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**Economy vision for young people not in employment education or training**

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Millions of young people all over the world neither study nor work, this sector of the population is known as the NEETs. We can find them in developing countries and in countries of the first world, unfortunately, are easy prey for organized crime, drug trafficking and violence. The main objective of this work is to restore the social value of youth and make clear that there are economic and abandonment by the state that affect the problem. Do these young people have no chance to develop intellectually and productively? What about the jobs or educational opportunities? Are they efficient so they can meet the challenges of the population? Or this young people are lazy and with bad attitude that generate their own inactivity?

**Young, NEETs, employment, unemployment, education.**

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**Introduction**

The individual begins his monetary autonomy or is studying to achieve better social and economic status.

A rejection for continuing the studies or a difficult entry into the world of work could have implications for increased risk of poverty and loss of valuable skills for youth besides bring adverse effects to the society. It is a vulnerable sector that needs to be oriented, trained and cultivated to its full potential can be exploited (Tong, 2010).

In Mexico youth is invaluable by its number, half of the population is 26 years or less (INEGI<sup>1</sup>, 2010), that is why is necessary to use its economic and social influence. The society and the authorities must be aware of the benefits of dividends of youth, because education and youth employment play important roles to achieve sustainable economic and social development, especially in an environment with changing demographics and aging population. (ILO, 2012b). There are also few studies on the subject in México, Arceo and Campos (2010 and 2011) produced two for Mexico and they emphasized the need to analyze the determinants of being NEETs, they found that the rate of employment and school attendance rates are negatively related to be Ni- Ni.

**Theoretical Framework**

Mincer and Jovanovich in 1979 studied the mobility and wage labor of men for the decade 1966-1976 and found slowing of labor mobility with age to work and a relationship between mobility and length of job tenure. The negative effect of unemployment on young people, is that they do not develop the skills and work experience, so you tend to get low wages.

Elwood and Feldstein analyzed in 1982 a group of young men who do not study nor work and found among other results, that unemployment is concentrated mostly in young people with low education and nonwhites have higher unemployment rates than whites.

They conclude that the youth in the world is particularly vulnerable to marginalization in the labor market .Ellwood (1982) studied the teenage unemployment, its causes and consequences in the United States of America.

Note that teenage employment is a puzzle to economists, its causes and consequences are not well understood from the standpoint of economic analysis, highlights the importance of the human capital model states that teenage unemployment carries high costs. Notes that a prolonged period of non-employment have a relatively large effect on wages, and argues that youth unemployment is more a symptom than a cause of social problems, whose roots are in the decline of the family as a control agent and the failure of social institutions to replace this function of the family and concludes that we must seek the causes of the problem in the functioning of the labor market and the changing social, economic and institutional. Farber, H. (1994) studied in the United States the effects that losing job produce in the conduct.

Analyzing the impact to variables such as age, race, sex and found that non-whites and non-white women in particular suffer higher unemployment than whites and highlights that people with more education are more likely to have jobs. Neumark (1998) estimates the effect of job stability of young adult wages, finding that there is a direct relationship between youth labor stability and adult wages.

<sup>1</sup> INEGI, Instituto Nacional de Estadística y Geografía, México.

Heckman (1999) studies the formal academic institutions, families and businesses as sources of learning and training ability, mention there are dynamic processes with strong synergistic components. The skill begets skill, early investment promotes further investment. Cognitive skills and motivation are important determinants of success factors and these can be improved with more success. Empirical studies show that in economic crises period, young people prefer to continue their studies instead starting to work, and on the other hand, in situations of economic relief, many young people are interested in entering the work environment left school, considering that they will find employment quickly (ECLAC<sup>2</sup>, 2002a). Coloma and Vial (2003) study the decision to study or work in youth 18-24 years of age in Chile and reaffirm the importance of schooling and work experience in the integration or reintegration into the labor market. Analyze variables related to family background and geographical youth and found that student aid for higher studies is crucial to study an additional year, as well as family environment variables.

Schkolnik, M. (2005) analyzed for 16 countries in Latin America, the transition of young people between their education and their work, their stay in his or her unemployment and its peculiarities.

Explain that youth are more likely to be unemployed or have jobs with very long hours, no contracts, with low pay and no benefits, in informal sectors and of short duration. And this is because employers tend to dismiss preferably less qualified and less experienced. Argues that young people should be more educated and qualified to deal with a work environment that, as time passes it becomes more unstable and insecure.

It also suggests that investments in early learning are more effective. Verick (2009) notes that the world's youth is particularly vulnerable to labor discrimination because of their lack of skills, little or no work experience, fewer skills and less resources to find work. Arceo and Campos (2011) analyze the behavior of the NEETs for the last three decades in Mexico and found that the main determinants are labor supply, the level of education and, for women, the decision to engage in housework. And contrary to our calculations, it is found in lower socioeconomic levels where there is more this phenomenon. Other international organizations have also addressed this topic. The ILO<sup>3</sup>, OECD<sup>4</sup> and UNESCO<sup>5</sup> among others, have adopted programs and strategies to address the problems of youth. There are studies of WB<sup>6</sup> and IDB<sup>7</sup> showing income inequality as a result of social strata or by differences in education, occupation, gender, temporary employment or other forms of labor market segmentation. It is also found that young women tend to have higher rates of unemployment and jobs are of lower quality and lower wages than those of young men in most countries. This paper analyzes demographic, education and unemployment data for OECD<sup>8</sup> and EU<sup>9</sup> and Mexico, in order to understand the behavior of the portion of youth who neither study nor work, the NEETs. It is important to know how many and what features they have to generate public policies and use their political strength, economic, social and cultural, and that lead to success along with the country.

<sup>2</sup> ECLAC, The Economic Commission for Latin America of United Nations.

<sup>3</sup> ILO, International Labour Organization.

<sup>4</sup> OECD, Organisation for Economic Co-operation and Development.

<sup>5</sup> UNESCO, United Nations Educational, Scientific and Cultural Organization.

<sup>6</sup> WB, World Bank.

<sup>7</sup> IDB, Inter-American Development Bank.

<sup>8</sup> OECD, Organization for Economic Co-operation and Development.

<sup>9</sup> EU, European Union.

In this study the analysis is speculative, waiting for the approach used will broaden the discussion on employment and youth education in Mexico. Statistics will be presented for OECD countries and the EU, for comparison, in order to analyze the situation in which they are and understand the economic context that affects them.

For our country we used statistics from the Census of Population and Housing 1990, 2000 and 2010 and INEGI and the results of Encuesta Nacional de Juventud, México 2010. The age analysis was between 15 and 29 years of age because is the way that international standards use. In the international environment was found that Mexico is one of the countries along with Italy, Spain and Turkey have the highest percentages of young inactive (NEETs) of all OECD countries, these countries are also those with the highest percentages in unemployment rates and lower spending on education as a percentage of GDP. In contrast, countries with lower percentages of young inactive the present Finland, Sweden, Switzerland and Norway also have the lowest unemployment rates and higher spending on education. Unlike presented by Arceo and Campos (2011) in their study of NEETs for Mexico, it was found that the number of NEETs did increase after the 2008 crisis.

In 1990 they were 36.3 percent (8.7 million), in 2000 reached 22.5 percent (6.1 million) and in 2010 were 25.2 percent (7.8 million).

This study agrees with the authors just mentioned, which is the richest states where the largest number of inactive youth. Econometric analyzes were performed on the determinants of being young inactive internationally with the OECD and the national states.

The dependent variable was being young inactive (dependent variable) and the explanatory variables in the international analysis, were the unemployment rate and GDP, where higher unemployment and higher GDP, higher percentage of inactive youth. In the national analysis explanatory or independent variables were GDP, dropout rate, unemployment rate and number of jobs without membership, which resulted in direct relative proportion of young inactive and spending on higher education inverse relationship. All explanatory variables mentioned were inactive young phenomenon. The main objective of this paper is the main objective is to restore the social value of youth and make clear that there are economic reasons and abandonment by the state that affect the problem. So it is showed that the circumstances of the work environment in Mexico and educational opportunities for young people facing between 15 and 29 years of age are factors to be young inactive. The paper is organized as follows, in Section 2, we present the international context with descriptive statistics and regression analysis, in Section 3 the demographics of Mexico, in section 4 workplace statistics of Mexico, in Section 5 outlines education in Mexico in terms of coverage is concerned. In Section 6, in summary, are the determinants of being young inactive in Mexico with econometric analysis.

As a final section the conclusions of the article are the considerations and possible solutions to solve the problem.

### **International Context**

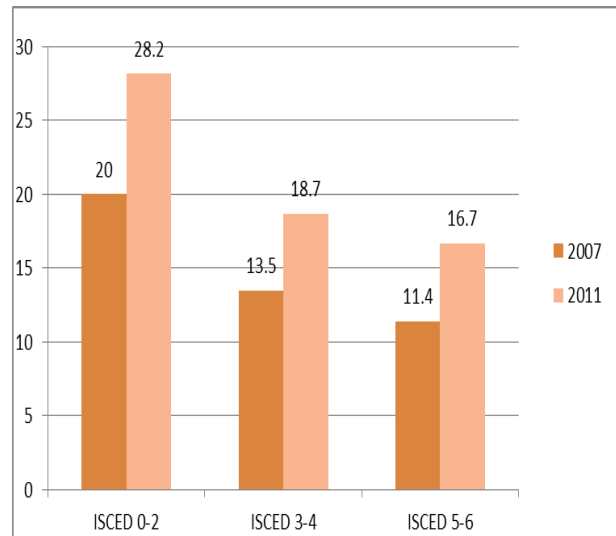
Since 2008 the unemployment crisis has manifested especially in the most vulnerable groups, youth and women. There were changes in youth unemployment rates for 1997 and 2007 in different regions of the world. The highest rates are found in North Africa with 23.8 for 1997 and 25.3 percent for 2007.

The lower rate presents East Asia with 6 for 1997 and 7.3 for 2007.

Latin America is in 1997, a rate of 17.7 in 2007 and 15.7 lower rate, the developed economies with the EU have rates of 14.8 for 1997 and 12.4 for 2007. Except three regions, sub-Saharan Africa (with a point), Southeast Asia and the Pacific (plus 6 points) and South Asia (4.1 points more), other regions showed decreases in their rates of youth unemployment by 2007. (OIT, 2012). After the 2008 crisis, European unemployment rates rose about 66% from 2010 and in other advanced economies like the U.S. and Japan are presented stagnation in labor markets.

Only (Austria, Germany, Israel, Luxembourg, Malta and Poland), six of the 36 developed countries and other developing countries economies (Chile Colombia and Uruguay) increased employment rates by more than 3 percent. Although the economic crisis began in developed countries, transcends the rest of the globe in marketing, investment and remittances. In addition there is a real depreciation of wages by the rising prices of food and other items. In 2007, the youth unemployment rate was 15.7 percent, increasing for 2011 to 21.4 percent. Except for Austria and Germany, all member countries have submitted more youth unemployment the highest rates are: Spain 46.4 percent, Greece 44.4 percent, 33.2 percent Slovakia, the Netherlands, Austria and Germany have the highest low, between 7 and 8 percent. (OIT, 2012). The IMF<sup>10</sup> reports that the global outlook are improving after the fall suffered in 2011 but unfortunately, risks remain high. Improved activity in the United States during the second half of 2011 and the adoption of more appropriate policies in euro area reduce the threat of a new global downturn.

The world in 2012 continued to face a big problem of unemployment and lack of decent employment is positions require 200 million, 27 million more than at the beginning of the crisis.



Graph 1

Therefore, to achieve sustainable growth, you must create 600 million jobs in the next 10 years and with this, there will still be 900 million people below the poverty line, living on less than two dollars a day. The conflicts are one of the biggest problems in development, facing the international community. Beyond the suffering they cause, are sources of poverty, inequality and economic stagnation. Often children and educational systems are exposed to violence in the first line of the conflict. (UNESCO, 2011). The level of education has always been considered as a shield against unemployment, but after the crisis, the probability of being unemployed having higher education has increased in all countries. (Eurofound<sup>11</sup>, 2011).

<sup>10</sup> IMF, International Monetary Fund.

<sup>11</sup> Eurofound, a tripartite European Union Agency, provides knowledge to assist in the development of social and work.

It is utilized the International standard classification of education, abbreviated as ISCED (2011) of EU: Level 0: Pre-primary education; level 1: Primary education; level 2: Lower secondary education; level 3: Upper secondary education; level 4: Post-secondary non-tertiary education; level 5: Tertiary education (first stage); and level 6: Tertiary education (second stage) reserved for tertiary studies that lead to an advanced research qualification (Ph.D. or doctorate). (EUROSTAT<sup>12</sup>,2011).

Fields of education. Unemployment can be observed is higher in lower educational levels and decreases with higher levels of schooling. So for those with educational level of 0-2 have rates above 28 percent in 2011, and those with higher education and or graduate (levels 5 and 6 of ISCED) are below 11.5 percentage points for the same 2011.

Unemployment rates for all levels are higher in 2011 than in 2007. There are about 75 million young people who are in a state of unemployment, so discouraging figures make the young people's interest in seeking work and decide to postpone or continue in the educational system, many have part-time and temporary work, which seems to be the only option since the crisis. With this labor instability has a loss of productive capacity, by repeated rotation in jobs and the long periods of unemployment or inactivity. (ILO, 2012). Of the 1,200 million young people between 15 and 24 years old, 122 million of them can not read or write, two thirds are women and many others continue to graduate with inadequate literacy skills. At the end of 2012, approximately 75 million young people between 15 and 24 years old had no job, four million more than in 2007. (ILO, 2012).

The Eurostat in 2011 estimated for the EU, 14 million NEETs, aged 15 to 29 years of age were excluded to get a job and be studying.

NEETs are considered as one of the biggest problem in terms of youth unemployment is concerned. In Luxembourg and the Netherlands the rate is below 7 percent and the rates are above 17 percent are for Bulgaria, Italy and Spain. (Eurofound, 2012). Public expenditure on education which also includes public assistance as a percentage of GDP for 2008. Mexico is one of the countries with the least expense is 4.9 %, as Spain and Portugal, these three countries have the highest percentages of NEETs; between spenders on education are Norway and Sweden, which have rates of NEETs. Mexico is spending 4.1 points less than Sweden. (OECD, 2008). Unemployment rates for OECD countries in 2010 were analyzed, the countries with the lowest values as Norway, Sweden, Switzerland and Denmark, also have the lowest percentages of NEETs. On the contrary those countries that have the highest unemployment rates as Turkey, Italy and Spain also have the highest percentages of NEETs. Countries like the U.S., France and Germany have rates of youth unemployment means of NEETs.

This section presents the results of an econometric analysis with cross-sectional model for 2010. The dependent variable or dependent variable in the model was the number of NEETs by country, the explanatory variables used were, Log (GDP) and the unemployment rate UR. The equation was used to model:

$$\text{NEETs} = \alpha + \beta \log (\text{GDP}) + \text{UR} + e$$

Where  $\alpha$ ,  $\beta$ ,  $\gamma$ , are parameters and  $e$  represent random errors under standard statistical assumptions. It was found that the higher the unemployment rate, more young inactive, the higher GDP have also taken more young inactive or NEETs. The young people who neither study nor work living with parents who do have jobs they are what remain.

<sup>12</sup> EUSOSTAT, European Statistic Center.

Explanatory variable	Coefficient	Probability
Log(GDP)	2.137862	0.0110
Unemployment rate	0.652732	0.0004
<b>R<sup>2</sup></b> 0.281790		
<b>D.W.</b> 1.536549		

Table 1

## Conclusions

This study used data from the OECD 's 2010 youth who neither study nor work with between 15 and 29 years old. We also found that the unemployment rate increased after the crisis of 2008, had an influence on the number of NEETs increase for 2010.

In Europe to attack this problem, they have created programs like Youth 2020 Initiative Movement and Youth Opportunities 2012-2013, with the aim of unlocking the potential of all young people and to call attention to the authorities, the private sector and civil society to focus on education again and enable young people to be in contact with the work environment. In the near future it will be necessary to continue strengthening support programs to education, to enhance the role of secondary and higher education and to achieve better economic development. Young people who are studying, acquiring human capital will be paid when inserted in the labor market. Those who do not study or work will be at risk of social exclusion and its influence on the economy will be devastating social and economic sense. Some measures to address youth unemployment could be tax incentives for companies that hire young people, training and promoting equal opportunities for youth. Unfortunately this type of recommendations have been doing since 1986 by international organizations.

There is no single solution that can resolve the problems of education and youth work but it is necessary to adopt an integrated approach from the standpoint of macroeconomic and microeconomic, social protection and in the educational setting and more research on the subject for continually assess progress.

The relationship between education and work is also marked by the quality of education, cultural factors criteria employers and economic factors, among others. Young people face the labor market today have a hard time finding suitable employment, so an alternative would be to impart workshops to learn a trade and can fend for themselves. Another alternative is to give courses so they can start a business and know how to administer since the probability of obtaining employment is low. It is important to invest in education for creating human capital for the next generation of young people are better prepared for the future.

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**Study of linear behavior algorithms with fundamental tone detection**

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Fundamental tone is the lowest frequency among a set of periodic waves. Determination and calculation will reveal the distance of a nearby object and the object type. Fundamental tone is not an intrinsic characteristic of the object, as not all people and animals make sounds with this frequency, partly within language sound, and not all vowels and letters of the alphabet are fundamental tone. This paper shows a comparison of different techniques for obtaining the fundamental tone of linear behavior by reference to a compact file compression (MP3).

**Auto-correlacion, Archive, Cepstrum, Frequency, Fundamental, Language, Wavelet, Waves.**

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## Introduction

Fundamental tone or fundamental frequency F0 is determined by the speed of opening or closure of the vocal cords in the larynx during speech sound types [1]. Estimating the frequency has been a significant treatment need from the start of digital signals (voice). Traditionally, fundamental frequency detection was used for the purpose of intonation, currently used in the recognition of tonal languages, conversion of voice, sharp tone recognition fundamental to recognize the different parameters of some pathological conditions. Thus, this is of great interest to calculate the fundamental tone. The detection of fundamental tone is one of the most difficult tasks in digital signal processing because there are audio quality problems, caused by noise level as more serious pronunciation problems are due to medical history in individuals. At present there are different algorithms for the detection of fundamental tone which are classified as:

- Algorithms with understanding loss.
- Compression algorithms without loss.

The lossless compression algorithms allow for some degradation of signal quality to achieve higher levels of understanding as the following formats: MP2, MP3, WMA and others. The lossless compression algorithms for retrieving the signal to its original shape within the formats worked are FLAC, Shorten WAV and others. This research addresses the MP3 file on the extraction of fundamental tone accuracy.

The primary objective is to use the MP3 format for more compact audio understanding to transmit the voice signal in a practical system to organize people with speech pathology.

Section 2 presents the algorithms generally used for the detection of fundamental tone.

## Fundamental algorithms pitch detection.

The algorithms studied are: (Section 2.1) Auto-correlation (Section 2.2) Auto-correlation optimized (2.3) Product harmonic (2.4) cepstrum and (2.5) Wavelet Transform. Each works with a sampling frequency of 16KHz. In the process of fundamental frequency extracting, the appearance of estimation errors that result in a detected value that is double (Doubling pitch) or half (pitch halving) the appropriate frequency is common [2].

## Auto-correlation.

Auto-correlation is defined as the convolution of the same data within itself, shown in formula 1:

$$R(\tau) = \frac{1}{L} \sum_{j=1}^L S_j S_{j-r}$$

Auto-correlation algorithm

N = length (Data)

X = data-sample (Data)

Rxx = zeros (1, N)

For m = 1 to N + 1

For n = 1 to N-m + 1

Rxx (m) = Rxx (m) + x (n) \* x (n + m-1)

end for

end for

Rxx = Rxx / Rxx (1)

Lag = (0: N-1)

The implementation of this algorithm to a digital signal requires at least three periods to ensure a fragment within the signal, which is of 40 ms corresponding to 512 samples for a sampling frequency of 16KHz considering a minimum frequency of 60Hz. Thereby the signal obtained is shown in Figure 2.1.

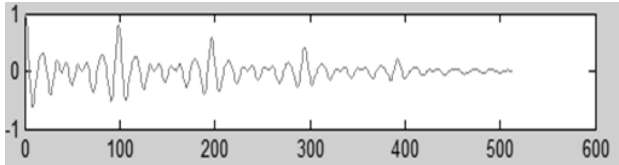


Figure 2.1

The auto-correlation is determined by the distance between the main peak (Energy) and the first secondary maximum, thus calculating the value of the fundamental period T0.

**Optimized Auto-Correlation**

The auto-correlation algorithm optimizing auto-correlation is similar to, but with the difference, that it makes a refinement of the estimated values at the fundamental frequency considering non-integer values [3]. The Yohav Medani refinement suggests a rational value in the fundamental frequency value found in the auto-correlation algorithm which is shown in formula 2.

$$\gamma_{\gamma}(t, s) = \frac{\sigma^2}{2} (t^{2\pi} + s^{2\pi} - (s-t)^{2\pi})$$

Autocorrelation algorithm optimized.

```

N = length (Data)
X = data-sample (Data)
Rxx = zeros (1, N)
For m = 1 to N + 1
    For n = 1 to N - m + 1
        Rxx (m) = Rxx (m) + x (n) * x (n + m - 1)
    end for
end for
    
```

```

Rxx = (Rxx) 2 / Rxx (1)
Lag = (0: N - 1)
    
```

In this way, the selected graph signals a half and a full harmonic avoiding harmonic misinterpretation as shown in Figure 2.2.1.

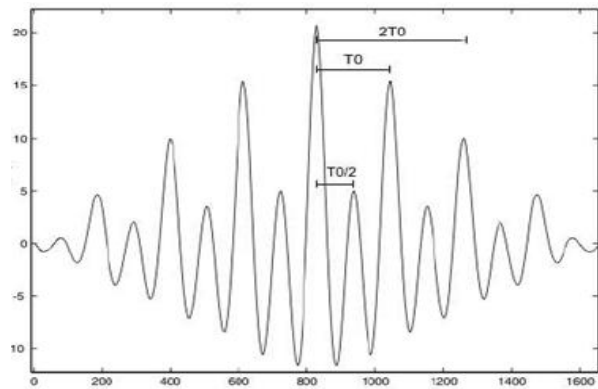


Figure 2.2.1

**Harmonic Product**

The use of spectral techniques to determine, on the frequencies axis, the maximum value corresponding to the fundamental frequency is determined by other fundamental frequencies, as in the case of voice analyzing recommending a minimum frequency of 60Hz. In this section, we have to apply the FFT where the minimum frequency resolution is for low values of the fundamental frequency. In the worst case, when the signal noise bringing the frequency tends to jump, it is advisable to give a range that is 60 Hz to 350 Hz to prevent frequency loss. To resolve a problem, a filling zeros is recommended before applying the FFT [4] [5].

To resolve a problem, a filling zeros is recommended before applying the FFT [4] [5].

$$f_0 = \frac{M_i \cdot F_s}{N_{muestras}}$$

Harmonic product algorithm.

```

N = length (Data)
X = data-sample (Data)
Rxx = zeros (1, N)
For m = 1 to N + 1
    For n = 1 to N - m + 1
    
```

```
Rxx (m) = Rxx (m) + x (n) * x (n + m-1)
FFT (Rxx (m))
    end for
end for
f0 = FFT (Rxx (m)) / N
```

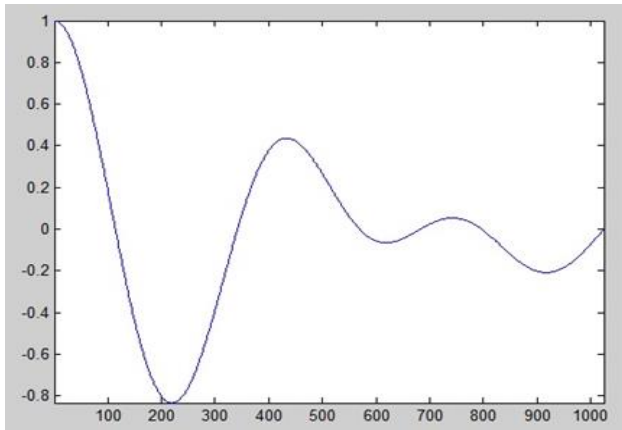


Figure 2.3.1

**Cepstrum**

Method for extracting the fundamental frequency, based on the use of the Cepstrum transform. To carry out this process assumes that the audio signal  $f(t)$  is the result of impulse response convolution of the vocal tract convolution  $h(t)$  with the signal emitted by the glottis  $s(t)$ .

$$f(t) = h(t) * s(t)$$

The objective of this method is signal deconvolution  $f(t)$  to obtain  $s(t)$ . This is achieved with formula 5:

$$F(w) = H(w)S(w)$$

To perform this procedure first proceeds to decompose the real part imaginary part as shown below.

$$\begin{aligned} FFT(\log|F(w)|) &= FFT(\log|H(w).S(w)|) = \\ &= FFT(\log|H(w)| + \log|S(w)|) = \\ &= FFT(\log|H(w)|) \\ &+ FFT(\log|S(w)|) \end{aligned}$$

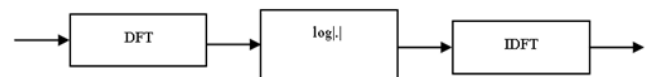
Therefore, the Cepstrum formula 6 can be determined.

$$C = FFT(\log|F(w)|)$$

To determine the fundamental frequency formula 7 is applied.

$$f_0 = \frac{F_s}{q-1}$$

To summarize, a flowchart illustrating the algorithm to obtain a cepstrum is shown in Figure



2.4.1

Figure 2.4.1

```
X = data-sample (Data)
Dft = real (FFT (Data))
Db = (10. * Log (Data))
Standardization = max (Db);
Fs / 2 = Db / Standardization
db2 = (20/log (10)). * log (data)
cepstrum = real (ifft (db))
max = 0
distance = 0
for N +1 to i
    pitch = max (i)
    distance = max (i) -0
end for
tone = pitch
tone_distance = Distance
```

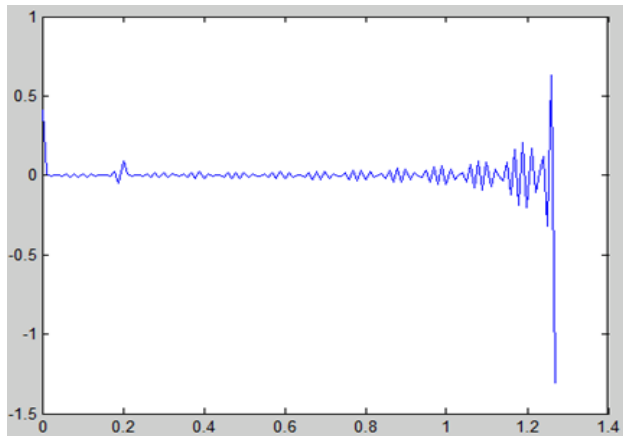


Figure 2.4.2

### Transformed Wavelet

The first maximum locals selected determine the fundamental frequency allowing the location of the fundamental tones. The phases for this procedure are necessary to perform the following steps [6] [7].

Identifying maximum local: the first stage of the system consists in determining the maximum value for each of the windows; Local maximum correction is performed in two stages; Two maximums located at distance  $n$ ; The third highest maximum is found which has an average of the two, and hence determines the vector search; Maximum distance. A filter of size  $N$  is Applied to eliminate all erroneous frequencies, and is decomposed to determine the distances; Scales selection. From the  $J$  vector distances, those  $p$  vectors distances that have the least deviation from the mean value are taken.

5. Averaging. The rest is obtained by averaging the fundamental frequency. Applying this procedure obtains a graph similar to that shown in Figure 2.5.1

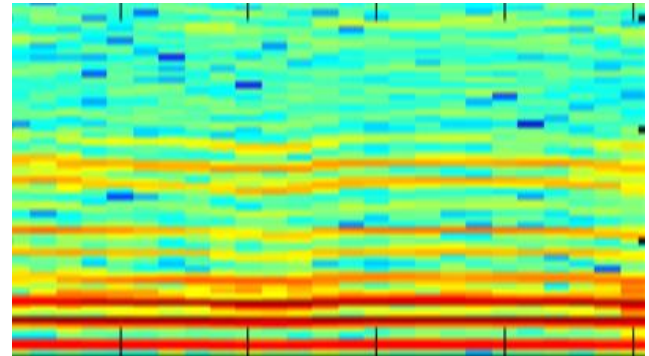


Figure 2.5.1

### Method

To make the practical implementation of the methods described above, the following steps were developed: a) Initially, the coding and implementation of codes in a simulation environment Matlab was used and subsequently applied to a 16KHz audio sample; b) Methods are used to prove which is best to determine the fundamental tone, showing that the majority show deficiencies when locating the fundamental tone. However, it has better behavior in the wavelet transformer, allowing minor error in locating the fundamental tone y c) It was also observed that not all the methods behave equally when detecting the fundamental tone. There are methods that work best at high frequencies as in the case of auto-correlation and others that work at low frequencies, such as the wavelet that also works at low frequency. In the case of cepstrum it is not known how efficient it is to obtain the fundamental tone as in detecting a noise it cannot detect which is the fundamental tone.

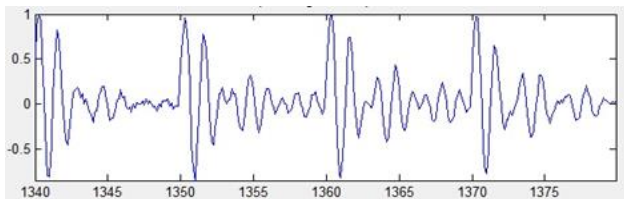
### Results

Based on the aforementioned procedure it was observed that, in general terms in the simulation: A good response was observed in the implemented models, in frequency terms, especially in conditions controlled by background noise.

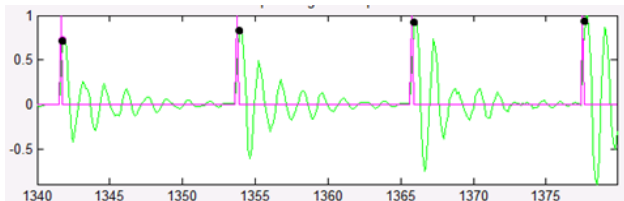
In this part some methods suffer temporary imbalance in the analysis. All this by analyzing a single phoneme 'a' with a value of 16 kHz in a segment of 227 Hz (selected segment) to obtain a table with the following features.

Phoneme	High Frequency	Low Frequency
'a'	730-1090 Hz/ 5 db	2440 Hz /28 db
'A'	640-1190 Hz/ 10 db	2390 Hz /27 db

**Table 1**



**Figure 3.1**



**Figure 3.2**

## Conclusions

Based on these results, it was concluded that:

Starting from the structure used to obtain the fundamental tone [8], it was found that the methods implemented, based on frequency domain techniques.

Have superior performances to track the signal in extreme conditions for noise background.

In the same way the wavelet transformer method is employed it has an acceptable behavior and this permits knowing, which is the acceptable fundamental tone.

The wavelet method and algorithm used in digital signal processing allows an average value of the fundamental tones within a full signal.

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## **Business strategy in Mexican beer industry: a case applying game theory**

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In this paper the two major breweries in Mexico, Grupo Modelo and Cuauhtémoc Moctezuma Brewing Company (Cervecería Cuahtemoc-Moctezuma) are analyzed which already have long formed part of an oligopoly because these two companies account for more than 99% of beer market in this country. All this analysis is made from the perspective of game theory. The main objective is to analyze the effects of competition and advertising from one to another brewer from a standpoint of game theory. This analysis is based on one of the clearest examples that have existed for years in a matter of advertising and competition among soft drink companies Coca-Cola and Pepsi-Cola.

**Brewing company, competition, oligopoly, advertising, game theory.**

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## Introduction

Over the years and for over a century by Cuauhtémoc-Moctezuma and some years less Grupo Modelo have been dominant firms' quintessential beer industries in Mexico.

We are facing a clear oligopoly as data which gives us the INEGI (INEGI, 2012) as will be shown later, we can see that these two brewers groups comprise a large part of beer sales in the country.

The objective of this work is to find out based on game theory, through a self-designed game, trying to adapt to the situation that were living the two largest brewers in Mexico, Grupo Modelo and Cerveceria Cuauhtemoc-Moctezuma, to the potential profits or losses they may bring to increase their investments in advertising, because as oligopoly competition is so marked and closed between these two is very hard and strong.

Knowing that Grupo Modelo has been the leader in sales since the fifties, only losing this leadership during some years of the eighties caused by the binding of its major competitors and Cervecería-Cuauhtemoc and Cervecería Moctezuma, and now knowing that the latter group is Heineken allied to one of the largest brewers in the world, the relevant question of this work is:

It is right and convenient for the Cuauhtémoc-Moctezuma group to increase its investment in advertising and image care in relation to his competitor?

And so to impose presence and respect as worldwide beer company as it has done with Grupo Modelo and Corona beer, and now that it has been acquired by Heineken.

It seems necessary to take the opportunity to unseat the leader.

## Historical background

Both Grupo Modelo and Cervecería Cuauhtemoc-Moctezuma have taken over the market almost more than a century by Cuauhtémoc-Moctezuma and nearly a century by Grupo Modelo.

Each one has a great tradition of taste and preference within the population in Mexico. Despite the fact that Grupo Modelo emerged twenty five years after what is now known Cuauhtémoc-Moctezuma Group, Grupo Modelo has managed over the years to position itself as the number one brewer in Mexico, this is measured in sales per year.

### A. Cervecería Cuauhtemoc-Moctezuma

On October 25, 1925 was inaugurated Cerveceria Modelo, SA (Grupo Modelo, 2012) in Mexico City, in the presence of Don Braulio Iriarte first president of Grupo Modelo.

Later Don Pablo Diez conducted a major expansion policy through various investments and acquisitions of breweries, malting and strategic partnerships to ensure the supply of important inputs, a strategy somewhat similar to that conducted Cuauhtémoc brewery in its infancy.

Among the companies that acquired Grupo Modelo are Cervecería de Toluca y Mexico in 1935, Cervecería Estrella (Star Brewery) and Cervecería del Pacífico (Brewery Pacific) in 1954, Cervecería Modelo del Noroeste (Northwest Modelo Brewery) in 1960 and Cerveceria Modelo in Torreon in 1966.

Within 25 years, that is, in the fifties, Grupo Modelo was already the leader in Mexican beer market, outselling both Cerveceria Cuauhtemoc and Cervecería Moctezuma as by that time they were still separate companies.

Talking about leadership in sales, Grupo Modelo had remained over competitors before the eighties, but it breaks in mid-eighties with the union and merge of Cervecería Cuauhtémoc-Moctezuma, although Grupo Modelo regained leadership in 1991 that maintains until today.

Among the brands belonging to Grupo Modelo are: Barrilito, Estrella, Leon, Modelo Especial, Montejo, Negra Modelo, Pacifico, Tropical, Victoria and of course Corona which is perhaps the one that the most royalties and worldwide prestige has given to Grupo Modelo.

Grupo Modelo also handles to import some foreign brands, among which are Budweiser, Bud Light, Carlsberg, O'Dould'sy Tsingtao. Currently Grupo Modelo has eight plants in the country and a total installed capacity of yearly 35 million hectoliters.

### **C. Market Analysis**

As has been said before Grupo Modelo and Cerveceria Cuauhtemoc-Moctezuma cover much of the beer market in Mexico, this is somewhat obvious, since watching the number of brands that possess or import each of these companies do not leave many more options within reach.

But to demonstrate the market structure of which it has been spoken, based on data obtained from the INEGI.

It is run the test concentration index Herfindahl-Hirshman (Dorado, 1995), so we can be sure that it is a oligopoly.

Applying the concentration index Herfindahl-Hirschman (HH) yields a result of 0.43786842.

The index Herfindahl-Hirschman concentration, according to the article published by Garcia (1994) is between zero and one.

The theory given in (Varian, 1980) tells that while the HH is closest to 1 is approaching and while monopoly is closest to 0 is closer to perfect competition structure.

But in practice it is said that from 0.18 being treated as a market with an oligopolistic concentration degree.

Thus it can be assumed, based on data and daily experience that the beer market in Mexico is under a clear oligopoly market structure with a HH of 0.43786842.

In Table 1 presented below show that between fourteen leading production facilities all owned either by Grupo Modelo or Cuauhtemoc-Moctezuma.

ID	Name of the business	State, municipality, locality, colony
167461-5800	Cervecería Cuauhtemoc-Moctezuma, S A de CV.	Baja California, Tecate, Zona Centro.
1275867-3165	Cervecería Modelo de Torreón SA de CV.	Coahuila de Zaragoza, Torreón, Torreón, Colonia San marcos
11022917-5806	Cervecería Modelo SA de CV	Distrito federal, Miguel Hidalgo, Miguel Hidalgo, Colonia Anahuac
11812698-2404	Cervecería Modelo de Guadalajara SA de CV	Jalisco, Guadalajara, Guadalajara, Colonia del Fresno
11910633-2195	Cervecería Cuauhtemoc-Moctezuma SA de CV	Jalisco, Guadalajara, Guadalajara, Colonia Zona Industrial.
11910633-2195	Cervecería Cuauhtemoc-Moctezuma, SA de CV	Estado de México, Toluca, Toluca de Lerdo, Zona Industrial, Toluca
12869372-6063	Cervecería Cuauhtemoc-Moztezuma SA de CV	Nuevo león, Monterrey, Colonia Bella Vista

12875642-6825	Compañía Cervecera del Tropico SA de CV	Oaxaca San Juan Bautista Tuxtepec, San Juan Bautista Tuxtepec, Colonia Ex-Hacienda El Yucal.
13590088-4574	Cervecería del Pacífico	Sinaloa, Mazatlán, Colonia Centro.
24475043-4168	Cervecería Modelo del Noroeste SA de CV	Sonora, Cajeme, Ciudad Obregón, Zona Industrial Número 2
24475043-5507	Cervecería Cuauhtémoc Moctezuma del Noroeste SA de CV	Sonora, Navojoa, Unidades económicas fuera de localidad, Parque Industrial Navojoa.
13960883-3838	Cervecería Cuauhtemoc-Moctezuma	Veracruz. Veracruz de Ignacio de la Llave, Orizaba, Zona Centro.
14035273-6488	Cervecería Cuauhtemoc Moctezuma, SA de CV.	Veracruz. Veracruz de Ignacio de la Llave, Orizaba, Zona Centro.

Table 1

All fourteen production facilities add up their weighted shares of Table 2 gives a total of 1. This results maybe because of rounding issues, but if only add the 5 final data yields a result of 0.99999759, indicating that Grupo Modelo and Cervecería Cuauhtemoc-Moctezuma account for over 99% of the U.S. beer market. According to some reports, the remaining small percentage is craft beer, which is obviously a percentage less than 1%.

Economic units	Total production (Thousands of pesos)	Production/ Total production	(Production/ total production)^2
33	62113215		
14	0	0	0
*	150	2.41495E-06	5.832E-12
4	6365	0.000102474	1.0501E-08
*	9827	0.000158211	2.5031E-08
6	12964340	0.208721123	0.04356451
3	12031480	0.193702419	0.03752063
4	37101053	0.597313358	0.35678325

**Table 2**

**D. Caso Coca-Cola and Pepsi Cola**

Over time for many years and in most of the world, the two major soft drink companies worldwide Pepsi and Coca Cola have been in a constant battle to try to be number one in global sales.

In different countries there have been fierce battles, according to Castro (2006) that has come to be present even in the courts.

This mainly for reasons of lack of competitiveness, by that this means unfair competition between the two companies.

A clear case of this call unfair competition, which is for example the case of México about the allegations that Coca Cola received when began offering refrigerators free of charge to small grocery stores, but with the condition that in that establishment only sell Coca Cola products.

Although also it is worth mentioning that the complaints have been against Coca Cola executives sometimes to go beyond unfair practices in trade. Some of their leaders have been accused of tax evasion, fraud, threats, and blackmail to murder.

As may know that Coca Cola has competition with other soft drink companies, mainly with Pepsi is extremely hard, and there are many examples as mentioned in different parts of the world.

There is a special worldwide counter-example that is the case in India where the firm Coca Cola was the leading soft drink sales in India until 1977 when, for reasons incoming government, which asked Coca Cola to disclose their formula and to dilute its stake in its Indian subsidiary as required by the Regulations of the foreign Exchange Act (FERA). In 1988, PepsiCo earned his entry to India by creating what Peng (2006) called a Joint Venture (venture) with the government-owned Punjab of India.

Then later, it breaks this joint venture between Pepsi and its partners Hindus in 1993 and Coca Cola returned because India began a new policy of liberation. And since 2005, Coca Cola and Pepsi Cola together control 95% market share of soft-drink sales in India.

But that case was, as mentioned above, very special and definitely something that marked and furthered this tremendous rivalry has been advertising and marketing, since in almost all major global event are present both Coca-Cola and Pepsi Cola with various advertisements.

A clear example of the above was the Pepsi Challenge, which took place in various parts of the world. Motivated by this example of competition between two worldwide "refreshments monsters".

This article has the task of trying to predict certain investment behavior of the two "brewers monsters" in Mexico. And it is what follows in the next section.

### **3. Application of game theory to the case Model-Cuauhtémoc Moctezuma**

This section begins by giving a brief introduction of the effects it could have increased advertising expenses on sales.

#### **A. Brief explanation of advertising on sales of a company**

The relationship between advertising and sales is something that few doubt today.

However, the contributions of this type of communication to marketing actions are poorly understood. Numerous investigations realize the true influence of advertising on sales and decisions that can be taken from them for optimization.

#### **B. Indirect effects of institutional advertising**

According to the specialist Michael Ritter, mentioned by Cassella (2010) businesses that perform institutional advertising with their marketing communications have higher percentages of knowledge, memory and attitudes towards the brand. These percentages are ranging between 33 and 58 percent higher than the competition, says Ritter in "The influence of advertising and branding on business profitability".

#### **C. A greater investment in advertising, higher return on capital**

This is the conclusion reached by the Strategic Planning Institute (SPI) from a 1987 study. The research highlighted the influence that ad spending has on market share and how are perceived image attributes such as product quality or service.

According to SPI advertising influences the perception of quality that consumers have the product or service which brings two important consequences:

- a) The higher the quality perceived by the consumer, the higher the price the company may request that the consumer is willing to pay.
- b) The perception of higher quality also increases market share and this, in turn, increases the profitability again.

**D. Application of the theory of advertising game theory in the case of Grupo Modelo and Cerveceria Cuauhtemoc-Moctezuma**

Considering what Miguel Ritter says about advertising in increasing sales ranging from 33 to 58 percent, it will then take the average of these two quantities to perform the game, take the percentage to calculate payments matrix is 45 percent.

Knowing in mind that it can be performed different types of games according to economic theory, this based on Varian (1980), as collisions between these companies which according to CFC (2010), there may be collusion because the fact that it is a market concentration is so marked is not legal that these companies are colluding.

So it becomes a game in a (López, 2012) and it comes with economic theory to find the best strategic decision (Peng, 2006), with which the agents will achieve profit maximization for the principals.

**4. Some common examples of game theory (Reading of Matrices and Nash Equilibrium).**

The following examples explained below are examples provided by (Varian, 1980) on Game Theory, which are among the most common that have been used over time to explain the best strategic decisions between companies.

According to (Varian, 1980) agents can adopt very different strategies in their relationships, many of which have been studied using the tools of game theory.

Below is a general explanation of how to read a payoff matrix in game theory. The next game (see Figure 1), it is present a two-person game: A and B, A type "up" or "down" while B writes independently on other "left" or "right".

If A says "up" and B says "left", it examines the top left of the matrix.

The output of A is the first digit of the matrix 1, and the second B, 2. So if A chooses "down" and B chooses "right", the result of A is 1 and B is 0.

		<u>Player B</u>	
		Left	Right
<u>Player A</u>	Top	(1,2)	(0,1)
	Down	(2,1) Results of equilibrium	(1,0)

**Figure 1**

The solution of the game is "down" and "left", and that A gets up (1 or 0), less than what you get at the bottom (2 or 1). While B gets more left with (2 or 1) than with (1 or 0) to the right.

In this case it has a dominant strategy, where each player has an optimal strategy regardless of what the other does. (That strategy is best regardless of what the other player do). These strategies may represent economic choices and raise or lower the price or political elections and declare war or not.

The results matrix of a game simply shows the results obtained by each player in each of the combinations chosen strategies.

**A- Nash equilibrium**

Not always there is equilibrium with dominant strategies (see Figure 2). The optimal choice of A depends on what you think will B. And best of B depends on what you do A. A pair of strategies is Nash equilibrium if the choice of A is optimal, given that of B, and B is optimal, given that of A. Neither player knows what the other will do when you have to choose their own strategy, but you can have some expectations about what they will choose.

		<i>Player B</i>		
		Left	Right	
<i>PlayerA</i>	Top	(2,1) Equilibrium of Nash	(0,0)	
	Down	(0,0)	(1,2) Equilibrium of Nash	

**Figure 2**

The Nash equilibrium can be interpreted as a pair of expectations about the choice of each person so that when the other reveals his choice.

Not anyone of the two agents wants to change behavior. In this example there is a Nash equilibrium in (2,1) "up" to the "left", because if A chooses above, the best choice is left to B, and if B chooses "left", the optimal choice of A is "up". As (2.1) is also Nash equilibrium, for the same reasons.

**B. Rules**

It takes into account sales of Grupo Modelo and Cerveceria Cuauhtemoc Moctezuma for the game.

- 91.203 million pesos are the annual sales of Grupo Modelo.
- 77.691 million pesos annual sales are Cerveceria Cuauhtemoc Moctezuma.

(132,244.35 , 112,651.95)	(132,244.35 , 77,691)
(91,203 , 112,651.95)	(91,203 , 77,691)

It will take two actions which will advertise and publicize; advertise will be taken as: Increase investment in advertising, no publicizing will be taken as: No increase advertising spending.

It is assumed that the game is consecutive or sequential, i.e., one acts in relation to the decision of the other. For the example in question is supposed to Cerveceria Cuauhtemoc-Moctezuma will act on the decision of the Grupo Modelo. Below is the payoff matrix resulting from the above-described amounts.

**C. Payoff matrix**

In the matrix shown (see Figure 3), there is a dominant strategy which is (advertise, publicize), i.e. 132,244.35, 112,651.95. This implies that Grupo Modelo always advisable to publicize, therefore it will choose the top part of the matrix.



Given this, Cerveceria Cuauhtemoc-Moctezuma will analyze its options, and also in advertising is that it gets higher payments, so surely choose to advertise, because it knows what it has chosen Grupo Modelo.

		<i>Cervecería Cuauhtémoc Moctezuma</i>	
		Advertise	No advertise
Advertise	<i>Grupo Modelo</i>		
	No advertise		

Figure 3

The point (advertise, advertise), i.e. (132,244.35, 112,651.95), also represents a Nash equilibrium, since at that point neither have incentives to move, given the choice of one produces the best profit for the another and vice versa.

### Conclusions

This paper discussed how the two major brewers in the country, interact over and over to get the biggest gains to give birth to an analysis of how feasible it would increase its advertising spending.

It posed a straight consecutive game in which states that every company can obtain a 45 percent increase over earnings if invest on advertising.

The results given by this model is that the optimal strategy for one and other business is that advertise, at this point there is a dominant strategy and Nash equilibrium.

Therefore it can be concluded from the game raised, that in any event it suits Grupo Modelo invest more in advertising, and given this decision Cerveceria Cuauhtemoc-Moctezuma continue along the same path, as it is the point that is more convenient for both.

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**Economic value added (EVA) as an indicator for financial decisions: An Application to the Province of Santa Elena, Ecuador**

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This paper analyses the need to use alternative methods to the traditional accepted techniques applied in investment analysis for associative groups. This paper exposes that the technique economic value added (EVA) can contribute to measure other aspects involved in financial decisions for associative groups omitted in traditional indicators of project evaluation, net present value (NPV) and internal rate of return (IRR) such as i) evaluation of the productive activity of the associated strategies popular and solidarity economy ii) quantifying the profitability generated by the implementation of the project, iii) identifying the main impacts generated by implementing the creation of the company and iv) the identification of the economic value added. This tool permits the employment of probabilistic scenarios, in order to simulate changes in the input parameters for determining when the EVA tends to zero, making a comparative analysis with the NPV. It is used to calculate the weighted average cost of capital (WACC) market financial returns because you cannot get or inefficient conduct the study by estimating the beta for the CAPM method because Ecuador has not data from the stock exchange. We execute an application of this method a processing plant for the production of salt in Jose Luis Tamayo, situated in the Province of Santa Elena, Ecuador.

**Economic value added (EVA), net present value (NPV) and internal rate of return (IRR), Santa Elena Peninsula, Ecuador**

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**Introduction**

Business development in the Province of Santa Elena has been significant in recent years, companies and associated groups have gained strength due to various factors that have helped to converge these activities in the province, one of the variants has been the development of popular and solidarity economy strategies, who have improved the living conditions of the population.

The objective of any economic entity either company, corporation, association groups, is the generation of wealth; otherwise it could not distribute profits, increase the value of the shares, or could not reinvest in social responsibility. A company creates value if the return on investment is greater than the cost of capital, if instead the return on investment is less than the cost of capital, value is destroyed.

This paper shows the application of economic value added (EVA), as a tool to evaluate an investment proposal, as an alternative method to the traditional indicators such as are the net present value (NPV) and internal rate of return (IRR), through a case study in the development and marketing of products derived from the salt in the parish Jose Luis Tamayo, Canton Province of Santa Elena Salinas. The difference between using the updated NPV and EVA to evaluate investment is that the former compares the amount to be invested with future cash flows that generate investment. Instead, using the EVA does not follow that investment income before taxes after interest (UAIDI) includes the deduction of annual depreciation on investment.

This research aims to propose an alternative investment for three associative groups are: i) the White Mountain Association, ii) Magdalena 4 and iii) Magdalena. We want to evaluate the productive activity partners, evaluate strategies popular and solidarity economy, quantify the yield generated the development and marketing of salt as raw material, through the economic value added to determine if it is creating value for the owners pass the salt mines of the status quo to a situation where profit margins are what you want to contribute to development. The research tests the hypothesis that "The Economic Value Added (EVA) is a financial indicator to decide the creation of the company."

**Economic value added as an indicator for financial decisions**

There are indicators for the evaluation of traditional projects such as Net Present Value (NPV), and Internal Rate of Return (IRR), a study of John Graham and Campbell Harvey (2001) on the use of different techniques and models set forth in the "financial theory of the firm" by 392 executives from a wide range of North American companies and its main conclusions were: "large companies rely strongly on present value techniques and the asset pricing model of capital, while small businesses are relatively at ease using the criterion of recovery period". However following the new trends an alternative method is the Net Present Value (NPV) is presented below:

**Definitions of Economic Value Added (EVA)**

According to (Gitman, 2007 p. 417) EVA is a popular measure used by many companies to determine whether an investment (proposed or existing) positively contributes to the wealth of the owners. The application of EVA requires using the weighted average cost of capital (WACC)

Calculating the Economic Value Added (EVA) is an effective tool which allows to know if a company creates or destroys failing value for its owners, managing to go far beyond traditional measures to evaluate the overall performance management or an organization.

Although the EVA and value generation have emerged as developments of the past decade, the economic and financial theory has approached these concepts quite some time.

For (Oriol Amat 1999), the EVA can be defined as "what remains once have been deducted from income, all expenses including the opportunity cost of capital and taxes, all costs, including the opportunity cost of capital and taxes". In other words, EVA is what remains once all expenses have been addressed and satisfied a minimum return expected by shareholders. Therefore, a company creates value when the return generated exceeds the opportunity cost of shareholders.

For (Percy Olivares Vilchez 2000), "economic value added is the residual amount that remains after you have deducted from income, all the expenses, taxes and the cost of capital and own external resources that have been invested in assets".

The economic value added is positive when the company has generated a return that exceeds the opportunity cost of shareholders, therefore, value is created. When the economic value added is negative, it means that the company has not generated a return that exceeds the cost of capital to the shareholders, and therefore the value is being destroyed.

The first notion of EVA was developed by (Alfred Marshall 1890) The Principles of Economics: "When a man is engaged in a business, its earnings for the year are excess revenues received during the year on their payouts. The difference between the value of the plant, inventories, etc., the end and the beginning of the year is taken as part of its inputs or as part of their payouts, according to whether there has been an increase or decrease in value. What remains of their profits after deducting interest on capital at the current rate, it is usually called its start or administer benefit".

The EVA concept is a variation of what has traditionally been called "residual income or profit", which was defined as the result that capital. There have been a number of advantages of the indicator and use EVA has several defenders. Thus (Koller and Meteaché 1997) note that "The EVA is a financial measure to assess the performance powerful professional but compensation effects may be incomplete and you have to combine it with others." (Arthur Andersen 1997) indicates that the analysis of historical data shows that "EVA is closely related to movements in stock prices".

The name of EVA is a registered trademark of the consultant, Stern Stewart & Co., who in their advertising says: Forget EPS (earnings per share), ROE and ROI.

The true measure of the performance of your company is EVA, (Fernández 1999), p. 209. This may be one reason for the popularity of the EVA, such as name, above other denominations. Another aspect that has influenced their use is the development of the concept but as a management vision more than just a financial indicator. The concepts loosely related to each other and all manifest the applicability of Eva to make decisions.

### Calculation of EVA

$$EVA = C * (ROA - WACC)$$

C: Capital (Liabilities + equity of the company).

ROA: Return on assets

WACC: Weighted Average Cost of Capital

Where:

$$WACC = ip * (passive / active) * (1 - t) + ipt * (equity / assets)$$

ip: cost of liability

t: rate of income tax

ipt: cost of equity (if the country is used FRR)

### Traditional Indicators project evaluation

There are approximately twelve financial indicators that are most commonly used.

According to a study by John Graham and Campbell Harvey<sup>13</sup> as shown in the table below (# 1).

However for the Ecuadorian case is very different, requiring public and private entities in the project presentation analyzing financial indicators are the Net Present Value and Internal Rate of Return that have become traditional indicators for evaluating them, however it has been shown by a study by<sup>14</sup> Pasqual, Joan, Perez, María José, a brief analysis of the existing literature and practice between professionals and experts, shows that there are still major gaps in the knowledge of the characteristics of NPV and IRR, and misconceptions in the interpretation of the results that they yield and sometimes not intuitive. Also a controversy persists about the correct standard sterile to use, the NPV or IRR (Brealey, Myers, 1985), as if it were criteria complementary rather than substitutes. The advantages of NPV versus IRR when used as an objective function are well known and, as decision criteria are equivalent in terms of quality, but differ in how to measure desirability. As the NPV quantifies the goodness of a net absolute project and IRR provides a crude relative index, the use of either approach will be more appropriate to the case you have in hand.

Methods	Using
Internal Rate of Return (IRR)	75,61%
Net Present Value (NPV)	74,93%
Required rate of return	56,94%
Recovery period	56,74%
sensitivity analysis	51,54%
earnings multiple	38,92%
Discounted payback period	29,45%
Real Options	26,59%

<sup>13</sup> 2001 conducted a complete study gave the use of different techniques and models listed in the "financial theory of the firm" by 392

<sup>14</sup> False anomalies of the Civil Present Value Pasqual Neto, John UAB Tarrío, Jose Antonio Perez, University of Barcelona, María José, Universidad Carlos III.

Accounting Rate of Return	20,29%
Simulation / Value at Risk (VAR)	13,66%
Profitability Index	11,87%
Adjusted Present Value	10,78%

**Table 1**

**Net Present Value (NPV)**

The Net Present Values is the best method known and generally accepted by project evaluators. It measures the profitability of the project in monetary values that exceed the desired profitability after retrieving entire investment.

To do this, calculate the present value of all future cash flows projected from the first period of operation and subtracts the total investment expressed at time zero. If the result is greater than zero, show how much is gained by the project, after recovering the investment, the rate *i*, which is required to return to the project, if the result is zero, indicating that the project reports exactly rate *i*, which wanted to get after recovering the invested capital and, if the result is negative, it shows the amount needed to win was desired rate recovered after the investment.

$$NPV = \sum_{t=1}^H \frac{PC_t}{(1+r)^t} - I$$

PC<sub>n</sub>: Project cash flows in the respective periods

I<sub>0</sub>: Initial investment at time zero.

*i*: Discount rate, minimum attractive rate of return

H: Evaluation Horizon (years)

**Internal Rate of Return (IRR)**

A second evaluation criterion is the internal rate of return (IRR), which measures profitability as a percentage. Is the discount rate that equates the equivalent of an alternative cash inflow (revenues or savings) to the equivalent value of cash outflows (expenses, including investment costs) Is also defined as the discount rate that makes the NPV = 0. This means that to find the IRR of an investment project that lasts H year, you should calculate the IRR with the following expression:

$$\sum_{t=1}^H \frac{PC_t}{(1+IRR)^t} - I = 0$$

PC<sub>n</sub>: Project cash flows in the respective periods

I<sub>0</sub>: Initial investment at time zero.

IRR: Internal Rate of Return

H: Evaluation Horizon (years)

**Application case study of economic value added (eva): creating a processing plant for the production of salt in jose luis tamayo.**

**Presentation**

After studying the current situation of small associated salt producers in parish Jose Luis Tamayo, we propose the creation of a plant to process the salt by which alternative will give a new business and source of income because in partners first instance will be guaranteed the sale of raw materials in addition to the creation of new jobs, fairer prices, there will be the presence of intermediaries.

The proposal is structured in four stages, the first a market analysis which will be detailed in supply, demand, prices, marketing of salt products, the second stage a technical study which will determine the optimum size of the plant, its location, investment in machinery equipment and technology, personnel, and the last stage evaluation using traditional indicators of project evaluation and testing of the hypothesis that the Economic Value Added, also serves to evaluate these initiatives, in addition determine whether the company is creating value.

### Financial study

For financial treatment was based on the estimation of demand in this case by the market study was able to estimate local demand.

Although revenues to be gained from this would be few significant, therefore the market opens national level as do companies that operate locally, thus making the project budget, estimating the traditional indicators for project evaluation and economic value added.

For the study took into account some assumptions that will be detailing each of the points. The sales plan development is carried out considering the average price of the 3 products that have better reception at home.

Below is an analysis of budgets, production costs both raw materials, direct labor and indirect production costs, and working capital, are 10-year projections as project evaluation horizon, income statement, cash flow and calculation of economic value added.

Capital Structure: It was considered an initial investment between \$ 312,766.07 corresponding to physical works, property, plant and equipment plus deferred assets which must manage via autonomous governments 30% of the total investment and the difference via a loan National Finance Corporation.

Variable	Amount
Deferred Asset Investment	3.500,00
Working Capital	29.295,07
Fixed Asset Investment	178.886,00
Physical Works	101.085,00
Total investment	312.766,07

**Table 2**

Partners should give a financial contribution of \$ 93,830 which corresponds to 30% of total investment, and the difference corresponding to 70% by debt, whose value is \$ 218,936, 10-year loan with an interest rate of 9, 5%.

### Traditional Indicators project evaluation

#### Discount rate

To determine the rate to discount the NPV in project cash flow, we used the rate of 12% (social rate) used by national financial corporation, and to discount the investor flow rate was used 25.2% market financial returns from mining and quarrying (salt) obtained from the consolidated financial indicators for 2010 because in the country there are no stock price data of similar companies in the market alone to obtain the model Price Rating of Financial Assets and Capital (CAPM).



**Performance calculation using the NPV**

It is the difference between the amounts of total revenues and expenditures brought to present value, indicating the additional value obtained, after having recovered the investment and costs. The NPV represents the net income generated by the project during these 10 years of life and in this case is expressed in dollars, and it can be considered as the return on invested capital. It is a method by which future profits are transferred to current values, assuming a 12% rate in this case is 262,930.40, this indicates the investment is profitable initiative.

**Performance calculation using the IRR**

The internal rate of return is the rate of return on money obtained from the project, and is that rate that equates the present value of the income stream, with the present value of cost flow, unlike the VAN where you have to consider a rate in the IRR must be determined. In this case the internal rate of return of the project is the result of 27.61% is greater than the discount rate which tells us that the Effort investment is profitable.

**Application of EVA**

The correct calculation of the total resources on which demand a certain capital cost per use to carry out the operation of the company.

The way they are applied for determining the EVA is the following

$$EVA = Capital (ROA - WACC)$$

It is important to clarify the concepts used, it should be understood as "capital" to all resources used by the company to generate its activities (liabilities and equity) and capital cost (c \*) represents the value of the cost of those resources. Now based on financial indicators, profitability can be expressed as the profit before interest and after taxes (UAIDI) (excluding financial expenses not duplicate in the cost of capital) from the capital.

Sources of Funding	Value	Allocation	CC	WACC
Foreign capital	218.936	70%	10,15%	5,54%
Own Capital	93.830	30%	(25,2%)	7,56%
Total stockholders' equity	312.766	100%		13,10%

**Table 3**

The company has a 70% debt and 30% equity of the weighted average cost of capital is 13.5% taking into account financial market returns.

	Year 1	Year 2	Year 3
Operating income	79.882	84.262	89.294
Income Tax	22%	22%	22%
Profit after taxes	62.308	65.724	69.650
Capital (Total assets)	337.356	364.383	393.562
ROA	18%	18%	18%
WACC	13,10%	13,10%	13,10%
Eva	18108	17983	18086

**Table 4**

According to the data shown, the company creates value, in turn verifies that the project is profitable.

**Comparing EVA with traditional measures**

According to (Valencia, 2011) when analyzing the project evaluation process commonly relates to the use of performance indicators, usually the Net Present Value, Internal Rate of Return (IRR) and sometimes referred to Economic Value Added (EVA). The Net Present Value concept is to measure the generation of wealth when an investment is made through a project, ie methodical approach is similar to the EVA.

Both measure wealth generation or creation of value, the difference lies in their application, the NPV measures the value of a project in a horizon inter-temporal (time horizon in this case 10 years) while the EVA measures the value in a period of time. In addition, the NPV is an indicator of profitability in the investment analysis and approach is economical, while the EVA is a financial performance indicator associated with the accounting aspects but the fact that in this case the company creates value openness that the initiative is cost effective too. It tests the hypothesis that the "Economic Value Added (EVA) is a financial indicator to decide the creation of the company." For verification purposes EVA was calculated for a time horizon of 10 years, and are updated with the rate of Weighted Average Cost of Capital (WACC) the results were:

$$PVEVA = \sum_{i=1}^{10} \frac{EVA_i}{(1+WACC)^i} = 90.384,06$$

The company during the 10 years creates value.

**Conclusions and recommendations****Conclusions**

We confirmed the hypothesis that the Economic Value Added is a financial indicator for decision-making in this case the company creates value, creates wealth.

It was conceptualized to EVA, and evidenced by expert judgment that match and validate this as an alternative indicator for the evaluation of projects.

Economic Value Added is a financial indicator to decide the creation of a company; in this case, the company is creating value significantly.

In investment analysis have many evaluation indicators, among them are the net present value that provides aggregate wealth generated by an investment project.

Both the NPV or EVA complement, first one showed the wealth generated and the other value creation in both it can be concluded that the investment is profitable initiative

The initiative was profitable investment, in the case of partners should implement the project and that they move from status quo to a situation where their lives improve

**Recommendations**

To further studies of the economic value added technique, they must consider probabilistic scenarios in order to identify which are the values of input parameters (variables) that make the EVA tends to zero and which can get those limits.

The indicators of both the NPV and IRR, due to its effectiveness and particularly for their continued use has shifted to the use of EVA, but it is essential to include this indicator for decision making because it gives an approximation of the value added can generate investment initiative decreasing risks in making decisions.

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**Financial Crisis 2007-2009 how credit rating agencies, mark to market and shadow banking system generated and worsen the crisis?**

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This Paper seeks to explain some main factors behind the Financial Crisis 2007-2009 with a special focus on the Credit Rating Agencies, Mark to Market and Shadow Banking System, their role in US Financial System and how these factors generated and worsen the crisis. Financial Crisis 2007-2009 which starts from the United States sub-prime Mortgage market and spread to US financial sector and later on spread to the rest of world is said to be the even bigger crisis than the Great Depression of 1929. This crisis is unique in this way that in history we haven't seen such a bigger impact world wide from any crisis. This paper would analyze the main causes which are right in the heart of the crisis and least discussed.

**Shadow Banking System, Mark to Market, Collateralized Debt Obligation (CDO), Generally Accepted Accounting Principles (GAAP), Credit Rating Agencies.**

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**Introduction**

The term ‘financial crisis’ is used too loosely, often to denote either a banking crisis, or a debt crisis, or a foreign exchange market crisis. It is perhaps preferable to invoke it only for the ‘big one’: a generalized, international financial crisis.

This is a nexus of foreign exchange market disturbances, debt defaults (sovereign or private), and banking system failures: a triple crisis, in which the interactions are the key to causality, depth, and persistence (Eichengreen and Portes, 1987).

Financial Crises could involve either bank or currency crises or indeed, both of them could take place at the same time (Daianu & Lungu, 2008). Delargy and Goodhart (1999) argue that both the late 19th century crises and those in the late 20th were more likely when loose credit conditions in the lending countries were in place. Subsequently, when credit conditions suddenly adversely changed it generated a boom and bust economic cycle.

“The classic explanation of financial crises, going back hundreds of years, is that they are caused by excesses—frequently monetary excesses—which lead to a boom and an inevitable bust.

In the recent crisis we had a housing boom and bust which in turn led to financial turmoil in the United States and other countries” (Taylor, 2008).

The term financial crisis is applied broadly to a variety of situations in which some financial institutions or assets suddenly lose a large part of their value. In the 19th and early 20th centuries.

Many financial crises were associated with Banking Panics and many recessions coincided with these panics.

The current tsunami in financial markets, which is believed to have been triggered by the collapse of the sub-prime housing market, has refocused the ideas of Hyman Minsky (1919–1996), a prominent member of the post-Keynesian school of economics. Many commentators are of the view that Minsky accurately anticipated the current financial crisis. (Wray, 2007) (McCauley, 2008). Some of them called this situation a “Minsky moment” (Whalen 2007, Magnus 2007).

This Crisis has many things in common like the previous Crises but there are some new things also. Especially some new financial innovations were also in the root cause of the crisis. From Housing Bubble to Mark and Market and Global imbalances all participated in the crisis. But the main focus of this paper is on the least discussed Causes which I believe were the main culprit of the Crisis.

Apart from the introduction the paper has been divided into four main parts.

First we would discuss the Credit Rating Agencies their structure, functions and how they participated in the Financial Crises. Secondly the Mark to Market rules of Accounting and how this rule created mess in the market.

Thirdly Shadow Banking System, how it works and what’s its size and how it generated and worsens the crisis.

Finally after some empirical analysis we would draw some conclusions.

**Credit rating agencies**

*The U.S. subprime residential mortgage debacle of 2007-2008, and the world financial crisis that has followed, will surely be seen as a defining event for the U.S. economy -- and for much of the world economy as well -- for many decades in the future.*

*Among the central players in that debacle were the three large U.S.-based credit rating agencies: Moody's, Standard & Poor's (S&P), and Fitch.*

*Lawrence j. White (2009)*

John Moody published the first publicly available bond ratings (mostly concerning railroad bonds) in 1909. Moody's firm was followed by Poor's Publishing Company in 1916, the Standard Statistics Company in 1922, and the Fitch Publishing Company in 1924. These firms' bond ratings were sold to bond investors, in thick rating manuals.

A central concern of any lender -- including investors in bonds -- is whether a potential or actual borrower is likely to repay the loan (including any specified interest). Lenders therefore usually spend considerable amounts of time and effort in gathering information about the creditworthiness of prospective borrowers and also in gathering information about the actions of borrowers after loans have been made.

The credit rating agencies offer judgments -- they prefer the word "opinions" -- about the credit quality of bonds that are issued by corporations, governments (including U.S. state and local governments, as well as "sovereign" issuers abroad), and (most recently) mortgage securitizes. These judgments come in the form of ratings, which are usually a letter grade.

In fact, the rating business has not been profitable until mid-1990s when the financial institutions began to use credit derivatives such as credit default swap and collateralized debt obligation to free up balance-sheet capital requirements and transfer credit risk Partnoy (2006).

This led the major credit rating agencies to increasingly expand their business to include the rating of complex debt instruments, particularly collateralized debt obligation (CDO).

This rating methodology along with a less regulated environment enabled three agencies to enjoy a multi-trillion dollar oligopoly market. However as credit rating agencies aggressively expand their rating methods issues arise around the trustworthiness of credit rating Liu (2007).

Rating scales: The best known scale is that used by S&P and some other rating agencies: AAA, AA, A, BBB, BB, etc., with pluses and minuses as well White (2009).

<b>S&amp;P and Fitch use the same Scale</b>	
<b>Investment Grade</b>	
AAA	The best Quality borrowers, Reliable and Stable
AA	Quality borrowers, a bit higher risk than AAA
A	Economic Situation can affect borrower's ability to pay
BBB	Medium class borrowers, satisfactory at the moment
<b>Speculative Grades</b>	
BB	Borrower's ability to pay is more prone to changes in the economy
B	Borrower's Financial Situation varies noticeably
CCC	Borrower is currently vulnerable and dependent on

	favourable economic conditions to meet its commitments
CC	Borrower is highly vulnerable
C	Borrower may be in bankruptcy but is still paying its obligations
D	Borrower has defaulted on obligations and CRA believes that it will generally default on most or all obligations
<b>MOODY'S scale varies slightly</b>	
Investment Grade	From AAA to BAA3
Speculative Grade	From Ba1 to C, (C being in default)

**Table 1**

Conflict of interest

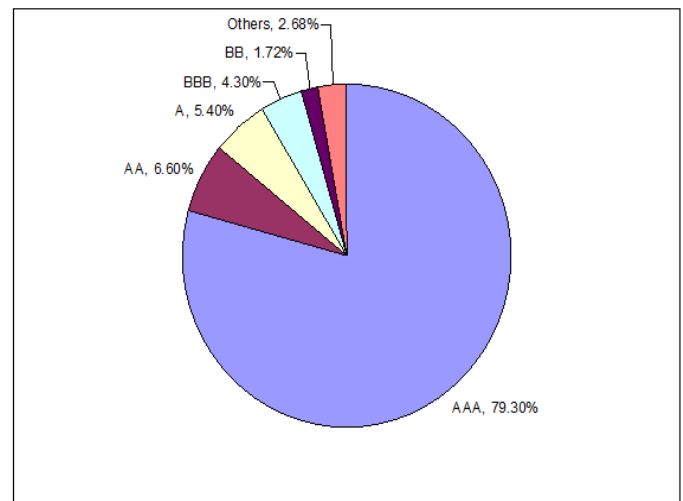
Partnoy (2006) points out that the credit rating industry presents strong conflicts of interests as result of the fact that as much as 90 percent of agencies' revenues are from the fees directly paid by the issuers they rate.

He then goes on to argue that these agencies' complex and opaque methodologies for rating CDOs create arbitrage opportunities, motivating the rapid expansion of CDO market.

Since the agencies were receiving substantial payments for this service, it created a clear conflict of interest. If CDO issuers did not get the rating they wanted, they could try another agency, taking their fees with them – an act known as “ratings shopping.” Baily, Litan etc. (2007).

According to the New York Times, Moody's profits tripled between 2002 and 2006 to \$750 million, mostly because of the fees from structured finance products. According to Coval et al (2008), fees from structured finance products made up 44 percent of Moody's revenue in 2006. Moody's net income rose from \$289Million in 2002 to \$754 Million 2006. (Economist, 06 sep. 2007)

In 2006, 79.3% of an average subprime MBS was rated AAA. CDOs were similar—often 95% of a CDO was rated investment grade as shown in below figure-36. In July 2008, the SEC concluded that the CRAs failed to manage conflicts of interest between MBS and CDO issuers and the CRAs. CRAs were supposed to serve investors, but conflicts of interest led some CRAs to cater to MBS and CDO issuers by inflating ratings Amanda (2009).



**Figure 1**

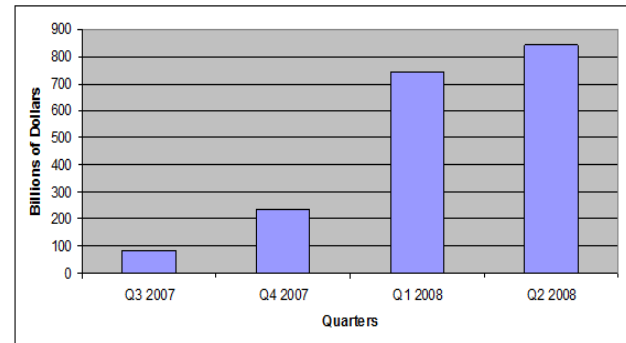


Conflicts of interest were caused by:

1. Relationship conflicts: CRAs have had a close, ongoing working relationship with the largest MBS and CDO issuers;
2. Issuer-paid ratings: 98% of the ratings produced by the CRAs have been paid for by issuers, not investors. The pay incentive led some CRAs to try to inflate ratings of paying issuers in hopes of gaining repeat business from those issuers; and
3. Advising-rating combination: CRAs advised issuers on how to structure MBSs and CDOs to get high ratings.

Then CRAs “confirmed” that advice by issuing the “promised” ratings.

How CRA creates crisis? From 2007 to 2008, rating agencies lowered the credit ratings on \$1.9 trillion in mortgage backed securities. Financial institutions felt they had to lower the value of their MBS and acquire additional capital so as to maintain capital ratios. If this involved the sale of new shares of stock, the value of the existing shares was reduced. Thus ratings downgrades lowered the stock prices of many financial firms.



**Figure 2**

Figure-2 above shows how Mortgage-Backed Securities has been downgraded from Q3 2007 to Q2 2008. In Q3 2007 less than \$100 Billions MBS has been downgraded while in Q2 2008 only after nine months almost \$850 Billion MBS downgraded. This figure shows the real work of Credit Rating Agencies. This situation creates panic in the market which ultimately led to crisis.

As CRAs downgraded their highest-rated instruments, investors wondered if any investments were safe. This uncertainty caused the credit markets to freeze. Suddenly, few wanted to invest in even the highest-rated instruments for fear they would be downgraded.

Many wanted to rid themselves of their current investments. The ongoing crisis has shown that ratings can be inaccurate, untimely, and affected by CRA conflicts of interest. Many market participants no longer trust the ratings that CRAs produce (Amanda Bahena).

Critics allege that the rating agencies suffered from conflicts of interest, as they were paid by investment banks and other firms that organize and sell structured securities to investors. On 11 June 2008, the SEC proposed rules designed to mitigate perceived conflicts of interest between rating agencies and issuers of structured securities.

Erik Sirri, Director of the SEC's Division of Trading and Markets, said, "The rules proposed today are designed to improve investor understanding of credit ratings through enhanced disclosure of NRSRO methods and performance data, and to promote investor confidence in credit ratings by minimizing conflicts of interest." Although SEC takes steps to regain the investors trust but it seems that it's too late and damage has already been done.

**Mark to market:** The market for mortgage-backed securities and related financial instruments has collapsed over the past year, leading to massive write-downs and the failure of several major investment banks and consumer lenders. Some blame fair value (Mark to Market) for unduly distorting the health of:

- 1 *Prohibit a credit rating agency from issuing a rating on a structured product unless information on assets underlying the product was available*
- 2 *Prohibit credit rating agencies from structuring the same products that they rate.*
- 3 *Require credit rating agencies to make all of their ratings and subsequent rating actions publicly available. This data would be required to be provided in a way that will facilitate comparisons of each credit rating agency's performance. Doing this would provide a powerful check against providing ratings that are persistently overly optimistic, and further strengthen competition in the ratings industry*
- 4 *Attack the practice of buying favourable ratings by prohibiting anyone who participates in determining a credit rating from negotiating the fee that the issuer pays for it.*
- 5 *Prohibit gifts from those who receive ratings to those who rate them, in any amount over \$25.*
- 6 *Require the public disclosure of the information a credit rating agency uses to determine a rating on a structured product, including information on the underlying assets. That would permit broad*

*market scrutiny, as well as competitive analysis by other rating agencies that are not paid by the issuer to rate the product*

- 7 *Require credit rating agencies to publish performance statistics for 1, 3, and 10 years within each rating category, in a way that facilitates comparison with their competitors in the industry*
- 8 *Require disclosure by the rating agencies of the way they rely on the due diligence of others to verify the assets underlying a structured product.*
- 9 *Require disclosure of how frequently credit ratings are reviewed; whether different models are used for ratings surveillance than for initial ratings; and whether changes made to models are applied retroactively to existing ratings.*
- 10 *Require credit rating agencies to make an annual report of the number of ratings actions they took in each ratings class, and require the maintenance of an XBRL database of all rating actions on the rating agency's Web site. That would permit easy analysis of both initial ratings and ratings change data*
- 11 *Require documentation of the rationale for any significant out-of-model adjustments*

*Companies' balance sheets and contributing to a negatively reinforcing downward spiral, and they have called for the SEC to suspend fair value accounting.*

*(CPA Journal, Jan 2009).*

**Mark-to-market\*** or fair value accounting refers to the accounting standards of assigning a value to a position held in a financial instrument based on the current fair market price for the instrument or similar instruments.

Fair value accounting has been a part of US Generally Accepted Accounting Principles (GAAP) since the early 1990s.

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\* For understanding consider that a futures trader, when taking a position, deposits money with the exchange, called a "margin". This is intended to protect the exchange against loss. At the end of every trading day, the contract is marked to its present market value. If the trader is on the winning side of a deal, his contract has increased in value that day, and the exchange pays this profit into his account. On the other hand, if the market price of his

*contract has declined, the exchange charges his account that holds the deposited margin. If the balance of this account falls below the deposit required to maintain the position, the trader must immediately pay additional margin into the account to maintain his position (a "margin call").*

The use of fair value measurements has increased steadily over the past decade, primarily in response to investor demand for relevant and timely financial statements that will aid in making better informed decisions. Mark to Market was introduced in 1993 after the S&L crisis, when then backward-looking GAAP accounting standards prolonged the crisis by allowing many thrifts to appear solvent on their books, even though their equity had effectively been wiped out.

An interesting early study on the relevance and implications from Mark to Market was performed by Bernard, Merton and Palepu (1995).

For many years, Denmark's accounting standard-setting and banking regulatory authorities have relied on Mark to market valuation for the assets of their commercial banks (Bernard, Merton and Palepu (1995)).

They find that Danish banks book values, which reflect mark to market valuations, seem to provide more reliable information to investors than historical cost-based figures then provided by U.S banks.

They do not find evidence that Danish bank executives manipulate mark to market numbers to circumvent regulatory capital ratios.

However they also point out that Danish and US capital Markets are not quite similar and their findings may not completely hold in a U.S setting.

For almost two decades Mark to Market was the best system of providing investors with the reliable information. But as the crisis struck the financial system some economists lift finger towards this Mark to market system of accounting for deepening the turmoil in the financial markets.

According to Peter Needleman (2008) "There is a powerful argument that this is a crisis which has been turned into a disaster by mark to market accounting rules". Chief Economist Brian S. Wesbury and his colleague Bob Stein at First Trust Portfolios of Chicago estimate the impact of the "mark-to-market" accounting rule on the current crisis as follows:

"It is true that the root of this crisis is bad mortgage loans, *but probably 70% of the real crisis that we face today is caused by mark-to-market accounting in an illiquid market.* What's most fascinating is that the Treasury is selling its plan as a way to put a bottom in mortgage pool prices, tipping its hat to the problem of mark-to-market accounting without acknowledging it. It is a real shame that there is so little discussion of this reality."

A study by Barth, Landsman and Whalen (1995) shows that fair Value based measures of net income are more volatile than historical cost based measures.

According to Gingrich (2008) when a company in financial distress begins fire sales of its assets to raise capital to meet regulatory requirements, the market-bottom prices it sells out for become the new standard for the valuation of all similar securities held by other companies under mark-to-market. This has begun a downward death spiral for financial companies large and small.

During Financial Crisis, many of the Mortgage Backed Securities that were behind the financial crisis having no market and hence almost impossible to assign a fair value. Because of their perceived risk and unknown exposure nobody wants them and in many cases if there is no demand they become worthless (\$0 value).

This obviously was not true. Even if the value is 5 cents on the dollar, they still had a value. But the securities were so complex and the economic environment so uncertain, that nobody was willing to "stick their neck out" and try to pick the correct price.

Moreover foreclosures and home auctions continued to depress housing prices, further reducing the value of all mortgage-related securities.

As capital values decline, firms scrambled to maintain the capital required by regulation. When they try to sell assets to raise that capital, the market values of those assets were driven down further. Under mark-to-market, the company had to mark down the value of all of its assets even more.

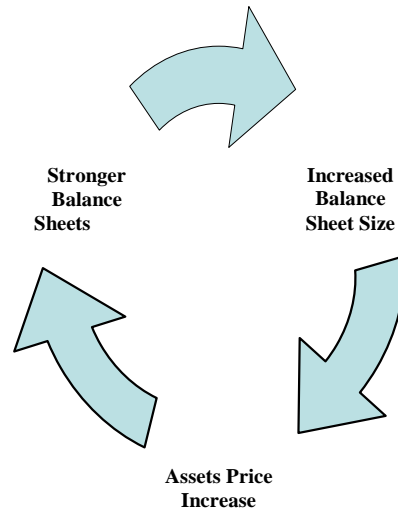
The credit agencies saw declining capital margins, so they downgraded the company's credit ratings. That made borrowing to meet capital requirements more difficult. Declining capital and credit ratings caused the company's stock prices to decline further.

Leverage adjustments and MtoM: Panic prevailed, and no one wanted to buy mortgage-related securities, which derived their value under mark-to-market regulations down toward zero. Balance sheets under mark-to-market suddenly started to show insolvency.

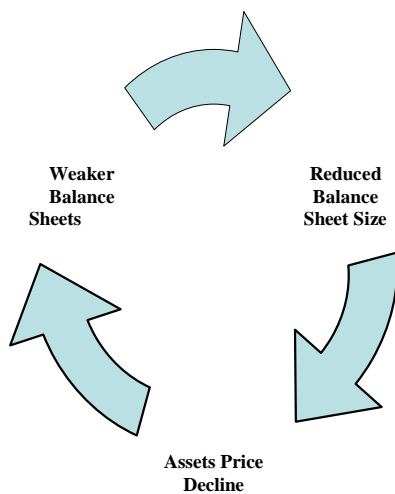
This downward spiral shuts down lending to these companies, so they lose all liquidity (cash on hand) needed to keep company operations going. Stockholders--realizing that they will be wiped out if the companies go into bankruptcy or get taken over by the government--start panic selling, even when they know the underlying business of the company is fine.

This vicious circle transfers the panic into crisis and crisis into disaster. Figure-3 shows how the liquidity increased or decreases the size of Balance Sheet.

**Leverage Adjustment in Upturn**



**Leverage Adjustment in Downturn**

**Figure 3**

If financial markets are not perfectly liquid so that greater demand for the asset tends to put upward pressure on its price, then there is the potential for a feedback effect in which stronger balance sheets feed greater demand for the asset, which in turn raises the asset's price and lead to stronger balance sheets.

Figure above illustrates the feedback during a boom. The mechanism works exactly in reverse in downturns.

In a financial system where balance sheets are continuously marked to market, asset price changes show up immediately as changes in net worth, and elicit responses from financial intermediaries who adjust the size of their balance sheets.

On the asset side, traded assets are valued at market prices, or are short term collateralized loans for which the discrepancy between face value and market value are very small due to the very short term nature of the loans. On the liabilities side, short positions are at market values.

Long-term debt is typically a small fraction of the balance sheet for investment banks.

For these reasons, investment banks provide a good approximation of the balance sheet that is continuously marked to market, and hence provide insights into how leverage changes with balance sheet size.

When expressed as a proportion of commercial banks' balance sheets, securities firms have been increasing their balance sheets at a very rapid rate.

Note that when hedge funds' assets under management is converted to balance sheet size by multiplying by a conservative leverage factor of 2, the combined balance sheets of investment banks and hedge funds is over 50% of commercial banks balance sheets.

According to Ryan (2008) during the Financial Crisis, the markets for subprime become severely illiquid and disorder. This has led various parties to raise three main potential criticisms on fair value accounting.

First, unrealized losses recognized under fair value accounting may reverse over time. Second, market illiquidity may render fair values difficult to measure and thus unreliable. Third, firms reporting unrealized losses under fair value accounting may yield adverse feedback effects that cause further deterioration of market prices and increase the overall risk of the financial system referred as "systemic risk".

#### Effects of mark to market

Due to Mark to market we have seen that during the crisis Bradford & Bingley's management announced to write-down of more than \$500 Million on a range of its SIVs.

CDOs and hedging instruments on the views of its Auditors although the management says it did not agree with the auditors. AIG raised estimated losses on mortgage-related instruments from \$1 Billion to \$5 Billion.

Their auditors claimed that there was material weakness in the way that the insurer valued its exposure which has been ratified now. But things clear that the auditors forced AIG to mark to market at valuation provided by a US investment bank.

Credit Suisse management reveals a \$1 Billion hit to its first quarter profits, just a few days after telling investors at its full year 2007 results presentation that the bank survived the credit crunch. All these three incidents showed that the present crisis in financial markets is not just about credit losses. For many firms with exposure to the credit markets, mark to market is becoming almost as unpopular as sub-prime. Marking to market when no real market exists can seem nonsensical, especially when the asset is performing Euromony (2008).

MBIA has posted mark to market losses of nearly \$ 3.5 Billion on CDS contracts. AIG lost some \$15.1 Billion (More than 10 %) on its share price following the auditor's intervention. Bradford & Bingley's share price fell by more than 20% because of write-downs Euromoney (2008).

Hence it can be put forward that Mark to market through its magnifying impact on earnings volatility, may have contributed to aggravate investors, regulators, and government's perceptions with respect to the severity of the crisis, itself characterized by record volatility in the prices of many securities and goods. (Michel Magnan, 2009)

How mark to market caused crisis: According to Magnan (2009) These cases raises the issue of FVA or Mark to market applicability as it is being extended from instruments traded in liquid and organized markets to credit type instruments that are often securitized and which are not quite transparent about their underlying assets.

Key criticism against FVA is that its use in the current crisis has led to a reduction in the value of financial institutions assets, which translated into a severe shrinking of their capital ratios, forcing them to deleverage and sell further assets at distressed prices, thus feeding the downward spiral.

In words of Gingrich (2008) "So, mark-to-market accounting contributes both to credit bubbles, which no one on Wall Street ever complains about because they are too busy raking in the cash, and credit busts, at which point, something must be done. If regulators on their own--or Congress.

If regulators fail to use their discretion--can fix 70% of the financial crisis by changing the mark-to-market accounting rule, we should change the rule first before attempting to pass another reevaluated bailout package"

But the big question is to change Mark to market with whom? Although Mark to Market play its part in the Financial Crisis it seems impossible to eradicate this accounting system from the financial Institutions. As Andrew Leonard (2008) truly highlights the situation "There's just one big fat honking problem. If mark-to-market rules are suspended, what replaces them? Surely we don't trust the owners of these risky assets to decide for themselves what they're worth"

Many academics, argue that there is no alternative measurement or reporting model.

For example Barth (2007) a member of international Accounting standards Board, argues that “Although opponents of more comprehensive use of fair value have some legitimate concerns, standard setters are unaware of a plausible alternative”. Michael Magnan (2009) sums up the whole debate in the following words” The debate goes further than accounting and financial reporting and deals with the essence of what accountants are expected to contribute to society and, implicitly, what competences and skills they must possess to deliver in that regard. One may surmise that current accounting standards, such as those relating to fair value, probably overstretch accountants’ capabilities and prior learning and obscure other informational needs by investors and other interested stakeholders.”

### Shadow banking system

*Financial Crisis 2007-2009 was a crisis of traditional banks and, more important, a crisis of the so-called shadow banking sector—that is, of those financial institutions that mostly looked like banks.*

*Acharya, Philippon etc.( 2008)*

The Shadow Banking System\* or the shadow financial system consists of non-bank financial institutions that play an increasing critical role in lending business the money necessary to operate. These financial institutions are typically intermediaries between investors and borrowers. By definition shadow institutions don’t accept deposits like depository bank and therefore are not subject to the same regulations. Examples include Bear Stearns and Lehman Brothers. Other complex legal entity comprising the system includes hedge funds, SIVs, Conduits, Money Funds, Monolines and Investment Banks. Banks grant loans with the resources they receive from depositors and with their own capital.

Above all, however, they create deposits – scriptural currency – by granting credit Keynes (1930). They also issue debts in order to raise resources and to grant new loans Chick (1986). According to McCulley (2007), executive director of the largest resource manager in the world.

Pimco, the global shadow banking system includes all agents involved in leveraged loans which do not have (or did not have, according to the rule in force before the outburst of the crisis) access to deposit insurances and/or to rediscount operations of central banks. These agents are not subject to the prudential regulations of the Basel Agreements Cintra & Prates(2008) and Freitas (2008).

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\* The term "shadow banking system" used first time by Paul Allen McCauley. He used this term in 2007 at Jackson Hole conference, where he defined it as "the whole alphabet soup of levered up non-bank investment conduits, vehicles, and structures." He coined the term Minsky moment and Shadow banking system which became famous during the financial crisis of 2007-2009. Prior to joining PIMCO in 1999, he was chief economist for the Americas at UBS Warburg. During 1996-98, he

was named to six seats on the Institutional Investor All-America fixed-income research team. He has 25 years of investment experience and holds an M.B.A. from Columbia Business School. He received his undergraduate degree from Grinnell College. McCauley adheres to Keynesian economics, and was particularly influenced by Hyman Minsky.

Table-2 below shows the impact of the crisis on the Banking Industry. Although the banking industry as a whole has seen a dramatic slowdown in terms of profitability and a rise in non-current assets and other real estate owned or “OREO” and the performance numbers for all banks are clearly deteriorating, but the industry is not yet near a crisis like the Shadow Banking Industry.

	2007	2006	2005	2004	2003	2002	2001
Return on Assets (%)	0.86	1.28	1.28	1.28	1.38	1.3	1.14
Return on Equity (%)	8.17	12.3	12.43	13.2	15.05	14.08	13.02
Core Capital Leverage Ratio (%)	7.98	8.22	8.25	8.11	7.88	7.86	7.79
Non-current Assets plus OREO(%)	0.94	0.54	0.5	0.53	0.75	0.9	0.87
Net Charge-offs to loans (%)	0.59	0.39	0.49	0.56	0.78	0.97	0.83
Net operating income growth%	-23.72	8.5	11.39	4.02	16.39	17.58	-0.48

**Table 2**

Shadow institutions borrowed short-term in rollover debt markets, leveraged significantly, and lent and invested in longer-term and illiquid assets.

However, unlike banks, they did not have access until 2008 to the safety nets—deposit insurance, as well as the lender of last resort (LOLR), the central bank—that have been designed to prevent runs on banks Acharya, Philippon etc. (2008)

According to Farhi (2008) between June 2007 and November 2008, there were many especially dramatic events in the course of the crisis, with strong impacts on the global interbank markets.

These moments were mirrored in the behavior of the so-called TED spread – the difference between the rate of the three-month US Treasury papers (on the secondary market) and the Libor rate (London Interbank Offered Rate) for three-month deposits in Eurodollars – an international reference for interbank loans, estimated at US\$ 23.3 trillion in March 2008 by the Bank for international Settlements (BIS).

In spite of the steep fall of the US basic interest rate and the combined reduction of the interest rates in the main developed economies in October and November 2008, the spread between the US Treasury Bills and the Libor rate remained at a high level.

### Shadow banking and financial crisis

According to Roubini (2008) a generalized run on these shadow banks started when the asset bubble bust led to uncertainty about which institutions were solvent. Roubini (2008) described the meltdown of the Shadow Banking System in following stages:

The first stage was the collapse of the entire SIVs/conduits system once investors realized the toxicity of its investments and its very short-term funding seized up.

The next step was the run on the big US broker-dealers: first Bear Stearns lost its liquidity in days. The Federal Reserve then extended its lender-of-last-resort support to systemically important broker-dealers.



But even this did not prevent a run on the other broker-dealers given concerns about solvency: it was the turn of Lehman Brothers to collapse. Merrill Lynch would have faced the same fate had it not been sold.

The pressure moved to Morgan Stanley and Goldman Sachs: both would be well advised to merge – like Merrill – with a large bank that has a stable base of insured deposits.

The third stage was the collapse of other leveraged institutions that were both illiquid and most likely insolvent given their reckless lending: Fannie Mae and Freddie Mac, AIG and more than 300 mortgage lenders.

The fourth stage was panic in the money markets. Funds were competing aggressively for assets and, in order to provide higher returns to attract investors, some of them invested in illiquid instruments.

Once these investments went bust, panic ensued among investors, leading to a massive run on such funds.

This would have been disastrous; so, in another radical departure, the US extended deposit insurance to the funds.

## **Conclusions**

Credit Rating Agencies contributed toward financial crisis. All the three Credit Rating Agencies contributed. Especially Moody which alone has 45000 mortgage-related securities rated as AAA.

In 2006 alone, Moody's put its triple-A stamp of approval on 30 mortgage-related securities every working day. The results were disastrous: 83% of the mortgage securities rated triple-A that year ultimately were downgraded.

Forces at work behind the breakdowns at Moody's, including the flawed computer models, the pressure from financial firms that paid for the ratings, the relentless drive for market share, the lack of resources to do the job despite record profits, and the absence of meaningful public oversight.

And you will see that without the active participation of the rating agencies, the market for mortgage-related securities could not have been what it became.

Financial institutions and credit rating agencies embraced mathematical models as reliable predictors of risks, replacing judgment in too many instances. Too often, risk management became risk justification.

Mark-to-market accounting contributes both to credit bubbles, which no one on Wall Street ever complains about because they are too busy raking in the cash and credit busts.

Key criticism against Mark to Market or FVA is that its use in the current crisis has led to a reduction in the value of financial institutions assets, which translated into a severe shrinking of their capital ratios, forcing them to deleverage and sell further assets at distressed prices, thus feeding the downward spiral.

In 2007, the five major investment banks—Bear Stearns, Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley—were operating with extraordinarily thin capital. By one measure, their leverage ratios were as high as 40 to 1, meaning for every \$40 in assets, there was only \$1 in capital to cover losses.

Less than a 3% drop in asset values could wipe out a firm. To make matters worse, much of their borrowing was short-term, in the overnight market—meaning the borrowing had to be renewed each and every day.

For example, at the end of 2007, Bear Stearns had \$11.8 billion in equity and \$383.6 billion in liabilities and was borrowing as much as \$70 billion in the overnight market.

It was the equivalent of a small business with \$50,000 in equity borrowing \$1.6 million, with \$296,750 of that due each and every day.

In 20th century, there were so many protections like Federal Reserve as a lender of last resort and FDIC which were responsible for regulation to provide the protection against the panics.

But over thirty years plus permission to growth of Shadow Banking system has narrowed the size of commercial Banks. Shadow banking system was permitted to grow to rival the commercial banking system with inadequate supervision and regulation.

That system was very fragile due to high leverage, short-term funding, risky assets, inadequate liquidity, and the lack of a federal backstop.

When the mortgage market collapsed and financial firms began to abandon the commercial paper and repo lending markets, some institutions depending on them for funding their operations failed or, later in the crisis, had to be rescued.

These markets and other interconnections created contagion, as the crisis spread even to markets and firms that had little or no direct exposure to the mortgage market. In addition, regulation and supervision of traditional banking had been weakened significantly, allowing commercial banks and thrifts to operate with fewer constraints and to engage in a wider range of financial activities, including activities in the shadow banking system.

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## **The impact and the legal economical aspect of the family in the today Mexican society**

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The family does not appear like that of our ancestors, it has had some changes through history, so the erosion of values, the changes in culture and so on, have been important factors in family breakdown. In as order is restored modern family will be benefit. In this research, through argumentative and explanatory method, it pretend to analyze the role and impact in today´s Mexico society, in order to know its evolution.

**Family, Familiy desintegration, Values economics, Social order, Legal norms**

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**Introducción**

First, talk about the person and his characteristics, that make it different and to build a family as the important piece of the social core, they help you to develop fully.

However this has undergone many changes due to various causes, among which stand out the culture changes, domestic violence, family identity, lost of values, among others.

Subsections contain the familiar role as the manner in which family members should act on their to do daily; then board the family today, currently on family breakdown as unfortunate cause in the development of the family and must be saved with restoration of values and exemplary conduct of its members in the family context.

Accordance with the above, we ask: what were the current changes in the family, the modernization and advances in culture, including globalization? That impact has the current family in Mexico? Will be a future benefit, improve integration with reaffirming family values?

So throughout this work, we hope to present such problems to seek better solutions for social and family coexistence.

**The Person and their characteristics**

It's necessary to talk about the human like an individual organism that distinguish it from others and to join a family, it's important consider its features. Some authors mention the following:

Under Ortega and Gasset mentions among others that the individual is composed of the following elements:

- A body, material sealed by the amount.
- Psyche, which is act of mind, called by some authors as the soul is immortal and that part of being human and that is an essential part of man.
- Self, this is the center of all the powers and principles, one who sees the world through thought. Makes me aware of unconscious processes.

According to the above can perceive the human being as a person who has special features, a body (matter) and a mind, which differs from other existing creatures in nature because these do not have reason and conscience, about on their existence and their relationship with the world in which it lives and develops and therefore also with the family.

Is important to note the time when man is considered, as it will have different legal effects as a person.

“Man is man from the moment of conception and it is up to the moment of death, any legal order to be fair need to consider these two times as the start and the end of the human person”. (Pacheco, 1991:31)

Throughout his life man can socialize, so that this will achieve their existential purposes on their community in which it operates and the family. Even the origin of the person has been conceptualized in different ways, among which stand out:

“Personare, of Latin, meaning reverberate (sound a reproduction surface and absorbed) in the ancient Greek theater used a mask used with the purpose of increasing the loudness to the voice of the actor and make evident the presence of this to the public. Has become the allegory of the individual who dramatizes his life at the scene, represent a social role”. (Cruz-Sanromán, 2009: 151)

The Catholic Church during the middle Ages considered the divine person other than the individual, so that theologian’s main characteristic of the person does not focus on humans, but on individuality and rationality, and as a divine person is a being who has a soul and reason. (Rangel-Sanromán, 2007)

The person also has been conceptualized from a legal point of view as any subject capable of being the subject of rights and obligations with particular interest being regulated in the legal world.

“The human person is the center of the legal order itself, is the reason for existence of the law, without human person the right would lose its reason for being and would not be ordering anything from anyone.

The transcendent order of the person and their basic characteristics as such natural person, can not be modified by the legal order but as said , should be protected and promoted for the human person to achieve the fullness of its realization as such”. (Pacheco, 1991:26)

So this personification is carried out within their social group or family, living to achieve their social and existential purposes according to the goals that have set in your life.

In response to this we can not deny that the person is intimately linked to its characteristics as a human society develops into a legal world.

A feature of the human being that was not mentioned is that the man is free, during its existence and sociability, faces the possibility of making decisions at the different paths that are presented. The -will allow you to choose between good and bad, can be the case to make a tender or unlawful conduct such as entering into a contract or commit a crime.

Recasens says that man is will-allow by self, because he has the possibility of take a decision. (1991:86)

The agency gives human beings freedom, which manifests itself in the fact that man, has to fulfill their duties in order to survive and live with their peers in society and especially in the family.

Addition to the foregoing , freedom can be presented from a legal point of view that has different approaches, such as freedom of education, such as the assumption of having the option to study at any educational institution and career that pleases me more ; traffic to move freely throughout the republic; economic to invest in any legal economic activity; cult to profess any religion according to the beliefs; of profession to devote to any activity being lawful , as a lawyer, or business man among Catholic other .

For Millan (1982), once the freedom of man is necessary to consider another feature that refers to the intellect, to exercise freedom through rational analysis, taking decisions in the exercise of that freedom.

**ADMINISTRATION**

So we can distinguish human beings from other living being because it acts with understanding and not just instinct, as may be the case that a subject perform a task aimed at a particular end.

Now if we consider the characteristics of human being above, body, psyche, self, agency, freedom and intellect, we can realize that the man is a very special and extraordinary being with faculties and elements that differentiate it from living beings and also allow you to have awareness, knowledge of its existence, wondering why act for an end, as it seeks to develop material and spiritual, a situation that only occurs with humans, with the rational, thinking.

These features make the human being something extraordinary and therefore valuable therefore affirm that man has a dignity , decorum , the deeper concept that allows us to see that dignity is a value per se, that is intrinsic that does not depend external values to exist . Therefore man possesses dignity and she has rights that he should respect your self help to achieve fully.

So as to achieve this, the person has needs that require meet and it takes place in societies and specific in your family, activities to do, but it is a reality that the satisfaction of those needs man recognizes in others for being human like him.

The last feature to be mentioned is the sociability , requiring live with other human beings to meet their material needs , the top-level as the intellectual, emotional and spiritual , man can not live in isolation is essential to live together in society and this will give you all the information necessary to develop fully.

Then can not be helped and supplemented by others that comprise a determined social group do grow in all areas: emotional, spiritual , professional, personal etc .

However the existence of human beings in society required from the beginning of time to establish a proper life and normatively will-allow all human beings and from this the need for coexistence and community development at home and legal order emerges that fulfill their existential purpose.

We can establish that the legal system is to regulate the coexistence of men through their legal standards for common goals are achieved in the state society but also that each individual achieves its purposes is layered to exercise their rights and obligations.

However the rule of law must ensure the common good and then by the individual.

So well is generally not the same as the common good, for the latter is somewhat great however the general good is a good for all.

The human being in addition to fulfilling a legal order , must practice core values, family infused at the present time have been forgotten in which we highlight as respect , honesty, etc., which together with said order must be applied on a daily basis with what exemplary personal development within the community was achieved and what would give you the opportunity to transcend life.

The person has several features that allow it to act in the family and social circle, such as being aware of social issues, have idiosyncrasies, spirituality, social culture, social order and identity.



It is noteworthy that the human being must be aware of the social problems so you can apply those values and the role they should have as a figure of authority, as well as the role it plays in each of the social group in which it is carried and out a true humanitarian and social coexistence.

The common good as ideal for the community, to the extent that the thought of people switch to a positive, constructive attitude and overcoming , will achieve a better development in the nuclear family .

One can be more spirituality as an approach to believe someone also the faith that makes us feel better inside and what are materialists, giving himself through generations forget the spiritual aspect.

Amend the negatives and rescue shared values (honesty, freedom, respect, tolerance, etc.) or universal principles. Family has relaxed spiritual prevailing economic value, solidarity and stopped working due to an oversight cooperation and family integration.

On the contrary no shared values (irresponsibility, dishonesty, slavery, discrimination, intolerance among others) affect directly and indirectly the dignity in the individual scope and collectively referred to humans share and socialize.

One aspect is more social culture, we take through generations and other communities, however we are very creative and resourceful by possible solution to give problems, as we have it, our culture is rich with a strong history that helps us in our social life and development.

Social order must be landed under compliance and obedience of legal norms enshrined in law, so is aimed at a particular place in an orderly manner, the family must adhere to various standards that will achieve their goals and stability which must be renewed every day and should be better.

Identity to our ideals, like son we identify with our parents and also with the community having a stronger link that identifies us with our families and the society in which we live, as we have more entrenched family characteristics we distinguished from others, we will have a better projection in development while retaining a familiar identity according the principles learned in the home.

### **The family role**

Is important to mention that since the person lives in the home family values are instilled and should raise awareness of legal compliance easier for acting outside the home and if it can be applied to most of the population will be positive for a good social life. day to day violence and crime in major cities such as Mexico increases, due to various factors why the origins or causes of it are studied.

According to the inter-ministerial committee for social prevention of violence and crime...

" Several factors influencing the problem of violence and crime , highlighting those conditions that increase the safety of people, both in the objective dimension as in the opinion.

**ADMINISTRATION**

Which contemplate different aspects : economic , social, cultural, urban including some evidence of this situation is seen in various national and international study of these messy , expansive and dispersed cities causing tensions and conflicts in the different sectors of the population growth; : concentration of population in conditions of inequality ( in income and wealth) in so-called " slums " , family and gender violence, vulnerability , exclusion and criminalization of youth , the loss of value and interest in formal education as a means of social advancement , training models linked to the culture of illegal behavior, and impact targeted by the migration effect and deportations of immigrants putting social pressure in border cities , among others ( Centro Nacional de Prevención del Delito y Participación Ciudadana, 2010) (SEGOB et al, 2013:18)

A mention from one of the factors is, family breakdown that caused an imbalance in society, the breakdown of values and widespread dehumanization has been as serious as violence and crime consequences, so if people use their characteristics improperly referred befall another situation. Therefore we can say that the main problem lies in the family and in compliance with a regulation and enforcement of securities.

"Marriage, the main source of family subsistence guaranteed and by its very nature must be permanent. Way can not be accepted for the same function of the marriage institution where the will of the parties is another, different from maintaining conjugal link throughout his life by the purpose of overcoming the contingencies that threaten life chances of maintaining this link. (Galindo, 2007:598)

Marriage is the core of this family and the society, both was very important for the development of the human being in a legal world that surrounds them accordingly to achieve their existential purpose institutions.

The function of the family in the society today is that both parents are involved in the labor force leaving it to the d -school education training their children to be integrated into a future society.

The social system depends on the human being must be integrated into a family... "Is present in social life.'s the oldest of human institutions and constitutes the key element for cooperation and functioning of society ..." (Chavez, 2004: XII) this being essential for the development of the community.

The family is born, grows over the years, full maturity is acquired and then comes death, and the works that we have to transcend our future generation's consequently resulting synergy in different families and in group social.

Family over time has undergone changes resulting from marriage, culture, within which are: assumes that the state welfare functions that are traditionally family as protection the elderly , sick , etc., in issue of sexuality and procreation, marriage is no longer the framework such as the practice of contraception, the incorporation of women in the workplace, which results in changes of roles in the work of households, ideology of family and marriage that become the will of the individual and the state , ceasing to be a natural and objective reality , as we have transformed both the roles and the aforementioned legal institutions. (Alfaro et al, 2004)

Marriage and family to be considered institutions who have a family, full of interest for the benefit of the family group marriage, become individualistic because each member fragmented legal rules at your convenience, if one spouse decides to divorce will not mind disintegrating family, provided benefit by out what to be considered an institution becomes a contract that can be terminated at any tempo gave causing a damage to the household and to society as consequence.

"The family and family law, says Valverde, currently represents only a historic moment of gradual development institution, despite the changes and transformations operated in its constitution and regime, despite its organization varies during the time, legal social institution that stubbornly retains its kind in every town and even in different variants and places deep differences persists constitution always familiar idea in an immaterial principle in essence that observed proclaims its sovereignty, its specialized nature and distinguishes concept. ( ... ) "(De Pina, 1993:303). " The family write Ruggiero - As a social organization that is based on nature and natural needs, such as sexual union, procreation, love, care, cooperation is not governed solely by the law, as in any other field influence as religion, custom, Before legal. The family is an ethical organization. (De Pina, 1993:304-305)

According to the above family result is a social need for human beings to achieve its fine in a comprehensive manner, of all the people that comprise it. Although each company has different families all the essence is the same.

Can also say that it is an ethical institution, which should instill values to their members, such as responsibility, honesty, and these should be reinforced in schools for application in society.

"The family is considered by writers as an essentially ethical institution placed under the rule of law for their protection, in this case the right comes in morale support to make it effective in its applications and practices. (De Pina, 1993 p. 305).

A family practice and instills values such as responsibility, honesty, justice, to name a few and having education will be an important for society to achieve an exemplary coexistence and general well-being factor.

### **Current family situation.**

Over time, the family has been dynamic, but the ethical aspect prevails therein, in which the values are inculcated.

Apart from this sociological historical distinction, it should be noted that both the old gentile family in the modern home as the family notions relationship, solidarity and affection appear in a consistent manner across the various stages of family development, development comprising thousands of years. On them rested the legal structure and organization of the family group from its earliest beginnings to the present day ( ... )

( ... ) It should be noted that both the primitive totemic family and gentile family prehistoric and Roman domestic family exhibit a characteristic of accused religious order clearly very revolutionized stages of family and incorporated as a key element in the structure modern family.

Joins the data as an ethical principle where lie the duties and powers that the law imposes on household members. (Diccionario Jurídico Mexicano. 1985:197)

It is noteworthy that the religious respect was and is important for a family, as their beliefs help to transcend life, and serves as a check on our emotional impulses, and that religions contain values that help in the proper family behavior social, coupled with this ethical aspect helps us the good performance of the same values and doing the yt person as a result of the family must be imbued with these values and ethical principles daily.

Importantly, "the family is an institution that has been defined in many different ways, for example it has been considered as the first human institution, or as the natural and necessary unit of society, as well as the core of any social organization or the environment in which the individual achieves their physical, psychic and social development ..., has been designated as the institution CYOS members relate to rights, duties and obligations reciprocal ( Baqueiro Buenrostro , 2009:3 )

In the family are acquired rights, duties and obligations not forgotten the matter is ethical aspect fundamental family. Was also considered as an institution in which its members must comply with the duties and obligations as financial support to children, providing food, respect, etc. . These duties and obligations to be met with adherence to the values and ethical conduct.

As already stated in the family must be a claim of principles and behaviors that help the smooth running of society itself.

"The family (... ) Must progress as you progress society has changed along with society. Before the same has happened is the product of the social system and culture reflect your system , having improved the monogamous family since the early civilization and a remarkable way in modern times s is able to continue perfecting until it reaches the gender equality " Engels , 1993:77 )

It is noteworthy that there are three types of family home, consisting of nuclear conjugal couples with children, or one parent and children, extended family households of some compounds and also the core and other members, others are that have nothing to do with the relationship of the household head , according to INEGI percentage occupied is:

The manifestation of unequal power and roles between men and women in society, is expressed as gender-based violence in which it can be exercised by the various contexts of social life 10 (10 Performance Report Programmed of Action of the International Conference on population and Development from 1994 to 2009 . gender equality Chapter V ) , the home environment is not exempt from this. In this sense women 15 or attached as part of family homes , three in ten (29.9 %) reported having had at least one episode of violence by an intimate partner in the 12 months preceding the interview, emotional type was reported as the most common , as 85% of these women reported having had this type of aggression , followed by those who reported economic violence (57.5 % ) , physical (14.7 %) and ultimately the events of sexual (9.4 % ) also suffer the kind of violence may have specified recipe violence (INEGI, 2013: 3:9 )

Definitely decisions in Mexican homes rests with the man even though there both spouses, but the woman if one parent prevails, women have increasingly greater participation in professional life, a career studies, which many cases was the man who performed in accordance with the following percentages can be observed both in the economic aspect as family violence.

The increased participation of women in economic, political and cultural aspects is reflected in its presence as heads of households to which they belong, hence 22.3% of total familiar were headed households, even though most of households (77%) male heads prevail.

Stresses that in households consisting of one parent and the percentage of children that are headed by women is predominant 86.7 percent.

According to survey data, it must be more than half (58.6 %) of women aged 15 and over who reported having experienced violence also reported being beaten as a child by the people living in that time, of the other side emotional violence victims indicated that 36% received insults and humiliation during his childhood by any member of your family of origin, (INEGI, 2013:100).

As we can see over time the society has undergone changes, and all above are reflected in the family. The impact caused the globalizing effect of states has resulted in the adoption of different customs in countries yielding results in a loss of national identity and often a dehumanization of people, members of a community.

“The experiences of women within marriage are intimately linked to the type of relationship they have with their spouse ( ... ) given the conditions in which they were formed, the family, most often women assume their economic dependence becoming primarily a housewife, this also leads to economic inferiority subordination male authority, which makes them more vulnerable to attack by his spouse” (Bronfman, 2003:218)

Not only the economic aspect is important in the family but the values should be practiced at home and transmitted from generation to generation and from society to society, to the extent that this occurs, we will be exemplary people for the world in which their population grows increasingly. The medical materials are important as they serve to sustain the family and meeting needs, moral principles must prevail over them, it is important that families know administered and the household economy and coping with all the union prevails and family outreach.

The human cost proceeds of crime and violence is a wake-up call to our country, if we consider that we have a predominantly young population, according to figures from the UNAM number more than seven million young people who neither study nor work called "Ninis" (Gil, 2010). Among this population, the possibility of starring or being a victim of violence worsens significantly; this must be the lack of opportunities for career development, access to quality education, outreach recreation spaces and development of a healthy community life. Additionally, to the detriment of the situation, the consumption of drugs and alcohol, even among children is increasing. The challenge is directed primarily to demographic dividend: young.

Young people who are in such situations are more likely to claim search forms of individual and collective identity, often transgress the rules, as is the case for many gangs in cities.

This sharpens the social stigma and often carried exclusively punitive policies that exacerbate the boys in the isolation and rejection of society, while they tend to lead to more of them, either individually and collectively, to forms clearly criminal behavior often linked to organized crime. (Luke, 2005).

In misfortune hear in the media that insecurity and violence in the country continues and has even increased, some years ago organized crime was not as mentioned but is increasing, for instance a person who was assaulted, not you causing injuries to his person, but now becomes to private life, to which there is a lack of control in the society, but if we attack the evil at its source, the family home, with the promotion of values, national identity, as Civics instill values education. We believe this can help with various activities involving members of the family, such as singing the National Anthem, events in which to remember our national heroes, respect for family members, cooperative work, events so that our traditions are practiced.

Note that not only the family should inculcate the values and practice activities to which we have referred, but also in educational institutions should be strengthened or reaffirmed, in pursuit of a common good and that each member of it develop fully.

### **According to the above we can conclude:**

The person possesses body, psyche, self, agency, freedom, intellect and sociability which make it a special, extraordinary and unique being, with such characteristics humans achieve their goals develop in society and the family.

Man has dignity and it is that being human does have rights that are owed respect and to that extent can achieve their self-realization fully.

Humans should be aware of family problems and apply the values to achieve their existential throughout your life purpose; you must have a vision for the future of their role within the family.

Idiosyncrasies in humans are a way of thinking that as it is, so looking idiosyncrasies should be constructive and improvement and thus achieve a better development in the family.

Spirituality as an approach to believe in someone, and faith could be to feel better on the inside, should not be forgotten in the family now and we must always live with it.

Social culture, we took from generation to generation and from other communities have a strong history that shows us the social life in general and our development somehow.

A social order that must be landed under compliance and obedience of legal norms enshrined in law, that order is dynamic and is aimed at a particular place with which the family will serve its purpose for the immediate future and next.

Identity to our ideals identifies us with our families and society we live in as we have more entrenched family characteristics that distinguish us from others, we will have a better projection in our development.

Aspect to highlight that bring family disintegration, is violence between members of the same, unfortunately women and children are the most vulnerable to suffer it, according to the INEGI statistics , the percentage is higher .

It has been argued that families have conjugal partner and children, in which one spouse is dedicated to the home and another to work , can have a positive family integration and compliance purposes .

to the extent that they are instilled values such as respect , loyalty , justice, among others, in the family 's children , better living in society are achieved and consequently the reduction of crime , and we hope to open a door for the reader aware of the importance of a future return to the practice of values.

The role of the family in society today is that both parents are involved in the labor force leaving it to the school education training their children to be integrated into a future society.

According to the arguments developed in this research, we hope to have a comprehensive manner externalized the importance of family unity and values and publicize what we are living, to improve our future, correcting faults, in search of a next best social coexistence.

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## **Competitive advantages of companies**

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Competitiveness is the theme in the business world. It is the Most important thing to company must Overcome today if you want to succeed in the future. The modern company Should be able to meet the challenge of the tough competition of the globalized market. Today Mexican industry you experienced the loss of Competitiveness, According to the World Economic Forum (WEF), and "Business Competitiveness Index 2012 ", so it is Necessary to study why?, This phenomenon has-been submitted and we must do to reverse it, in this study we want Those to highlight variables or That factors make a successful business Competitiveness, and propose to Mexican SMEs and Especially of the town, the adoption That of the variables May develop, leading them to a new horizon of possibilities, to break Existing paradigms and serve as a source of new ways of doing things, for Which the management of knowledge, expertise and direct to save with the competitive factors will be critical to Achieve Competitiveness in the recovery the regional industry.

### **Competitiveness, Factors, Management, Knowledge, Specialization.**

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**Introduction**

Speaking of the term "competitiveness generally associate the company, as both the competitiveness of an economy as an industry will depend on the ability to compete for their business, which is, ultimately, produce and market goods and services and waging competitive battles. Thus, the large number of studies conducted to study and analyze the improvement of business competitiveness and its major determinants is not accidental, since the creation of jobs, wealth and prosperity of a country will depend largely on the competitiveness their companies.

In addition, the companies can not be outside the surrounding environment, characterized by increasing competition, uncertainty and turbulence. The changes that are occurring in this environment, among which we can highlight the progressive globalization of markets, reducing life cycle of products, increasingly rapid technological change and the constant changes in the securities purchase customers, which translates into companies face greater competitive intensity, appearing therefore the primary objective of continuous improvement of its competitiveness.

**Background.**

The industry of the country, within the national economy has played a role other Cundo importantly global economic models have been merged and commercial treaties have emerged that have released national trade, and therefore penetration foreign companies to our country more competitive by the most economic, which have more modern technology.

Which hold a comparative advantage that even today the SMEs in our country have not assimilated, and for that reason the competition has become very aggressive, and pretend to be in similar circumstances by the Mexican industry has been difficult, and in this context to know the factors of competitiveness drives us to delve into them for proper application and implementation to recover competitiveness in industries Hermosillo (Espinoza , 2012).

**Business Competitiveness:**

Daily hear phrases like "we need more competitive enterprises," The word business competitiveness seems invade through newspaper articles, radio messages and television, hear it in the speeches of political leaders, and corporate events in academic spaces, what is business competitiveness?

Speaking of competitiveness, we talk about competitive advantage, those factors that make the difference in a company that will allow other businesses to beat competitors, even if their products or services (Porter, 2007).

**General Purpose**

Deepen your knowledge of drivers of competitiveness for successful adaptation and implementation within SMEs Hermosillenses and thus achieve competitive sector recovery.

That the factors of competitiveness provide the necessary tools to deal with trade liberalization.

Make strategic detection solutions that enable SMEs to achieve the level of competitiveness required to stay, grow and develop in the market.

### Research Problem

Faced with the problem of recovering the competitive level in SMEs and delimit this research, this question according to the model of Porter (Porter, 2007).

How SMEs located in Hermosillo factors of competitiveness indicators and how to implement knowledge management for recovery?

### Methodology

This research was largely obtained through library research by consulting books, magazines, websites, publications and involved in this issue at national and international agencies, and also relies on the different theories on the subject and opinions of authors in their research addressing different postulates of problems and proposed solutions.

### Justification

The results given us research on the factors generating business competitiveness can be implemented only when a culture of quality and strong continuous improvement aimed at systematization, ie aimed at a coordinated and disciplined effort of all members exist in the company and departments within an organization and the commitment of senior management.

From the model results presented Business Competitiveness, highlights the importance of ICE for SMEs in Hermosillo, which allow you to set that as research centers are linked in areas of Research and Development, Institutions and Public and Private Entities and Universities.

Around strengthening the ICE will be possible to gain competitive advantages in both internal and external of each company, allowing the development of new industries and clusters in non-traditional options for Hermosillo, Sonora.

**Industrial Competitiveness level (Level Business Competitiveness) = f (V1, V2, V3, V4, V5, V6, V7, V8, V9 and V10)**

V1: Business Strategy Planning (EPE),	V2: Organizational Strategy (EO)
V3: Management Strategy (EA)	V4: Competitiveness Strategy (EC),
V5: People challenged Strategy (RH),	V6: Production Strategy (EP)
V7: Strategy Technology (ET)	V8: Logistics Strategy (EL),
V9: Financial Strategy (EF),	V10: Marketing Strategy (MS).

### Conceptual Framework

#### Concepts

The other central variable of this study is competitiveness, it has been studied from different approaches resulting in a wide variety of concepts and measurement methodologies.

Competitiveness has been raised for various levels of the economy, international, country, city and of course at the level of industries and companies.

The OECD refers to the competitiveness of a country under conditions of free and fair markets can produce goods and services that exceed standards of international markets, which has to do with the specialization of the economy, technological innovation, quality distribution networks and location factors, ie.

Everything that contributes to the state of the production of goods and services (OECD, 2012).

The Mexican Institute for Competitiveness (IMCO) argues that competitiveness is the ability to attract and retain investment and talent. In his studies of competitiveness in cities, states that the ultimate goal is to ensure that they are not just a place where people have better living standards, but these cities are an attraction for businesses and skilled workers.

The Instituto Tecnológico de Estudios Superiores de Monterrey (ITESM) states that "the pillars of competitiveness should be shaped by factors which depend on the members of a society to achieve sustainable levels of welfare, which is the result of achieving levels of development based on productivity".

In Enterprise competitiveness indicators individually, the Organization and Development (OECD) Economic Cooperation provides:

Factors contributing to the microeconomic competitiveness are concern of the administrative and industrial economy. These disciplines use a variety of indicators (market share, profits, dividends, investment, etc.) To assess the competitiveness of enterprises. The concept of competitiveness is best understood at the level of the company, in the simplest terms, an unprofitable company is not competitive, in a model of perfect competition, a non-competitive firm is one with an average cost that exceeds the price market product offering, or the value of the resources that the company is using exceeds the value of the goods and services being produced (Fetridge, 1995).

In an industry with a homogeneous product, a signature may be unprofitable because its average cost is higher than the cost of its competitors. Its average cost may be higher than their competitors because their productivity is low, because it pays more for their inputs or both. Productivity can be lower because it is driven less efficiently operates some inefficient scales or both. Also, in terms of market share, a company can show a high or low competitiveness.

In an industry with differentiated products, a company can not be profitable, because the product offering is less attractive than their competitors. Thus, the level of the firm, profitability, cost, productivity and market share are all indicators of competitiveness.

The benefit is a sufficient indicator of competitiveness, but it is better as a long period. Market share can also be a sufficient indicator of competitiveness if the firm is maximizing its profits. Of course a company can be competitive in a market that is in decline, in which case, competitiveness does not guarantee future performance.

### **The challenge for the company: Increase Your Competitiveness**

To survive and thrive, companies in the business world, and with more emphasis SMEs, should be able to face competition from a global market, which makes it essential to establish policies, design strategies, though companies are facing more difficulties in implementing the strategies with their formulation (Jack Meredith, & Umit Akinc, 2011), but must create mechanisms that allow them effective and efficient programs and tools that enable improved productivity and become more competitive access.

To date, the theory of production operations management has lacked a production strategy for an important segment of the manufacturing industry. For general engineering equipment, a strategy of relatively recent production has emerged to better respond to the competitive pressures of today, to accelerate the delivery of more personalized products without increasing costs (Sascha Meskendahl, 2010).

In most SMEs aspects as improving quality and productivity, international marketing or working conditions are below desired standards due, in most cases, the proposals for improving these elements will require investments of resources (time, people, money) that SMEs can hardly assume.

Moreover, the globalization of the economy means business growth for the integration of productive chains, and increased international insertion strategies are difficult to accept this type of conservative companies.

### **Internal and external factors that determine the level of business competitiveness**

Corporate competitiveness of a company is determined by a large number of factors. This concept considers the presence of internal and external factors, internal factors such as the result of their own efforts, strategies and actions of each company. Among the internal factors are the quantity and quality of its machinery and equipment, the results indicate that technological capabilities improve relations between the orientation of quality and performance and cost orientation and performance respectively. The results suggest that the requirements of competitive strategy should be strategically combined into the company for maximum effect, and the skills and knowledge of employees.

Synergies between departments, the atmosphere of competition and cooperation, physical and technological infrastructure; The technology has long been the basis of business success and sustainable growth and negotiating power (Bernard Arogyaswamy, Waldemar & Koziol, 2010). Moreover, external factors have concerning those aspects associated with the place where the company is located, as determined by the influence of an environment of the industrial sector of the country, in other countries, making up the factors that the company has no control. (Macroeconomic variables) Among the uncontrollable external factors, we have: public policy, macroeconomic conditions in the country, legislation, infrastructure and education, among others.

The ability of a company to succeed in increasingly large, open and competitive markets must implement an effective marketing strategy if you do not have many studies is often criticized for the lack of conceptual, theoretical and empirical studies, account in the background for the effective implementation of a marketing strategy (Jacqueline Chimhanzia, Robert E. & Morgan, 2003).

Factors linked to the internal aspects of each company, its strategies, resources and capabilities. In general, for a given industrial sector, it can be seen that in the same territory coexist companies more and less competitive, a reality that can only be explained when we consider the internal factors of each company as well, it can be stated that the ability to a company to succeed in increasingly large, open and competitive markets depends mostly on herself.

Regarding the importance of internal factors of the company, are as determinants of competitiveness in recent years is being developed a conceptual framework called the theory of resources and capacities, which provides an overview of the company as a set of resources and capabilities, emphasizing the different characteristics of each company in relation to the other, the contribution of this theory is through the differential made between companies as a starting point (heterogeneity of resources) and the imperfect mobility of resources and sustained sources of income appropriated by firms (Ventura, 1994).

In addition to acting as a focus from which to observe and explain certain business strategies such as internationalization, diversification or certain functional strategies, perhaps the most important contribution of this theory is the relationship that is established between a company's resources and creating and sustaining competitive advantage. Indeed, from this perspective, it is investigating how the resources of the company are in the roots or sources of competitive advantage. However, not all resources are likely to generate sustainable competitive advantages, resources must be valuable, ie, should help meet environmental threats and seize opportunities, hence the importance of external strategic analysis.

Resources should be rare, as those possessed by a large number of competitors can not allow obtaining competitive advantages. Consequently to be durable competitive advantage, resources that supported the company must be difficult to imitate by competitors, this aspect influencing factors such as the history of the company (as the accumulation of some resources requires a long period of time), social complexity linked to the operation and development of certain skills, and causal ambiguity.

The latter term referring to the uncertainty about the causes for obtaining a particular competitive advantage, resulting in a uncertain imitation by competitors.

Another attribute is the fact that the company holds certain organizational aspects, such as organizational structure and corporate culture itself, in order to exploit the full competitive potential of its resources and capabilities.

Moreover, from the theory of resources and capacities, is often provided their classification distinguishing between tangible resources (physical and financial) and intangible or invisible resources such as commercial capital (reputation, prestige, brand image, loyalty customers), human capital (training, motivation, skills, experience and expertise of staff), organizational capital (organizational structure, corporate culture, management style, selection of suitable suppliers in the management strategy of the supply chain is a difficult question because it requires the systems of evaluation criteria, attributes, which are characterized by complexity, transience and uncertainty in nature, and customers), and technological capital (know-how, domain technologies, innovation ).

These intangibles are not usually found in the balance sheet of the company, to be difficult to identify and assess, but it presented a greater extent the above attributes, being therefore the most suitable for generating and sustaining competitive advantage (B Jui Hsiang Chiang, Lawrence W. Lan & 2010).

Tangible factors correspond to the visible part of the iceberg, resulting easier to imitate, so that, although they continue to be necessary, are not sufficient for success, for its part, intangibles are less visible business components, by providing greater opportunities endure those distinctive skills acquired over time are internalized by the company.

Moreover, the importance of intangibles is being strengthened with the changing business environment. Indeed, globalization, along with the segmentation of the market and the demand for increasingly customized products by customers, are causing a tilt the balance towards competition through differentiation. Thus, the advantages of differentiation tend to be more durable because the resources on which they rest are mainly intangible. Ultimately, the changing business environment is raising the importance of intangibles, as there is a growing need to provide competitive advantages linked to differentiation, which are supported, as we have seen, this type of resources (Alba, 1993).

It is vital to take into account the results of empirical studies on the relationship between organizational characteristics and innovation from 1990 to 2009, and compared with the results of the quantitative integration of similar studies from 1967 to 1988.

Coupling of the results of the two sets of studies, it was found that the direction and importance of seven outstanding influence determinants innovation remains the same time on. Specialization, complexity, knowledge resources, external and internal communication, professionalism and attitude toward change, positively affect innovation. We also found that the phases of the innovation process and the types of innovations do not significantly affect the relative determinant of innovation.

More generally, our analysis indicates that the research focus on the structuring of innovation has shifted from mechanical to organic ambidextrous structure.

Therefore, we propose the following directions for future research: (1) strategic and operational integration of dual structures in ambidextrous organizations, (2) development of theoretical models of the compound effects of the types of innovation performance organization, and (3) the longitudinal examination of performance consequences of innovation (Handbook of Organizational Creativity, 2012).

### **Analysis and discussion of data**

#### **Correlation analysis: Pearson correlation coefficient (r)**

This coefficient is a statistical test to analyze the relationship between two variables, measured interval-or ratio level. Indicates more accurately when two variables are correlated, ie how far the change in a variable affects the variation of other correlated variable. Their correlation values may vary from + 1.00, and is called perfect positive correlation, and if its value is zero correlation means complete independence or correlation, or if the value is up to - 1.00, is called negative correlation.

With the data obtained, how they are correlated to each other all the variables are determined considering the Pearson correlation coefficient. The results are shown and discussed below:

V A R. I C E	EP	EO	EA	EC	ERH	EP	ET	EL	EF	EM	ICE
EP	1										
EO	.821*	1									
EA	.207	-.21	1								
EC	.068	.099	.344	1							
ERH	.454	-.238	.754*	.302	1						
EP	.806*	-.410	.400	.214	.781*	1					
ET	.532	-.388	.364	.607	.434	.500	1				
EL	.565	-.214	.426	.512	.791*	.799*	.799*				
EF	.509	-.279	.632	.620	.487	.529	.761*	1			
EM	.596	-.285	.246	.367	.199	.499	.468	.374	1		
ICE	.687*	-.319	.592	.463	.861*	.934*	.872*	.695*	.714	.442	1

**Table 1**

\* Correlation is significant at the 0.01 level (2-tailed)  
Correlation is significant at the 0.05 level (2-tailed).

The ten independent variables considered in this investigation and nine have an average high in relation to the level of ICE (dependent variable) of each municipality and therefore of the region and the HR strategy (ERH), production strategy (EP), strategy (ET) technology, logistics strategy (EL), and finance strategy (EF) have the highest values  $r = .861$   $r^2 = .741$ ,  $r = .934$   $r^2 = .872$ ,  $r = .695$ ,  $r = .913$   $r^2 = .483$ ,  $r = .714$  and  $r^2 = .509$  respectively, while the strategic business planning strategy (PEE), Management strategy (EA).

Competitiveness Strategy (EC), and strategy marketing (EM) have average values  $r = r^2 .647 .471$ ,  $r^2 = .592$   $r = .350$ ,  $r^2 = .463$   $r = .214$ ,  $r = .442$  and  $r^2 = .195$  and only organizational strategy (EO) has low values in their relationship with ICE  $r = -.319$   $r^2 = .101$ , this is illustrated in Table 4 and 5.

**Coefficient of determination (r 2)**

The coefficient of determination is the square of the correlation coefficient (r2) and its value represents the proportion of the variation in the dependent variable "Y" that is explained by the independent variable "X" and the results indicate the variance of common factors. Then the following matrix presents the variables:

V A R. I C E	EP	EO	EA	EC	ERH	EP	ET	EL	EF	EM	ICE
EP	.4	.1	.3	.2	.7	.5	.4	.3	.6	.4	.8
EO	.1	1	.2	.1	.2	.3	.3	.2	.4	.2	.1
EA	.3	.2	1	.4	.6	.4	.3	.4	.2	.2	.5
EC	.2	.1	.4	1	.5	.4	.3	.4	.2	.2	.5
ERH	.7	.2	.6	.5	1	.7	.6	.5	.4	.4	.8
EP	.5	.3	.4	.4	.7	1	.8	.7	.6	.6	.9
ET	.4	.3	.3	.3	.6	.8	1	.7	.6	.6	.8
EL	.3	.2	.4	.4	.5	.7	.6	1	.4	.4	.7
EF	.6	.4	.2	.2	.4	.6	.6	.4	1	.4	.7
EM	.4	.2	.2	.2	.4	.6	.6	.4	.4	1	.7
ICE	.8	.1	.5	.5	.8	.9	.8	.7	.6	.6	1

**Table 2**

In agreement with the results obtained are considered high, the following variables: human resource strategy with  $r^2 = 0.741$ , planning strategy with  $r^2 = 0.872$  and logistics strategy with  $r^2 = 0.833$ .

Since the results obtained from this research the possibility of contributing to knowledge management as a means driver of competitiveness by generating new forms and ways of doing things that are kept steadily at a competitive upline towards recovery stands sector (Espinoza, 2012).



## Conclusions

SMEs in Hermosillo, Sonora, Mexico, are in a process of adaptation to the challenges of a globalized world and constantly changing, open market economies, by the free flow of capital and constant progress of technology and the presence of foreign companies who venture into our territory, introduce tough competition and a challenge to be addressed to avoid being out of market, local companies have to strengthen their competitive advantages to companies with strong brand recognition, this forces Mexican looking to become more competitive by improving their chords organizational structure our time, with over continuous training to its staff, it industries, is capable of generating added value to their work and adopting strategies to strengthen their performance in the market.

There are factors that are generating competitive enterprises specific areas in which industries emphasize the achievement of objectives, and in which the search for possibilities of improvement has become a constant, all the factors of competitiveness, make models, methods and procedures in the industry, are adapted to the objectives and the downsizing of the competitive capabilities of Hermosillenses industries.

## Recommendations

In search of a model of relevance is more competitive organization seeking strategies used by successful companies, such as those outlined in this paper, first the strategies of greater weight and value are recommended to be taken, such as strategies related to resource human, of production, logistics, procurement strategies of new technologies.

The strategies related to the management of financial resources and secondly strategies mean business strategies, corporate strategic

planning, those of administration, of competitiveness strategies related to search marketing and specialization, these strategies can be adopted by the industry after conducting an analysis of their strengths, weaknesses, opportunities and threats (SWOT) of the current situation where is the organization for proper redefinition of the objectives and implementation of more proactive corrective measures, and work within the reality of what they have and how they can be used in the best way, so that generate added value strategies, while steadily forward in the integration and combination of material, intellectual and financial resources to achieve effective positioning resources.

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Title

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Contribution

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General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

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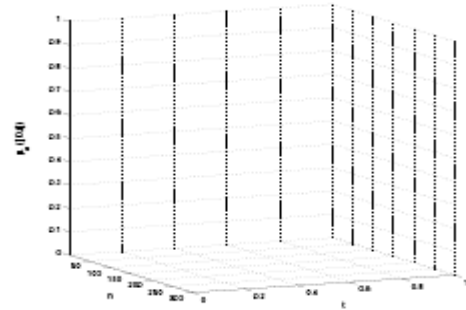
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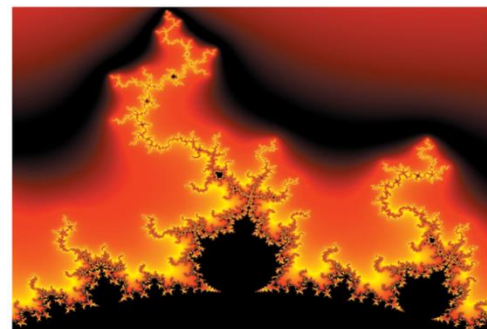
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Explain clearly the results and possibilities of improvement.

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