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# Profitability Of The Coal Sector In A Border Department In Colombia

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**Abstract**

The objective of this research on the profitability of the coal sector in a border context was to measure, through financial profitability indicators, how the sector was in a period of time, the research focused on descriptive correlational research with a documentary and field design. With the support of businessmen of the sector, critical factors that affected the financial management of the sector were identified. Between the turnover of accounts receivable and accounts payable there is a mismatch between accounts payable and accounts receivable; this led to accounts receivable being financed with non-operating resources, hence the need for operating funds. It was determined that all the sector's profitability indexes deteriorated as of 2006. It is recommended to follow up on the management of Short Term variables.

**Keywords***:* Profitability, cotton sector, finance, border context

## Introduction

### *1.1. Operational Finance. (NOF)*

According to (Faus, 1999), the term operational finance will be used instead of short-term finance. These deal with problems that respond to "operational" issues.

The items that make up current assets and a good part of those that make up short-term liabilities are related to the "volume of operations of the company". For example: if sales grow, debtors grow.

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(Alvarado Chacín, 1999; Henry Orlando, Wlamyr, et al., 2022; Musons, 2005). As purchases grow, so do suppliers, etc.

Some of these items are also affected by changes in the circumstances of the environment in which the company's business is conducted.(de La Hoz et al., 2008; Uribe, 2010). For example, if a raw material is expected to be in short supply in the future, it may be necessary to stockpile exceptional quantities. (Henry Orlando, Marvin Vladimir, et al., 2022)

Current assets and short-term liabilities are affected by the daily evolution of the brand of the businesses, by possible seasonality and by other operational issues (Gonzáles Mendoza et al., 2022).

### *1.2. Fund and Working Capital Fund Requirements*

Working capital.

It can be calculated in two ways:

FM = Current assets - Short-term liabilities.

FM = Permanent resources - Net fixed assets.

The second definition is adopted, as it clarifies much more the true nature of the FM. In a seasonal company (toy factory), based on the first definition, the FM should be very fluctuating throughout the year (Abínzano & Navas, 2009; Laviada & García, 2006). According to the second definition, it is not at all affected by seasonality. (Ferrer Arroyo & Avila de Montero, 2000; Inciarte, 2008).

The FM is a concept that corresponds to questions of approach and not of operation. It is a starting point: the excess of long-term funds over net fixed assets (as long as it is positive) (Dávila Aragón et al., 2016; de Galicia, 2010; Echeverry, 2010). In other words, the volume of permanent funds that we have available as an input to finance the company's operations. It is a liability concept rather than an asset concept.

Questions of approach:

How to do the business?

How much do we need to do the business?

- + o – permanent

### *1.3. Background operational needs.*

It relates to the operation of the business, what the business needs on a day-to-day basis. The NOF is a financial concept that shows in a global way the volume of financing needs caused by the operations. Continuing with the previous example, in the toy company the FM does not fluctuate, but the NOF fluctuates (Godoy & Morales, 2012; Nava & Martínez, 2010; Watkins et al., 2009). NOFs can be defined as:

NOF = Operating current assets - Operating short-term liabilities.

NOF refers to current assets and short-term liabilities arising from the company's operations, without considering financing decisions or decisions to place cash surpluses, even if they are short-term decisions.

Operating current assets are the sum of all short-term receivables (sales receivables) + provisions for assets (to some extent also receivables) + inventories + cash + cash and cash equivalents.
+ inventories + operating cash or operating cash.

Operating cash represents the amount of cash that is considered adequate for the company's ordinary operating needs.(di Pietro et al., 2012; Monge et al., 2013).

## *2.* Method

In relation to the methodological framework, this chapter defines the level and type of research, the universe or population, the sample, the instruments and techniques for data collection and analysis. Al respect (Balestrini, 2002) states that "the methodological framework is intended to situate in the research language, the methods and instruments that will be used in the proposed research, from the location about the type of study and the research design" (p.126).

### *2.1. Research Level*

The level of research indicates the degree of depth with which the study will be carried out and indicates that it may be exploratory, descriptive or explanatory. For (Arias, 2006) "descriptive research consists of the characterization of a fact, phenomenon, individual or group, in order to establish its structure or behavior", the author also indicates that correlational research is to determine the degree of relationship or association (non-causal) existing between two or more variables.

For the reasons described above, the research was framed as a descriptive and correlational research, since it will relate the operational finances, solvency and profitability of the coal sector of the Norte de Santander Department in Norte de Santander.

### *2.2. Research Design*

Research design is defined as the approach and strategy adopted by the researcher to develop the work and achieve the objectives set.

According to (Arias, 2006), the research design is classified as follows: Documentary Research, Field Research and Experimental Research (Documentary research refers to those investigations in which "it is a process based on the search, recovery, analysis, criticism and interpretation of secondary data, i.e., those obtained and recorded by other researchers in documentary sources: printed, audiovisual or electronic" (p.27).

He also explains that field research is (Hernández Sampieri et al., 2019) "that which consists of collecting data directly from the subjects under investigation, or from the reality where the facts occur (primary data), without manipulating or controlling any variable, i.e. the researcher obtains the information, but does not alter the existing conditions." (p.31).

According to the above, the research was proposed as a documentary research for the analysis of financial and field information, requesting the support of experts in the area to know their opinions regarding the analysis of the environment that impacts the coal sector of the Norte de Santander Department of Norte de Santander.

### *2.3. Population*

For (Estupiñan Roa et al., 2022) "a population is determined by its defining characteristics, that is, it is the totality of the phenomenon to be studied in which the population units have a common characteristic, which is studied and gives rise to the research data" (p.92). (p.92). While for (Arias, 2006), "the population is a finite or infinite set of elements with common characteristics for which the conclusions of the research will be extensive. This is delimited by the problem and the objectives of the study" (p.81).

The population in this study was determined by the companies in the coal sector in the department of Norte de Santander, which report to the Superintendence of Companies attached to the Ministry of Industry and Commerce of the Republic of Colombia and which are related to the Association of Coal Entrepreneurs of Norte de Santander (ASOCARBON).

### *2.4. Sample*

Since the population is small, a sample is not selected and we work with the entire population, i.e. a census will be applied. The census is by definition a procedure that allows obtaining primary information and covers all population units, it can be periodic, sporadic or one-time, it is used for different populations, both human, animals and objects.

### *2.5. Data Collection Techniques and Instruments*

For (Hernández Sampieri et al., 2019) when referring to this point they indicate that collecting data involves three activities closely linked to each other: First, selecting a measurement instrument from those available in the study of behavior or developing one they point out that the instrument must be valid and reliable, because otherwise it should not be based on its results. The second step is to apply that measurement instrument and finally to prepare the measurements obtained so that they can be analyzed correctly.

(Arias, 2006) mentions that "data collection techniques are the procedures or particular ways of obtaining information" (p.67).

To analyze the financial information, tables were designed to classify the companies' data. This information was considered as a primary source, and the information provided by state entities or the sector's guilds was taken as secondary sources.

For the field study, the survey technique was used, using the questionnaire as an instrument.

### *2.6. Data Processing and Analysis Techniques*

The research was supported by the documentary analysis technique with the purpose of knowing and investigating the relationship between operating finances, solvency and profitability of the coal sector in the Department of Norte de Santander.

Afterwards, the data was classified and organized and a descriptive analysis was carried out in order to characterize the behavior of the variables. For the analysis and data processing, the tools of the Microsoft Office® Excel program were used, which allowed calculating the statistical correlation relations between the variables under study.

Supported by the opinion of the sector's businessmen, we inquired about financial management in order to develop the proposal and provide financial guidelines that are expected to help optimize financial management in the sector under study

## 3. Results

### *3.1. Need for negotiated resources (NRN)*

They were determined as negotiated funds requirement (NRN) equal to operating funds requirement (NOF) minus working capital (FM).

**Table 1.** Negotiated resource requirements

| | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|
| Operating Cash Requirement (Nof) | 1.171.084 | 3.121.453 | -663.583 | 8.262.708 |
| Working Capital (Fm) | 2.310.031 | 1.627.218 | 1.774.206 | 10.966.033 |
| Negotiated Funds Need (Nof-Fm) | -1.138.947 | 1.494.235 | -2.437.789 | -2.703.325 |

It was verified that in the sector there was a need for external resources only in 2007, while in the remaining years there was a cash surplus due to the higher current assets due to accumulated inventories.

### *3.2. Profitability indexes*

Table 2 shows the results of the coal sector in the Department of Norte de Santander for the years 2006-2009, and the profitability indexes for the years under study were determined with the data related here.

**Table 2**. Statement of Results for the coal sector of the Department of Norte de Santander

| ESTADO DE RESULTADOS | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|
| 41 Ingresos Operacionales | 16.032.507 | 35.467.547 | 30.566.223 | 58.987.212 |
| TOTAL INGRESOS | 16.032.507 | 35.467.547 | 30.566.223 | 58.987.212 |
| 61 MENOS: Costos De Ventas y De Prestación De Servicios | 13.154.598 | 33.584.726 | 26.682.284 | 50.909.835 |
| UTILIDAD BRUTA | 2.877.909 | 1.882.821 | 3.883.939 | 8.077.377 |
| 51 MENOS: Gastos Operacionales De Administración | 1.209.851 | 2.184.427 | 3.054.071 | 4.903.559 |
| 52 MENOS: Gastos Operacionales De Ventas | | 670.041 | 94.310 | 1.303.611 |
| GASTOS | 1.209.851 | 2.854.468 | 3.148.381 | 6.207.170 |
| EBITDA | 1.668.058 | -971.647 | 735.558 | 1.870.207 |
| UTILIDAD OPERATIVA | 1.668.058 | -971.647 | 735.558 | 1.870.207 |
| 42 MAS: Ingresos No Operacionales | 955.937 | 411.427 | 1.599.171 | 2.180.733 |

| | | | | |
|---|---|---|---|---|
| 53 MENOS: Gastos No Operacionales | 190.155 | 411.688 | 685.275 | 2.773.208 |
| BENEFICIO EBIT (BAII) | 2.433.840 | -971.908 | 1.649.454 | 1.277.732 |
| BENEFICIO EBT | 2.433.840 | -971.908 | 1.649.454 | 1.277.732 |
| 47 Ajustes Por Inflación | -34.306 | | | |
| 54 MENOS: Impuestos De Renta y Complementarios | 729.564 | 113.904 | 484.760 | 1.138.552 |
| BENEFICIO NETO EXPLOTACION | 1.669.970 | -1.085.812 | 1.164.694 | 139.180 |
| BENEFICIO NETO | 1.669.970,00 | -1.085.812,00 | 1.164.694,00 | 139.180,00 |

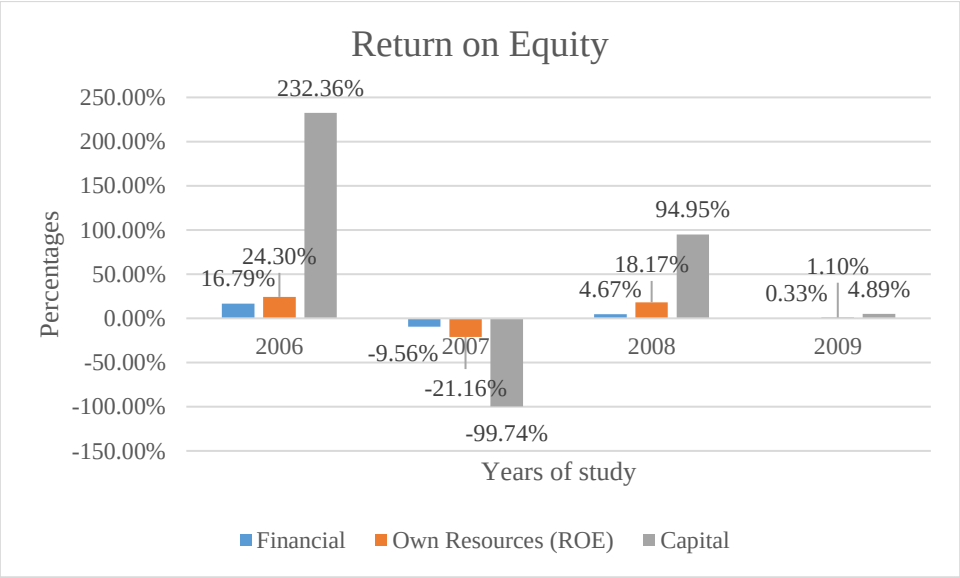
Table 3 shows the results of the profitability indexes.

**Table 3**. Profitability indexes for the coal sector in the Department of Norte de Santander

| | 2006 | 2007 | 2008 | 2009 | FORMULA | EXPLANATION |
|---|---|---|---|---|---|---|
| FINANCIAL | **16,79%** | **-9,56%** | **4,67%** | **0,33%** | **(BN + G. FINANC.)x100 / TOT. PASIV+PATRIM** | **Rentabilidad financiera de todos los recursos empleados en la empresa Rentabilidad de los recursos propios** |
| RESOURCES OWN RESOURCES (ROE) | **24,30%** | **-21,16%** | **18,17%** | **1,10%** | **NET PROFIT x 100 / TOTAL EQUITY** | **Rentabilidad financiera de todos los recursos empleados en la empresa Rentabilidad de los recursos propios** |
| CAPITAL | **232,36%** | **-99,74%** | **94,95%** | **4,89%** | **NET PROFIT x 100 / CAPITAL STOCK** | **Return on Equity** |
| MARGIN ON SALES | **17,95%** | **5,31%** | **12,71%** | **13,69%** | **MARGIN x100 / SALES** | **Percentage margin on sales** |

Figure 1 shows how the return on equity indexes behaved during the period analyzed in the coal sector in the Department of Norte de Santander.

**Figure 1.** Return on Equity Index




It is evident that all the sector's profitability indexes deteriorated as of 2006, which shows critical factors that require attention in the sector's financial management.

### *3.2. 3.2. To relate operational finances and profitability in the coal sector in the Department of Norte de Santander period.*

With the results obtained, the relationships between the study variables were established by applying statistical techniques to determine the correlation indexes and the determination indexes. Table four describes the variables under analysis and the results of the correlation coefficients are shown in table five.

**Table 4.** Variables to be related to the coal sector of the Department of Norte de Santander

| | Operating Cash Requirement (Nof) | Working Capital (Fm) | Solvency | Roe |
|---|---|---|---|---|
| 2006 | 1.171.084 | 2.310.031 | 1,89 | 0,24 |
| 2007 | 3.121.453 | 1.627.218 | 1,29 | -0,21 |
| 2008 | -663.583 | 1.774.206 | 1,10 | 0,18 |
| 2009 | 8.262.708 | 10.966.033 | 1,82 | 0,01 |

**Table 5.** Correlation Coefficient Calculation

| | *Operating Cash Requirement (NOF)* | *Working Capital (FM)* | *Solvency* | *ROE* |
|---|---|---|---|---|
| *Operating cash Requirement (NOF)* | 1 | | | |
| *Working capital (FM)* | 0,908 | 1 | | |
| *Solvency* | 0,537 | 0,554 | 1 | |
| *ROE* | -0,456 | -0,099 | 0,268 | 1 |

The correlation coefficients show that NOF has a medium negative correlation coefficient with ROE, i.e. they move in the opposite direction; this is explained by the diversion of resources to operating

activities and also by their financial cost, which affects profitability. While solvency has a low positive correlation coefficient, FM has no relationship with ROE. Table thirteen shows the results of the calculation of the coefficients of determination R2

**Table 6**. Calculation of the coefficient of Determination R2

| | *Operating Requirement (NOF)* | *CashWorking (FM)* | *CapitalSolvency* | *ROE* |
|---|---|---|---|---|
| *Operating cash Requirement (NOF)* | 1 | | | |
| *Working capital (FM)* | 82,49% | 1 | | |
| *Solvency* | 28,89% | 30,73% | 1 | |
| *ROE* | 20,76% | 0,98% | 7,17% | 1 |

The R2 coefficients of determination indicate that NOF explained 20.76% of the variations in ROE, while FM did not show any relationship and Solvency explained 7.17% of the variations in ROE.

The latter is explained by the fact that the FM represents the volume of long-term resources in excess of fixed assets available to finance operations; it is a liability concept related to the company's financing structure.

## 4. Discussion and conclusions

We proceeded to relate operating finances and profitability in the coal sector in the Department of Norte de Santander, which showed that NOF has a medium level negative correlation coefficient with ROE, i.e. they move in the opposite direction; this is explained by the distraction of resources towards operating activities and also by the financial cost of the same, which affects profitability. While solvency has a low positive correlation coefficient, FM has no relationship with ROE.

The R2 coefficients of determination indicate that NOF explained 20.76% of the variations in ROE, while FM did not show any relationship and Solvency explained 7.17% of the variations in ROE. The latter is explained by the fact that FM represents the volume of long-term resources in excess of fixed assets available to finance operations; it is a liability concept related to the company's financing structure.dishonest in their responses or were reluctant to share certain sensitive information with others.

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