

**Relevance of Historical Cost and General Price Level Accounting on  
Financial Statement Analysis:  
An Empirical Study of State-Owned Companies  
Listed on Jakarta Stock Exchange (BEJ)**

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**INTISARI**

Laporan Keuangan dibuat berdasarkan pada unit moneter dan akuntansi nilai historis atau akuntansi tradisional. Laporan Keuangan tersebut berasumsi bahwa harga (unit moneter) adalah stabil, sehingga laporan tersebut tidak mengakui adanya perubahan pada tingkat harga umum atau pada tingkat harga khusus. Dengan demikian, jika ada perubahan daya beli (perubahan harga), laporan keuangan historis secara ekonomis tidak relevan bagi pengambilan keputusan.

Perbedaan antara akuntansi historis dan akuntansi perubahan harga telah berlangsung bertahun-tahun. Demikian juga terdapat perbedaan pada hasil-hasil penelitian di bidang tersebut. Penelitian ini bertujuan untuk menguji kembali relevansi akuntansi tingkat perubahan harga dengan akuntansi historis pada perusahaan-perusahaan milik Negara (BUMN) yang terdaftar di Bursa Efek Jakarta (BEJ). Pengujian dilakukan terhadap rasio-rasio keuangan, untuk mengetahui apakah ada perbedaan yang signifikan antara rasio keuangan berdasar akuntansi tingkat harga umum dengan akuntansi historis.

Dengan menggunakan *paired sample t – test* dan *Wilcoxon match pair test*, hasil penelitian ini menunjukkan bahwa dari sembilan kategori rasio keuangan, hanya dua kategori yang tidak signifikan. Kedua kategori rasio tersebut adalah *profitability* dan *return on investment*. Tujuh rasio yang lain terbukti signifikan, yaitu *short term liquidity*, *long term solvency*, *productivity*, *leverage*, *indebtedness*, *investment intensiveness*, dan *equity*. Hasil penelitian ini menunjukkan bahwa akuntansi dengan penyesuaian tingkat harga umum dibutuhkan dan relevan pada pelaporan keuangan.

**Kata kunci:** rasio keuangan, akuntansi tingkat harga umum, akuntansi historis, perubahan harga.

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**INTRODUCTION**

Financial statement is one of information source needed by internal or external parties to make a decision. Therefore financial statement must provide information more realistic and describe actual firms' condition.

Generally, financial statements are reported using monetary unit and based on historical cost or conventional accounting. Conventional accounting assumes that the prices (monetary unit) are stable. Support of historical cost

stated that historical cost can easily be verified, reflect objectivity, free from bias, and can easily be audited since it based on independent transaction between participants (Sugiarto; 2000: 81).

On the other hand, reporting financial statement using monetary unit makes information from financial statement less relevant, since monetary unit is not a stable measurement. Monetary unit are changing over time according to the economic condition of a



country. Because of the changing measurement, financial statement will be more relevant if it modified with price changes. One of the alternative methods of accounting of price changes is general price level adjusted accounting. (Belkaoui, 2000: 158)

Controversy of historical accounting and price changes accounting has been debated by accountant for years. Research evidence on New York Stock Exchange resulted that current value accounting are more valuable than historical accounting (Bublitz et al, 1985), but other research can not support this results (Olsen, 1985). Another research in Israel, who has a high inflation rate, resulted that information with current value accounting has more meaning than historical accounting (Barniv, 1999). Other research in Mexico, who also has a high inflation rate, proved that information using replacement cost is more valuable than historical cost (Gordon, 2001). From these results, it is evidenced that in the country with high level of inflation rate, current value accounting has more relevant information than historical accounting.

Information from statistic centered bureau showed that the rate of inflation in Indonesia changed in the range from 2.01% to 840.5%. The highest inflation rate happened in 1966 with 840.5% and the lowest rate happened in 1999 with 2.01% (BPS). If it is true, that current value accounting have more relevant information than historical accounting, these evidences are not supported by research in Indonesia (Laksono, 2001; Setiawati and Kuntara, 2003). The research results are different from Israel or Mexico who also has a high level of inflation. In Laksono's research the significance of information of current value accounting were not relevant because of research

limitation. That were limitation of sample (only seven industries sector), limitation of time (only in 1996 and 1997), and limitation of financial ratios analysis (only six ratios). In Setiawati and Kuntara's research resulted that in the insurance company, the significance of current value accounting are not relevant for decision maker. The research can not prove that current value accounting has more meaning than historical accounting.

Based on the research result above, this current research is intended to empirically examine again the relevance of current value accounting and historical accounting in providing information for decision maker in Indonesia, since Indonesia has a high and fluctuate level of inflation. The objective of this research is to prove the usefulness of price changes accounting using general price level adjusted accounting compared with historical accounting in financial statement.

## LITERATURE REVIEW

### Historical Cost (Conventional) Accounting

Financial statements are based on monetary unit measurement that assumes that prices (monetary unit) are stable. All accounting processes depend on the value of transaction when the transaction occurred. Therefore, all transactions are recorded based on historical cost.

There are several reasons for implementing historical cost in financial accounting. First, historical costs are more objective, reliable, audited and hardly difficult to manipulate than other value. Second, it is relevant in making economic decision in the future based on past data. And third, the implementation of accounting principle on historical cost, the financial statement can easily be compared. (Sugiarto, 2000)



Besides their advantages, historical cost accounting also has several disadvantages. First, it can not measure income sufficiently because of revenues are matching with expenses from different scale of time. Second, when there are changes in purchasing power, the historical cost was presented assets and liabilities in different measurement. And third, it will be difficult for decision maker to make a decision based on information that assuming stability in monetary unit. (Belkaoui, 2001: 176)

### **Price Changes**

Since financial statements are using monetary unit measurement, they are reflecting price changes. Price changes occur when the prices of goods and services are different from what they were previously in the same market.

There are three types of price changes: general price changes that reflect increases or decreases in the value of monetary unit; specific price changes occur when there is changes in the particular product; and relative price changes reflect the change in the price of one commodity relative to the prices of all goods and services (Hendriksen, 1992: 407)

### **General Price Level Adjusted Accounting**

Historical accounting assumes that monetary unit is stable or that the changes in the monetary unit are immaterial (Suwardjono, 1994). But it can not be denied that purchasing power of money is decreased continuously. General purchasing power was based on the ability of monetary unit to buy products or services. When the price of products or services increased (inflation), the general purchasing power will decrease. Because of financial statement are based on historical cost, the information reflected different time

of transaction. The general price level accounting tried to correct the situation.

There are some arguments supported the general price level adjusted accounting (Belkaoui, 2001: 176-179). First, statement based on general price level adjusted presents data concerning purchasing power and the claim of money at the end of period. Second, general price level accounting provides better matching concept of revenues and expenses because it uses common value. Third, general price level accounting is easy to implement. It only changes the "old value" with "current value". And forth, general price level accounting provides relevant information for management. It presents the effect of inflation on financial statement and realistically present firms' performance.

In the other side, there are also arguments against general price level accounting. First, most of empirical study indicated that the relevance of general price level accounting is weak. Second, general price level accounting only change in general price level not in the specific price level. Third, effect of inflation will be different for each industry and firm. Firms with capital intensive will be more influenced than firms with short term assets. And fourth, expenses are valued more than its' cost.

The main objective of general price level adjusted accounting is to restate the unit of measure using price index. The summation of historical cost incurred at different periods of time represents the aggregation of different scales of measurements. The restatement of historical cost for changes in purchasing power is assumed to result in figures measured in terms of the same scale of measurement. This current research is using general price index (inflation rate) to restate the historical financial statement.



### **Monetary and Non-Monetary Classifications**

To restate the historical cost financial statements, they must be classified in to monetary and non monetary items. According to Hendriksen (1992, 411-412), the classifications of monetary and non-monetary assets and liabilities are as follows:

Monetary assets are claims to a fixed quantity of the monetary unit representing general purchasing power. Although prices of goods and services may change, claims expressed in a given value of money remain unchanged, but the purchasing power, or ability to convert these claims into goods or services, is altered.

Monetary liabilities represent obligations to pay a fixed amount of money at some time in the future, regardless of what happens to the value of the monetary unit. The important criterion is that the amount to be paid doesn't depend upon changes in the value of the monetary unit.

Non-monetary assets, on the other hand, include those items whose prices in terms of the monetary unit may change over time.

Non-monetary liabilities include the obligation to provide given amount of goods and services or an equivalent amount of purchasing power, even though the payment might be in the form of cash.

### **Relevant Information**

The objective of reporting financial statement is providing information that can help investor to make a decision concerning their investment. The most important qualitative characteristic of information are relevance and reliable. Relevance information can affect decision making and reliable information are based on fact and can be verified.

Financial statement as an information for decision making are based on monetary unit and assumed that measurement of data are using stable monetary unit of money. In the inflation condition, with the increases of the price level, reflects that the monetary unit of money is instable. The information from financial statement will be not relevant for decision making, because of their based data are using historical cost. Thus, to be more relevant, the financial statement must be restated by using general price level adjusted accounting.

### **Previous Researches**

There is some controversy in the past researches results. Evident from research in Indonesia, conducted by Laksono (2001) and Setiawati and Kuntara (2003) proved that information based on current value accounting can not proved to be more valuable than information based on historical cost accounting. Laksono (2001) concluded that only two of six financial ratios of seven industries in 1996 and 1997 are not significantly different between historical financial statement and general price level adjusted financial statement. Laksono also suggested that in relation with decision making, it is suggested to accompany financial statement with the general price level adjusted financial statement.

In contrast, these results are different with research by Barniv (1999) in Israel and Gordon (2001) in Mexico. Barniv's research proved that current value accounting was more relevance for investor in Israel than historical cost accounting because of the highly inflation rate in Israel. In Mexico, which also have a high inflation rate, Gordon proved that replacement cost (one of alternative methods in price changes) are more valuable for decision maker than historical cost.



In this research, variables in decision making are using financial ratios analysis, namely: short term liquidity, long term solvency, profitability, productivity, indebtedness, investment intensiveness, leverage, return on investment, and equity. Each ratio will be tested by three item ratios. (Machfoedz, 1994: 118)

### Hypotheses

Based on the previous researches and literature review above, the hypotheses of this research are as follows:

- H<sub>0</sub>: There is no significance different of the financial ratios analysis based on historical cost accounting and general price level adjusted accounting
- H<sub>1</sub>: There is significance different of the financial ratios analysis based on historical cost accounting and general price level adjusted accounting

These main hypotheses will be break down to each of the financial ratios used in decision making.

## RESEARCH METHODOLOGY

### Population, Sample, Data and Procedures

Population of this research is state-owned companies listed on Jakarta Stock Exchange (JSX) from 1999 to 2003.

The Sample of state-owned companies in this study was chosen using purposive sampling that met the following criteria:

1. The company has complete information of financial statement from 1999 to 2003 and allows the calculation of financial ratios for those periods
2. It is not in the industry of service, finance, and insurance.

There are three state-owned companies that match with the criteria. One is in the cement industry (PT. Semen Gresik) and

two are in pharmaceutical industries (PT. Kimia Farma and PT. Indo Farma).

Data for this study are the financial ratios that can be calculated from financial statement. The data are taken from Indonesian Capital Market Directory 2002 and from [www.bumn.go.id/financial.html](http://www.bumn.go.id/financial.html). The financial ratios have been chosen from previous literature and research. (Machfoedz, 1994: 118)

To restate the historical accounting of financial statement to the general price level adjusted accounting, there are some assumptions include:

1. Sales are occurred average all the year.
2. Expenses are occurred average all the year.
3. The financial statements are converted by general price index of the year, using inflation rate published by Statistic Centered Bureau (BPS).

### Research Variables and Measures

Variables of this research are financial ratios of historical cost accounting and general price level adjusted accounting of financial statement, which include:

1. Short term liquidity (cash to current liabilities, quick assets to current liabilities, and current assets to current liabilities)
2. Long term solvency (current assets to total liabilities, net worth and long term debt to fixed assets, and net worth to fixed assets)
3. Profitability (operating income to net income before tax, operating income to sales, and net income to sales)
4. Productivity (Inventory to working capital, sales to account receivables, and sales to total assets)
5. Indebtedness (total liabilities to current assets, operating income to total liabilities, and current liabilities to total assets)



6. Investment Intensiveness (sales to fixed assets, current assets to sales, and inventory to total assets)
7. Leverage (current liabilities to inventory, net worth to total assets, and total liabilities to assets)
8. Return on investment (net income to fixed assets, earning before income taxes to total assets, and net income to total assets)
9. Equity (sales to current liabilities, net income to total liabilities, and current liabilities to net worth)

All variables are measured by ratio scales.

### Hypotheses Analysis

Paired sample t-test was used to test the difference of the financial analysis ratios

between historical cost accounting and general price level adjusted accounting. The parametrics statistical technique of paired sample t-test is working under assumption that the data have normal distribution. Normal distribution tested using Liliefors techniques examination and if the data are not distributed normal, to test the hypotheses will use non-parametrics statistical technique using Wilcoxon match pairs test (Sugiyono, 1999: 69)

### RESULTS

#### Test of Normality

The result of normality test using Liliefors techniques (Kolmogorov-Smirnov) are comprised as shown in table 1.

Table 1  
Test of Normality with  $\alpha = 5\%$

Financial Ratios	Historical Sig.	GPLA Sig.	Normality
Short term liquidity			
Cash to current liabilities	0.200	0.200	Yes/Yes
Current assets to current liabilities	0.200	0.200	Yes/Yes
Quick assets to current liabilities	0.200	0.200	Yes/Yes
Long term solvency			
Current assets to total liabilities	0.200	0.200	Yes/Yes
Net worth and long term debt to fixed assets	0.200	0.003	Yes/No
Net worth to fixed assets	0.200	0.013	Yes/No
Profitability			
Operating income to net income before tax	0.153	0.153	Yes/Yes
Operating income to sales	0.200	0.200	Yes/Yes
Net income to sales	0.077	0.077	Yes/Yes
Productivity			
Inventory to working capital	0.200	0.200	Yes/Yes
Sales to account receivables	0.200	0.000	Yes/No
Sales to total assets	0.200	0.200	Yes/Yes
Leverage			
Current liabilities to inventory	0.200	0.200	Yes/Yes
Net worth to total assets	0.200	0.200	Yes/Yes
Total liabilities to total assets	0.200	0.200	Yes/Yes
Indebtedness			
Total liabilities to current assets	0.005	0.157	No/Yes
Operating income to total liabilities	0.096	0.200	Yes/Yes
Current liabilities to total assets	0.200	0.200	Yes/Yes



Investment Intensiveness			
Sales to fixed assets	0.163	0.177	Yes/Yes
Current assets to sales	0.094	0.112	Yes/Yes
Inventory to total assets	0.200	0.200	Yes/Yes
Return On Investment			
Net Income to fixed assets	0.026	0.030	No/No
Earning before income taxes to total assets	0.145	0.160	Yes/Yes
Net income to total sales	0.200	0.188	Yes/Yes
Equity			
Sales to current liabilities	0.200	0.185	Yes/Yes
Current liabilities to net worth	0.122	0.027	Yes/No
Net income to total liabilities	0.124	0.200	Yes/Yes

### Test of Hypotheses

Table 1 indicates that not all variables are normal. Since there are only 15 data for each financial ratio, to test the

hypotheses are using paired sample t-test (table 2) and Wilcoxon match pair test (table 3), to examine if there is any different results.

Table 2  
Test of Hypotheses using *Paired Sample t-Test* ( $\alpha = 5\%$ )

Pair	Mean	t	Sig.	Decision
Short term liquidity				
Cash to current liabilities	22.933	8.332	0.000	Rejected Ho
Current assets to current liabilities	78.133	20.416	0.000	Rejected Ho
Quick assets to current liabilities	47.000	17.924	0.000	Rejected Ho
Long term solvency				
Current assets to total liabilities	56.333	7.175	0.001	Rejected Ho
Net worth and long term debt to fixed assets	177.933	4.496	0.001	Rejected Ho
Net worth to fixed assets	176.133	4.425	0.000	Rejected Ho
Profitability				
Operating income to net income before tax	109.867	0	1,000	Accepted Ho
Operating income to sales	15.1333	0	1,000	Accepted Ho
Net income to sales	7.800	0	1,000	Accepted Ho
Productivity				
Inventory to working capital	-35.200	-2.748	0.001	Rejected Ho
Sales to account receivables	-22.867	-4.950	0.000	Rejected Ho
Sales to total assets	1.067	4.298	0.016	Rejected Ho
Leverage				
Current liabilities to inventory	-171.33	-10.23	0.000	Rejected Ho
Net worth to total assets	33.867	9.666	0.000	Rejected Ho
Total liabilities to total assets	-33.867	-9.666	0.000	Rejected Ho
Indebtedness				
Total liabilities to current assets	-59.133	-18.43	0.000	Rejected Ho
Operating income to total liabilities	10.933	3.317	0.005	Rejected Ho
Current liabilities to total assets	-34.533	-10.20	0.000	Rejected Ho
Investment Intensiveness				
Sales to fixed assets	14.200	4.860	0.000	Rejected Ho
Current assets to sales	0.2857	1.170	0.263	Accepted Ho
Inventory to total assets	-0.467	-3.500	0.004	Rejected Ho



<b>Return On Investment</b>				
Net Income to fixed assets	1.200	1.771	0.098	Accepted Ho
Earning before income taxes to total assets	0.1333	1.468	0.164	Accepted Ho
Net income to total sales	0.1333	1.468	0.164	Accepted Ho
<b>Equity</b>				
Sales to current liabilities	113.20	8.388	0.040	Rejected Ho
Current liabilities to net worth	-390.20	-1.427	0.175	Accepted Ho
Net income to total liabilities	6.600	2.266	0.000	Rejected Ho

Table 3  
Test of Hypotheses using *Wilcoxon Match Pairs Test* ( $\alpha = 5\%$ )

Pair	Z	Asymp. Sig.	Decision
<b>Short term liquidity</b>			
Cash to current liabilities	-3.411	0.001	Rejected Ho
Current assets to current liabilities	-3.409	0.001	Rejected Ho
Quick assets to current liabilities	-3.410	0.001	Rejected Ho
<b>Long term solvency</b>			
Current assets to total liabilities	-3.408	0.001	Rejected Ho
Net worth and long term debt to fixed assets	-3.408	0.001	Rejected Ho
Net worth to fixed assets	-3.408	0.001	Rejected Ho
<b>Profitability</b>			
Operating income to net income before tax	.000	1.000	Accepted Ho
Operating income to sales	.000	1.000	Accepted Ho
Net income to sales	.000	1.000	Accepted Ho
<b>Productivity</b>			
Inventory to working capital	-3.439	0.001	Rejected Ho
Sales to account receivables	-3.297	0.001	Rejected Ho
Sales to total assets	-2.859	0.004	Rejected Ho
<b>Leverage</b>			
Current liabilities to inventory	-3.408	0.001	Rejected Ho
Net worth to total assets	-3.411	0.001	Rejected Ho
Total liabilities to total assets	-3.411	0.001	Rejected Ho
<b>Indebtedness</b>			
Total liabilities to current assets	-3.411	0.001	Rejected Ho
Operating income to total liabilities	-2.703	0.007	Rejected Ho
Current liabilities to total assets	-3.410	0.001	Rejected Ho
<b>Investment Intensiveness</b>			
Sales to fixed assets	-3.181	0.001	Rejected Ho
Current assets to sales	-1.134	0.257	Accepted Ho
Inventory to total assets	-2.646	0.008	Rejected Ho
<b>Return On Investment</b>			
Net Income to fixed assets	-1.538	0.124	Accepted Ho
Earning before income taxes to total assets	-1.414	0.157	Accepted Ho
Net income to total sales	-1.414	0.157	Accepted Ho
<b>Equity</b>			
Sales to current liabilities	-3.296	0.001	Rejected Ho
Current liabilities to net worth	-1.988	0.047	Rejected Ho
Net income to total liabilities	-2.231	0.026	Rejected Ho



Results of paired t-test on table 2 for all items of profitability and return on investment ratios show that there is no significance different of these ratios of historical cost accounting and general price level adjusted accounting. One item of Investment intensiveness (current assets to sales) and equity ratios (current liabilities to net worth) are also have the same results. The significance levels are more than 5%. It means that for these financial ratios, general price level adjusted accounting have no more relevant information than historical cost accounting.

Table 2 also indicates that all item of short term liquidity, long term solvency, productivity, leverage, and indebtedness ratios of general price level adjusted accounting are significantly different with historical cost accounting. Two items of investment intensiveness (sales to fixed assets and inventory to total asset) and equity ratios (sales to current liabilities and net income to total liabilities) are also proved the same result. The significance levels are less than 5%. It means that for these financial ratios, general price level adjusted accounting have more relevant information than historical cost accounting.

Those above result on table 2 are slightly different with the test of hypotheses using Wilcoxon match pair test (table 3). While on table 2 equity ratios of current liabilities to net worth is insignificance (accepted  $H_0$ ), table 3 shows the different result (rejected  $H_0$ ).

Overall, this research empirically proved that financial ratios of general price level adjusted accounting are significantly different with historical cost accounting. These findings are supported by Bublitz et al (1985), Barniv (1999), and Gordon (2001). It is proved that price changes accounting using general price level

adjusted accounting are more useful and relevant than historical accounting of financial statement.

### Summary and Limitation

This research study has investigated the usefulness of financial ratios when they were associated with the purchasing power changes. Since the financial statements are usually based on historical cost, which is assumed that prices (monetary unit) are stable, it can be lead to wrong interpretation of firms performance.

The findings show that only two categories of financial ratios of the nine with no significance level of more than 5%, namely: profitability and return on investment ratios. The other seven categories have significance level less than 5%, namely: short term liquidity, long term solvency, productivity, leverage, and indebtedness ratios. This finding was not surprising, since previous research in country with high inflation level like Mexico and Israel, have had similar findings. However, it is different with previous research in Indonesia. A possible explanation is that previous research only examine for two years periods (Laksono, 2001), while this research examine longer periods that is 5 years from 1999 to 2003. The inflation rate on those years are 2,01% in 1999, 9,35% in 2000, 12,55% in 2001, 10,03% in 2002, and 5,06% in 2003 (BPS). This research also examines 27 items of financial ratios, while the previous research only examines less than 7 item ratios.

From the research result above, it can be concluded that general price level adjusted accounting is necessary needed and relevant in reporting financial statement. Even though, it is difficult to generalize this findings, since this research only examine 3 state-owned companies, this conclusion was



supported and suggested by previous research.

The limitations of this research are: first, the financial statements reported on Indonesian Capital Market Directory are very simple. To investigate more financial ratios, for example by using cash flow statement will need other source of financial statement information. Second, this research only examines 3 state-owned companies listed on JSX. Of these three companies, researcher does not separate their different industry. Future research may clarify these limitations.

### REFERENCES

- Barniv, Ran. 1999. "The Value Relevance of Inflation-Adjusted and Historical Cost Earnings during Hyperinflation." *Journal of International Accounting, Auditing and Taxation* 8 (2): pp. 269 – 287.
- Belkaoui, Ahmed Riahi, 2000. *Teori Akuntansi*, Edisi Bahasa Indonesia, Salemba Empat, Yogyakarta.
- Bublitz, Bruce. Thomas J. Frecka and James C. McKeown. 1985, "Market Association Test and FASB Statement No.33 Disclosures: A Reexamination". *Journal of Accounting Research* (Supplement): pp. 1 – 23.
- Gordon, Elizabeth A. 2001. "Accounting for Changing Prices: The Value Relevance of Historical Cost, Price Level, and Replacement Cost Accounting in Mexico." *Journal of Accounting Research* (June): pp. 177 – 200.
- Hendriksen, Eldon S and Michael F. Van Breda. 1992. *Accounting Theory*, Fifth Edition, Irwin, Chicago
- Laksono, Tri and Isnalita. 2001. "Relevansi Laporan Biaya Historis pada Kondisi Inflasi dengan Indikator Total Assets, Net Sales, Operating Profit, Net Income, ROI, dan EPS pada 23 Perusahaan Go Publik di Bursa Efek Surabaya. Simposium Nasional Akuntansi IV, Bandung, pp. 905 – 922.
- Machfoedz, Mas'ud, 1994. "Financial Ratios Analysis and The Prediction of Earning Changes in Indonesia". *Kelola*, No.7/III/1994, pp.114 – 135.
- Olsen, Chris. 1985. "Valuation Implication of SFAS No.33 Data for Electric Utility Investors." *Journal of Accounting Research* (Supplement): pp. 28 – 47.
- Scott, William. 1997. *Financial Accounting Theory*, Singapore: Prentice Hall.
- Setiawati, Lilies and Antonius Diksa Kuntara, 2003. "Perbandingan Nilai Sekarang dan Nilai Hiatoris: Penilaian Investasi Surat Berharga dalam Penyajian Laporan Keuangan Perusahaan Asuransi." *Simposium Nasional Akuntansi IV*. Surabaya, pp. 450 – 456.
- Sugiarto. 2000. "Implikasi Akuntansi Inflasi terhadap Analisis Laporan Keuangan." *Jurnal Ekonomi dan Bisnis*. 1999/2000. pp. 81 – 92
- Sugiyono, Dr. 1999. *Statistika untuk Penelitian*. Cetakan kedua. CV. Alfabeta, Bandung.
- Suwardjono. (1994), *Teori Akuntansi: Perekayasaan Akuntansi Keuangan*, Edisi Ketiga, BPFE, Yogyakarta.