Volume 5, Issue 8 – January – June – 2021

Journal-International Economy

ISSN-On line: 2524-2032

RINOE®

Journal International Economy, Volume 5, Issue 8, January – June 2021, is a journal edited semestral by RINOE. Distrito YongHe, Zhongxin, calle 69. Taipei – Taiwan. WEB: www.rinoe.org journal@rinoe.org. Editor in Chief: SUYO-CRUZ, Gabriel. PhD. ISSN-2524-2032. Responsible for the latest update of this number RINOE Computer Unit. ESCAMILLA-BOUCHÁN, Imelda, LUNA-SOTO, Vladimir. PhD. Distrito YongHe, Zhongxin, calle 69. Taipei - Taiwan, last updated June 30, 2021.

Journal-International Economy

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Support the international scientific community in its written production Science, Technology and Innovation in the Field of Social Sciences, in Subdisciplines of Global Outlook; International economic order; Economic integration: Trade, Neoclassical models of trade, Models of trade with Imperfect competition and scale economies, Commercial policy, Protection, Promotion, Trade negotiations, Country and industry studies of trade, Economic integration, Trade and labor market interactions, Trade forecasting and simulation, Trade and environment; International factor movements and international business: International investment, Long-Term capital movements, International migration, Multinational firms, International business; International finance: Foreign exchange, Current Account Adjustment, Short-Term capital movements, International monetary arrangements and institutions, International lending and Debt problems, Foreign aid, Financial aspects of economic integration; Macroeconomic aspects of international trade and Finance: Open Economy Macroeconomics, International policy coordination and transmission, Economic growth of open economies, Forecasting and simulation.

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The works must be unpublished and refer to topics of Global Outlook; International economic order; Economic integration: Trade, Neoclassical models of trade, Models of trade with Imperfect competition and scale economies, Commercial policy, Protection, Promotion, Trade negotiations, Country and industry studies of trade, Economic integration, Trade and labor market interactions, Trade forecasting and simulation, Trade and environment; International factor movements and international business: International investment, Long-Term capital movements, International migration, Multinational firms, International business; International finance: Foreign exchange, Current Account Adjustment, Short-Term capital movements, International monetary arrangements and institutions, International lending and Debt problems, Foreign aid, Financial aspects of economic integration; Macroeconomic aspects of international trade and Finance: Open Economy Macroeconomics, International policy coordination and transmission, Economic growth of open economies, Forecasting and simulation and other topics related to Social Sciences

Presentation of the Content

In the first article we present, *Fearlessly move to the cloud - Compute-as-a-service*, by MEJÍA, Giselle, with adscription at the Universidad Iberoamericana, next article, we present *Google Inc. share price on the BMV*, by GARCÍA, Rafael, with adscription at the Universidad Iberoamericana, as following article we present, *Business risk management: research developed in the professional field*, by MARTINEZ, Rosalba & BLANCO, Dopico, as last article we present, *Determination of competitive cluster to through qualitative methods that include SMEs in the state of Guanajuato*, by LÓPEZ, Adriana, NAVA, María Georgina, RAMÍREZ, Wendy Azucena Carolina and ESCUDER, Verónica.

Content

Article **Journal-International Economy**
June 2021, Vol.5 No.8 1-4

Fearlessly move to the cloud - Compute-as-a-service

Súbase a la nube sin miedo - Compute-as-a-service

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DOI: 10.35429/JIEC.2021.8.5.1.4 Received January 10, 2021; Accepted June 30, 2021

Abstract

The aim of this article is an overview on the subject known as Compute-as-a-Service. The latent idea of this document shows how organizations have used cloud computing to improve competitiveness, recognizing the benefits of the improvement in business agility and streamlined business processes. Cloud services are based on a model approach of personalized service, self- service access to servers, applications and development platforms. Companies and service providers have been slower to adopt cloud computing due to concerns about security, compliance, integration, performance, implementation and operational risks.

Compute-as-a-Service, Cloud services, Companies and service providers

Resumen

El objetivo de este artículo es una visión general sobre el tema conocido como Compute-as-a-Service. La idea latente de este documento muestra cómo las organizaciones han utilizado la computación en la nube para mejorar la competitividad, reconociendo los beneficios de la mejora en la agilidad del negocio y la racionalización de los procesos empresariales. Los servicios en la nube se basan en un enfoque de modelo de servicio personalizado, acceso de autoservicio a servidores, aplicaciones y plataformas de desarrollo. Las empresas y los proveedores de servicios han sido más lentos a la hora de adoptar la computación en nube debido a la preocupación por la seguridad, el cumplimiento, la integración, el rendimiento, la implementación y los riesgos operativos.

Compute-as-a-Service, Servicios en la nube, Empresas y proveedores de servicios

Citation: MEJÍA, Giselle. Fearlessly move to the cloud - Compute-as-a-service. Journal-International Economy. 2021. 5-8:1-4.

† Researcher contributing first Author.

Introduction

Globalization and economic pressures are changing the business landscape, increasing pressure to accelerate time to market with new products and services. The constant change in technology has given rise to ad-hoc infrastructure, creating complexity involving the management and support of IT infrastructure. The cloud computing market is estimated to grow to over $241,000,000,000,000 by 2020 (Ried and Kisker, 2015).

While the benefits of cloud computing are significant, so is the complexity of planning, building and managing a cloud.

Forrester found that only 6% of enterprises today have a true self-service private cloud. (Nelson, 2015) Gardner considers the implementation of a "mature private cloud" to be a journey that can take 3 to 7 years. The cloud enables private provisioning of resources and services by a non-technical business audience, strong governance process (e.g., request management, configuration, change management, capacity management) end-to-end orchestration and service assurance. (Perilli, 2015)

Compute-as-a-Service is a dedicated Infrastructure-as-a-Service (IaaS) cloud that provides on-demand self-service access and control of public and private virtual servers, storage and networking. The private cloud service is hosted within the data center and includes enterprise-class security, performance controls and guarantees, as well as an application interface (API) for easy integration into back-end systems.

Why do organizations want Compute-as-a-service?

Organizations considering cloud computing generally have these challenges:

Improve agility

Agility is the ability of a company to adapt quickly and respond efficiently to changes in the business environment. Strategic agility, or "business agility," can be achieved quickly by adapting goods and services to meet customer demands.

Agility is a concept that incorporates the ideas of flexibility, balance, adaptability and coordination under one umbrella. In a business context, agility typically refers to an organization's ability to adapt quickly to market and production environment changes.

The agile enterprise is an extension of this concept, referring to an organization that uses the fundamental principles of complex adaptive systems and complexity science to achieve success. (Hatum, 2014)

In the context of cloud computing, agility often refers to the ability to quickly develop, test and launch software applications that drive business growth.

Agility is achieved in different ways:

- Time to market/time to revenue: Cloud computing allows companies to significantly decrease the time it takes for IT infrastructure and provisioning, which accelerates the delivery of IT projects that are critical to revenue growth or cost reduction. While a physical server could take days or weeks to procure and provision, a cloud server takes only minutes to perform the same activity.

- Adaptive systems: Due to the API accessibility of cloud platforms, it is typically easier to automate IT management and provisioning in a cloud environment by integrating business intelligence platforms and IT analytics and monitoring tools with the cloud that allow systems to be more adaptive. For example, new servers can be automatically provisioned or de-provisioned when load balancing thresholds are met.

- New business models/New markets/Innovation: Cloud computing enables companies to align infrastructure and management IT costs with success and scale as new markets(products, geographies, services, customer segments).

ISSN-On line: 2524-2032

- Flexibility and scalability: The ability to rapidly increase or decrease resources on demand to meet unpredictable application development or production needs. In the case of the cloud, this could mean the ability to spin up 10x to 100x the average utilization of computing resources to support a new project or sudden burst of demand or website traffic. Because of the pay-as-you-go flexibility of the cloud, end users are able to scale fast or fail fast based on business demands.

Reduced costs

- Using the cloud can reduce the total cost of infrastructure ownership significantly. Some customers report savings of 50-75%, because each customer is unique, the potential savings achieved by leveraging cloud technologies or services can vary. Several factors impact the total cost of ownership of operating infrastructure:

- CapEx reduction: Capital spending on equipment allows companies to depreciate what it will cost over three to five years; however, many IT projects do not last that long. Reducing CapEx (capital expenditures) on equipment and moving investment to the cloud (operating expenses) allows companies to better align investment and cost with enterprise initiatives for cost reduction

- Virtualization: The use of virtualization technology creates virtual machines on a single physical machine, which can significantly reduce hardware and energy costs.

- Pay-as-you-go: Cloud computing end users only pay for the resources they use. For example, an end user may need to use ten servers to test and develop an application in a few months, instead of having to buy the hardware, colocation space and power to support the temporary project, they can simply use ten cloud-based servers for two months.

- On-Demand Capacity and Elasticity: Being able to adjust resource usage dynamically and on-demand to allow companies to reduce over-provisioning.

- Efficiency: Cloud computing simplifies the provisioning, de-provisioning and re-deployment of resources through automation, consoles and easy-to-use web APIs. The efficiency of cloud computing reduces the amount of time an IT systems administrator has to spend on management and supporting infrastructure. The average number of server fans in a typical data center is 50 servers: 1 administrator. The average data center ratio is 500:1 (Wicklund, 2014).

- Economies of scale: In theory a cloud provider should be able to pass on the benefits of economies of scale and expertise derived from providing standardized services to multiple customers. The reality is that it may be less expensive for a customer to build and manage internal IT resources for certain application workloads that are predictable. It is important to understand the relevant costs for the customer to manage their own resources in-house.

- Resource leverage: Multi-tenant architectures allow for the exchange and sharing of resources and costs when running the application. In this sense, this architecture can be seen as an alternative to virtualization. (Wilder, 2014)

Risk reduction

- Companies evaluating cloud are trying to reduce complexity and risk.

- Business continuity: The cloud can be used as a cost-effective way to backup data or provide a disaster recovery site to improve business continuity and uptime.

- Technology independence: The cloud service does not specify the provider and is often delivered as a subscription or pay-as-you-go service, which technology providers are able to avoid.

- Operational Complexity: The cloud enables enterprises to reduce operational complexity, simplifying and standardizing the way IT resources are managed and delivered.

ISSN-On line: 2524-2032

- Governance, compliance, monitoring and control: Fundamental to achieving governance and compliance requirements, such as auditing skills, secure access to data and control and enterprise resources. Cloud providers must improve the way in which resources are tracked, secured and controlled by end users, often an enhancement for companies must be the ability to be compliant (SSAE 16, HIPAA, CFR 21 Part 11, etc.) and meet internal control requirements.

- Data sovereignty: Increasingly, an organization is required to restrict data transmission and storage to a specific geography (country or region). Using a public cloud or deploying a private cloud in a country or region allows companies to better satisfy the data sovereignty requirement.

- Standardized services: In a large global enterprise, standardization must be ensured; it is critical to efficiently manage and support IT. Because the cloud (SaaS, PaaS, IaaS) offers a standardized set of services, it is easier to manage and reduce errors and execution risk.

- Specialized skills: Organizations often lack internal skills to migrate to new models and platforms, such as cloud computing. A lack of practical experience, internal skills (multi-user, database architecture design, Microsoft application migration, cloud operations, user, interface development, etc.) and operational benchmarks, increases the risk of failure, and lengthens the time required for cloud-related initiatives. Relying on an experienced cloud reduces risk.

Conclusions

The use of the cloud should represent a means to meet the growing technological needs of a company. Reducing costs and the time needed to implement and support IT infrastructure and reducing risks are just the basic requirements of this trend, which is now within everyone's reach. Optimizing human and financial resources to focus on business growth will be the end result of choosing the right cloud.

And while it is not without its problems, security, compliance, integration, global coverage and internal readiness cannot be considered secondary issues.

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Article **Journal-International Economy**
June 2021, Vol.5 No.8 5-11

Google Inc. share price on the BMV

Google Inc. Cotización de Google Inc. en BMV

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DOI: 10.35429/JIEC.2021.8.5.5.11 Received January 15, 2021; Accepted June 30, 2021

Abstract

In 1995, two young doctoral level students at Stanford University, Larry Page and Sergey Brinse postulate his doctoral thesis in computer science, where his idea was to create an algorithm to organize Internet searches. In 1996, develop a system to search the internet (BackRud) that used links to determine the importance of specific web pages and was a year later when he decides to rename the browser and name "Google". The name originates from the word "Googol" which means 10 I evelado to 100.

Google, Internet, BMV

Resumen

En 1995, dos jóvenes estudiantes de nivel de doctorado en la Universidad de Stanford, Larry Page y Sergey Brinse postulan a su tesis doctoral en informática, donde su idea era crear un algoritmo para organizar las búsquedas en Internet. En 1996, desarrolla un sistema de búsqueda en internet (BackRud) que utilizaba enlaces para determinar la importancia de determinadas páginas web y fue un año después cuando decide cambiar el nombre del buscador y llamarlo "Google". El nombre tiene su origen en la palabra "Googol" que significa 10 evelado a 100.

Google, Internet, BMV

Citation: GARCÍA, Rafael. Google Inc. share price on the BMV. Journal-International Economy. 2021. 5-8:5-11.

† Researcher contributing first author.

Introduction

In 1995, two young Ph.D. students at Stanford University, Larry Page and Sergey Brinse, submitted their doctoral thesis in computer science, where their idea was to create an algorithm to organize Internet searches.

In 1996, he developed a system to search the Internet (BackRud) that used links to determine the importance of specific web pages and it was a year later when he decided to change the name of the search engine to -Google‖.

The name has its origin in the word -Googol‖ which means 10 evelado a la 100.

Google Inc. was born in 1998, when the co-founder of Sun Mycrosystem, decided to grant a check of 100,000 USD and that is how it was consolidated as a company, in September of that same year.

It was in 2004 when Google Inc. debuted on the United States stock exchange (NASDAQ) on August 18, 2004, with an initial public offering of 19,605,052 common shares.

Definition and geographical representation of Google Inc.

Definition

International technology company that offers an internet search engine through its website. Offers a wide variety of search options. Date of listing on bmv apr 03, 2014

Geographical representation

Google se encuentra ubicado en más de 40 países alrededor de mundo con más de 70 oficinas, ubicadas en Norte América, Latín América, Europa, África y Asía.

Figure 1

Products and services offered by Google Inc.

- Google AdWords
- Google Adsense
- Google AdMob
- Google My Business
- Google Ads
- Google App for Work
- Google Analytics
- YouTube

Company name

GOOG Inc /Alphabetic Inc.

Market in which it is listed

NASDAQ

Legal basis

Google is a company and the revenue it earns comes from offering search technology to businesses and from selling advertising displayed on our search engine and other sites on the Web.

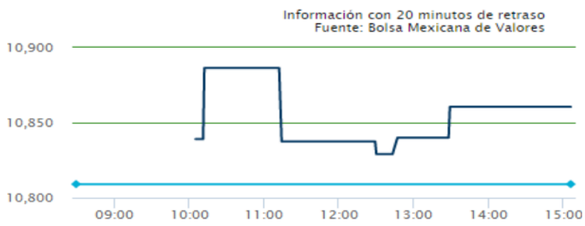
Risk and return variables

Descripción:	Variable:	Valor:
Precio máximo	P_a^M	10886.38
Precio minimo	P_i^M	10829
Variación	V	0.47
PPP	PPP	0
Max. año anterior	MP_a^a	7892.5
Min. año anterior	M_a^i	6573.75
Acciones en Circulación	A_c	341,692,000
Partición 1	P_1	0
Partición 2	P_2	10,839.07
Partición 3	P_3	10,886.38
Partición 4	P_4	10,837.40
Partición 5	P_5	10,840.00
Partición 6	P_6	10860.50
Partición 7	P_7	10860.50
Precio/Utilidad	Pu	0
Precio/Valor libro	P^{VL}	0
Precio último Hecho	P^{Uh}	10860.5
Vólumen de compra	V_c	3
Vólumen de venta	V_V	0
Postura de compra	P_c	9890
Valor Libro p/Acción	V^{La}	0

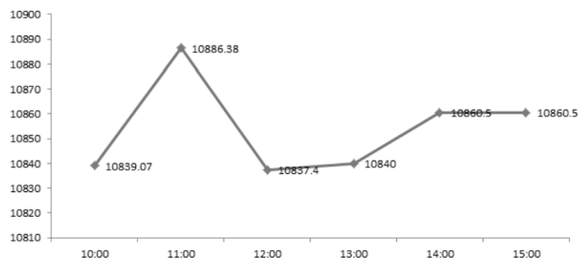
ISSN-On line: 2524-2032

Vólumen Operado	V_o	4734
Tipo de cambio (Dollar)	D_p	16.58
Tipo de cambio (Dollar)	D_I	1
Postura de venta	P_V	0
Inflación No Subyacente (Sep 2015)	IPC	2.96
Inflación Subyacente (Sep 2015)	IPC_S	2.38
Uilidad p/Acción	U_a	0

Table 1



Graphic 1 Represents Goog Inc.'s stock market performance



Graphic 2 Represents the market shares of Goog Inc.

PUT (Sales) Model

$$\mathbf{P} = \frac{[V_V - P_V]^{1/2}}{V_O - P^{Uh}} + \frac{3}{4}\left[\frac{(P^{VL})}{(P_u)}\right] \rightarrow \int_{V^{La}}^{U_a}$$

$$\mathbf{P} = \frac{[0-0]^{1/2}}{4734-10860.5} + \frac{3}{4}\left[\frac{(0)}{(0)}\right] \rightarrow \int_{0}^{0}$$

$$\mathbf{P} = \frac{0}{-6126.5} + \frac{3}{4}[0] \rightarrow \frac{\ln(1)}{\log(1)}$$

$$\mathbf{P} = 0 + \frac{3}{4}0 \rightarrow \frac{0}{0}$$

$$\mathbf{P} = 0 - 0 + \frac{3}{4}(0)$$

$$\mathbf{P} = \frac{3}{4}$$

$$\mathbf{P} = 0.75$$

Call Model (Purchasing)

$$\mathbf{C} = \left[\frac{V_c - P_c}{\left|\frac{V_o}{P^{Uh}}\right|^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \int^{P_{uL}} - \left[\int^{P_u} + \int\right]_{\infty\ldots}^{U^a + V^{La}}$$

$$\mathbf{C} = \left[\frac{3 - 9890}{\left|\frac{4734}{10860.5}\right|^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \int^{0} - \left[\int^{0} + \int\right]_{n_{n-1}^{n+1}}^{0+0}$$

$$\mathbf{C} = \left[\frac{-9887}{[0.43]^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \frac{\ln(1)}{\log(-1)} - \left[\frac{\ln(1)}{\log(-1)} + \frac{\ln}{log}\right]_{n_{n-1}^{n+1}}^{0}$$

$$\mathbf{C} = \left[\frac{-9887}{0.65}\right]^{\frac{3}{4}} + \frac{0}{0} - \left[\frac{0}{0} + \frac{\ln}{log}\right]_{n_{n-1}^{n+1}}^{0}$$

$$\mathbf{C} = [-15210.76]^{\frac{3}{4}} + \frac{0}{0} - \left[0 + \frac{\ln}{log}\right]_{\frac{1}{-1}}^{0}$$

$$\mathbf{C} = -1369.66 + 0 - \left[0 + \frac{\ln}{log}\right]_{-1}^{0}$$

$$\mathbf{C} = -1369.66 + 0 - \left[0 + \frac{\ln(0)}{\log(-1)}\right]$$

$$\mathbf{C} = -1369.66 + 0 - \mathbf{0} + \mathbf{0}$$

$$\mathbf{C} = -1369.66$$

Market price model

$$\mathbf{PM} = \frac{\partial\left[\frac{Pu + \partial P^{VL}}{P^{Uh}}\right] + \left(\frac{\partial P_V}{\partial P_C}\right)^{3/4} - \left(\frac{\partial V_V - 1}{\partial V_C + 1}\right)^{1/2}}{\int_{P_u}^{V_o}}$$

$$\mathbf{PM} = \frac{-1\left[\frac{0+(-1)0}{10860.5}\right] + \left(\frac{(-1)\,0}{(-1)\,9890}\right)^{3/4} - \left(\frac{(-1)0-1}{(-1)3+1}\right)^{1/2}}{\int_{0}^{4734}}$$

$$\mathbf{PM} = \frac{-1\left[\frac{0+0}{10860.5}\right] + \left(\frac{0}{(-1)\,9890}\right)^{3/4} - \left(\frac{(-1)-1}{-3+1}\right)^{1/2}}{\frac{\ln(4734)}{\log(1)}}$$

$$\mathbf{PM} = \frac{-1[0] + \left(\frac{0}{-9890}\right)^{3/4} - \left(\frac{-2}{-2}\right)^{1/2}}{\frac{8.46}{0}}$$

$$\mathbf{PM} = \frac{(-1)0 + (0)^{3/4} - (1)^{1/2}}{0}$$

$$\mathbf{PM} = \frac{-1 + (-1)}{0}$$

$$\mathbf{PM} = -2$$

Partitions

$$P = \beta_0(P_1) + \beta_1(P_2) + \beta_2(P_3) + \beta_3(P_4) + \beta_4(P_5) + \beta_5(P_6) + \beta_6(P_7) + \beta^{\xi}_{-\propto}$$

$$P = \beta_0(0) + \beta_1(10839.07) + \beta_2(10886.38) + \beta_3(10837.40) + \beta_4(10840.00) + \beta_5(10860.50) + \beta_6(10860.50) + \beta^{\xi}_{-\propto}$$

Market shares

$$AM = \left[\frac{P_a^M + P_i^M}{\left[\frac{PPP}{V}\right]^{1/2}}\right]^{3/4} + \left[\frac{MP_a^g + M_a^i}{A_c}\right] + \xi^2$$

$$AM = \left[\frac{10886.38 + 10829}{\left[\frac{0}{0.47}\right]^{1/2}}\right]^{3/4} + \left[\frac{7892.5 + 6573.75}{341{,}692{,}000}\right] + 1$$

$$AM = \left[\frac{21715.38}{[0]^{1/2}}\right]^{3/4} + \left[\frac{14466.25}{341{,}692{,}000}\right] + 1$$

$$AM = 0 + 0.000042 + 1$$

$$AM = 1.000042$$

Risk, return and risk vs. return model

Integration of the risk model

$$MRI = \frac{\left\{\left[\frac{P_a^M + P_i^M}{\left[\frac{PPP}{V}\right]^{1/2}}\right]^{3/4} + \left[\frac{MP_a^g + M_a^i}{A_c}\right] + \xi^2\right\}^{\left(\frac{Dp - D_I}{1/2}\right) - \left(\frac{IPC}{IPC_I}^{3/4}\right)}}{\left\{\frac{[V_V - P_V]^{1/2}}{V_D - P^{Uh}} + \frac{3}{4}\left[\frac{(P^{VL})}{(P_u)}\right] - \int_{V^{La}}^{U_a}\right\} - \left\{\left[\frac{V_c - P_c}{\left|\frac{V_o}{P^{Uh}}\right|^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \int^{P_{ul}} - \left[\int^{P_u} + \int\right]_{\infty\ldots}^{U^a + V^{La}}\right\}} + \frac{Lim\ P_1 \to Lim\ P_7}{\frac{3\left[\frac{P_u + 3P^{VL}}{P^{Uh}}\right] + \left(\frac{\partial P_V}{\partial P_C}\right)^{3/4} - \left(\frac{\partial V_V - 1}{\partial V_C + 1}\right)^{1/2}}{\int_{P_u}^{V_o}}}$$

A

$$MRI = \frac{\left\{\left[\frac{10886.38 + 10829}{\left[\frac{0}{0.47}\right]^{1/2}}\right]^{3/4} + \left[\frac{7892.5 + 6573.75}{341{,}692{,}000}\right] + 1\right\}^{\left(\frac{16.58 - 1}{1/2}\right) - \left(\frac{2.96}{2.38}^{3/4}\right)}}{\left\{\frac{[0 - 0]^{1/2}}{4724 - 10860.5} + \frac{3}{4}\left[\frac{(0)}{(0)}\right] - \int_0^0\right\} - \left\{\left[\frac{3 - 9890}{\left|\frac{4724}{10860.5}\right|^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \int^0 - \left[\int^0 + \int\right]_{n_{n-1}^{n+1}}^{0+0}\right\}} + \frac{\frac{\lim 0}{\lim 10860.50}}{\frac{-1\left[\frac{0 + (-1)0}{10860.5}\right] + \left(\frac{(-1)0}{(-1)9890}\right)^{3/4} - \left(\frac{(-1)0 - 1}{(-1)3 + 1}\right)^{1/2}}{\int_0^{4724}}}$$

$$MRI = \frac{\left\{\left[\frac{21715.38}{[0]^{1/2}}\right]^{3/4} + \left[\frac{14466.25}{341{,}692{,}000}\right] + 1\right\}^{\left(\frac{15.58}{1/2}\right) - \left(\frac{2.25}{2.38}\right)}}{\left\{\frac{[0]^{1/2}}{-6126.5} + \frac{3}{4}\left[\frac{(0)}{(0)}\right] - \int_0^0\right\} - \left\{\left[\frac{-9887}{[0.42]^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \int^0 - \left[\int^0 + \int\right]_{n_{n-1}^{n+1}}^{0+0}\right\}} + \frac{\frac{\sqrt{0}}{10860.50}}{\frac{-1\left[\frac{0 + (-1)0}{10860.5}\right] + \left(\frac{(0)}{(-9890)}\right)^{3/4} - \left(\frac{-1}{-2}\right)^{1/2}}{\frac{\ln(4724)}{\log(1)}}}$$

$$MRI = \frac{\left\{\left[\frac{21715.38}{0}\right]^{3/4} + [0.000042] + 1\right\}^{30.19}}{\{0 + 0 \to \int_0^0\} - \left\{[-15210.76]^{\frac{3}{4}} + \int^0 - \left[\int^0 + \int\right]_{n_{n-1}^{n+1}}^{0+0}\right\}} + \frac{0}{\frac{-1[0] + 0 - 0.5}{0}}$$

$$\mathbf{MRI} = \frac{\left\{\left[\frac{21715.38}{0}\right]^{3/4} + [0.000042] + 1\right\}^{30.19}}{\{0 + 0 \to \int_0^0\} - \left\{[-15210.76]^{\frac{3}{4}} + \int^0 - \left[\int^0 + \int\right]_{n_{n-1}^{n+1}}^{0+0}\right\}} + \frac{0}{\frac{-1[0] + 0 - 0.5}{0}}$$

$$\mathbf{MRI} = \frac{\{[0]^{3/4} + 1.000042\}^{30.19}}{\{0 \to \int_0^0\} - \left\{-1369.66 + \frac{\ln(1)}{\log(-1)} - \left[\frac{\ln(1)}{\log(-1)} + \frac{\ln}{\log}\right] + \frac{0}{\frac{1}{-1}}\right\}} + \frac{0}{\frac{0 + 0 - 0.5}{0}}$$

$$\mathbf{MRI} = \frac{\{1.000042\}^{30.19}}{\left\{0.016\frac{\ln(1)}{\log(1)}\right\} - \left\{-1369.66 + \frac{\ln(1)}{\log(-1)} - \left[\frac{\ln(1)}{\log(-1)} + \frac{\ln}{\log}\right] + \frac{0}{\frac{1}{-1}}\right\}} + \frac{0}{\frac{-0.5}{0}}$$

$$\mathbf{MRI} = \frac{1.0012}{\left\{0.016\frac{0}{0}\right\} - \left\{-1369.66 + \frac{0}{0} - \left[\frac{0}{0} + \frac{\ln}{\log}\right] + \frac{0}{-1}\right\}} + 0$$

$$\mathbf{MRI} = \frac{1.0012}{\{0.016\} - \left\{-1369.66 + 0 - \left[0 + \frac{\ln}{\log}\right] + \frac{0}{-1}\right\}} + 0$$

$$\mathbf{MRI} = \frac{1.0012}{\{0.016\} - \{-1369.66 - [0 + 0]\}} + 0$$

$$\mathbf{MRI} = \frac{1.0012}{\{0.016\} - \{-1369.99\}} + 0$$

$$\mathbf{MRI} = \frac{1.0012}{1370.006} + 0$$

<u>A</u> **<u>C</u>**

MRI = ***0.00073* + *0***

MRI = ***0.00073 %***

Integration of the performance model

$$MRE = \frac{\left\{\left[\frac{P_a^M + P_i^M}{\left[\frac{PPP}{V}\right]^{1/2}}\right]^{3/4} + \left[\frac{MP_a^g + M_a^i}{A_c}\right] + \xi^2\right\}^{\frac{IPC}{IPC_I}^{3/4}}}{\left\{\frac{\frac{[V_V - P_V]^{1/2}}{V_D - P^{Uh}} + \frac{3}{4}\left[\frac{(P^{VL})}{(P_u)}\right] - \int_{V^{La}}^{U_a}}{\left[\frac{V_c - P_c}{\left|\frac{V_o}{P^{Uh}}\right|^{1/2}}\right]^{3/4} + \int^{P_{ul}} - \left[\int^{P_u} + \int\right]_{\infty\ldots}^{U^a + V^{La}}}\right\}^{\left(\frac{Dp - D_I}{1/2}\right)}} + \frac{3\left[\frac{P_u + 3P^{VL}}{P^{Uh}}\right] + \left(\frac{\partial P_V}{\partial P_C}\right)^{3/4} - \left(\frac{\partial V_V - 1}{\partial V_C + 1}\right)^{1/2}}{\int_{P_u}^{V_o}} \int_{P_7}^{P_1}$$

B D

$$RE = \frac{\left\{\left[\frac{10886.38 + 10829}{\left[\frac{0}{0.47}\right]^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \left[\frac{7892.5 + 6573.75}{341692000}\right] + 1\right\}^{\frac{2.96}{2.38}^{\frac{3}{4}}}}{\left\{\frac{\frac{[0 - 0]^{\frac{1}{2}}}{4724 - 10860.5} + \frac{3}{4}\left[\frac{(0)}{(0)}\right] - \int_0^0}{\left[\frac{3 - 9890}{\left|\frac{4724}{10860.5}\right|^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \int^0 - \left[\int^0 + \int\right]_{n_{n-1}^{n+1}}^{0+0}}\right\}^{\left(\frac{16.58 - 1}{\frac{1}{2}}\right)}} + \frac{(-1)\left[\frac{0 + (-1)0}{10860.5}\right] + \left(\frac{(-1)0}{(-1)9890}\right)^{3/4} - \left(\frac{(-1)0 - 1}{(-1)3 + 1}\right)^{1/2}}{\int_0^{4724}} \int_{10860.50}^{0}$$

$$MRE = \frac{\left\{\left[\frac{21715.39}{[0]^{1/2}}\right]^{3/4} + \left[\frac{14466.25}{341692000}\right] + 1\right\}^{\frac{2.25}{2.38}}}{\left\{\frac{\frac{[0]^{1/2}}{-6126.5} + \frac{3}{4}[0] - \int_0^0}{\left[\frac{-9887}{[0.42]^{1/2}}\right]^{3/4} + \int^0 - \left[\int^0 + \int\right]_{n_{n-1}^{n+1}}^{0+0}}\right\}^{\left(\frac{15.82}{1/2}\right)}} + \frac{(-1)\left[\frac{0}{10860.5}\right] + \left(\frac{0}{-9890}\right)^{3/4} - \left(\frac{-1}{-2}\right)^{1/2}}{\int_0^{4724}} \int_{10860.50}^{0}$$

$$\mathbf{MRE} = \frac{\{[0]^{3/4} + [0.000042] + 1\}^{0.94}}{\left\{\frac{\frac{0}{-6126.5} + 0 \to \int_0^0}{\left[\frac{-9887}{0.65}\right]^{3/4} + \int^0 - \left[\int^0 + \int\right]_{n_{n-1}^{n+1}}^{0+0}}\right\}^{\left(\frac{15.82}{1/2}\right)}} + \frac{(-1)[0] + (0)^{3/4} - (0.5)^{1/2}}{\int_0^{4734}} \int_{10860.50}^{0}$$

$$\mathbf{MRE} = \frac{\{[1.000042]\}^{0.94}}{\left\{\frac{0 + 0 + \frac{\ln(1)}{\log(1)}}{[-15210.76]^{3/4} + \frac{\ln(1)}{\log(-1)} + \frac{\ln(1)}{\log(-1)} + \left[\frac{\ln}{\log}\right] + \frac{0}{1/-1}}\right\}^{31.64}} + \frac{0 + 0 - 0}{\frac{\ln(4734)}{\log(1)}} \frac{\ln(1)}{\log(10860.50)}$$

June 2021, Vol.5 No.8 5-11

$$\mathbf{MRE} = \frac{1.000039}{\left\{\frac{0+0+\frac{0}{0}}{-1369.66+\frac{0}{0}+\frac{0}{0}+\left[\frac{ln}{log}\right]+\frac{0}{-1}}\right\}^{31.64}} + \frac{\frac{0}{8.46}}{0}\ \frac{0}{4.035}$$

$$\mathbf{MRE} = \frac{1.000039}{\left\{\frac{0}{-1369.66+0+0+\frac{\ln(0)}{\log(-1)}}\right\}^{31.64}} + \frac{0}{0}\ \frac{0}{4.035}$$

$$\mathbf{MRE} = \frac{1.000039}{\left\{\frac{0}{-1369.66+0+0+\frac{0}{0}}\right\}^{31.64}} + 0$$

$$\mathbf{MRE} = \frac{1.000039}{\left\{\frac{0}{-1369.66+0}\right\}^{31.64}} + 0$$

$$\mathbf{MRE} = \frac{1.000039}{\left\{\frac{0}{0}\right\}^{31.64}} + 0$$

$$\mathbf{MRE} = \frac{1.000039}{\{0\}^{31.64}} + 0$$

$$\mathbf{MRE} = \frac{1.000039}{0} + 0$$

$$\mathbf{MRE} = 1.000039 + 0 - 0$$

$$\underline{B} \qquad \underline{D}$$

$$\mathbf{MRE} = 1.000039 + 0$$

$$\mathbf{MRE} = 1.000039$$

Integration of the risk vs. return model

$$\text{MRR} = \int_A^B + \frac{(lim C)^{\pi}}{(lim D)^{TC}} + \left[\frac{log B}{ln A}\right]^{3/4} + \frac{(lim D)^{TC}}{(lim C)^{\pi}} + \frac{ln A + log B}{C-D} + \xi^2$$

$$\text{MRR} = \int_{0.00073}^{1.000039} + \frac{(lim\ 0)^{3.14}}{(lim\ 0)^{16.58}} + \left[\frac{log\ 1.000039}{ln\ 0.00073}\right]^{3/4} + \frac{(lim\ 0)^{16.58}}{(lim\ 0)^{3.14}} + \frac{ln\ 0.00073 + log\ 1.000039}{0-0} + \xi^2$$

$$\text{MRR} = \frac{ln\ 1.000039}{log\ 0.00073} + \frac{(\sqrt{0})^{3.14}}{(\sqrt{0})^{16.58}} + \left[\frac{log\ 1.000039}{ln\ 0.00073}\right]^{3/4} + \frac{(\sqrt{0})^{T16.58}}{(\sqrt{0})^{3.14}} + \frac{ln\ 0.00073 + log\ 1.000039}{0-0} + (-1)^2$$

$$\text{MRR} = \frac{0.000038}{-3.13} + \frac{(0)^{3.14}}{(0)^{16.58}} + \left[\frac{0.000016}{-7.26}\right]^{\frac{3}{4}} + \frac{(0)^{16.58}}{(0)^{3.14}} + \frac{-7.26 + 0.000016}{0} + -1$$

$$\text{MRR} = -0.000012 + \frac{0}{0} + \lfloor -0.0000022 \rfloor^{\frac{3}{4}} + \frac{0}{0} + \left(\frac{-7.25}{0}\right) + -1$$

$$\text{MRR} = -0.000012 + 0 + (-0.000057) + 0 + (-7.25) + 0 - 1$$

$$\text{MRR} = -0.000012 + (-0.000057) + (-7.25) + (-1)$$

$$\text{MRR} = -0.000012 + (-0.000057) + (-7.25) + (-1)$$

$$\text{MRR} = -0.000012 - 0.000057 - 7.25 - 1$$

$$\text{MRR} = -0.000012 - 0.000057 - 7.25 - 1$$

$$\text{MRR} = -8.25$$

Risk vs. return model (Lagrange)

Lagrange

$$\text{MRI} = \frac{\left\{\left[\frac{P_a^M + P_i^M}{\left[\frac{PPP}{V}\right]^{1/2}}\right]^{3/4} + \left[\frac{MP_a^2 + M_a^i}{CA_c}\right] + 0.75\right\}^{\left(\frac{Dp-D_I}{1/2}\right)-\left(\frac{IPC}{IPC_I}^{3/4}\right)}}{\left\{\frac{[V_V - P_V]^{1/2}}{V_O - P^{Uh}} + \frac{3}{4}\left[\frac{(P^{VL})}{(P_u)}\right] - \int_{V^{La}}^{U_a}\right\} - \left\{\left[\frac{V_c - P_c}{\left[\frac{V_a}{P^{Uh}}\right]^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \int^{P_{ul}} - \left[\int^{P_u} + \int\right]_{n-1}^{U^a + V^{La}}\right\}}$$

$$+ \frac{Ln\ P_1 - Log\ P_7}{\frac{s\left[\frac{Pu + 0.5\,P^{VL}}{P^{Uh}}\right] + \left(\frac{0.5\,P_V}{0.5\,P_C}\right)^{3/4} - \left(\frac{0.5\,V_V - 1}{0.5\,V_C + 1}\right)^{1/2}}{\int_m^{V_a}}}$$

$$\text{MRI} = \frac{\left\{\left[\frac{1088638 + 10829}{\left[\frac{0}{3.47}\right]^{1/2}}\right]^{3/4} + \left[\frac{78912 + 6273.72}{c3416920000}\right] + 0.75\right\}^{\left(\frac{16.58-1}{1/2}\right)-\left(\frac{2.96}{2.38}^{3/4}\right)}}{\left\{\frac{[0-0]^{1/2}}{4734 - 10860.5} + \frac{3}{4}\left[\frac{(0)}{(0)}\right] - \int_0^0\right\} - \left\{\left[\frac{3 - 9890}{\left[\frac{4734}{10860.5}\right]^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \int^0 - \left[\int^0 + \int\right]_{n-1}^{0+0}\right\}}$$

$$+ \frac{Ln\ 0 - Log\ 10860.5}{\frac{-1\left[\frac{0+0.5\,(0)}{10860.5}\right] + \left(\frac{0.5\,(0)}{0.5\,(9890)}\right)^{3/4} - \left(\frac{0.5\,0 - 1}{0.5\,3 + 1}\right)^{1/2}}{\int_0^{4734}}}$$

$$\text{MRI} = \frac{\left\{\left[\frac{2171538}{[0]^{1/2}}\right]^{3/4} + \left[\frac{1446615}{c3416920000}\right] + 0.75\right\}^{\left(\frac{15.58}{1/2}\right)-\left(\frac{2.25}{2.38}\right)}}{\left\{\frac{[0]^{1/2}}{-61265} + \frac{3}{4}[0] - \frac{\ln(1)}{\log(1)}\right\} - \left\{\left[\frac{-9879}{[0.42]^{\frac{1}{2}}}\right]^{\frac{3}{4}} + \frac{\ln(1)}{\log(-1)} - \left[\frac{\ln(1)}{\log(-1)} + \frac{ln}{log}\right]_{-1}^{0}\right\}} + \frac{0 - 4.03}{\frac{-1\left[\frac{0.5}{10860.5}\right] + \left(\frac{0}{4945}\right)^{3/4} - \left(\frac{0-1}{1.5+1}\right)^{1/2}}{\frac{\ln(4734)}{\log(1)}}}$$

$$\text{MRI} = \frac{\left\{\left[\frac{2171538}{0}\right]^{3/4} + [0.00042] + 0.75\right\}^{(31.16)-(0.94)}}{\left\{\frac{0}{-61265} + 0\frac{0}{0}\right\} - \left\{\left[\frac{-9879}{0.65}\right]^{\frac{3}{4}} + \frac{0}{0} - \left[\frac{0}{0} + \frac{ln}{log}\right]_{-1}^{0}\right\}} + \frac{0}{\frac{-1[0.000046] + (0)^{3/4} - \left(\frac{-1}{2.5}\right)^{1/2}}{\frac{8.65}{0}}}$$

$$\mathbf{MRI} = \frac{\{[0]^{3/4} + [0.00042] + 0.75\}^{30.22}}{\{0+0\} - \left\{[15196.92]^{\frac{3}{4}} + 0 - \left[0 + \frac{\ln(0)}{\log(-1)}\right]\right\}} + \frac{0}{\frac{-0.000046 + 0 - (-0.4)^{1/2}}{0}}$$

$$\mathbf{MRI} = \frac{\{0 + [0.00042] + 0.75\}^{30.22}}{\{0\} - \left\{1368.72 + 0 - \left[0 + \frac{0}{0}\right]\right\}} + \frac{0}{\frac{-0.000046 - -0.63}{0}}$$

$$\mathbf{MRI} = \frac{\{0.75042\}^{30.22}}{\{1368.72\}} + \frac{0}{\frac{0.6299}{0}}$$

$$\mathbf{MRI} = \frac{0.00017}{\{1368.72\}} + \frac{0}{0}$$

$$\mathbf{MRI} = 0.00000012 + 0$$

$$\mathbf{MRI} = 0.00000012$$

$$\text{MRE} = \frac{\left\{\left[\frac{P_a^M + P_i^M}{\left[\frac{PPP}{V}\right]^{1/2}}\right]^{3/4} + \left[\frac{MP_a^2 + M_a^i}{A_c}\right] + 0.75\right\}^{\frac{IPC}{IPC_I}^{3/4}}}{\left\{\frac{\frac{[V_V - P_V]^{1/2}}{V_O - P^{Uh}} + \frac{3}{4}\left[\frac{(P^{VL})}{(P_u)}\right] - \int_{V^{La}}^{U_a}}{\left[\frac{V_c - P_c}{\left[\frac{V_a}{P^{Uh}}\right]^{1/2}}\right]^{3/4} + \int^{P_{ul}} - \left[\int^{P_u} + \int\right]_{n-1}^{U^a + V^{La}}}\right\}^{\left(\frac{Dp - D_I}{1/2}\right)}} + \frac{0.5\left[\frac{Pu + 0P^{VL}}{P^{Uh}}\right] + \left(\frac{0.5\,P_V}{0.5\,P_C}\right)^{3/4} - \left(\frac{0.5\,V_V - 1}{0.5\,V_C + 1}\right)^{1/2}}{\int_{P_u}^{V_a}}$$

$$\text{MRE} = \frac{\left\{\left[\frac{10886.38 + 10829}{\left[\frac{0}{3.47}\right]^{1/2}}\right]^{3/4} + \left[\frac{78912 + 627372}{3416920000}\right] + 0.75\right\}^{\frac{2.96}{2.38}^{3/4}}}{\left\{\frac{\frac{[0-0]^{1/2}}{4734 - 10860.5} + \frac{3}{4}\left[\frac{(0)}{(0)}\right] - \int_0^0}{\left[\frac{3 - 9890}{\left[\frac{4734}{10860.5}\right]^{1/2}}\right]^{3/4} + \int^0 - \left[\int^0 + \int\right]_{n-1}^{0+0}}\right\}^{\left(\frac{16.58-1}{1/2}\right)}} + \frac{0.5\left[\frac{0 + (-1)0}{10860.5}\right] + \left(\frac{0.5\,0}{0.5\,9890}\right)^{3/4} - \left(\frac{0.5\,0 - 1}{0.5\,3 + 1}\right)^{1/2}}{\int_0^{4734}}$$

ISSN-On line: 2524-2032

$$MRE = \frac{\left\{\left[\frac{57.88}{[0]^{1/2}}\right]^{3/4} + \left[\frac{14466.25}{3416920000}\right] + 0.75\right\}^{\frac{2.25}{2.88}}}{\left\{\frac{\frac{[0]^{1/2}}{-6126.5} + \frac{3}{4}[0] \rightarrow \beta}{\left[\frac{-9887}{[0.43]^{1/2}}\right]^{3/4} + \beta - \left[\beta \rightarrow \right]_{n-1}^{0+0}}\right\}^{(3.11)}} + \frac{0.5\left[\frac{0+0}{10860.5}\right] + \left(\frac{0}{4945}\right)^{3/4} - \left(\frac{0-1}{1.5+1}\right)^{1/2}}{\frac{\ln(4784)}{\log(1)}}$$

$$MRE = \frac{\left\{\left[\frac{57.88}{0}\right]^{3/4} + [4.23] + 0.75\right\}^{\frac{2.25}{2.88}}}{\left\{\frac{\frac{0}{-6126.5} + \frac{3}{4}[0] - \frac{\ln(1)}{\log(1)}}{\left[\frac{-9887}{0.85}\right]^{3/4} + \frac{\ln(1)}{\log(-1)} - \left[\frac{\ln(1)}{\log(-1)} + \frac{\ln}{\log}\right]_{n-1}^{0+0}}\right\}^{(3.11)}} + \frac{0.5\left[\frac{0}{10860.5}\right] + \left(\frac{0}{4945}\right)^{3/4} - \left(\frac{-1}{2.5}\right)^{1/2}}{\frac{8.46}{0}}$$

$$MRE = \frac{\{0+[4.23]+0.75\}^{0.94}}{\left\{\frac{0+0\rightarrow\frac{0}{0}}{\left[-15210.76\right]^{3/4}+\frac{0}{0}-\left[\frac{0}{0}+\frac{\ln}{\log}\right]_{-1}^{0}}\right\}^{(3.11)}} + \frac{0.5\,[0]+(0)^{3/4}-(-0.4)^{1/2}}{0}$$

$$MRE = \frac{\{4.98\}^{0.94}}{\left\{\frac{0}{-1369.66+0-0+\frac{\ln(0)}{\log(-1)}}\right\}^{(3.11)}} + \frac{0+0--0.63}{0}$$

$$MRE = \frac{4.52}{\left\{\frac{0}{-1369.66+0-0+\frac{0}{0}}\right\}^{(3.11)}} + \frac{0.63}{0}$$

$$MRE = \frac{4.52}{\left\{\frac{0}{-1369.66}\right\}^{(3.11)}} + 0$$

$$MRE = \frac{4.52}{\left\{\frac{0}{-1369.66}\right\}^{(3.11)}} + 0$$

$$MRE = \frac{4.52}{\{0\}^{(3.11)}} + 0$$

$$MRE = \frac{4.52}{0} + 0$$

$$MRE = 4.52 + 0-0$$

$$MRE = 4.52 + 0$$

$$MRE = 4.52$$

Percentage of Market Profit

SIM Annual rate = 36.0 %= 3 % * 12
Time limit = Time inicial + Operativity
Market-SIM = Time inicial * Val-Book *Asset

Activity	Operativity	Time inicial	Time limit	Val-Book *Asset	Market-SIM
INICIO	0	8	8	0.5	4
Proc A	10886.38	16	10902.38	1.0	16
Proc B	10829	24	10853	1.5	36
M 1*	0.65	32	0	2.0	64
Proc C	0.47	40	40.47	2.5	100
M 2*	1.3	48	0	3.0	144
Proc D	7892.5	56	7948.5	3.5	196
Proc E	6573.75	64	6637.75	4.0	256
Final	0	0	0	4.5	0
					208
					163.2

Figure 2

Google has 256 days that it can be listed on the stock market with a stock market entry

Google has 109 days that it can be listed on the stock exchange with a fork

Level of net income and expenses

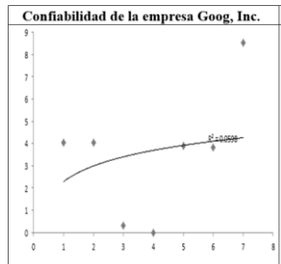
Purchase Volume	Sales Volume	Outstanding Shares	Net Incomes
3	0	341,692,000	2.289.801.135 click to calculate
Price Value in Book			
0.5	1.0	1.5	1.0 click to calculate

Figure 3

The company shows a net income percentage of -2.28%‖ of its outstanding shares.

AC * % Net income 341,692,000 * 2.28 = 779,057,760

Net income is —779,057,760‖



Confiabilidad de la empresa Goog, Inc.	Variable	Valor	Log
	Maximium	10886.38	4.03688349
	Minimum	10829	4.0345884
	Variation	0.47	0.327902142
	PPP	0	0
	Max. prev. year	7892.5	3.897214591
	Minimum one year prev.	6573.75	3.817813184
	Outstanding shares	341,692,000	8.533634811
	Partition 1		
	Partition 2		
	Partition 3	0	0
	Partition 4	10839.07	4.03
	Partition 5	10886.38	4.03
	Partition 6	10837.4	4.03
	Partition 7	10840	4.03
		10860.5	4.03
		10860.5	4.03

Figure 4 Reliability

As shown in the table above, the logarithm of the partitions is constant, for this reason it is said that Goog Inc. is solvent and financially well and does not need to finance or leverage, because it has a financing of 4.03 % of dividends generated.

On the other hand, the value of R2 as shown in graph 2.1 is < 0.5, therefore it is determined that it is a financially solvent company.

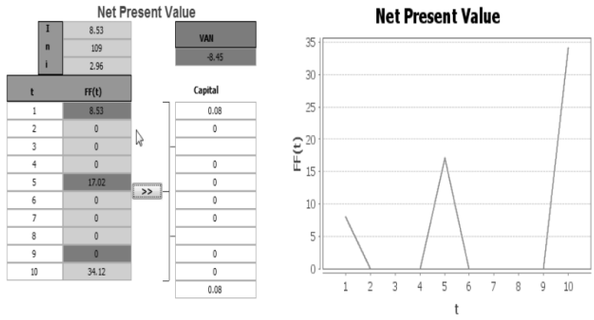


Figure 5

Net present value

Internal rate of return

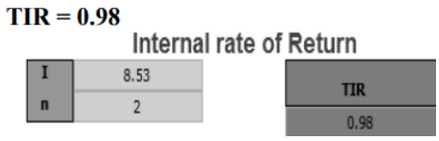


Figure 6

Acquisition payment rate

Figure 7

Government subsidy rate

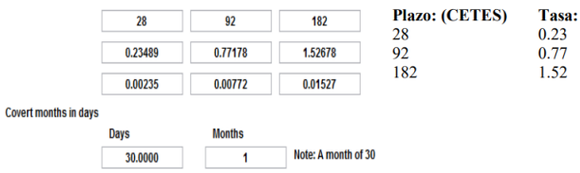


Figure 8

Funding frontier

Figure 9

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ISSN-On line: 2524-2032

Article **Journal-International Economy**
June 2021, Vol.5 No.8 12-15

Business risk management: research developed in the professional field

Administración de Riesgos Empresariales: Investigación desarrollada en el ámbito profesional

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DOI: 10.35429/JIEC.2021.8.5.12.15 Received January 20, 2021; Accepted June 30, 2021

Abstract

An approach to risk management globally from the professional perspective, useful for future research.

Enterprise risk management, Survey, Professional association

Resumen

Una aproximación a la gestión de riesgos a nivel global a partir de la perspectiva profesional punto de partida para investigación futura.

Gestión de riesgos empresariales, Encuesta, Asociación profesional

Citation: MARTINEZ, Rosalba & BLANCO, Dopico. Business risk management: research developed in the professional field. Journal-International Economy. 2021. 5-8:12-15.

† Researcher contributing first author.

Introduction

In the last decade, research on the subject of enterprise risk management (Enterprise Risk Management) has gained relevance in professional practice.

Different professional associations have developed studies based on the survey method, in order to identify the current state of practices adopted by companies in this regard.

The objective of this work is to analyze 12 studies carried out by eleven different institutions classified into three groups, the studies issued by professional associations (1) that guide professional practice, (2) the studies developed by accounting and auditing firms, and (3) the studies published by some other firms that offer services specifically in the risk area and other firms recognized for the dissemination of financial information.

The text is structured in four sections: first, the professional associations that have published studies related to risk management using the survey method are listed (section I). Subsequently, the results obtained in the studies focused on the types of risks are analyzed (section II). Next, the results related to the risk management process are analyzed (sections III); and, finally, the conclusions are presented (section IV).

Risk management studies using the survey method

The twelve studies selected for analysis are presented in Table 1.

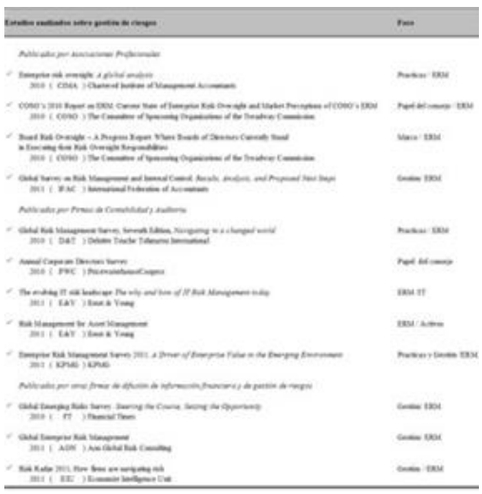

Table 1 Anys Studies carried out by professional associations and firms on risk management based on the survey method

Metodology

The results of each study were analyzed using content analysis.

To obtain an answer at the international level (7 out of 12 studies), the firms selected a response profile with a focus on the positions occupied by senior management (10 out of 12 studies) and members of the board of directors (in 2 out of 12 studies).). The response predominantly offers the perspective of directors or risk managers (3 of 12 studies) as well as CFOs (3 of 12 studies); There was also a response from the directors of the business unit, the information technology directors and those responsible for internal audit.

According to the location of the operations of the participating companies, it is possible to distinguish the predominance of companies located in the United States (9 of 12 studies) and in Canada.

From there by highlighting the participation of the North American region, as well as in some other studies, the greater response from countries such as the United Kingdom and India.

Regarding the size and sector of the participating companies, a higher level of response was notable from small and medium-sized companies (5 out of 12 studies) as well as from those belonging to the financial, banking and insurance sectors (9 out of 12 studies).

Results

Types of risks

Among the different types of risks faced by companies (24 types of risks), economic risks stand out, given the effects of the expansion to emerging markets and the global financial crisis, in second place are the risks of the financial markets, with a focus on cash flow and capital availability risks, while legal risks, referring to the risks caused by changes and the creation of new regulations, occupy the third position. Next, the operational risks are located, where the supply chain and strategic risks stand out, in particular, the risks in business structures, such as mergers and acquisitions.

ISSN-On line: 2524-2032

Regulation

Thes guidelines that make up the conceptual framework for risk management adopted by companies, highlighting the COSO II ERM framework, the one corresponding to the Australian standard AS/NZS 4360 and the ISO 31000:2009 standard. In addition to defining risk management, we identify the definition of internal control as complementary concepts and functions and the arguments for its integration exposed by IFAC.

Emphasis is placed on the changes in the guidelines (AON, 2011) mainly developed in the United States and the United Kingdom, corresponding to the new disclosure requirements by the SEC and the update of corporate governance, respectively (FT, 2010 and PwC , 2010), where the emergence and change in particular guidelines that regulate the financial sector stand out, such as the Basel II and III agreements, Solvency II, the Dodd Frank Law and the report by Sir David Walker (D&T, 2010 E&Y, 2011) .

Implementation of ERM risk management

ERM risk management systems or programs have been implemented in companies and are currently continuing their development towards formal systems, beyond operational and immature stages. In many of the companies participating in the studies, risk appetite policies have been established in writing and have been approved by the board, while in some others they are still in the process of establishing them; in any case, most of the studies analyzed have been identified as an area that can be improved.

Among the main tools for risk measurement and assessment are the intuition and experience of managers, KRIs or business unit risk registers, highlighting the need to use other tools, such as scenario planning, risk indicators generated abroad, risk mapping, analysis of decision trees, opinions of external experts in the field, statistical analysis or probabilistic models.

And individual analysis or facilitated by the responsible group, the SWOT analysis, the opinions of internal agents who are experts in the matter, table-top simulation exercises, etc.

The communication of the information generated in relation to risk management is mainly intended for the information councils, in accordance with the requirements of the regulatory framework. The use that the boards have given to such information varies with respect to percentages that go from 50% to 70%, highlighting the summary of the key risks of the entire company and of the operating units and the related information at the operational and strategic level. . The reporting process has been formal for many companies, while for others it has been casual and less robust. Similarly, other senior management positions besides the CEO are reported, such as the CFO and the treasury manager.

Conclusions

Risk management is a widely studied topic, not only in the academic field but also by professional associations and consulting firms. This topic is current and novel because, without a doubt, successful companies will be those that are prepared to anticipate future needs and undertake the process of risk management. Hence, the related research is useful and considered as a frame of reference not only for researchers, but also for managers, directors and boards of directors.

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ISSN-On line: 2524-2032

Article **Journal-International Economy**
June 2021, Vol.5 No.8 16-23

Determination of competitive cluster to through qualitative methods that include SMEs in the state of Guanajuato

Determinación de clúster competitivos a través de métodos cualitativos que incluyen empresas Pymes en el estado de Guanajuato

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DOI: 10.35429/JIEC.2021.8.5.16.23 Received January 25, 2021; Accepted June 30, 2021

Abstract

This paper is a compilation of the methodology that will arise for case studies for analysis of productive clusters in the State of Guanajuato through qualitative exploratory research. This work collects information supporting the initial study of the agribusiness sector, identified as a strategic cluster for the development of the State of Guanajuato. The faculty of the Universidad Tecnológica de León with name Business Models and Experimental Economics recognizes the need to raise research in this sector and to strengthen its academic approach from the first step of an investigation that will have different stages to generate a full investigation of exploratory and conclusive type.

Cluster, Qualitative methods, SMEs companies, State of Guanajuato

Resumen

El presente trabajo es una recopilación de la metodología que se planteará para realizar estudios de casos para el análisis de clústeres productivos en el Estado de Guanajuato a través de investigación exploratoria de tipo cualitativo. Este trabajo recopila la información que sustenta el estudio inicial del sector agroindustrial, identificado como un clúster estratégico para el desarrollo del Estado de Guanajuato. El cuerpo académico de la Universidad Tecnológica de León con nombre Modelos de Negocios y Estudios de las Organizaciones reconoce la necesidad de plantear investigación en este sector y busca fortalecer su planteamiento académico a partir de este primer avance de una investigación que tendrá diferentes etapas paranpoder generar una investigación completa de tipo exploratoria y concluyente.

Clúster, Métodos cualitativos, Empresas PYMES, Estado de Guanajuato

Citation: LÓPEZ, Adriana, NAVA, María Georgina, RAMÍREZ, Wendy Azucena Carolina and ESCUDER, Verónica. Determination of competitive cluster to through qualitative methods that include SMEs in the state of Guanajuato. Journal-International Economy. 2021. 5-8:16-23.

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Introduction

According to what was studied, the added value of studying cases for clusters lies in the fact that they are areas of potential growth according to the study developed by Sagarpa and its author Arellano in 2013. It is stated in this article that "there is a focus on productive agglomerations (clusters) as a way to promote the integration and competitiveness of the agri-food sector in Mexico". Likewise, the author points out that according to the work carried out within the framework of the technical cooperation strategy of the United Nations Food and Agriculture Organization (FAO) and the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) related to the definition of public policy guidelines and the strengthening of the SAGARPA planning model (they comment that it is) indisputable the challenge involved in designing and operating a public policy oriented towards a sustainable and robust agri-food system ; that is characterized by being efficient and innovative; socially and economically inclusive; sensitive to market signals; integrated with trade; and that it provides adequate, reliable and safe food so that, as a whole, it contributes to rural development and national and global food security. sensitive to market signals; integrated with trade; and that it provides adequate, reliable and safe food so that, as a whole, it contributes to rural development and national and global food security. sensitive to market signals; integrated with trade; and that it provides adequate, reliable and safe food so that, as a whole, it contributes to rural development and national and global food security.

The added value of the research is that, as Arellano comments, there are "productive groups or clusters that allow organizing, coordinating and better channeling the provision of services and support instruments, given that they address collective and interdependent needs." The author confirms that these expand the possibilities of taking advantage of the opportunities that they present in the market based on the comparative advantages and existing strengths in the territories. This is why it is so important to focus on clusters and their systems.

The challenge in sectors such as food and agriculture are that there is a notable inequality between socioeconomic actors, which makes coordination and cooperation schemes difficult, highlighting in particular the atomization of primary producers prevalent in Mexico. Another limitation is also relevant in terms of the differentiated technological model that hinders its complementarity, as well as the lack of financing, infrastructure and insufficient equipment. Also, it is pointed out that there is little linkage with research and technology transfer instances, among others, as confirmed by this study. That is why it is vitally important to add value by looking for qualitative methods through case studies and interview guides TO pave the way for clusters to improve.

It will be sought through in-depth interviews and with key sectors of participation to better define key situations such as:

- Diagnosis, evaluation and permanence in the affected sector.
- Knowledge transfer.
- Identification of the development phase of the cluster in question.

Thus, we consider that through a qualitative analysis we can generate the transfer of knowledge so that the analyzed clusters can generate potential for innovation and growth through the development of new products and services.

There is a clear initial analysis scheme, one identifying the productive clusters, then their importance, then our sector of interest, which is agribusiness in the State of Guanajuato. Then the qualitative methodology to be followed and the expected results in its application will be explained. It should be clarified that this proposal is the initial diagnosis of subsequent and complementary phases of an identified growing sector that will be proposed from this initial exploratory study.

ISSN-On line: 2524-2032

Development

The realities of productive clusters

According to the OECD "there are studies related to the experiences with industrial clusters in other OECD countries that emphasize the importance that the government can have in promoting new companies, in stimulating innovation, in coordinating policies, in strengthening human capital, in facilitating access to financing and in eliminating bottlenecks (OECD, 2009a). Empirical evidence suggests that, once the convergence processes in business creation at the industrial and regional levels are taken into account, the formation of new businesses and job creation register higher growth in industries located in regions with robust clusters. Participating industries in a robust regional cluster show higher growth in patent granting and even they can improve growth opportunities in related industries and in those with activity in neighboring clusters. However, policies to promote clusters should avoid ex-ante "picking the winners", and focus on strengthening existing industrial networks, improving infrastructure and promoting links with universities (Warwick, 2013).

Access to credit, especially in the seed and launch stages of a business, continues to be a major obstacle to boosting business creation in Mexico (OECD, 2013b, 2013c). Private equity and venture capital represent only 0.02% of GDP, one of the lowest figures in the region. In 2013, the National Institute of the Entrepreneur was created in order to improve and implement schemes aimed at the needs of entrepreneurs, including the formation of a seed capital "fund of funds". It would be especially useful to strengthen the conditions for business creation through the improvement and expansion of programs aimed at financing angel investment and venture capital. The member countries of the Pacific Alliance have worked together to promote financing for SMEs.

The importance of productive clusters

According to the author Lagulla, the world economic map is currently dominated by what are called strategic groups, economic groupings or clusters, which have proven to be critical masses of unusual competitive success in specific fields, present in almost any geographic region.

The author tells us that such groupings are concentrations of interconnected companies and institutions in a particular field, which compete and cooperate. Within this new context of organization of economic activities, industrial groupings (clusters) are fundamental to the point where the competitive capacity of cities.

Regions or national states rest on the performance of their clusters and the interactions between the elements that determine their functioning. (Lagulla, 2010). Lagulla confirms that cluster-based policies offer a broad perspective approach to understand the conditions and trends of the economy, as well as the challenges and opportunities that this implies. Such policies offer the potential to positively affect a large number of businesses at relatively low cost to the government; however, they require government, business and other decision makers to play different roles (Turner, 2001). This case is important because it highlights the relevance according to the author of the identification and evaluation of the performance of their local production chains, since this allows integrating or consolidating the productive links of a region. In addition, the analysis of the constitution of productive chains (regional industrial clusters) allows establishing what type of competitive advantages a locality has, as well as the transmission flows of knowledge and its potential for innovation. (Lagulla, 2010).

Clusters in the agro industry

Lhe clusters represent a modality of spatial organization, an alternative way of organizing value networks, and a way to face the enormous challenge of integration () as a crucial aspect in the articulation and integrality of agricultural and rural policies () thus, the flow of information contributes from the local, which includes territorial strategies –considering the comparative advantages of the territory (which) it would be efficient to identify clusters and include them in the framework of the agri-food chain integration policy, taking advantage of the foundations of private and public institutions existing (Arellano 2013).

ISSN-On line: 2524-2032

It is very interesting to note that Arellano 2013 says that the proximity of producers, industries and institutions – governmental, academic, research and development – in a locality, and their constant interaction, facilitates the development of bases of coordination and trust. In addition, innovations can flourish in environments that foster linkage, interaction and collaboration between knowledge generators as cited by the author according to the OECD, 2007.

Clusters and SMEs

In agreement García, P tells us that it is particularly interesting to investigate how to generate new management practices based on a qualitative approach to clusters, with the purpose of achieving a greater understanding of the business dynamics of small and medium-sized companies at the same time to detect requirements and capacities that, supported by a management style oriented towards innovation and development of know-how, offer as a result an increase in the competitiveness of this sector. For these authors it is clear that an adequate methodology will offer better perspectives to achieve the expected result. The authors comment that according to the experience of many countries, it shows how SMEs were and continue to be the drivers of economic growth.

All this means that) to participate in the transformation processes that SMEs are going through, they can respond to the needs of survival and development of a highly competitive economy. (Garcia, 2015).

The productive cluster in Guanajuato

The case of Guanajuato stands out due to the intention of its consolidation of industrial clusters and its economic impact. According to studies currently published in Mexico, economic planning in Guanajuato should focus its strategy on seven productive clusters: automotive and auto parts; textiles, footwear and fashion; Logistics; agrifood; Health & Wellness; tourism and housing, and urban innovations. This is summarized in one of its sections by the document "Guanajuato Innovation & Territory", which was carried out in collaboration with the state and federal governments, with the technological and scientific support of the Fundación Metrópoli, of Madrid, Spain.

"The central areas of the state, due to their relationship with the large infrastructures and with the large production and consumption centers of Mexico, present ideal conditions to become the great logistics center for the supply of the Diamond of Mexico," according to the document. (JIMENEZ, 2012).

Methodology to develop

In order to identify the productive clusters, he refers to the qualitative methods found by Arellano 2013, who in his qualitative analysis considers that the statistical information is objective; however, there is a risk of leaving out clusters that may be relevant for other reasons, such as their importance in terms of social and regional development.

Thus, the need to propose a reliable qualitative analysis that gives us the opportunity to analyze SMEs case by case, turning our study method into success stories in the region in clusters identified by their growth and economic impact. (Arellano 2013).

This qualitative analysis that will be carried out in this first stage, mostly denotes a merely exploratory activity, without having a conclusive methodology as first deliveries; However, this does not mean that only exploratory research will be contemplated, on the contrary, the opportunity to develop more than a diagnostic analysis base in productive clusters makes it necessary to have related projects that have conclusive research, in the first instance transversal through scientific observation methods, completely structured, that allow us to determine best competitive practices in the regional industries analyzed.

The case studies referred to by Arellano 2013 are analyzed following the methodological criteria proposed by Yin (2009), which considers building internal and external validity, and credibility. Internal validity refers to the use of multiple sources of evidence, such as books, theses, previous studies, and the establishment of a chain of evidence that includes interviews with key actors and the use of the "snowball" technique, where a key actor points out other actors who have valuable information to complement the investigation.

ISSN-On line: 2524-2032

For the case of case studies, we will also focus, as Arellano points out, on "external validity is built based on theory and through the analysis of several cases. Credibility is achieved by using a research protocol or terms of reference, and the use of databases.

Before the field phase, the interview guide was created. The information obtained through the interviews (will be) the basic input for the analysis of the clusters. (Arellano 2013).

According to the construction of our methodology, we propose a diagnostic interview for the construction of the interviews, where we will analyze certain areas of the organization and support the course of our final analysis.

As a reference to the internal and external validity of the organization, we point out the following for our evaluation since we will seek the development of an instrument that measures indicators through in-depth interviews in the cases presented.

The diagnostic context in which planning is developed will be determined, according to Fayol and other authors, through knowledge of the administrative process (which occurs in every organization). This process is located in the initial part of the process, whose basic purpose is the achievement of organizational objectives. Thus, planning constitutes the basis that defines the essential aspects of the functioning of each organization, by establishing its objectives and the work that each of its component parts must carry out to achieve them.

Planning is defined as the action consisting of using a set of procedures through which greater rationality and organization are introduced into a set of activities and actions articulated among themselves that, planned in advance, have the purpose of influencing the course of certain events. to achieve a situation defined as desirable, through the efficient use of scarce or limited means and resources.

These strategies are alternative courses of action, which solve the problem of how to achieve the most efficient adaptation of the means to the ends or purposes of the company. (Garcia & Valencia, 2012).

It can be deduced that strategy is a word that is constantly being used in everyday language, generally, to refer to how a certain objective will be achieved or what will be the path that will be followed to achieve it.

According to Fayol, there are three types of planning: Strategic, operational and tactical planning.

Strategic planning: It is comprehensive in the long term and relatively general. Strategic plans focus on broad, enduring themes that ensure the company's effectiveness and survival for many years. The strategic plan establishes the purpose of the organization and can describe a set of goals and objectives to move the company forward into the future.

The tactical planning: It is located in the link that can be established between the processes of strategic planning and operational planning. It is more limited, specific and medium term compared to strategic planning. Tactics is more about efficiency issues than long-term effectiveness.

Operational planning: It is established in the short term; it is specific, and it is oriented to the achievement of the determined objective. Operational planning converts the general concepts of the strategic plan into clear figures, concrete steps and measurable short-term objectives. Operational planning demands an application of resources that is efficient and cost-effective in solving problems and achieving the established objectives.

There are different authors who handle the concept of strategic planning, of which the following is shown according to García & Valencia (2012) that "it is a process that guides the management of an organization to achieve its objectives; This means that a series of steps must be carried out to determine the strategies to achieve them".

The strategic planning process on which said project was based; raised by Ferrell OC & Hartline, Michael D. (2006) is presented according to the following table:

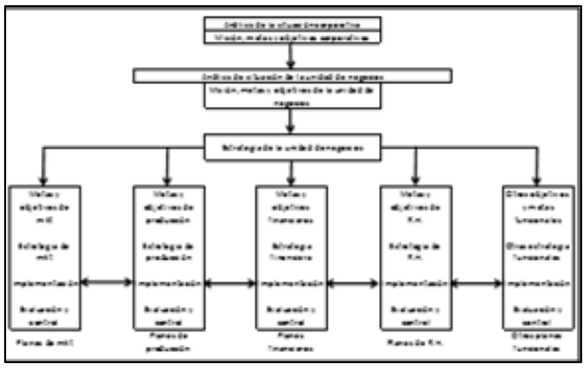

Figure 1 Strategic planning process
Source: Ferrel & Hartline, 2006

Variables of the instrument to follow

For the analysis of the situation, an adhoc instrument is proposed that measures the analysis of the corporate situation, which is made up of the internal environment, environment for clients and external environment:

The internal environment includes the following:

Review of objectives, strategy and current performance: Their evaluation is necessary to ensure that they are consistent with the mission and the external and customer environments, which are constantly changing and, if necessary, re-evaluate the company's goals.

If the objectives prove to be outdated or deficient.

Availability of resources: the current and anticipated levels of resources of the organization should be reviewed. This review includes an analysis of financial, human, and expertise resources, as well as any resources the company manages in key relationships with its sourcing partners, or customer groups.

Organizational Culture and Structure: Lastly, identify current and anticipated cultural and structural issues that could affect activities in your area. One of the most important aspects comprises the internal culture of the company.

The environment for customers should study the current and future conditions in relation to customers in the company's target markets. During this analysis it is necessary to collect information that identifies:

Customer environment comprising the following

Current and potential clients: requires an analysis of the relevant characteristics that identify the target markets. Including demographic, geographic and psychological characteristics. In addition, the type of product, the people who influence the purchase are as important as the customers.

- Constant needs of current and potential customers.

- Basic characteristics of the products and their competitors as perceived by customers that meet their needs.

Anticipated changes in customer needs.

External environment comprising:

factexternal factors (competitive, economic, political, legal/regulatory, technological and socio-cultural) that exert direct and indirect pressure.

Results

It is intended that with the investigation we trigger ad hoc case studies for the analyzed sector, likewise from this methodology we can identify the areas of benchmarking and confirm through quantitative methods derived the existence, life cycle and classification of the analyzed cluster. We intend with qualitative case study research to identify the strengths of the analyzed cluster and trigger the transfer of knowledge for the prevalence of the cluster in question. It should be noted that according to what has been studied, strengths, weaknesses, opportunities and threats will be proposed, such as the case study presented by Martínez (2011), which points out the SWOTs derived from industries as a result of his investigation.

Likewise, we intend, as Lagulla 2010 says, to determine the "degree of interdependence between the members of the conglomerate". In this way we will evaluate the necessary transfer of knowledge to then move on to the possible stage of evaluation of the dimension to which it refers to the stage of development of the grouping. According to the author, the clusters are classified as existing, emerging or potential and their geographical reference is essential for the sector.

ISSN-On line: 2524-2032

Gratitude

We thank the Technological University of León through Azeneth Irazu Franco Bravo, for her support and collaboration with ideas to point out the research work.

Likewise, Lic. Francisco Becerra Chiu who, without being part of the project, participated in reviewing the methodology and initial research work.

Conclusions

This work precedes the study to be carried out on clusters identified for the case study. Currently, work is being done on the initial specifications of the diagnosis, detecting an area of opportunity in the agri-food sector with a specialty in farm products and their transformation processes for conventional and innovative products in their sector. This methodology is the basis for the following publication work on the information of a pertinent technical report of the process of the case studied. We will focus on the line of research of the academic body that is on SMEs given the importance of the sector in the State of Guanajuato. We must not forget that as quoted by Porter according to the author Vidal-Suñé, A., This well-known author comments on the concept of a cluster, which is the natural union of companies in a specific sector, and with other related industries, in a given territory. These companies develop connections with a large number of support services to generate synergies, externalities, cooperation and diffusion of technology; characteristics that give the cluster competitive advantages. It is of vital importance for the productive sector of the State of Guanajuato to look for the same opportunities that the author Vidal-Suñe, A points out, such as the presence of increasing returns, labor mobility and transaction costs. Likewise, we seek to know "the specialization of human capital, information flows.

It is very interesting that the geographical proximity indicated by Vidal-Sueñe, A facilitates communication, technological externalities in these clusters and induces the efficient provision of intermediate inputs at a lower cost. All this has repercussions in better market shares in inputs and products, as well as a reserve of qualified local labor.

In addition, it is important to reinforce the vision that we share, this author affirms "the advantages derived from external economies are reinforced by the deliberate forces that arise from the joint actions developed in close collaboration by the companies that form them; closely related to inter-company cooperation as a result of trust, social capital and codes of behavior that establish a shared socio-cultural identity" (Vidal-Suñé, A, 2012).

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ISSN-On line: 2524-2032

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Vera Garnica, Jose Ricardo; Ganga Contreras, Francisco Anibal. (2007). Industrial clusters: conceptual precision and theoretical development. Administration Notebooks, January-June, 303-322.

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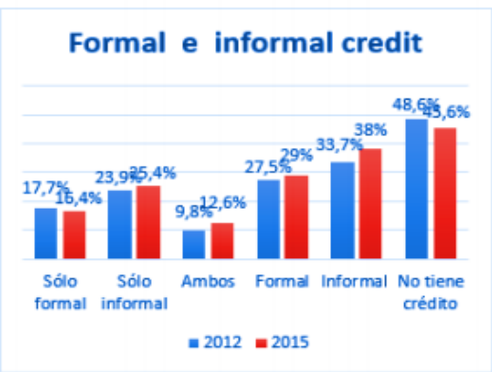

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Journal-International Economy

2524 2032
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