

Financial Analysis Management of Companies in a Region of Mexico: the Need of a Financial Ratios Annual Directory

Deyanira Bernal Dom ínguez

Faculty of Accounting and Administration, Universidad Aut ónoma de Sinaloa Blvd.
Universitarios and Av. de las Am éricas M ódulo IV,
Ciudad Universitaria, Culiac án, Sinaloa, Mexico
Tel: +52-667-716-0303 E-mail: deyanirabernaldominguez@gmail.com

Mar ía Luisa Saavedra Garc ía

Faculty of Accounting and Administration, Universidad Nacional Aut ónoma de México
Circuito exterior s/n, Ciudad Universitaria, Col. Santo Domingo, Del. Coyoac án,
C.P. 04510, México, D.F., Mexico
Tel: +52-55-5622-8465 E-mail: maluisasaavedra@yahoo.com

Lydia Mar ía L ópez Barraza (Correspondence author)

Department of Economic and Administrative Sciences, Universidad de Occidente
Carretera a Culiacancito Km. 1.5, Culiac án, Sinaloa, Mexico, CP 80054
Tel: +52-667-759-1300 E-mail: lydia.lopez@udo.mx Homepage: www.lydialob.com

Abstract: Decisions of the organizational policies by business managers, based on ideal financial indicators, can be taken with the support of the analysis of financial ratios like predictors of business solvency, profitability and growth. This is an important financial tool to support decision making and for understanding the economic contexts where a company operates. For these reasons, the objective of this research is to identify the financial ratio usage level and to determine the relevance of elaborating an annual directory as support in defining the future of companies in Mexico.

A qualitative methodology with a descriptive cross-sectional approach was used. To obtain the information a questionnaire with 43 items was successfully applied to 120 entrepreneurs in Culiac án, Sinaloa, Mexico. In this context it can be affirmed that the usage level of financial ratios is related to the firm's size. That is to say, the bigger the size of the company, the higher the level of usage is. The results support the relevance of elaborating the directory with advantages: its availability to businesses of all sizes at low cost.

JEL Classifications: L25, M21, G11, C88

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1. Introduction

Performance management done through the application of financial ratios in order to take business decisions is of great interest for managers who need to know their business' financial situation; therefore, they continuously need to analyze the business' progress and monitor it through the use of these type of tools. A comprehensive analysis is what can be developed from financial statements which inform the company's financial and economic situation and development, this

financial statement analysis is performed through ratios.

Ponikvar, Tajnikar and Pusnik (2009), highlighted that profitability ratios, liquidity, working capital, average income per employee; cost, capital price, and productivity are related to the company's growth, providing valuable information for decision-making. As well as, Delen, Kuzey and Uyar (2013) found that earnings before capital taxes, the net profit margin, the leverage ratio, and the sales growth index, respectively, have a greater impact over the ROE (Return On Equity) prediction by using a sensitivity analysis using ROE as dependent variable. The results in which ROA (Return On Assets) was used as a dependent variable indicated that the most important financial ratios were the earnings before taxes per shares, net profit margin, debt ratio, and the asset turnover index, respectively, they all had a greater impact over the ROA prediction. It was concluded that the earnings before taxes to equity and net profit margin are the two most important variables to measure companies' performance.

Also, financial ratios as a bankruptcy predictive tool have been widely studied and range from Beaver's seminal paper (1966), where it is shown how ratios can serve to predict companies' performance through a regression analysis, and Altman (1968) who uses the discriminant function analysis to determine the companies' bankruptcy risk, to Olson, Denle and Meng (2012), that used comparative models and data mining to predict banking bankruptcies.

According to Ibarra (2006), financial ratios aim to boost an approach between the economic facts and the company's performance to understand the most important relations that lead to success, and thus avoid as far as possible other models' complexity, considering the possible weaknesses that these could present.

The objective of this paper is to make a diagnosis about the usage level of financial ratios in Mexican companies as well as to determine the need of a benchmark for them, with the purpose to constitute them into an effective tool for entrepreneur's decision-taking.

2. Literature Review

In 1996, Garc ía and Jiménez, conceptualized financial analysis as a critical judgment process that consists on: 1) making a financial information accumulation and integration, 2) formulate work hypothesis for its cross-checking, and 3) the presentation of a useful opinion for an efficient decision-making and improving the allocation of economic resources. In addition to the above, Ehrhardt and Brigham (2009) point out that financial statements analysis consists in making a comparison between the company's performance and the average of other companies from the same area; also to evaluate the financial situation tendencies over time, helping the executives to identify the company's weaknesses.

Furthermore, the financial statements analysis evaluates the accounting information composition and relations such as the financial situation, results and business' cash flow statements. This activity is one of the management's main features, which its purpose is to generate more for the owners, it's also of great interest for bank creditors who apply certain ratios' measurement to determine the solvency level of credit applicants, on the other side, the shareholders and institutional investors are interested in getting to know the income predictions and future returns for stock trading and/or bonus (Platikanova, 2005).

Oliveras and Moya (2005) consider that the financial analysis development consists in three stages: in first place, indicators that have demonstrated higher strength in empirical studies should be selected, such as the ratios related to variables like business success, solvency, profitability, company's size, among others. Secondly, the historical behavior of the last 4 or 5 years of the

selected ratios' results is analyzed, and finally, it is considered as convenient to compare it to the sector's average or otherwise to the main successful competitor with similar economic and size characteristics. They assure that sectoral financial ratios are the reference to design desirable objectives from the management.

According to Ibarra (2006), it is important to point out that the most used ratios in the main tasks: profitability, productivity, efficiency, liquidity, cash flow, solvency and indebtedness. Thereby the used ratios for this research are: liquidity, indebtedness, asset management, economic cycle, performance and self-financing capacity, they are briefly explained below.

Liquidity, is the company's capacity to meet its short-term commitments, according to Bernstein (1997) the short-term is conventionally considered as a period of time up to a year, although the time that the company's normal cycle lasts sometimes is considered, this means, the period of time that covers the purchase-production-sales cycle and the charges that the company makes. Ratios such as the current ratio, quick test, net working capital, available and solvency ratio have demonstrated to be insolvency predictors (Beaver, 1968; Mongrut, et al., 2011). Researchers increasingly are suggesting a lower number of success predictive ratios in a company; other studies suggest more efficient and faster predictive ratios to detect business failure (Labatut, et al., 2009).

Indebtedness ratios measure the debt level compared to the shareholders' contributions. The type of debts are measured by short-term or long-term debt ratios, according to Ongo and Rigot (2011) the indebtedness ratio can help the company not to fall into inadequate leverage levels that could risk its stability, in this regard they have proposed an "added leverage ratio" that can highlight the need to perform a control action. The financial expenses coverage ratio is applied to know how many times the interest can be covered with the main business' activity performance (Ondo and Rigot, 2011). For Mosqueda (2005) the financial accuracy ratio is decisive in the specification of the company's weighted assessment ratio.

The management asset ratios measure the efficiency in which the assets are being used in order to produce sales. The total asset turnover, net fixed asset and current asset, measure the times in which these recover after the sales; these ratios are considered as solvency predictors, their monitoring avoids failure in the companies and create value (Altman, 1968; Amat, Leiva, and Graells, 2002; Mosqueda, 2004). Asset composition ratios measure the relation between short-term and long-term assets with regard to the total investments on the assets.

The economic cycle is the sum of the days the inventory takes to come out for its sale and the recovery days of the accounts receivable. The days that the company takes to pay their suppliers are subtracted to this amount. This cycle has to be as short as possible. It is also important to mention that every sector has different average economic cycles due to their activity and their business size.

Performance is the main purpose in a for-profit company. The best predictors of success are those which have the income statements or withheld profit before interests and taxes as well as the net profit in their numerator. On the other hand, Labatut, Pozuelo and Veres (2009), suggest the liquid return based on the cash flow with regard to sales as the quickest ratio to avoid failures.

Beaver (1968) and Frydman, Altman and Kao (1985) consider the traditional cash flow in the numerator, as a result of adding the net benefit to the non-cash items such as depreciation and amortization, relating it with the total debts like solvency predictors. Instead, Amat, Leiva and Graells (2002), suggest it in the numerator in order to know the self-financing level in the total assets and sales.

However, a ratio itself says nothing about the company, neither we are able to find a pattern to compare and interpret performance, in this way Ibarra (2006) points out that it is important to interpret every ratio comparing it to: 1) previous ratios from the same company, 2) standard ratios

established in the competitive context and 3) ratios from the best and worst companies within the same sector. This enables us to compare the performance level that is being analyzed.

In addition to the above, it is relevant to highlight that companies can have different issues according to their size as mentioned Foster (1986, quoted in Ibarra, 2006) who points out when financial information is summarized into ratios, it's very important to control the differences effect on the company's size for its appropriate application. Therefore, companies will be analyzed separately by size: micro, small, medium sized and big enterprise.

It is important to point out that it is empirically shown that comparative financial analysis based on historical financial and sectoral ratios is relevant in financial decisions, however in Mexico, with this information the data base proposal is relatively limited compared to other countries. But, there are efforts by some institutions for the development of financial indicators:

- The consultancy firm, ACUS, *Consultores, S.C*, publishes a data base with certain financial ratios per some economic sectors since 1994, updated until 2007.
- Mexican Stock Exchange (BMV by its acronym in Spanish) publishes a database entitled Quarterly Historical Financial Information (5 years) that contains Balance sheets and Income Statements.
- The National Institute of Statistics and Geography (INEGI by its acronym in Spanish) publishes database related to economic census every five years. It contains information about the characteristics of goods' manufacture establishments, merchandise distributors and national service providers, with a great level of geoFigureal and sectoral detail.
- The Mexican Institute of Financial Executives, A.C. (IMEF by its acronym in Spanish) publishes books, press releases, technical bulletin, presentations, magazines and some others. Sectoral analyses are published in a partial form in the bulletins.
- The private company *Económica* offers to subscribe a database which contains financial, economic and market information, of companies listed in the Mexican, American, Brazilian, Argentinian, Chilean, Peruvian, Colombian and Venezuelan Stocks.
- *Expansi3n* magazine also annually publishes a ranking with the 500 most important companies in Mexico.

The information provided by these sources is relevant but limited in:

- Sometimes the databases are not complete or updated.
- Do not have ratio analysis or other.
- It is not possible to identify a single company because the data are global.
- The cost is high to get the information.

From the above, it is concluded that there is no database in Mexico containing sectoral ratios, a group of ratios that can serve as the basis of comparison or that it is updated constantly, thereby the objective of this paper is: identifying the financial ratio usage level and determines the relevance of elaborating an annual directory as support in defining the future of companies in Mexico. That can serve as the comparison parameter for financial performance of enterprises.

Set an example for other countries that do not use this analytical tool. Because the acknowledgment that the use and comparability of financial ratios to the sector enables the manager to realize the company's financial situation and take decisions in an effective manner, this shows the importance of performing this research.

3. Method

A qualitative methodology was used with a descriptive approach, and 120 surveys were applied to entrepreneurs from different economic type of businesses and sizes located in Culiacán, Sinaloa, Mexico. The results are presented in the form of figures and tables.

3.1 Measurement Tool

A questionnaire was designed in order to determine the relevance of publishing a sectoral financial ratio database annually, considering the interviewed companies' size and the following study variables: 1) Type of company; 2) Financial ratios applied by the companies; 3) Type of databases used; 4) Opinion about the relevance of a financial ratio database; and 5) Financial analysis application. The measurement tool is structured by 43 items; choice answers in Likert scale and dichotomous variables were used. The tool was revised by two pairs of experts for its validity. The measurement tool's dimensions, variables and items are presented below:

Table 1. Structure of measurement tool

| Dimensions | Variables | Items | Questions |
|--|---|---|--|
| Generalities | Type of company | Economic sector, size, fiscal regime. | 1, 2, 3 |
| Ideal Sectoral Financial Ratios | Financial Ratios applied by the companies. | Current asset, acid test, net working capital, available, solvency ratio, indebtedness, short-term debts, long-term debt, financial pressure, asset turnover, fixed asset turnover, current asset turnover, assets composition, days in inventory, days accounts receivable, days accounts payable, financial cycle, profitability, operative, financial profitability, return on sales, liquid return, self-financing capacity on asset, self-financing capacity on sales. | 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39 |
| Relevance of an annual directory of sectoral financial ratios | Type of database used | Mexican Stock Exchange (BMV), National Institute of Statistics and Geography (INEGI), Mexican Business Information System (SIEM), Specialists, Software, Mexican Institute of Financial Executives A.C. (IMEF), <i>Expansi3n</i> magazine, <i>Economatica</i> , others. | 4, 5, 6, 7, 8, 9, 10, 11, 12 |
| | Opinion about the relevance of a financial ratio database | Ratios' usage, annual directory relevance, annual directory usage | 14, 42, 43 |
| Financial analysis | Financial Analysis Application | Ratios' usage, comparability references, external advice. | 13, 40, 41 |

Source: Authors' own elaboration

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Table 2 shows the financial ratios that were used to measure the "Ideal Sectoral Financial Ratios" in previous table 1.

Table 2. Financial ratios used in the research

| Financial Ratios | Formula |
|----------------------------------|--|
| Current ratio | Current asset / Current liabilities |
| Quick test | (Current asset – inventories) / Current liabilities |
| Net working capital | (Current asset – current liabilities) / Current liabilities |
| Available | (Cash and short – term investments) / Current liabilities |
| Solvency ratio | Total liabilities / Stockholders' equity |
| Indebtedness | Stockholders' equity / Total liabilities |
| Short-term debt | Current liabilities / Total Liabilities |
| Long-term debt | Long-term liabilities / Total Liabilities |
| Financial expenses coverage | EBIT ¹ / Financial expenses |
| Financial pressure | Financial expenses / Total sales |
| Asset turnover | (Net sales / Total assets) × 100% |
| Fixed asset turnover | (Net sales / Net fixed asset) × 100% |
| Current asset turnover | (Net sales / current asset) × 100% |
| Assets composition | (Current asset / Total asset) + (Net fixed asset / Total asset) = 100% |
| Days in inventory | (Inventories / Cost of sales) × 365 |
| Days Accounts receivable | (Accounts receivable / Net sales) × 365 |
| Days accounts payable | (Suppliers / Cost of sales) × 365 |
| Financial Cycle | Days in inventory + Days Accounts receivable – Days accounts payable |
| Operative profitability | EBIT / Total asset |
| Financial profitability | Net profit / Stockholders' equity |
| Return on sales | Net profit / Sales |
| Liquid return | Cash flow generated resources / Sales |
| Self-financing capacity on asset | (Net profit + Depreciation and amortization) / Total assets |
| Self-financing capacity on sales | (Net profit + Depreciation) / Sales |

¹ Earnings Before Interests and Tax.

3.2 Sample

The sample size is selected based on the number of economic units in the state of Sinaloa, in order to apply the tool described in table 1, published by INEGI in 2009 economic census. The sectors used to calculate the stratified sample's size appear in table 3. The sample's size was chosen according to the stratified probability sampling and it is calculated according to the following:

With a population of 69,123 companies, the random statistical sampling calculation was made with an error margin of 10% and a probability of occurrence of 90%, having as a result 120 companies, the sample's stratification is presented below with the purpose of representing all of the elements of the population in it. Which is why the following stratification factor is applied: $n/N = 120/69,123 = 0.00173604$.

Table 3. Sample's stratification

| Sector | Economic Units | Factor ($\times 10^{-3}$) | Stratified sample size according to the formula |
|---|----------------|-----------------------------|---|
| Building industry | 667 | 1.73604 | 1.16 |
| Manufacturing industry | 8,171 | 1.73604 | 14.19 |
| Wholesale trade | 3,171 | 1.73604 | 5.50 |
| Retail trade | 33,593 | 1.73604 | 58.32 |
| Real estate services and movable and intangible property | 1,456 | 1.73604 | 2.53 |
| Cultural, sport and other recreational services | 996 | 1.73604 | 1.73 |
| Temporary accommodation , and food and drink elaboration services | 8,110 | 1.73604 | 14.08 |
| Other services except governmental activities | 12,959 | 1.73604 | 22.50 |
| Total | 69,123 | | 120.00 |

Source: Authors' own elaboration

The stratification of the sample allowed all of the elements of the population to be present in it, considering their size characteristics and their sector. The interviewees were randomly selected based on the information of the companies in the Economic Units National Statistics Directory (DENUE by its acronym in Spanish, 03\2011).

4. Analysis and Results

The compilation and analysis of results was based on the 120 applied surveys in the research field, they were applied through individual interviews. The statistic program SPSS for *Windows* version 20 was used.

As it can be seen in figure 1, 64% of the entrepreneurs from the sample are retail traders, 15% work in the manufacturing industry, 15% to the building industry, 3% food elaboration services and 3% other services.

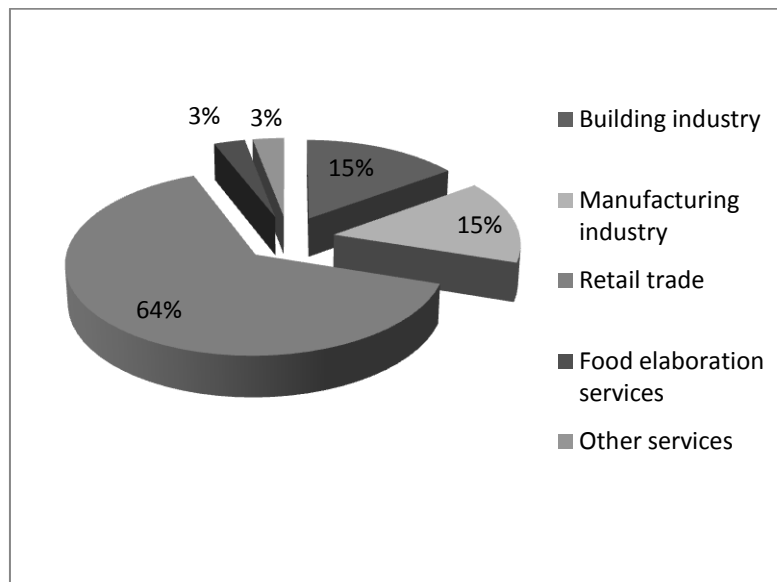
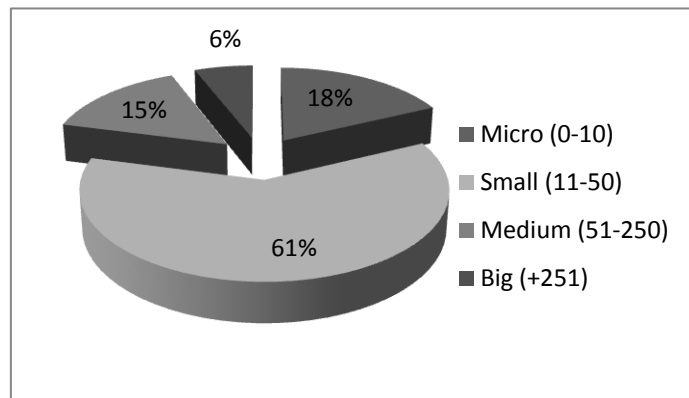


Figure 1. Sectors of activity
Source: Authors' own elaboration

The following refers to the size of companies: 18% micro, 60.6% small, 15.2% medium size, and 6.1% large companies (see figure 2).²

Figure 2. Size of Companies
Source: Authors' own elaboration



Regarding the type of databases used by the companies according to their size, table 4 (Part I) presented that micro and small companies never use financial information from companies listed in the Mexican Stock Exchange; it is also observed that big companies use this information once a year and medium size companies use it in about 20% quarterly and 20% monthly. The information in INEGI is used as much as once a year, as well as the SIEM and regard to the use of the consultancy the medium sized company uses this most.

² According to the Federal Official Diary dated on November 30th 2002, the micro sized companies are those which have 0 to 10 employees; a small company with 11 to 50, a medium size from 51 to 250 and a big company has 251 or more employees.

Table 4. (Part I) Types of database used (%)

| Database / Frequency | BMV | | | | INEGI | | | | SIEM | | | | CONSULTANTS | | | |
|----------------------|-----|-----|----|----|-------|-----|----|----|------|----|----|----|-------------|----|----|----|
| Size | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Never | 100 | 100 | 60 | 50 | 83 | 57 | 20 | 50 | 83 | 57 | 0 | 50 | 83 | 57 | 0 | 50 |
| Once a year | 0 | 0 | 0 | 50 | 0 | 33 | 40 | 50 | 17 | 19 | 40 | 50 | 0 | 5 | 20 | 50 |
| Biannual | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 60 | 0 | 0 | 14 | 20 | 0 |
| Every 4 months | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Quarterly | 0 | 0 | 20 | 0 | 17 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 10 | 20 | 0 |
| Monthly | 0 | 0 | 20 | 0 | 0 | 9.5 | 40 | 0 | 0 | 5 | 0 | 0 | 17 | 14 | 40 | 0 |

Source: Authors' own elaboration

Size of companies: Micro (1), Small (2), Medium (3), Big (4)

Note: BMV, Mexican Stock Exchange; INEGI, National Institute of Statistics and Geography; SIEM, Mexican Business Information System

Regards to the use of a financial analysis software only the medium size company reports its monthly use, according to the information by the IMEF which it means that it's used at most once a year, when the medium size company reports its use as biannually, the *Expansion* magazine usage is low, when this magazine is published monthly and lastly *Economática* has never been used by the companies, with the exception of a 40% of medium sized companies that report to use it monthly. It's important to highlight that databases are more used by entrepreneurs from medium and big size companies (see table 4, Part II).

Table 4. (Part II) Type of databases used (%)

| Database / Frequency | SOFTWARE | | | | IMEF | | | | EXPANSION MAGAZINE | | | | ECONOMATICA | | | |
|----------------------|----------|-----|----|----|------|----|----|-----|--------------------|----|----|----|-------------|-----|----|-----|
| Size | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Never | 67 | 52 | 40 | 50 | 67 | 90 | 40 | 100 | 83 | 67 | 20 | 50 | 100 | 90 | 60 | 100 |
| Once a year | 33 | 29 | 0 | 50 | 17 | 0 | 20 | 0 | 0 | 14 | 20 | 50 | 0 | 5 | 0 | 0 |
| Biannual | 0 | 0 | 0 | 0 | 0 | 10 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Every 4 months | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Quarterly | 0 | 4.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 40 | 0 | 0 | 4.8 | 0 | 0 |
| Monthly | 0 | 14 | 60 | 0 | 17 | 0 | 0 | 0 | 16.7 | 10 | 20 | 0 | 0 | 0 | 40 | 0 |

Source: Authors' own elaboration

Size of companies: Micro (1), Small (2), Medium (3), Big (4)

Note: IMEF, Mexican Institute of Financial Executives A.C.

More than 70% of the small and medium size companies perform a financial analysis applying financial ratios, the 83% of the micro companies don't use it and 100% of big companies use it (see figure 3). This result shows that the usage level of financial ratios in decision-making is related directly to the company's size, that is to say: the bigger the size the higher the use.

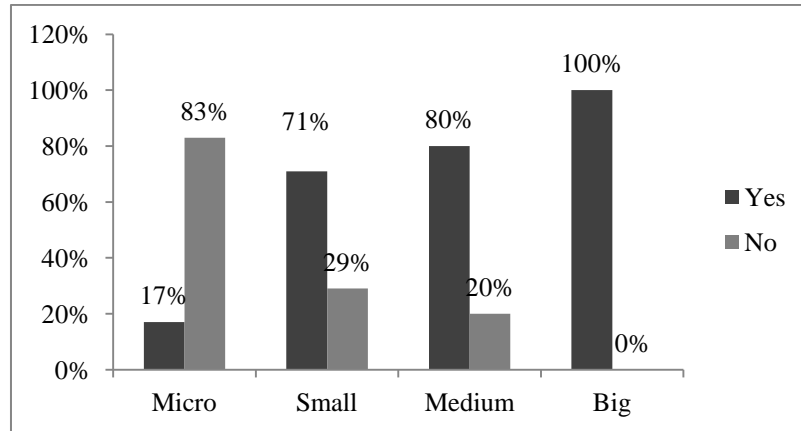


Figure 3. Financial analysis application according to the size of the company (%)

Source: Authors' own elaboration

According to the type of financial ratios applied to perform financial analysis, in regard to liquidity ratios mostly are current asset, quick test, Net Working Capital (NWC) used by only half of the micro companies, available and solvency ratio, the medium size company shows a higher level of usage in this ratios up to a 50%, meanwhile big companies use all the liquidity ratios (see table 5 below).

Table 5. Liquidity financial ratios used (%)

| Size | Current Ratio | | Acid Ratio | | NWC | | Available | | Solvency Ratio | |
|---------|---------------|----|------------|----|-----|----|-----------|----|----------------|----|
| Company | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| Micro | 67 | 33 | 67 | 33 | 50 | 50 | 50 | 50 | 50 | 50 |
| Small | 76 | 24 | 81 | 19 | 76 | 24 | 71 | 29 | 71 | 29 |
| Medium | 100 | 0 | 100 | 0 | 100 | 0 | 80 | 20 | 80 | 20 |
| Big | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 0 |

Source: Authors' own elaboration

Note: NWC, Net Working Capital

Indebtedness financial ratios used, Short-Term Debt (STD), Long-Term Debt (LTD), Financial Expenses Coverage (FEC) and financial pressure; the micro company shows a superior usage level up to the 50% in the indebtedness and financial pressure ratios, the medium size company presents an 80% more on all the indicators and the big company shows the 100% usage level on all them except on the short-term and long-term debt ratio where it only reached a 50% level of use (see table 6 on the next page).

Table 6. Indebtedness financial ratios used (%)

| Size | Indebtedness | | STD | | LTD | | FEC | | Financial Pressure | |
|---------|--------------|----|-----|----|-----|----|-----|----|--------------------|----|
| Company | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| Micro | 67 | 33 | 50 | 50 | 50 | 50 | 50 | 50 | 67 | 33 |
| Small | 71 | 29 | 71 | 29 | 52 | 48 | 57 | 43 | 62 | 38 |
| Medium | 100 | 0 | 100 | 0 | 80 | 20 | 80 | 20 | 80 | 20 |
| Big | 100 | 0 | 50 | 50 | 50 | 50 | 100 | 0 | 100 | 0 |

Source: Authors' own elaboration**Note:** STD, Short-Term Debt; LTD, Long-Term Debt; FEC, Financial Expenses Coverage

Asset management financial ratios: asset turnover, fixed asset turnover, current asset turnover, asset composition; it can be observed that the micro company exceeds the 50% in asset and fixed asset turnover, meanwhile in current asset turnover and asset composition it barely reaches the 50%. The small enterprise exceeds the 65% in all the ratios, the medium size company presents an 80% of use in all the ratios except in the fixed asset turnover where it only reaches the 60%, the big company presents a usage of 100% in all the ratios (See table 7).

Table 7. Asset management financial ratios used (%)

| Size | Asset turnover | | Fixed Asset Turnover | | Current Asset Turnover | | Asset Composition | |
|---------|----------------|----|----------------------|----|------------------------|----|-------------------|----|
| Company | Yes | No | Yes | No | Yes | No | Yes | No |
| Micro | 67 | 33 | 67 | 33 | 50 | 50 | 50 | 50 |
| Small | 90 | 10 | 81 | 19 | 86 | 14 | 67 | 33 |
| Medium | 80 | 20 | 60 | 40 | 80 | 20 | 80 | 20 |
| Big | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 0 |

Source: Authors' own elaboration

The economic cycle financial ratios: days in inventory, accounts receivable, days accounts payable, financial cycle, show us the usage level that micro companies have goes up to a 67% on days in inventory and financial cycle, while in days accounts receivable and days accounts payable up to a 50%; the small enterprise show values up to 70%, the medium size company presents over 80% usage level and the big company reaches up to the 100% use in all the ratios (see table 8).

Table 8. Economic cycle financial ratios used (%)

| Size | Days in Inventory | | Days Accounts Receivable | | Days Accounts Payable | | Financial Cycle | |
|---------|-------------------|----|--------------------------|----|-----------------------|----|-----------------|----|
| Company | Yes | No | Yes | No | Yes | No | Yes | No |
| Micro | 67 | 33 | 50 | 50 | 50 | 50 | 67 | 33 |
| Small | 81 | 19 | 71 | 29 | 71 | 29 | 76 | 24 |
| Medium | 100 | 0 | 80 | 20 | 80 | 20 | 80 | 20 |
| Big | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 0 |

Source: Authors' own elaboration

Regarding profitability financial ratios: operating profitability, financial profitability, return on sales, liquid return, we can observe that from 67% to 83% of micro companies use them, while the

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small company shows a level from the 48% to 62%, the medium size company shows a level of use from the 80% to 100% and the big company reaches up to the 100% on all the ratios (see table 9).

Table 9. Profitability financial ratios used (%)

| Size | Operating Profitability | | Financial Profitability | | Return on Sales | | Liquid Return | |
|---------|-------------------------|----|-------------------------|----|-----------------|----|---------------|----|
| Company | Yes | No | Yes | No | Yes | No | Yes | No |
| Micro | 67 | 33 | 83 | 17 | 83 | 17 | 67 | 33 |
| Small | 62 | 38 | 48 | 52 | 57 | 43 | 62 | 38 |
| Medium | 100 | 0 | 100 | 0 | 80 | 20 | 80 | 20 |
| Big | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 0 |

Source: Authors' own elaboration

Finally, regarding the asset and sales self-financing capacity ratios, the micro company reaches a 67% usage level, while the small company uses a 57% to a 71%, the use in the medium company ranges from the 80% to 100% and the 100% is used by the big company. An inconsistency is observed in the micro entrepreneurs of micro companies' opinions, where the 83% don't use financial analysis, however they say they use most of the financial ratios. It is also analyzed that the bigger the company is, the more financial ratios are calculated.

The 67% of the micro companies compare financial ratios to their own company's historical data, only 17% of them compare it to the sector and they don't establish any ratio standardisation from the management; on the other hand in the small company, the 57% use a historical comparison of the ratios, the 24% use the sector's average and the 10% establish ratio standards from the management; 80% of the medium sized companies use historical comparison and the 20% establish standards for ratios; finally the big company's 50% use the historical comparison of ratios and the 50% compare using the sector's data. That is to say, in small and big companies is where the financial analysis is done comparing it with the sector's tendencies (see figure 4).

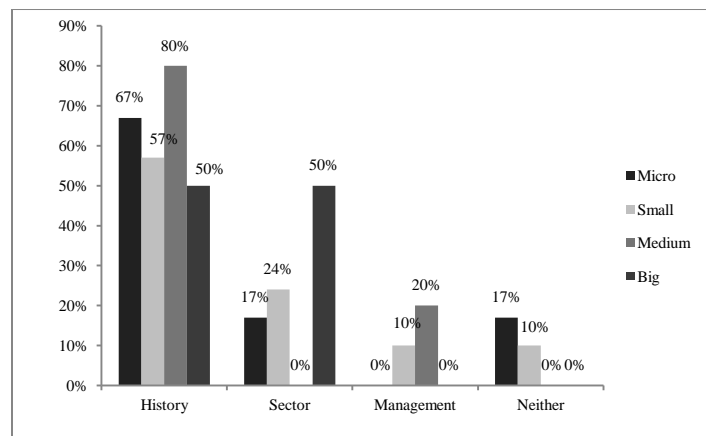


Figure 4. Financial Ratios Comparative References (%)

Source: Authors' own elaboration

According to figure 5, 100% of entrepreneurs from medium and big size companies receive external consultancy for the company, diagnosis and analysis. Most of them between the 62% and 100% of entrepreneurs consider relevant to publish an annual directory of sectoral financial ratios

based on the companies listed in the Mexican Stock Exchange. Finally, 67% of micro companies, 71% of small companies, 100% medium size companies and 100% of big companies, would apply a reference from an annual directory of ratios for their financial analyses.

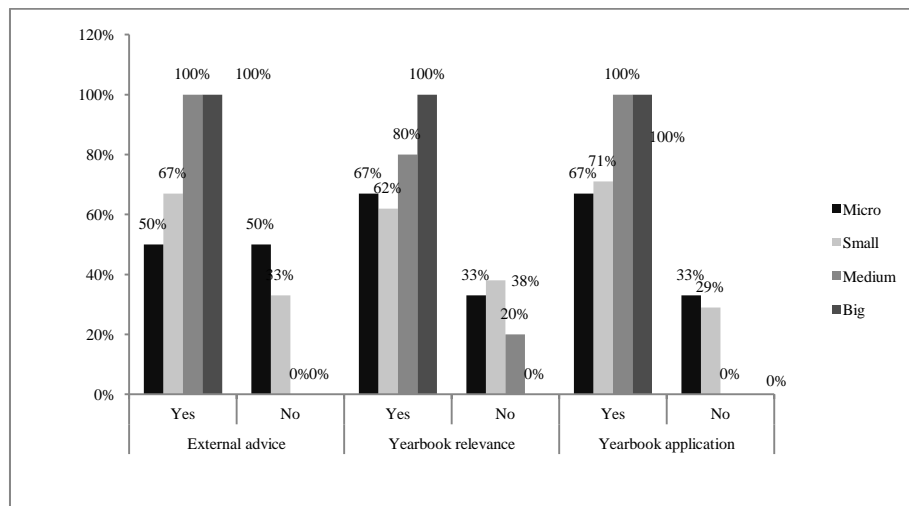


Figure 5. External consultancy, relevance and annual directory application (%)

Source: Authors' own elaboration

Applying a Pearson Chi Square for more than 8,082 reference distribution Chi square X^2 of 7.8147 shows that there is a relationship between the size of the company and the application of financial analysis (see table 10). The other combinations did not result in significant relationships.

Table 10. X^2 Chi Square distribution with probability of finding a value greater than or equal to the Chi squared weighted at 0.05

| Variables | Number of valid cases | Pearson's chi-square | Likelihood ratio | Linear association | Degrees of freedom | Contingency coefficient | Chi Square Distribution X^2 , $p = 0.05$ |
|------------------------------|-----------------------|----------------------|------------------|--------------------|--------------------|-------------------------|--|
| Size*Fixed Assets | 120 | 8.082 | 8.611 | 5.805 | 3 | .438 | 7.8147 |
| Economic Sector*Fixed Assets | 120 | 8.311 | 10.685 | 2.334 | 4 | .443 | 9.4877 |
| Tax Regime*Fixed Assets | 120 | 5.903 | 6.518 | .235 | 4 | .385 | 9.4877 |
| Size*Annual | 120 | 1.624 | 2.254 | .919 | 3 | .214 | 7.8147 |
| Economic Sector*Annual | 120 | 5.171 | 5.247 | .393 | 4 | .363 | 9.4877 |
| Tax Regime*Annual | 120 | 5.633 | 7.406 | 2.011 | 4 | .377 | 9.4877 |

Source: Authors' own elaboration

In synthesis, with field research is possible concluding that relatively there are a few databases available; however, little of them are actually known and as a consequence these are not used by the entrepreneurs. A relevant database for financial ratios comparability would be *Economática*, however, it is expensive. About the use of financial analysis, more than 70% of small, medium and big business apply it, contrasting those from micro companies which only use the 17%. Most of the

interviewees affirm that they calculate the financial ratios presented in the questionnaire. It can observe that 50% of the big economic units compare their ratios to the sector's average.

5. Conclusions

From the research conducted it can conclude on relevance of having databases with sectoral financial ratios to manage and evaluate the business performance through financial analysis. After identifying the existing gap in this area in Mexico, it is suggested an annual publication of a sectoral financial ratio database of the companies be listed in the Mexican Stock Market. In this sense, it suggests the following classification of ratios for the annual directory: liquidity, indebtedness, asset management, economic cycle, profitability and self-financing capacity.

The advantages of developing a database that presents these financial ratios are:

- Conduct a total study of the business with complete and updated financial information.
- Present global information, by sector, as well as, by individual enterprise.
- Reduce the costs of information that companies spend each year, being a tool that can access the companies of any size.
- Promote financial literacy with the objective that the entrepreneurs are informed of their productive sectors and the economy of their country.
- Submit ratio analysis to facilitate decision-making by entrepreneurs.
- Executives will know their competitors and understand where they are in this competition.

In this economic world, it is important that companies have a comparative economic sector to define what their levels of business competitiveness. With this, decision makers focus their resolutions on raising the levels of competitiveness in the sectors of interest. That can be translated as follows: increases in business competitiveness will be reflected in the country's economic growth through increases in tax contributions, and perhaps more jobs.

Therefore, they continually need to analyze the business' progress and monitor it through the use of these types of tools, which inform the company's financial and economic development. To boost an approach between the economic facts and the company's performance, and to understand the relations between economic variables that lead to success. In consequent, it is important to work in the promotion of this annual publication, not only for the region under study which has allowed understanding its relevance and necessity, but nationally.

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