

## BALANCE ANALYSIS OF CLINICS AND NURSING HOMES

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### ABSTRACT

It is very common to hear that health is priceless, but the fact remains that it has a cost. Today there are many enterprises engaged in the business of providing health.

These enterprises mostly operate in the form of legal persons; the most common are the Corporations (S.A.) and Limited Liability Enterprises (S.R.L.).

They are legally required to submit annual balance sheets.

How to know if a enterprise figures are particularly high or low? How to determine whether a enterprise's performance has been better or worse than others?

This paper is a statistical analysis of more than 200 balances, whose values were compiled in a database and subsequently analyzed.

**KEYWORDS:** Analysis; Balance; Clinic; nursing homes; Statistics.

### INTRODUCTION

There is an item which is operated by medicine, which is constantly criticized for its alleged excessive profit margin at the expense of public health care plans and / or private and public: the Clinics and sanatoriums.

But it turns out that there are statistical measures that endorse or knock out such conjectures.

This paper tries to statistically analyze a set of balances, in order to have concrete elements to make a quantitative and qualitative analysis.

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## **DEVELOPMENT**

### **Accounting**

Economic events in an enterprise need to be represented so that different people can interpret them, and know what these economic events and their impact were.

Obviously, we could recount one by one, but this would give us a diary of economic happenings that can hardly be used and not serve us to know the results that these events originated.

Accounting is, in principle, a method of representing economic events occurring in enterprises, and as the only viable way to analyze economic events seems to be to somehow grouping which are homogeneous, the numerical representation is the best one to serve the purpose of grouping similar economic events.

Accounting consists of two main elements:

- The Bookkeeping (to represent and register operations).
- The Accounting Review (going to the same philosophy of economic events and future trends).

Accounting emerged empirically, i.e., without a systematic or scientific basis of the need to record information that could not be saved.

In its most basic form, the first record was that man knew the inventory, two inventories at different times allowed him to know if his wealth in that period had increased, decreased or remained the same.

An Italian friar, Lucas Pacciolo, created a method of registration which today is the fundamental basis of accounting. This method, known as Double Entry, states that the essence of accounting is an equation in which the equality of its members can never disappear.

The Financial Statements are the methods of interest to anyone who can provide a concise summary of the financial position of the enterprise.

They both expressed the situation of the enterprise in a given year as the economic performance of a time period.

The basic financial statements are:

- Balance Sheet
- Income Statement

In these two states, a few pages are collected and classified appropriately aggregated results of thousands of economic transactions that an enterprise can have a period.

Its reading comprehension is therefore vital.

The correct interpretation will depend of future decisions.

## Balance Sheet

The Balance Sheet is the main financial statements. It describes the situation of an enterprise taken up at a certain time, as if it were a picture of the enterprise.

The balance sheet reflects the accounting equation:

Assets = Liabilities + Equity

The total assets consist of the sum of Current Assets plus Non-Current Assets.

Total Liabilities consist of the sum of Current Liabilities plus Non-Current Liabilities.

Then:

Current Assets + Non-Current Assets - (Current Liabilities + Long Term Liabilities) =  
Equity

- Current Assets

Corresponds to the portion of the assets comprised of goods with early realization, i.e., they are able to be converted into money, or are money already, in less than one year.

Here there appear:

- . Cash (or available assets), formed by more liquid assets that an enterprise has.
- . Customers who are accounts to be charged.
- . Inventories are stocks of inventories. If industries could load three subdivisions: Finished Products, Raw Materials and Production Process.

They could also be presented as Investment accounts (if temporary) and Tax Credits.

- Non Current Assets

Formed by the enterprise purchased goods with intent not to sell but to use them to their advantage.

It is the case of Fixed Assets (land, buildings, machinery, vehicles, furniture, etc.).

They could also include Inventory and Customers, if they are estimated to require conversion into money over a year.

Finally, intangible assets, consisting of (purchased trademarks, copyrights, patents, etc.).

- Current Liabilities

Debts that the enterprise must meet in a shorter period of 365 days from the current liabilities.

Supports different classifications: Commercial, Banking, Finance, Tax, and Pension.

- Non Current Liabilities.

They are long-term debts.

Supports different classifications: Commercial, Banking, Finance, Tax, and Pension.

- Equity.

Formed by the original capital contributed by the owners over the results for the year under review and prior years have remained undistributed between partners.

### **Income Statement**

The income statement reflects the results of the business transactions in a given period.

It is an account that starting with the gross income of the period in question, subtracts the costs and expenses up to the profit or loss for the period.

Profit is the main objective of most businesses and transacting are generally aimed at obtaining it.

- Income.

They are divided into Ordinary (those that occur as a result of the normal course of operations) and Extraordinary (which occur in exceptional circumstances, such as charging an insurance policy).

- Costs.

The traditional classification is:

. Cost of sales, comprising of:

Raw material (material from which the product is formed).

Direct labor (those who were working directly on the product).

Plant load (the rest of the costs that cannot be attributed to the above categories).

- . Marketing Cost (salaries and commissions from vendors, advertising, etc.).
- . Cost of Administration (administrative staff salaries, office rent, etc.).
- . Cost of Financing (interest, fees and expenses arising from the use of third party financing).

## Financial Analysis

Involves observation of weaknesses and strengths of the enterprise as a whole.

There need to be two or more balances and relationships between them to obtain ratios or indices used to assess the ability to pay, the investment potential, etc.

There are four basic groups of indices:

### 1 - Liquidity Ratios

Demonstrate the ability or lack of ability to pay in short-term and are obtained by comparing current assets with current liabilities.

### 2 - Solvency Ratios

Evaluate the ability of the enterprise to meet its obligations in the event of liquidation and are comparing total assets with debt.

### 3 - Performance Ratios

Compare the gross or net profits with the resources invested, while the higher the value, the higher the rating.

### 4 - Activity Ratios

Show the activity of management.

A summary of these can be seen in the following diagram:

1 - Liquidity Ratios. Establish the ability to meet short-term obligations that the enterprise has.

2 - Ratios of solvency. Show the relationship of the owners in the financing business and point out the ability to pay of the enterprise in liquidation.

3 - Performance Ratios. Point out the efficiency in generating profits and therefore are of great importance to shareholders and investors.

4 - Ratios of activity. Point to the efficient use of resources that have been committed and the management of the enterprise.

## Liquidity ratios

Are those which demonstrate the ability or lack of ability to pay short-term business and are obtained by comparing current assets completely or that have been subtracted inventories with current liabilities, i.e., assets that the enterprise can convert into cash and short-term liabilities that must also be paid in the short term.

From the foregoing description emerge the respective formulas:

Current Ratio = Current Assets / Current Liabilities

Unit of measure: times

Acid Liquidity (Current Assets - Inventories) / Current Liabilities

Unit of measure: times

Inventory to Working Capital = Inventory / (Current Assets – Current Liabilities)

Unit of measure: %

## Statistical Analysis

There are data (called parameters) that will represent the entire population or they will tell us whether the population is highly concentrated or widely dispersed.

The statistical parameters are data summarizing the study population.

They can be of two types:

. Centralization Parameters. These are data that comprehensively represent the entire population. These are going to study the arithmetic mean, the median and the mode.

. Scattering parameters. These are data that report the concentration or dispersion of data on the centralization parameters. For example the route, the average deviation, variance and standard deviation.

For statistical analysis, the following concepts are used:

- Media

It is the mean number and it is calculated by adding a group of numbers and then dividing by the count of those numbers. For example, the average of (2, 3, 3, 5, 7 and 10) is 30 divided by 6, which is 5.

- Medium

Is the mid number of a group of numbers, that is, half the numbers are above the median and half are smaller than the median. For example, the median of (2, 3, 3, 5, 7 and 10) is 4.

- Mode

It is the most frequent occurring number in a group of numbers. For example, mode of (2, 3, 3, 5, 7 and 10) is 3.

- Variance

The variance is the arithmetic mean of the squared deviations from the mean of a statistical distribution.

- Standard Deviation

The standard deviation and typical deviation is the square root of the variance.

That is, the square roots of the mean square deviation scores.

- Kurtosis

Measuring the degree of concentration of data around the average.

If this coefficient is zero, the distribution is said to be standard (similar to the Gaussian distribution) and called mesokurtic.

If the coefficient is positive, the distribution is called leptokurtic, more pointed than the last. There is a greater concentration of data around the mean.

If the coefficient is negative, the distribution is called platykurtic and there is a lower concentration of data around the mean. It would be flatter than the first.

- Coefficient of asymmetry

To measure the level of asymmetry using the so-called Fisher asymmetry coefficient.

The results can be:

.  $g_1 = 0$  (symmetric distribution, there is the same concentration values to the right and left of the mean).

.  $g_1 > 0$  (positive asymmetric distribution, there is a greater concentration of values to the right of the media to the left).

.  $g_1 < 0$  (negative asymmetric distribution, there is a greater concentration of values to the left of the mean than to the right).

- Minimum

The minimum value of all values analyzed.

- Maximum

The maximum value of all values analyzed.

- Range

The difference High - Low.

- Tendency line

Linear regression is an approach to the linear relationship between the variables using a linear equation modeling observed data, has the form  $Y = A + bX$ .

- Coefficient  $R^2$

It measures the proportion of the total variation of the variable that is explained by the equation of the trend line.

### **The universe under analysis**

To collect the data to be analyzed, it must define the universe of the sample analyzed.

These balances were randomly selected that met the following conditions:

- They have the obligation to submit annual reports.

- They are legal persons.

- That in the corporate name of such legal person it shall contain the words Nursing Home or Clinic.

In order to compare the different values, we chose to design a standardized data to load balance scheme.

The structure chosen was:

Designation

Month

Year

Cash and Banks

Investments

Trade Receivables

Other Receivables

Inventories

Other Current Assets

Total Current Assets

Trade Receivables

Other Receivables



Investments  
Inventories  
Property and Equipment  
Intangible Assets  
Other Assets  
Total Non-Current Assets  
Total Assets  
Bank Debt  
Commercial Debts  
Tax Debts and Social  
Financial Debt  
Other Debts  
Total Current Liabilities  
Bank Debt  
Commercial Debts  
Tax Debts and Social  
Financial Debt  
Other Debts  
Total Non-Current Liabilities  
Total Liabilities  
Equity  
Unassigned Outcome  
Operating Result  
Result from holding non-financial assets  
Income Tax  
Depreciation  
Cash Dividends  
Change in Assets  
Net Sales of Goods and Services  
Gross Result  
Extraordinary Results  
Net

Using the values obtained, different indices were calculated and the results were analyzed statistically.

Following there is a summary of such analysis.

**Current ratio**

The value of the arithmetic mean is 2.46, however the highest value is practically used, this figure multiplied by 10, while the lowest value is just above 0.

The arithmetic average of the 10 highest values is 10.77 while the average of the 10 lowest values is 0.43.

The median is 1.21, almost half of the arithmetic average, while mode is 0.44

The variance is 17.04, with a coefficient of asymmetry equal to 4.13.

Such dispersion can be seen in Figure 1, where the values are plotted in two ways: by date and value.

The incongruities of the graph merely visually reinforce what the described figures indicate.

While undertaking to achieve a formula for the trend line, it fails to explain just 0.45% of the variance (R<sup>2</sup> value).

**Table 1: Descriptive statistics of the Current Ratio**

Average	2.46235957
Median	1.21145643
Mode	0.44989175
Standard Desviation	4.12914696
Sample variance	17.0498546
Kurtosis	18.3125708
Asymmetric Coefficient	4.13205479
Rank	25.4604441
Mínimum	0.18733049
Máximum	25.6477746
The highest 10 values	
1	25.64777
2	21.26923
3	16.96257
4	7.80612
5	7.63846
6	7.63846
7	7.49108
8	4.86445
9	4.18440
10	4.18440
The lowest 10 values	
10	0.63400
9	0.62906
8	0.59936

7	0.44989
6	0.44989
5	0.43396
4	0.42127
3	0.34203
2	0.24802
1	0.18733

Source: Own Elaboration

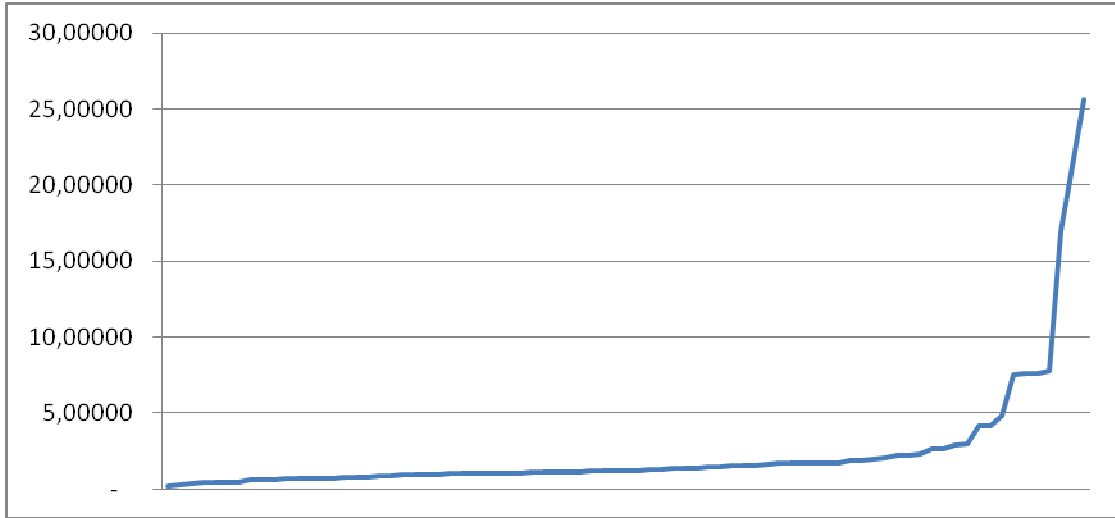


Figure Nº 1: Current Ratio. Chart values sorted low to high  
Source: Own Elaboration

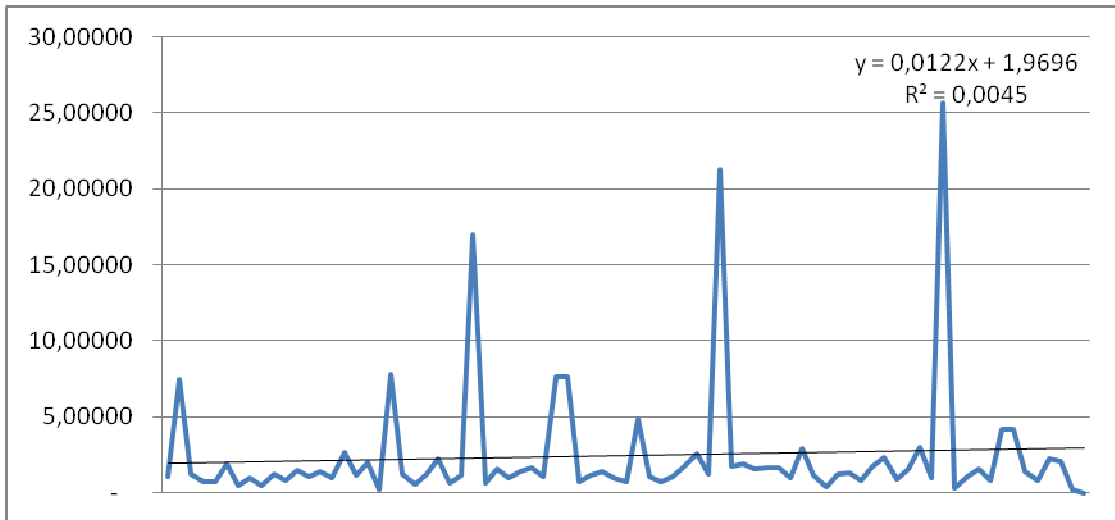


Figure Nº 2: Current Ratio. Chronologically ordered values Chart  
Source: Own Elaboration

## Acid Liquidity Ratio

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This index is less than the Current Ratio Format.

In this case, the arithmetic mean value is 1.54 (less than the previous case), but the more used one is to multiply this value by 13 while the minimum values remain very close to 0.

The average of the 10 highest values now is 5.04 while the average of the 10 lowest values is 0.31.

The variance is 5.66 indicating less variability than in the previous case, but this means one can speak of a reliable trend.

Graphically it is possible to see how some values have softened over the previous index.

This behavior could be interpreted as in general, the relative importance of inventories in current assets appears to be similar in the cases analyzed.

Again you try to achieve a trend line formula, but it fails to explain just 1% of the total variations.

**Table Nº 2: Descriptive statistics of the Acid Liquidity Ratio**

Average	1.54182017
Median	1.0756452
Mode	0.42802959
Standard Desviation	2.37985535
Sample variance	5.66371147
Kurtosis	52.396078
Asymmetric Coefficient	6.78697367
Rank	20.3934033
Minimum	0.15594498
Maximum	20.5493482
The highest 10 values	
1	20.54935
2	7.49108
3	4.77673
4	2.98789
5	2.89069
6	2.64758
7	2.58333
8	2.26200
9	2.15777
10	2.13695
The lowest 10 values	
10	0.42803
9	0.42127
8	0.40881
7	0.34615
6	0.34203
5	0.34099
4	0.28742
3	0.24493

	2	0.16658
	1	0.15594

Source: Own Elaboration

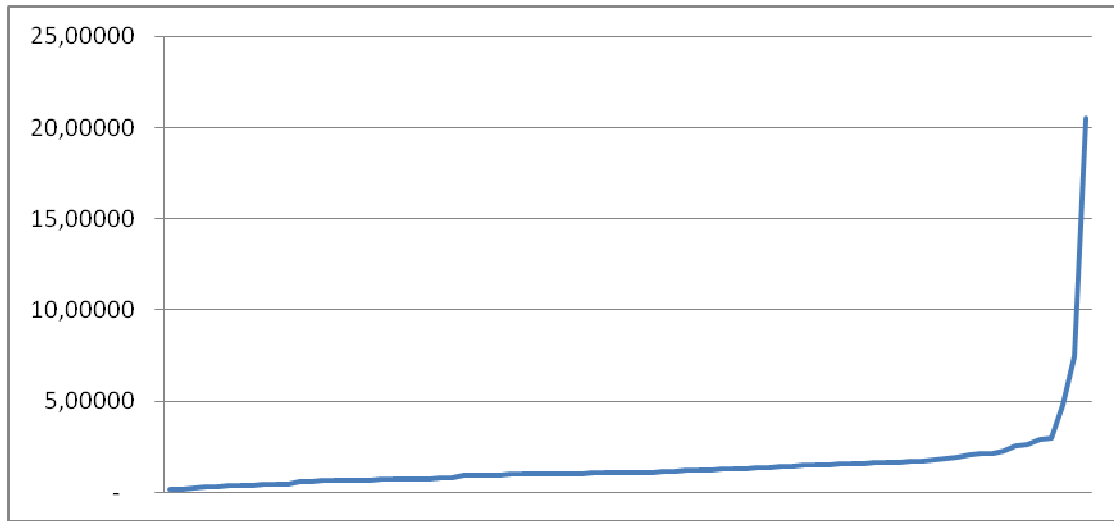


Figure Nº 3: Acid Liquidity Ratio. Chart values sorted low to high

Source: Own Elaboration

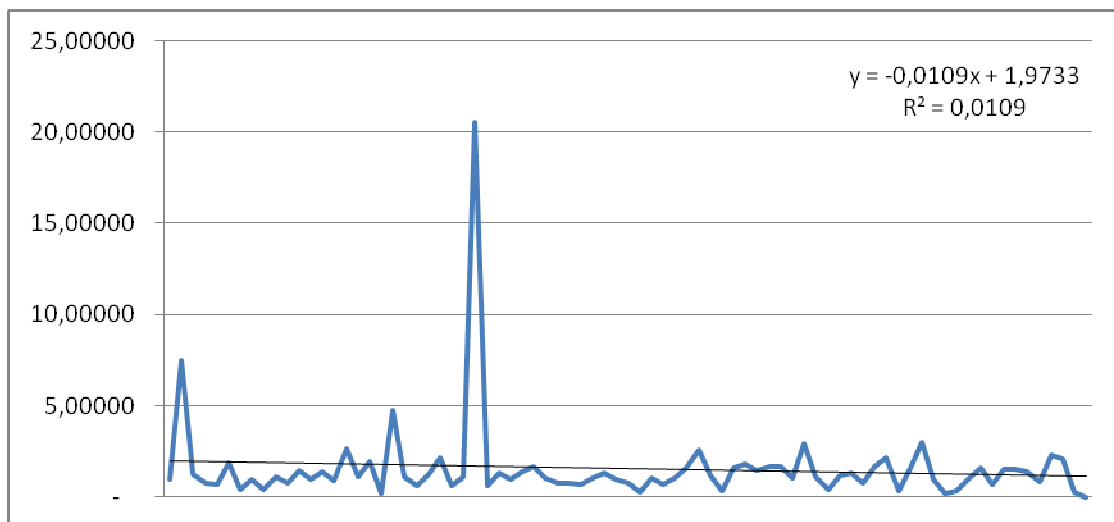


Figure Nº 4: Liquidity Ratio Acid. Chronologically ordered values Chart

Source: Own Elaboration

### Inventory to Working Capital Ratio

It differs from the previous index value because it represents a percentage of incidence (arising from the translation of the formula itself, as it consists essentially of a quotient).

It directly examines the impact of inventories in working capital.

In graphical analysis it shows that when sorting values increasingly, we see that most of the line moves on the same axis 0 (that is why the median and mode assume this value).

The arithmetic average is just less than 9%.

There are even points where the values are negative, mainly due to working capital shown in many cases unfavorable (current liabilities exceed current assets).

For the composition of the analyzed samples, the value obtained for the median and mode are equal to almost 0%.

It is noteworthy that the average of the 10 highest value is +131% while the average of the 10 lowest values is -133%, virtually the same absolute value.

However this should not lead to hasty conclusions because the coefficient of asymmetry is strongly negative.

**Table Nº 3: Descriptive statistics of the Acid Liquidity Index**

Average	0.08746686
Median	0
Mode	0
Standard Desviation	0.91543267
Sample variance	0.83801696
Kurtosis	13.2628686
Asymmetric Coefficient	-2.06972614
Rank	8.15666591
Minimum	-4.79520543
Maximum	3.36146047
The highest 10 values	
1	3.36146
2	1.51351
3	1.24866
4	1.18439
5	1.04056
6	1.04056
7	1.03381
8	1.03226
9	0.88407
10	0.84082
The lowest 10 values	
10	- 0.09976
9	- 0.12162
8	- 0.16966
7	- 0.21225
6	- 0.56380
5	- 0.62338
4	- 1.21875
3	- 2.31916
2	- 3.22222
1	- 4.79521

**Source:** Own Elaboration

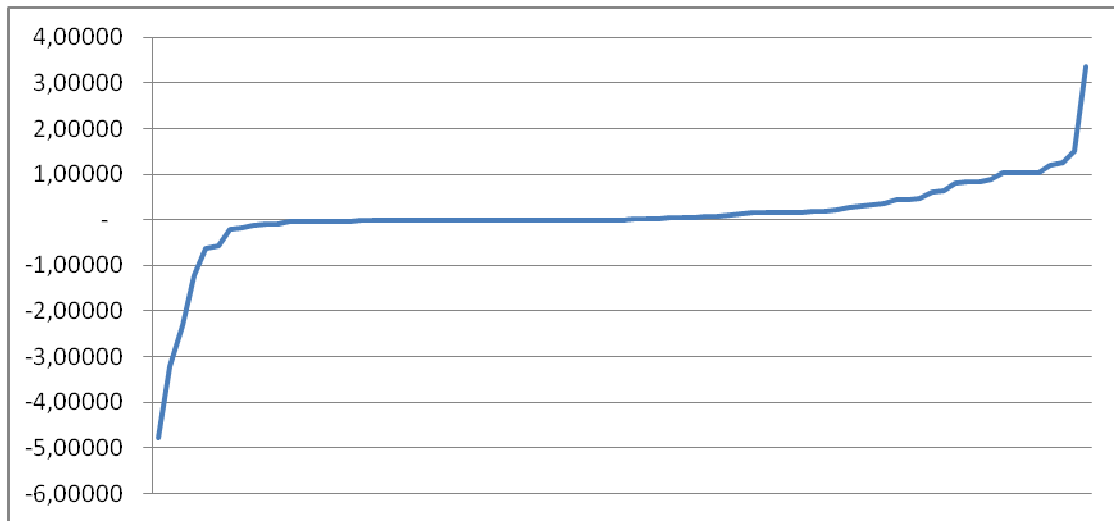


Figure Nº 5: Liquidity Ratio Acid. Chart values sorted low to high  
Source: Own Elaboration

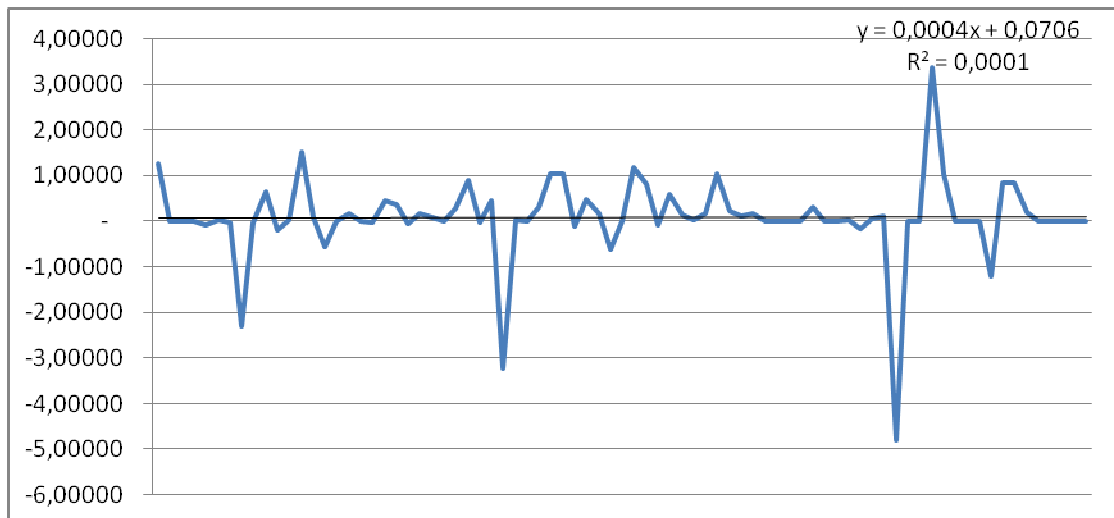


Figure Nº 6: Acid Liquidity Ratio. Chronologically ordered values Chart  
Source: Own Elaboration

## CONCLUSION

From the analysis of the values and graphs above, it appears that there is a large dispersion of the values analyzed, what prevents you from taking specific values as representative of the industry under analysis that can serve as comparable parameters.

For the same reason, neither can articulate values within bounded ranges within which a major portion reasonably encompass the data analyzed.

The conclusion that emerges is that it is not possible to provide unambiguous parameters of reality in this market segment, with which to accurately compare the performance of a particular enterprise.

What has been able to be established is that despite the large variability, there is a strong positive correlation between rates of Liquidity and Acid Liquidity with a value greater than 8, which would be the only pattern detected in the analysis up to the present day.

## **BIBLIOGRAPHY**

Please refer to articles Spanish Bibliography.

## **BIOGRAPHICAL ABSTRACT**

Please refer to articles Spanish Biographical abstract.