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Structure, strategies and market power of Genomma Lab: study case

Estructura, estrategias y poder de mercado de Genomma Lab: caso de estudio

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Abstract

In the present research work the subject of the structure, strategies and market power of Genomma Lab was addressed, so a descriptive and explanatory study was carried out describing the concepts related to the aforementioned elements and explaining the indexes of Herfindahl -Hirschman (IHH) and Pascual. The methodology used is the application of the indices which are a measure of the level of concentration existing in an industry. The IHH index is the sum of the square of the market shares of the different companies that operate in an industry. This is to delimit the Mexican pharmaceutical industry in a market structure. In the main results, it was identified that Genomma is a diversified company, that takes the best of each company and potentiates it, for that reason it fits in the majority of the models, since it is forced to act like monopoly, that is why in the Year 2012 was obtained in the index of IHH 0.01690 and in the Paschal index 0.00127, which is why it is the most representative of the companies, followed by Bayer with 0.0086 and 0.00033 respectively. In addition, you get the instability index is 0.0235 small, which means that market share has changed very little, all three indices show that the market is quite competitive, regardless of the number of companies.

Resumen

En el presente trabajo de investigación se abordó el tema de la estructura, estrategias y poder del mercado de Genomma Lab, para lo que se realizó un estudio descriptivo y explicativo donde se describen los conceptos relacionados con los elementos antes mencionados y se exploran los índices de Herfindahl-Hirschman (IHH) y Pascual. La metodología que se utilizó es la aplicación de los índices los cuales son una medida del nivel de concentración existente en una industria. El índice IHH es la suma del cuadrado de las cuotas de mercado de las distintas empresas que operan en una industria y se ha aplicado para delimitar a la industria farmacéutica mexicana en una estructura de mercado. En los resultados principales se identificó que Genomma es una empresa diversificada, que toma lo mejor de cada empresa y lo potencializa. Por esta razón encaja en la mayoría de los modelos, ya que se ve obligada a actuar como monopolio. En un estudio llevado a cabo en el año 2012 esta empresa obtuvo en el índice de IHH 0.01690 y en el índice Pascual 0.00127, ubicándola dentro del liderazgo representativo del sector empresarial, seguida de Bayer con 0.0086 y 0.00033 respectivamente. Por su parte, el índice de inestabilidad se ubicó en 0.0235, lo que significa que la participación de mercado ha cambiado muy poco. Los tres índices aplicados demuestran que el mercado es bastante competitivo, sin importar el número de empresas.

Keywords | Palabras clave

Market concentration, strategy, Herfindahl-Hirschman index, Pascual index, pharmaceutical industry, instability.
Concentración de mercado, estrategia, índice Herfindahl-Hirschman, índice Pascual, Industria farmacéutica, inestabilidad.

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Introduction

The pharmaceutical industry for its importance as well as responsibility manifests itself as an industry of constant innovation, Is dedicated in many respects to research and technological development, it is not uncommon to hear about the patent for a medicine, it is precisely the degree of innovation that causes these companies to need a lot of investment, it is estimated that each medicine requires 10 years of research and 600 million dollars of investment in average (Esquivel, 2013). Precisely because of this economic barrier, it becomes a highly lucrative sector and totally dominated by some companies originating in highly developed countries, the so-called transnational corporations, but it is precisely the investment capacity of these companies which provoke that, although few, these compete strongly for the market.

The large costs of laboratories cause countries like Mexico to support alternatives such as interchangeable generic drugs that are intended for low-income families and thus are able to acquire them. This is a strategy to cause patent companies to lower their costs or generate Its own generics, although the share of these was not significant until 2007, when it obtained a 4.9% share of sales in Mexico (CANIFARMA, 2012).

Mexico, is one of the countries with the main markets for health goods, represents 0.5% of the national GDP, in manufacturing activity represents 2.7% of the Gross Domestic Product of the Mexican economy, as well as Fourth in the manufacturing sector (INEGI, 2014).

The origins of the chemical pharmaceutical industry in Mexico were in the 19th century, thanks to Don Leopoldo Rio de Loza, he began the production of various chemical products in the country, at the end of the century and beginning of the twentieth century great discoveries were generated, such as Vaccines, aspirin, sulfa drugs and penicillin. The great demand of these products provoked the pharmaceutics at a industrial level, appearing important companies like Schering, Merck, Bristol, Stering, Roche, companies that after some time began their production in Mexico.

The pharmaceutical industry is one of the industries that require more preparation; the jobs of this industry are composed of about 30% by personnel with masters and doctorates. The investment in Mexico of the industry grows, currently has 130 plants, generates 80 thousand direct jobs and 300 thousand indirect jobs, which makes it the first pole of development of the industry in Latin America (CANIFARMA, 2012).

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Mexico is the second Organization for Economic Cooperation and Development (OECD) country with the highest percentage of total expenditure on medicines A worrying situation, Mexico is a cheap labor market for developed countries, but very little is actually produced. This market will be a booming market in the long term due to the reverse situation of the population pyramid, where most people will be elderly and will need many medicines to survive

In general, the drugs are divided into controlled and over-the-counter (OTC). This according to the prescription. The first are those drugs that need to be prescribed by a doctor and used for the treatment of strong diseases, while the second drugs are intended for the relief, treatment or prevention of minor conditions and have been authorized for sale without a prescription (Pérez, 2013). As discussed below, we will focus on prescription free drugs.

Companies in the market apply different strategies to increase their participation in it, previously companies followed a paradigm, which is now known as the old paradigm of the industrial organization called structure-behavior-performance, main contribution of the organization's economy (Vargas-Hernández, 2014), which was based on the economic assumption that all supply creates its own demand, the structure refers to the structural attributes of the industry, such as entry and exit costs. Behavior, the actions of the company as product differentiation and performance that is the result of the behavior of the firm in response to the structure of the company.

All markets move between perfect competition and monopoly, knowing where they are is a very complicated situation, since all companies are different in all respects, that is why merger measures arose, to be able to measure the quantity of the market that a company owns. . Because if a company has market power, it provokes that efficiency (both dynamic and static) decreases considerably, as it induces decreases in consumer surplus, which is not offset by any decrease in any other surplus, thus causing loss of efficiency (Cabral, 1997).

The following points can be considered in order to determine the competence of the companies, regardless of their turn or activity (Hall and Tideman, 1967; Hannah and Kay, 1977):

1. The rates vary from 0 to 1, being 0 perfect competition and 1 monopoly.
2. There are main concentration rates.

Lerner (1934) describes the market control of a company by the following formula:

$$L = \frac{P - C}{L}$$

Where:
P=price
C=cost

Entropy: provides the degree of concentration of a market through the degree of uncertainty among competitors, is generated from the sum of market shares multiplied by their logarithms.

$$IE = \sum_{i=1}^{n} q_i \log(q_i)$$

Where:
qi = quantity
n = number of companies
i = generating unit

1. The Herfindahl index known as H this index is very similar to the already popular index of concentration that consists of:

$$C_k = \sum_{\substack{i=1 \\ n}}^{k} S_i$$

Where:
S_i = Market demand of the company, companies from small to large.
The small variation of the H index

$$H = \sum_{i=1}^{n} S_i^2$$

Where:
S_i^2= = Market share of the Company i

Due to their similarity there is a strong correlation between both, although C is widely used due to its ease in calculating it.

2. Pascual

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The paschal index is a modification of the H index as it measures the concentration measured through H.

$$p = \sum_{i=1}^{n} \left(\frac{S_i^2}{H}\right)^2$$

Where:
S^2_i= = Market share of the Company i
H= concentration index

This makes P an index of concentration of the concentration. This variation was due to the deficiencies that the H index has to measure the concentration when there are mergers, since it punish them regardless of how they are. Because the merger of two small companies does not alter the market composition very much, the P index would not punish that merger, as it depends on the relative size of the companies. Leaving space to think that mergers are not always bad, they do not necessarily reduce well-being. . For purposes of this document it would be ideal to work with Pascual, but unfortunately the choice of a good concentration index does not guarantee a good calculation of this, since concentration rates present problems such as the following (Antelo, 1995):

A. The existence of Holdings
B. Level of Aggregation
C. They are static measures

For these reasons volatility measures were created, with these measures the degree of competition of companies over time can be known. The most known volatility measure is the instability index.

$$I = \frac{1}{2}\sum_{i=1}^{n} |S_{2i} - S_{1i}|$$

Where:
S_{2i}, S_{1i} Are the market shares of company i in the 2 periods
N Total number of companies
If the value of I is 0 it means that the companies maintained their market share. I = 1 means that in the second period of time companies have a zero market share.

Genomma is a leading company in its field in Mexico. It is a 100% Mexican company located in 19 countries outside Mexico, where 65% of its total sales are concentrated, with Mexico being the largest share with 35% (Genoma Lab, 2011). Was founded in 1996 as a direct consumer advertising company, later in 2004 changed its business strategy, with the development of OTC medicines and other personal care products, as well as the creation of its own line of generic medicines. In 2008, Genomma was listed on the Mexican Stock Exchange for the first time. In a short time, Genomma has become Mexico's number one manufacturing and distribution company, increasing its market share to 19.2% in 2015 (Genomma Lab, 2015).

At present it has 88 brands of different products for personal care and health, within the companies of the same activity are Bayer AG, Pisa, Procter & Gamble, Nestlé, Johnson & Johnson, Wyeth, Colgate-Palmolive of Mexico, S.A. Of C.V., P, among others. Bayer is one of its main competitors, as can be seen in chart 1, which shows the sales revenues corresponding to each of them for three years.

Chart1. Annual sales revenue

Year	Genomma (In thousands of Mexican Pesos)	Bayer AG (In millions of Euros)
2015	11,042,452	46,324
2014	11,540,998	41,339
2013	11,360,689	40,157
2012	9,790,690	39,741
2011	8,056,300	36,528

Source: Own elaboration based on annual reports of Genomma Lab and Bayer AG (2015, 2014 and 2013)

Based on the above, the research question is asked: How do the market structure of the industry and Genomma's strategies affect the market concentration and reach of the company?

Material and methods

Interdependence assumes that the profits of each of the companies depend not only on their decisions but also on the actions taken by their rivals, companies compete in prices or quantities, although they have other possibilities such as technology etc. As can be seen in Chart 2 there are the assumptions of market structures.

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Chart 2. *Assumption of market structures*

Model	Assumptions	
Cournot	• Companies make decisions simultaneously. • The product of the companies is homogeneous • The single market price results from the aggregate supply of the company	• The strategic variable manipulated by each company is the quantity produced. • The quantities are chosen simultaneously • The profit of each company is a function of the quantity produced by that company and the market price • Market equilibrium is given.
Bertrand	• Companies make decisions simultaneously. • The product of the companies is homogeneous • Each company establishes a profit maximizing price	• The strategic variable manipulated by each company is the produced price.
Stackelberg	• Two competing companies; Leader and follower. • Produce the same good • Decision making is sequential. • The follower company behaves like Cournot. • The leading company knows that the other behaves like Cournot.	• The leading company chooses the amount to produce, leaves the market share it wants to their competition. • It's a two-period model.
Collusion	• The companies agree to act in a coordinated way.	• They both can agree the price and the quantity • They can share the market • Fix the price and allow the existence of competition. • The main problem of the agreements is that they are very unstable
Dominant company	• A large company has a large proportion of the market. • Fixes the price	• Small companies behave as price accepting
Chamberlin	• Differentiated products or perfect substitutes • High cross elasticity • No entry barrier	• The companies differentiate their products to be able to sell them, with strategies of publicity, image, etc.

Source: Own elaboration based on authors Cournot, Bertrand, Stachelberg and Chamberlin.

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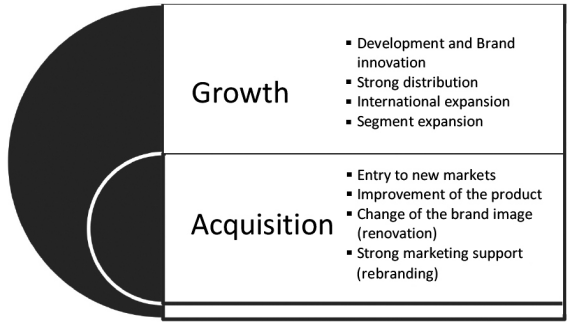
The strategy of growth of the company in the coming years will focus on generating as well as acquiring new products to increase its market share. These strategies are based by the company on two factors as can be seen in figure 1.

Figure 1. Basis of Genomma Lab strategies (2013)



Source: own elaboration

This strategy began around 2009 and is the one that has led the company to be the number 1 company in Mexico,it is very careful that the companies that it is acquiring comply with a series of guidelines and procedures as shown in chart 3 (Genomma Lab, 2013).

Chart 3. Genomma Lab Guidelines and Procedures

Guidelines	Procedures
The product is positioned in the consumer's mind	Product Improvement
The product adapts to the working model of the Company	Image Renewal
The product has an attractive price	Creating a new campaign
	Product relaunch

Source: own elaboration

Analysis and results

One of the most important strategies used by Genomma is derived from various agreements with different television networks, its great negotiation capacity, as well as its adaptability and reaction to changes in the

consumer, since it has more than 700 products scattered in 88 Brands. It is a unique company to maintain an annual growth of 30.4%, is a privileged company since it has a distribution network with more than 43,000 points of sale in Mexico and 104,000 international points, although it markets in Mexico more than 58.2% of its production.

Its fundamental success is based on its 5 primary principles that are:

1. Development of unique products and great capacity for innovation.
2. Differentiated Business Model
3. Marketing and own advertising.
4. Portfolio conformed by leading brands.
5. Quick action on market trends

The organization has a great variety of products in the market, and the market share in Mexico of each of them is high as can be seen in chart 4, which contains the most important medicines with greater market share of this company.

Chart 4. Participation and market positioning

Brand	Position	Market share
Medicasp	1	70%
Asepxia	1	68%
Unesia	1	55%
Nikson	1	53%
X Ray Caps	1	49%
Genoprazol	1	40%
Dalay	1	38%
Goicotabs	1	31%
Bengue	1	25%
Lomecan Crema	1	21%
Next	1	20%

Source: Genoma Lab (2011), sustainability report

As evidenced by the chart above, Genomma Lab has the largest market share in each and every one of them, but for teaching purposes, the

categories of Over the counter products, known as OTC, which encompass all the aforementioned products, were selected.

With the above data, we calculate the Herfindahl-Hirschman and Pascual indexes for 2012, as well as the Instability index for the years 2011-2012. Genomma identifies the following laboratories as its competitors, although its strategic group is much smaller since the only company that really competes with Genomma in this sector of the market is Bayer (see Chart 5).

Chart 5. Comparison of Indexes (IHH - Pascual)

Company	2012	H	P
Genomma	13%	0.01690	0.00127425
Bayer	9%	0.008649	0.00033374
Boehringer	7%	0.004356	8.4656E-05
Sanofi	6%	0.003969	7.0282E-05
Sp-Chc	6%	0.003364	5.0489E-05
Nestle	4%	0.001444	9.3029E-06
Pisa	4%	0.001444	9.3029E-06
Procter-Gamble	4%	0.001369	8.3616E-06
Bms-Sm	4%	0.001296	7.4936E-06
Wyeth-Consumo	3%	0.001089	5.291E-06
Other	41%	0.167281	0.12484634
		0.211161	0.12669951

Source: own elaboration

As can be seen in chart 6, the pharmaceutical industry is very stable, the instability index for each of the companies is very close to 0%, indicating that the movements in this industry are practically zero, so the total index Is 0.023, nothing significant.

For teaching purposes, simulations are carried out to check the punishment capacity of the indexes (see chart 7).

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Chart 7. Punishment capacity of the indexes (IHH - Pascual). Simulation 1

Company	2012	H	P
Genomma			
Bayer			
Boehringer	0.29	0.083521	0.02634578
Sanofi	0.06	0.003969	5.9495E-05
Sp-Chc	0.06	0.003364	4.274E-05
Nestle	0.04	0.001444	7.8751E-06
Pisa	0.04	0.001444	7.8751E-06
Procter-Gamble	0.04	0.001369	7.0783E-06
Bms-Sm	0.04	0.001296	6.3435E-06
Wyeth-Consumo	0.03	0.001089	4.4789E-06
Other	0.41	0.167281	0.10568491
		0.264777	0.13216658

Source: own elaboration

In the previous simulation the companies with the largest market share merged, as one can see the reaction of the indexes is very low because each company individually has practically the same a market share, which should be noted is the index H goes from 0.21 to 0.26, giving a punishment result from the merger of .05, while P increases from 0.12 to 0.13 to 0.01. . The H index reacts much more than Pascual, because the former punishes any type of merger however minimal, however, Pascual punishes less because it is not taking much of the market share.

Chart 8. Punishment capacity of the indexes (IHH - Pascual). Simulation 2

Comapny	2012	H	P
Genomma	0.13	0.0169	0.00071829
Bayer	0.46	0.213444	0.11457615
Boehringer	0.066		
Sanofi	0.06		
Sp-Chc	0.06		
Nestle	0.04		

Comapny	2012	H	P
Pisa	0.04		
Procter-Gamble	0.04		
Bms-Sm	0.04		
Wyeth-Consumo	0.03		
Other	0.41	0.167281	0.07037519
		0.397625	0.18566962

Source: own elaboration

As can be seen in Chart 8, both indexes show the same punishment in the merger item, but the market is still in competition, because there are now two companies that are fighting hard for the market. And there are none that concentrate more than 70% so there is no monopoly.

Chart 9. Punishment capacity of the Indexes (IHH - Pascual). Simulation 3

Company	2012	H	P
Genomma	0.13	0.0169	0.00036827
Bayer	0.09		
Boehringer	0.066		
Sanofi	0.06		
Sp-Chc	0.06		
Nestle	0.04		
Pisa	0.04		
Procter-Gamble	0.04		
Bms-Sm	0.04		
Wyeth-Consumo	0.03		
Other	0.87	0.758641	0.74210927
		0.775541	0.74247754

Source: own elaboration

When granting a company with more than 50% of the market both indexes soar, which is why the merger is punished, denoting that the mar-

ket is highly monopolistic. In this case and with such an obvious merger is Pascual, the index that most punishes the merger with a 62% increase, while H only has 51%, because of these results it is shown that the punishment capacity of the indexes is completely different.

Discussion and conclusions

As can be observed in the obtained results, the instability indexes allow us to know how the market share of the pharmaceutical industry changes in each of the companies that constitute it, in this case the instability index is 0.0235 small as can be seen in Chart 5, which means that market share has changed very little, The three indexes show that the market is quite competitive, although few companies control it, it can be shown that they compete heavily, having very similar market shares; for example the Nestlé company has an index of instability of 0.0040, with an index of 0.0030 are Sanofi and Genomma, the one with the highest instability index is the Wyeth-Consumo 0.0065.

Being a stable industry the pharmaceutical industry presents strong barriers to entry, that is, only a few companies are in the market, but these few companies compete strongly for gaining market, buy other companies, although over time the change in market participation is not really significant. Genomma is a company that fits in almost all models of imperfect competition except collusion, due to the competitiveness of the market and the constant changes that the sector presents. It is a dominant company, with a very close competitor (Bayer), it offers differentiated products, besides competing with the price in its fight to get the preference of the consumer.

Genomma is a diversified company that takes the best of each company and potentiates it, which is why it fits in with most models as shown in chart 10, as it is forced to act as a monopoly. But in an overly competitive market where its market share is small compared to other companies in other sectors, but it is the small differences in market share that causes it to arduously compete. In addition to behaving as a dominant company as it is the leader of the sector and makes all other companies follow it, although it has a company that competes very close to it is Bayer, provoking Stakelberg situations between them.

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Chart 10. Characteristics of the models applied to Genomma Lab

Model	Characteristics
Cournot	Companies make their decisions simultaneously (Variant, 2010), Genomma has no way of knowing what his competition will do, although it senses it, making the best decision thinking about what could happen. It is a game of quantities, Genomma strives to sell its entire produced batch using strategies such as intensive advertising.
Bertrand	It is the game of prices, companies compete to give the best price, in this model Genomma has a line called first level, where the main competition is the price, since there is no type of patent that allows them to give a price Higher, although in real life do not reach CMg = IMg
Stachelberg	In this model based on the information presented previously by the sector you can see that Genomma and Bayer fight for being the best and dominate the small segment of the market that the other leaves free, if Genomma gains 1 point in market share Bayer declines, this situation also happens inversely, it behaves like the leader, because it has the greater participation, but the way in which both companies behave is very similar, commercials, campaigns, prices, etc.
Empresa Dominante	Although not very marked, Genomma is the dominant company and all others follow, even with a not significant market share, so they accept the prices Genoma sets and compete to hoard the market that it leaves uncovered, despite being diversified, In each sector it has its own competition.
Chamberlin/ Monopolistic competition	This model says that the difference between the products, the labels the packaging, etc. As one can see it is difficult for a company not to fit in, Genomma is a clear example since as the formulas are the same, one have to strive to get the preference of the public otherwise, whether with commercials, packaging , Quirky boxes, etc.

Source: own elaboration

Market concentration is a major problem in all industries, since it causes the loss of efficiency, which is why methods were discovered to measure market concentration. The particular case of the pharmaceutical industry that has a long history in Mexico, forming a fundamental part of the national GDP since the 40s, besides providing a significant proportion of the level of employment, as well as the remunerations. It is a sector that requires a high degree of innovation, because of this the transnational companies are the ones that invest and have presence, due to the high costs that the production of medicine represents.

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In Mexico there are a large number of transnationals, companies located in the country for the benefits that the cheap workforce provides, and the infrastructure that the country has. With the existence of a single national company called Genomma, the data of the OTC sector was analyzed, which is the strongest sector where it is present, being a very concentrated and highly competitive sector, since both H and P punish the mergers due to the similarity of the companies, for example, for the punishment capacity for Genomma is 0.0169 and 0.0007, respectively and for Bayer is 0.2134 and 0.1146. But despite these drawbacks merging the smaller companies the expected result was obtained, so that it was possible to prove that P does not punish the mergers of small companies, but that these mergers cause the index to decrease, while for H any merger, however small, may increase its value as can be seen in more detail in charts 6 through 8.

It was observed how Genomma uses strategies to diversify, to compete, to acquire companies and to increase its market share, being one of the main ones to inform to the consumers with respect to the medical conditions that are treated with its products and to emphasize the distinguishing characteristics and effectiveness of the same ones. Another one is that the products are in a better position on the shelf in the different points of sale. The presence in all the Mexican territory as mentioned above using different distribution channels such as national pharmacy chains, self-service stores, convenience stores, department stores, price clubs and grocery distributors. . All this helps to achieve the set objectives and to be able to compete with companies like Bayer and keep be in the mind of the consumer as the best option to buy.

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