteria are first, the company is a manufacturing company second, the company has annual reports from 2003 or at least from 2006 third, categorized as Producer Exporter Company in the Turkish Exporters Assembly report and fourth included in the top 500 companies based on the report.

Measurement of Research Variable

Table 1. Measurement of Research Variable

No	Variable	Measurement
1	Gross Profit Margin	Gross Profit / Sales
2	Net Profit Margin	Net Income / Sales
3	Return on Equity	Net Income / Owners' Equity
4	Return on Asset	Net Income / Total Assets
5	Operating Expense to Net Sales Ratio / Operating Ratio	Operating Expense / Sales
6	Inventory Turnover	Cost of Goods Sold / Inventory

Source: Data Processed, 2018

Technical Analysis

This research uses Mann Whitney U Test, Wilcoxon Test and Multiple Linear Regression to analyze the data. Mann Whitney U Test and Wilcoxon Test are nonparametric test. Nonparametric test is used when parametric assumptions are violated.

Multiple Linear Regression is conducted to see the relation between independent and dependent variables and to see how big is the power of the relation before and after redenomination. Multiple Linear Regression models that are used in this research are:

$$\text{Model 1: ROA} = \alpha + \beta_1\text{OPR} + \beta_2\text{ITO} + \varepsilon$$

$$\text{Model 2: ROE} = \alpha + \beta_1\text{OPR} + \beta_2\text{ITO} + \varepsilon$$

$$\text{Model 3: NPM} = \alpha + \beta_1\text{OPR} + \beta_2\text{ITO} + \varepsilon$$

Description:

Y = Return on Asset (ROA), Return on Equity (ROE), Net Profit Margin (NPM)

α = Intercept

β = Coefficient

X = Operating Expense to Net Sales Ratio (OPR), Inventory Turnover (ITO)

ε = Error

RESULT AND DISCUSSION

Wilcoxon Test and Mann Whitney Test For Missing Data

Redenomination of Turkey was in 2005, so in this research, the years before redenomination are determined to be 2003 until 2004 because the data below 2003 are no longer available. The years after redenomination are 2005 until 2010. From the 20 companies, 12 companies have complete data from 2003, 8 companies only have data from 2005. To solve this problem, 2 tests will be conducted. The first test or Test 1 is

to compare before after data of the 12 companies and the second test or Test 2 is to compare after data of the 12 companies with after data of the 8 companies.

Table 2. Wilcoxon Test for Test 1

No	Variable	Asymp. Sig. (2-tailed)
1	Gross Profit Margin	0,153
2	Net Profit Margin	0,932
3	Return on Equity	1,000
4	Return on Asset	0,753
5	Operating Expense to Net Sales Ratio	0,909
6	Inventory Turnover	0,668

Source: Data Processed, 2018

For Test 1, the level of significance of the 6 ratios is > 0.05 , which means, there is no significant difference between before and after data. Therefore, it can also be concluded that the effect of redenomination is not significant, that is why there is no significant difference between before and after data.

Table 3. Mann Whitney Test for Test 2

No	Variable	Asymp. Sig. (2-tailed)
1	Gross Profit Margin	0,581
2	Net Profit Margin	0,428
3	Return on Equity	0,570
4	Return on Asset	0,974
5	Operating Expense to Net Sales Ratio	0,785
6	Inventory Turnover	0,611

Source: Data Processed, 2018

For Test 2, the level of significance of the 6 ratios is > 0.05 , which means, there is no significant difference between after data of the 12 companies and after data of the 8 companies, thus after data of the 12 and the 8 companies are almost similar. Test 1 shows that redenomination has no significant effect. If the after data of the 12 companies and the 8 companies have no significant difference, and redenomination has no significant effect, it can be concluded that prior data of the 12 and the 8 companies also may have no significant difference. Therefore, prior data of the 12 companies that are available can be used to represent prior data of the 8 companies that are missing

Wilcoxon Test Before and After Redenomination

The data from the 12 companies and 8 companies are combined. Prior data are 2003 until 2004 data of the 12 companies. After data are 2005 until 2010 data of the 12 companies and the 8 companies.

Table 4. Wilcoxon Test for Before and After Data

No	Variable	Asymp. Sig. (2-tailed)
1	Gross Profit Margin	0,977
2	Net Profit Margin	0,391
3	Return on Equity	0,424
4	Return on Asset	0,391
5	Operating Expense to Net Sales Ratio	0,732
6	Inventory Turnover	0,627

Source: Data Processed, 2018

The level of significance of the 6 ratios is > 0.05 , which means, there is no significant difference between before and after data. Therefore, there is no significant difference between before and after redenomination.

Multiple Linear Regression Analysis
Table 5. Coefficient of OPR and ITO

Y	β OPR			β ITO		
	Before	After	Δ	Before	After	Δ
ROA	0,398	0,202	0,196	0,08	0,032	0,048
ROE	0,907	0,862	0,045	0,12	0,077	0,043
NPM	0,874	0,273	0,601	0,086	0,022	0,064

Source: Data Processed, 2018

Coefficient of OPR for ROA before redenomination is 0.196% larger than OPR after redenomination. Coefficient of OPR for ROE before redenomination is 0.045% larger than OPR after redenomination, and coefficient of OPR for NPM before redenomination is 0.601% larger than OPR after redenomination.

Coefficient of ITO for ROA before redenomination is 0.048% larger than ITO after redenomination. Coefficient of ITO for ROE before redenomination is 0.043% larger than ITO after redenomination, and coefficient of ITO for NPM before redenomination is 0.064% larger than ITO after redenomination. The conclusion is OPR and ITO before redenomination have larger impact on ROA, ROE, and NPM than OPR and ITO after redenomination.

Mann Whitney U Test for Turkey's Data and Indonesia's Data

Assume that Indonesia will implement redenomination in 2018. In this research, the years before redenomination of Turkey are 2003 and 2004, so the years before redenomination of Indonesia are determined to be 2016 and 2017. Prior data of Turkish companies and prior data of Indonesian companies will be compared. The sample of Indonesian companies is 64 manufacturing companies that also deal with export, listed in Indonesia Stock Exchange and have annual reports from 2016 until 2017.

Table 6. Mann Whitney Test for Turkey's and Indonesia's Data

No	Variable	Asymp. Sig. (2-tailed)
1	Gross Profit Margin	0,344
2	Net Profit Margin	0,204
3	Return on Equity	0,147
4	Return on Asset	0,057
5	Operating Expense to Net Sales Ratio	0,673
6	Inventory Turnover	0,000

Source: Data Processed, 2018

The significance level of profitability ratios such as GPM, NPM, ROE, ROA, and OPR is > 0.05 , which means, there is no significant difference between Turkey's data and Indonesia's data for two years before redenomination. Since prior data of Indonesia and Turkey have no significant difference, and redenomination has no significant impact, after data of Turkey may represent after data of Indonesia. However, the significance level of activity ratio which is ITO is < 0.05 , which means, there is a significant difference between Turkey's and Indonesia's data two years before redenomination.

Discussion

Line charts are made to see the changes in the ratios over time and to get insight into the condition of the ratios during the period of redenomination.

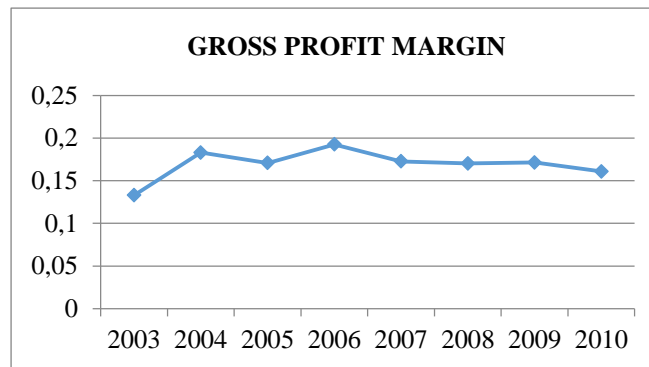


Figure 2. Gross Profit Margin Chart

Source: Data Processed, 2018

GPM from 2003 until 2004 was increasing, but in 2005, which was the year of redenomination, GPM declined. This result could be explained by Prabawani and Prihatini (2014) that a short-term culture shock will occur once redenomination is implemented. This is reasonable given the fact that it takes time for the public to be accustomed to using the currency with zero visually reduced.

In 2006, one year after redenomination, GPM increased. It showed that short-term culture shock only happened in 2005. In 2006, companies were having a recovery. After redenomination, companies started to deal with market analysis and decided which strategies to implement. Also in this period, people were more accustomed to the new money, so the spending habit started to go back as normal. In 2007, GPM declined, it might be due to global financial crisis during 2007 and 2008, that caused global economic downturn and great recession.

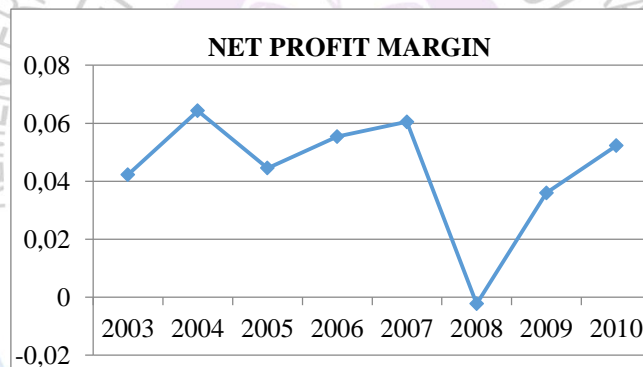


Figure 3. Net Profit Margin Chart

Source: Data Processed, 2018

From 2003 until 2004 Net Profit Margin (NPM) was increasing, but in 2005, NPM decreased because of short-term culture shock. In 2006, NPM increased as recovery from the shock. In 2007, NPM increased while GPM decreased, this might be due to the cost of producing goods relative to sales has increased. In 2008, a significant decline in NPM displayed on the chart because of global financial crisis. In 2008, NPM showed a significant decline and in the same year, GPM decreased but very low, almost flat. This might be due to the operating cost in 2008 that was increasing.

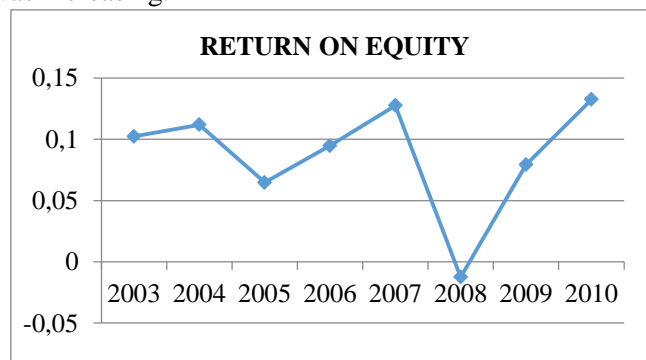


Figure 4. Return on Equity Chart

Source: Data Processed, 2018

From 2003 until 2004, ROE was increasing, but in 2005, which was the year of redenomination, ROE decreased because of short-term culture shock. From 2006 until 2007, ROE was increasing as recovery from the shock. In 2008, there was also a significant decline in ROE because of global financial crisis. From 2009 until 2010, ROE was increasing as recovery from the crisis.

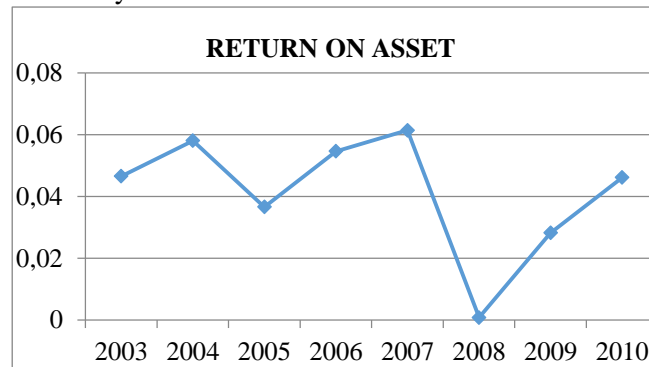


Figure 5. Return on Asset Chart

Source: Data Processed, 2018

ROA chart is almost similar to ROE chart. From 2003 until 2004, ROA was increasing, but in 2005, ROA decreased because of short-term culture shock. From 2006 until 2007, ROA was increasing as a sign of recovery from the short-term culture shock. In 2008, there was also a significant decline in ROA because of global financial crisis. From 2009 until 2010, ROA was increasing as recovery from the shock.

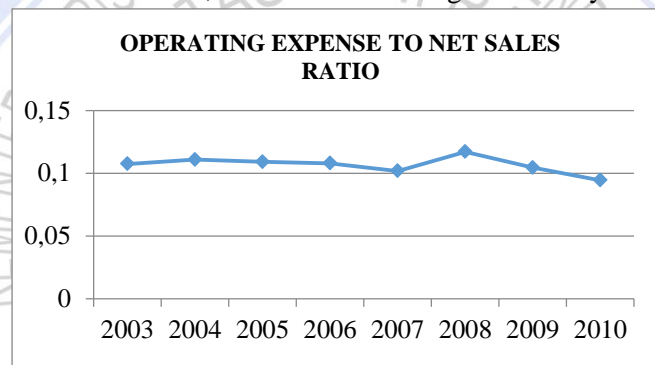


Figure 6. Operating Expense to Net Sales Ratio Chart

Source: Data Processed, 2018

Operating Expense to Net Sales Ratio (OPR) showed no significant change from 2003 until 2007, but from 2004 until 2007, OPR was decreasing gradually, creating a downward trend. In 2008, which was the year of global financial crisis, OPR increased. This was the highest OPR from 2003 until 2010. High OPR means high operating cost with fewer sales. This could explain why in the previous charts, Net Profit Margin decreased significantly in 2008, while Gross Profit Margin did not.

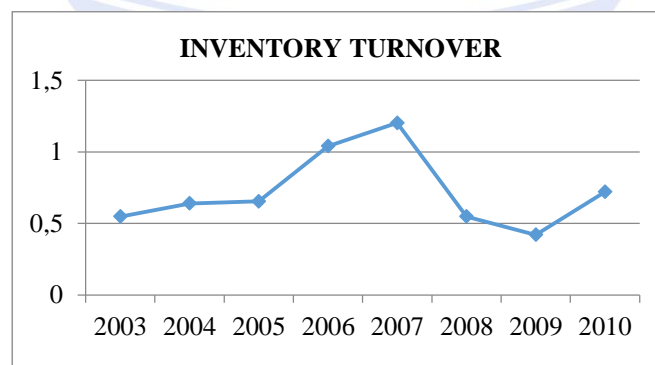


Figure 7. Inventory Turnover Chart

Source: Data Processed, 2018

Inventory Turnover (ITO) was increasing from 2003 until 2004. In 2005, ITO increased but very low, in the graph, it looked almost flat due to short-term culture shock. Redenomination slowed down ITO, but did not decrease it. In 2006, one year after redenomination, ITO increased significantly. This increase indicated strong

sales after redenomination. In 2007, ITO was getting higher, creating an upward trend from 2003 until 2007. This upward trend could explain the downward trend happened in Operating Ratio from 2004 until 2007. Thus, redenomination did increase the sales. This was relevant with Prabawani (2017) who suggested that redenomination may make business more dynamic and productive. There may be a tendency for consumers to consume products and services more frequently. This was also relevant with Pambudi et al., (2014) which indicated that redenomination drives into larger consumption behavior. New prices are perceived cheaper because of money illusion and consumers' willingness to pay increases. Money illusion is bias judgement about the real value of money, it usually happens when new money with fewer digit appears like in redenomination. The new money becomes less valuable than the old one. As a result, goods and services seem to be cheaper and people will be triggered to purchase more product and service.

The result of multiple linear regression shows that after redenomination, the impact of OPR and ITO on ROA, ROE, and NPM is decreasing. This result can be explained by the previous chart of OPR and ITO. After redenomination, which is 2005 until 2010, there were significant declines in OPR and ITO chart. Significant declines in OPR happened in 2007 and 2010 due to significant increases in ITO. Higher sales caused by redenomination covered the operating cost and lowered the OPR. A significant decline in ITO happened in 2008 because of the global financial crisis. From 2005 until 2010, some events happened and affected companies' performance. These events made OPR and ITO fluctuated and caused significant declines in both ratios. This explained why the impact of OPR and ITO on ROA, ROE, and NPM decreased after redenomination.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

From the result of the tests, the first conclusion that can be drawn is, redenomination is more like other economic events and crisis that affect companies temporarily. From the line chart, profitability ratios such as GPM, NPM, ROA, and ROE, show that the effect of redenomination only happens in the year of implementation, which is in 2005, same with the global financial crisis in 2008. After that years, the market and companies are starting to recover. However, profitability of firms decreases at the year of redenomination due to short-term culture shock that slows down the sales.

One ratio that gives important information is Inventory Turnover. In 2006 and 2007, ITO increased significantly. This shows that after redenomination, sales increases significantly. Thus, the second conclusion is, money illusion happens in Turkey and it affects the sales of the companies. NPM, ROE, ROA, and ITO chart showed an uptrend after redenomination, this trend was stopped by global financial crisis in 2008. What if global financial crisis did not happen? Will the uptrend continue? This will make projections for Indonesia different from what happened in Turkey. If redenomination of Indonesia happens with the absence of other crisis, the effect may be different.

Recommendation

1. Redenomination decreases profitability of firms, but only for a year as companies and people are adapting to the new money. No need to be panic because of the shock and take action immediately. No specific strategies are needed to deal with redenomination at its year. Instead, companies should be focusing on themselves because a lot of things need to be changed and prepared well.
2. Inventory Turnover of Turkey 2 years before redenomination is different from Indonesia, but money illusion may happen in Indonesia and significant increases in sales also may happen. Companies must be ready with the supply to make sure all demand will be fulfilled. Companies must also manage its operating cost, so the higher demand and sales will not result in an excessive operating cost.

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