A Discussion on Corruption and Political Risks in Latin American Countries - a General View Using Chaos Theory

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Abstract – Along this chapter, a general view over political risks and corruption is given, analyzing the way these phenomena distort the economies. Chaos Theory is used to show social instability and disorganization effects in economies development. The consequences in developing countries socio-economic structures are complex as much as there are dynamic interactions with a complex effects net in systems. This issue is studied having by reference Latin American countries, where corruption is easily understood as a phenomenon that much distorts these countries development. Historically, in general, these countries have great potential to make business and to receive foreign investments, being potentially attractive to companies. Anyway, political risks and corruption are seen as serious obstacles when investments are studied in terms of business attractiveness. In recent years, corruption is perceived as being increasing, creating a brake to development and to stability on these socio-economic systems. In literature, chaos theory has been applied recently also, particularly, in the politics context. A reflection on chaos theory in dynamical systems is made to understanding political issues and corruption. Some events in the political context in Latin American countries are considered. Macro-strategic ideas of states positioning in the international stage are also taken in account. Following this argumentation, the "Drop of Honey Effect" metaphor is applied, somewhat parallel to that of "Butterfly Effect". "Drop of Honey Effect" is considered to be more suited to portray social phenomena and in this particular case to political phenomena, than the "Butterfly Effect".

Keywords – Political risk, corruption, international investment, Latin America, chaos, drop of honey effect.

1.   Introduction

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[1] Latin America consists of a set of sovereign states and several territories and dependencies which cover an area located from the northern border of Mexico to the southern tip of South America, including some Caribbean Territories, comprising nearly 13% of the Earth's total land surface area.

[2] In Filipe, Ferreira and Coelho (2012) a study was made involving corruption and political risks. In Ferreira and Filipe (2012), Filipe and Ferreira (2013a,b) and Ferreira *et al.* (2014) the 'drop of honey effect in chaos theory was presented. This work intends to join both subjects and integrate them in a unified perspective of analysis, considering the problem of corruption and political risks as phenomena explained by dynamical systems theories, particularly involving chaos.

Corruption is nowadays perceived as a strong inhibition to effective development worldwide, conducting to a set of serious problems in terms of nations' wealth. Illegal appropriation of wealth, the abuse in several kind of local, regional and national administrations are huge problems particularly in developing countries as it is the case of Latin American countries. Corruption is a big factor of distortion in terms of wealth and resources distribution or of inequity in social justice. This problem involves ethical and legal contours. The existence of intervention mechanisms is indispensable to manage, for example, situations in which people are positioned to be tempted to improperly take or influence ownership of third parties resources or to be in a position to influence illegally other people.

Chaos is very interesting in explaining disrupts in structure, considering inherently disorder and instability in systems. It is interesting to consider the governments' importance in structures administration. Nevertheless, a possible consequent appearance of structural instability sources may be associated to governments' interventions, which is so visible in national and international contexts. Disorganization – social, economic, or even cultural - becomes a way of expressing the chaotic and complex net of inefficient relationships in a system.

Political risks, corruption and even also violence and several kinds of crimes destabilize socio-economic structures as much as obstruct economic development and companies' investments. These phenomena represent serious barriers to the systems stability and to moral principles which are deeply violated. Foreign investment is often kept away from these countries once international companies avoid countries where corruption undermines societies' structures and where justice does not work properly.

As referred by Shleifer and Vishny (1993), governments' institutions structures and political processes are very important determinants of corruption. Usually, when corruption is present, political institutions are undermined, democratic processes are distorted, political instability prevails… Also social injustice and inequalities increase, being potentiated when rules get perverted. In these situations, the judicial system usually gets particularly inefficient.

Many ways of corruption are present in modern societies. Corruption provokes strong distortions in economic structures but also in the pillars of democracy and in the political forms of institutions' organization. Particularly, being the political corruption one of the most powerful forms of corruption, in many countries it is so strong that economic activities cannot carry on a sustainable growth and the socio-economic development.

Illegal acts committed by political officials constitute political corruption when they are directly related to their official duties, involving particularly their ability to influence others' decisions. The use of politic influence by government members imply illegitimate private gains.

Kinds of corruption are very different in nature. Anyway, activities that constitute corruption, illegal, are different from country to country and from one jurisdiction to another. The same political funding practices for example may be considered legal in one country and illegal in another one.

Using the example of campaign contributions, even when they are legal, they may be considered a form of corruption. They provoke a bias in the electoral process benefiting particular interests. This kind of practices undermine public confidence in political institutions. These practices corrupt institutions even if there are individual members who are not corrupt themselves. Also similar problems of corruption may happen on organizations in which an institution's manager decisions conflict by considering his/her personal interests and the primary purposes of the institution he/she manages.

Considering these general points about corruption and having the political structures as a reference for international investment, an analysis of the situation of Latin American countries is made in order to understand the current status and prospecting for a future conscientiousness of the situation. For that, chaos theory is used depicting the idea that many activities reflect dynamic forms of analysis and a very complex and widespread reality, specific of complex systems, which dynamics are very hard to model and understand. These realities fall within a range of situations integrated in a broader context. This context is intended to be reproduced in the theory but also intended to be integrated in the complex environment of their own dynamic, with complex and often chaotic features into their essence.

International financial and economic relations have shown the weaknesses of national, international and transnational economic systems, exposing how international finance is dependent on a set of economic networks and sometimes specific events with strong implications on the stability of systems. Example of this is the Madoff case[3]. In chaos theory this shows the "Drop of Honey Effect" working: Madoff's personal and business asset freeze created a chain reaction throughout the world's business and philanthropic community, forcing many organizations to at least temporarily close.

After the Introduction, in this chapter, in short, it is intended to deal with:

- Political risks and corruption.

- Dynamical systems, in general.

- Chaos theory.

- Political risks in Latin America.

- Corruption in Latin America.

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[3] The Madoff investment scandal was a major case of stock and securities fraud discovered in late 2008. In December of that year, Bernard Madoff, the former NASDAQ Chairman and founder of the Wall Street firm Bernard L. Madoff Investment Securities LLC, admitted that the wealth management arm of his business was an elaborate Ponzi scheme.

- Chaos theory applied to Latin America.

- Some final remarks.

2.   Political Risks and Corruption

International companies' investments in foreign countries require a complex analysis considering the conditions of attraction. Political conditions, involving the risk of the country and the levels of corruption in the country, are determinant in companies' studies and reports. The stability of a country's government is also important when an international company's study is made.

As stated in Filipe *et al* (2012) the economic and social development of developing countries depend often on commercial advantageous investments and on the reinvestment of capitals on these economies. Economies need to grow up and for that, at a large extent, they require foreign capital and foreign investments. The risk involved in the operation is determinant to an economy to be interestingly attractive for investors.

Even though, often governments attempt to present policies that are investment's friendly, with management systems and facing a control of economic activities' structures. In international business high levels of corruption still exist in many countries, increasing the political risk of any host country that cannot be neglected in agents' decision-making.

Considering the importance of the term "political risk" to the context of international investment some ideas are left in this chapter about it. The term "political risk" appears often in the international business literature and by its usage usually it is meant that there is a strong chance of unwanted consequences arising from political activity. However, the precise meaning is far from just that. Political risk is customarily seen as the (usually host) government interference in business operations.

As referred in Moura *et al* (2011), in fact, many authors define political risk as the government interference with business operations (see, for example, Carlson (1969), Greene (1974) Baglini (1976) or Lloyd (1976)). Others define political risk in terms of specific events (certain political acts, constraints imposed on firms, a combination of both). Political risk can be regarded as any political change that alters the expected outcome and value of a given economic action by changing the probability of achieving business objectives (Price Waterhouse Coopers, 2006).

Simon (1982) definition refers to political risk as the governmental and societal actions and policies, originating either within or outside the host country, and negatively affecting either a select group of, or the majority of foreign business operations and investments (Simon, 1982, cited in Jessen, 2012). Simon (1982) definition of political risk includes political risks emanating from the host-country environment, home-country environment, international environment and the global environment. It views political risk

in the general environment context, whilst differentiating between internal and external causes of political risk, and includes both the country factors as well as the industry-specific concerns (Jessen, 2012).

Political risks may arise from national governments' actions which interfere with or prevent business transactions, or change the agreements terms, or cause the confiscation of wholly or partially foreign owned business property (Weston and Sorge, 1972). Root (1976), cited in Kobrin (1978), defines political risk in terms of the "…possible occurrence of a political event of any kind (such as war, revolution, *coup d'état*, expropriation, taxation, devaluation, exchange controls and import restrictions), at home or abroad, that can cause a loss of the potential profit and/or of the assets in an international business operation".

Political risk is related to a set of risks on different areas as financial and market risks, for example, or others that imply losses for companies and individuals resulting from political decisions, changes or other disruptions.

In fact, there are many factors influencing business and one of them results from a political decisions' basis. Political decisions taken by governments in areas such as taxes, currencies, trade tariffs or barriers, investment regulation, wage levels or wage legislation, labor laws, environmental regulations and development priorities, for example, affect companies and their environment and market conditions as much as their profitability conditions. Also many non-economic factors affect businesses framework. Political disruptions (terrorism, riots, coups d´état, civil wars, international wars, and even political elections) have huge consequences in business and markets, and companies need to consider all these factors on their analysis.

By its turn, corruption is determinant in political risks' analysis. Corruption may involve also institutions of government. The policies of corrupt governments in general potentiate the resources which are controlled directly by them and have the particular consequence of increasing poverty. According to Brink (2004), corruption implies that a transaction takes place between a corruptor and the corrupted.

There are many definitions for corruption. All of them highlight the pernicious nature of corruption. In consequence of the multiple effects that corruption has, it is important to understand the way followed by market economies in their socio-economic development process.

Moura *et al* (2011) refer that political risk in general is much difficult to quantify contrasting with economic or financial variables, which measuring is often easily performed. If it is possible to calculate political risk "scores" or other quantitative-looking benchmarks, it is important to have in mind that the calculus is ultimately based on qualitative judgments.

An evident corollary of corruption is the markets' poorer performance and accomplishment. As Senior (2006) reminds, corruption means 'decomposition; moral deterioration; use of corrupt practices (bribery,

etc.); perversion (of language, etc.) in its original state'. In the way it interests for our purposes, corruption may be highlighted through some of the following ideas in terms of the definitions considered next. For example, according to Morris (2004), the term corruption is described as the illegitimate use of public power to benefit a private interest. Senior (2006) defines corruption considering five conditions that must all be satisfied simultaneously. Corruption occurs when a corruptor (1) covertly gives (2) a favour to a corrupted or to a nominee to influence (3) action(s) that (4) benefit the corruptor or a nominee, and for which the corrupted has (5) authority.

Senior (2006) makes a profound literature review on corruption. This author presents, for example, a corruption classification, made according to Heidenheimer (1989), considering the following three categories:

- 'Black corruption', which indicates that a particular action is one that a majority consensus of both elite and mass opinion would condemn and would want to see punished on grounds of principle;

- 'Grey corruption', which indicates that some elements, usually elites, may want to see the action punished, others not, and the majority may well be ambiguous;

- 'White corruption', which signifies that the majority of both elite and mass opinion probably would not vigorously support an attempt to punish a form of corruption that they regard as tolerable.

Senior (2006) also shows a list of forms that corruption can take, according to the Johnson and Sharma (2004) framework, which, in their view, encompass more than bribery, as follows:

- bribery and graft (extortion and kickbacks);

- kleptocracy (stealing and privatizing public funds);

- misappropriation (forgery, embezzlement, misuse of public funds);

- non-performance of duties (cronyism);

- influence-peddling (favor-brokering and conflict of interest);

- acceptance of improper gifts ('speed' money);

- protecting maladministration (cover-ups, perjury);

- abuse of power (intimidation and torture);

- manipulation of regulations (bias and election rigging);

- electoral malpractice (vote buying and election rigging);

- rent-seeking (public officials who illegally charge for services after creating an artificial shortage);

- clientelism and patronage (politicians giving material favors in exchange for citizen support);

- illegal campaign contributions (giving unregulated gifts to influence policies and regulations).

As stated by Morris (2004), corruption tends to be higher in countries at lower levels of economic and human development, with lower levels of education, limited political rights, weak or non-existent political competition, a relatively large state role in the economy, lower levels of economic freedom and openness, ethno-linguistic factionalism, the lack of judicial independence and a free press, low civil service wages, abundant natural resource endowments, low levels of interpersonal trust, and high levels of permissiveness toward corruption, among others (on the causes of corruption see also Ades and DiTella, 1997; Brunetti and Weder, 1999; Johnston, 2000; Kaufmann and Wei, 1999; LaPort *et al*, 1999; Mauro, 1995, 1997; Tanzi, 1994, 1998; Triesman, 1999).

Clammer (2012) sees corruption as "a systemic problem in which whole social systems are implicated, and which is generated in large part by dysfunctions in systems themselves.

In fact, corruption is generally viewed as a society's problem, with consistently negative consequences, that deform society's socio-economic structures and often the judicial system in a country, undermining the investment's environment. This general setting brings intricate forms of managing the social country's system and makes a very complicated net of interests that discourage the agents' official actions inside the system. The well known problem of Latin American countries on this subject is much studied in literature and many reflections on it have been made in the course of the past decades. Recently this phenomenon has increased again in many Latin American countries.

3.   Dynamical Systems

A system itself may be considered as a set of interacting or interdependent component parts representing a complex and intricate whole. It is defined by its spatial and temporal boundaries, influenced by its environment, described considering its structure and its purpose and expressed in its functioning.

As Rickles, Hawe and Shiell (2007) state: "a system is simply the name given to an object studied in some field and might be abstract or concrete; elementary or composite; linear or nonlinear; simple or complicated; complex or chaotic. Complex systems are highly composite ones, built up from very large numbers of mutually interacting subunits (that are often composites themselves) whose repeated interactions result in rich, collective behaviour that feeds back into the behaviour of the individual parts. Chaotic systems can have very few interacting subunits, but they interact in such a way as to produce very

intricate dynamics. […] Complex systems can survive the removal of parts by adapting to the change; to be robust, other systems must build redundancy into the system. […] The behavior of a chaotic system appears random, but is generated by simple, non-random, deterministic processes: the complexity is in the dynamical evolution (the way the system changes over time driven by numerous iterations of some very simple rule), rather than the system itself".

Rickles, Hawe and Shiell (2007) add that "a *dynamical system* is a system whose state (and variables) evolve over time, doing so according to some rule. How a system evolves over time depends both on this rule and on its initial conditions - that is, the system's state at some initial time. Feeding this initial state into the rules generates a solution (a trajectory through phase space), which explains how the system will change over time; chaos is generated by feeding solutions back into the rule as a new initial condition. In this way, it is possible to say what state the system will be in at a particular time in the future".

Inherently, these authors complete by saying that "complex and chaotic systems are both examples of *nonlinear dynamical* systems".

4.   Some Generalities on Chaos Theory

To be had in account in this analysis some concepts, generally accepted in chaos theory, are now introduced. So, begin by saying that "the hidden orderly patterns in chaotic behaviour can be presented in the so-called phase space", which are abstract mathematical spaces. They are a set of structured points, normally with a high number of coordinates – each particular variable integrating the model is associated to an own coordinate – so that each point in this abstract space represents a complete and detailed state which the analyzed system could eventually reach. Thus, the larger the dimension – number of coordinates – of the phase space, the better will be the description of a particular state reached by the system (I Font and Régis, 2006).

A trajectory portrays the evolution of any particular system, which can be described by a chain of consecutive points in its phase space. The existence of a trajectory assumes the idea of existence of an attractor, because any trajectory of a system running on the long-term is somehow "attracted" by some points or some closed, in mathematical sense, regions within the phase space describing the system in question. There are several kinds of attractors:

- Punctual attractor

One single point; the trajectory tends to a stable equilibrium.

- Periodical attractor

Two or more "basins of attraction" consecutively visited by the trajectory of the system; there is a periodical oscillatory system.

- Strange attractor

There is no pre-defined shape; it implies a chaotic behavior.

Generally a chaotic behavior is characterized by its extreme sensitivity to the initial conditions, meaning this sensitivity that a very small perturbation of the system in an initial condition may lead it to an exponentially type divergent final state. The trajectories may behave in a very different way in neighboring points, approaching and moving away one from the other in a really unpredictable way: consider for illustration either the Lorenz' metaphor of the "Butterfly effect" or the "Drop of Honey Effect".

It is also adequate to mention the critical moments, i.e., the bifurcation points – which constantly challenge the trajectory of the system – that are positioned where the sensitivity of the system to the initial conditions is stronger. There, the chaotic nature of the system reveals itself in a more radical way, conducting the system to the so-called "limit of chaos". Up to this kind of moments, the trajectory of the system might behave in a quite predictable pattern, but once reached this bifurcation point, the prior order breaks out and the system is driven by patterns of behavior less predictable than ever before. In other words, with nonlinear dynamic systems, the bifurcation implies a change in the system's behavior when it is changing from one attractor to a new one (see I Font and Régis, 2006).

Phenomena happen over time as at discrete, separate or distinct, intervals[4] or as continuously[5] (Williams, 1997). Discrete intervals can be spaced evenly in time or irregularly in time. Continuous phenomena might be measured continuously. However, it is possible to measure them at discrete intervals[6]. Special types of equations apply to each of those ways in which phenomena happen over time. Equations for discrete time changes are difference equations and are solved by iteration, the most of the times, or analytically. In contrast, equations based on a continuous change (continuous measurements) are differential equations. The term "flow" is often associated to differential equations[7].

Differential equations are often the most accurate mathematical way to describe a smooth continuous evolution. However, some of these equations are difficult or impossible to solve. In contrast, difference equations usually can be solved right away. Furthermore, they are often acceptable approximations of differential equations. Olsen and Degn (1985) state that difference equations are the most powerful vehicle to the understanding of chaos.

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[4] Examples are the occurrence of earthquakes, rainstorms, or volcanic eruptions.
[5] Examples are air temperature and humidity or the flow of water in perennial rivers.
[6] For example, it is possible to measure air temperature only once per hour, over many days or years.
[7] For some authors (see Bergé and Pomeau, 1984), a flow is a system of differential equations. For others (see Rasband, 1990), a flow is the solution of differential equations. Note that for the Navier–Stokes equations, that describe the motion of fluid substances, surprisingly, given their wide range of practical uses, mathematicians have not yet proven that in three dimensions solutions always exist, or that if they do exist, then they do not contain any singularity.

It follows a mathematical tool, through which some concepts of chaos theory are modelled, that contributes to explain the possible presence of some effects based on the idea of chaos.

For that, an example may be got from Ferreira et al (2014) for politics, considering the political credibility.

Call x_t the political credibility, of a politician or of a party measured, for instance, in number of votes, or in the number of chamber's members, or even in money, in the year t; and consider b the credibility rate, $-1 \leq b \leq 1$.

It is admissible that in the year $t+1$, $x_{t+1} = x_t + bx_t$, that is: in a certain year the political credibility is the one of the former year plus, or minus, a part of it. So:

$$x_{t+1} - (1+b)x_t = 0 . \tag{9}$$

Solving this difference equation (see Ferreira and Menezes, 1992) it is obtained[8]:

$$x_t = x_0(1+b)^t, b \neq 0 \text{ and } x_t = x_0, b = 0 . \tag{10}$$

Then, according to this model, if the credibility rate is null the political credibility is kept unchanged, assuming always the initial value. If $0 < b \leq 1$, the political credibility follows an increasing exponential path. If $-1 < b < 0$, the political credibility follows a decreasing exponential path converging to 0. Finally, if $b = -1$, x_t is permanently null. Evidently, values like $-1 \leq b < 0$ define political credibility paths that may lead to people's chaotic behaviors.

Indeed, chaos is extremely complex and difficult to be identified in the real world, using the workable information. But, up to a certain point, it is possible to find specific mathematical relationships for problems to be solved either in computers or with laboratory research. As said before, as soon as the idea of nonlinearity was introduced into theoretical models, the existence of chaos analysed through the models was made possible. A very complex structure is observed in field data and just a simple patterns can be found and approximated theoretically; complex patterns to be got through models are much more difficult to find. In any event, it is not possible just grab a nice little set of data, apply a simple test or two, and declare "chaos" or "no chaos" (Williams, 1997). Chaos occurs in deterministic, nonlinear, dynamical systems.

The word "chaos" supposes the existence of turbulence and disorder. The predisposition to a profound change in the direction of a phenomenon generates an own force, understood as a deep change that results from small changes in the initial conditions. The chaos is - from this point of view - something extremely

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[8]Evidently, this is the compound interest capitalization formula, at interest rate b used for financial purposes.

sensitive to the initial conditions. The sensitive dependence on initial conditions shows how a very small change at either a place or a moment in a nonlinear system can result in quite large differences to a later state in the system.

The deterministic chaos, present in many nonlinear systems, can impose fundamental limitations on the human ability for predicting behaviours. Additionally, the exploration of a big number of conditions by a single deterministic result may create the possibility of having a prospective outcome in terms of adaptation and evolution. In the context of artificial life models, this has led to the notion of "life at the edge of chaos" expressing the principle that a delicate balance of chaos and order is optimal for successful evolution (Campbell and Mayer-Kress, 1997). Nevertheless, the essence of life may conduct to specific situations that sometimes bring new ones creating a new order even considering extremely difficult situations.

The "drop of honey effect" is proposed in this work, after its presentation in Ferreira and Filipe (2012), Filipe and Ferreira (2013a,b) and Ferreira et al. (2014) to show how punctual events, some of them apparently with no significant importance, have huge consequences either in economic, social or political terms. This effect was constructed from the wonderful tale written by the Armenian poet Hovanés Tumanian (1869-1923). The "drop of honey effect" may be used instead of the term "butterfly effect" when dealing with social events. While the term "butterfly effect" seems more adequate when dealing with physical and natural events, the "drop of honey effect" seems much more adequate and accurate to evidence chaos in social and political situations.

5.   Political Risks in Latin America

In the beginning of the 1990s, many Latin American countries initiated a way through a transition towards democracy. The transition has driven to the establishment of new political institutions, which has posed challenges for determining the concept of the state and the way in which these institutions should safeguard democracy (Zambrano, 2012).

As Zambrano (2012) reports, in some cases, the transition to democracy stimulated the development of successful economies with effective political and social control systems, leading to greater governability and increased transparency, which had been lacking in many of these countries in the past.

The continent's most prominent example is Chile. After the fall of the dictatorship, it began a rapid process of economic development, which coupled with good investment decisions, opened up spaces for transparency and social control.

In other many cases, however, institutions were not sufficiently strengthened, and corruption was present at all levels of the state, making it the main obstacle to equality and the development of nations.

Nevertheless, in general, Latin America got interesting results and, in particular, in some geographical areas, considering that some important achievements were got as the:

- improvement of the income distribution,

- less poverty,

- more home ownership,

- higher literacy, and

- a more robust democracy.

As Schumacher and Giovingo (2012) report, the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) shows that global FDI grew only 1 percent in 2010, but FDI in South America was up 56 percent to over $85 billion. As has been the case in the past, the United States was the leading source of FDI in the region followed by the Netherlands, China, Canada, Spain and the U.K. These figures suggest that the global business community sees attractive opportunities in many countries across the region.

However, companies can generally expect to encounter certain risks in South America, although to varying degrees depending on the country (Schumacher and Giovingo, 2012):

- Local government officials tend to be paid lower wages and there may be an expectation wages are to be supplemented with "payments" from individuals and companies needing their services,

- The general attitude toward bribery is highly relaxed, and some may even view it as an accepted part of doing business,

- Local laws are complex and often make it difficult to prove and prosecute bribery,

- Customer relationships built on trust may result in a general reluctance to memorialize business agreements or understandings into formal written contracts.

Yet according to Schumacher and Giovingo (2012), as companies consider potential risks within specific countries, they may find the challenges in each country that are in many ways unique. For instance the following factors are considered:

- Chile was rated as having "little or no enforcement" of anti-corruption laws in Transparency International's 2011 Progress Report,

- In Argentina, the government has a history of establishing short-term and long-term trade barriers such as quotas, additional import/export fees, or licensing and registration requirements to protect local industries,

- In a Transparency International study, Argentina was cited as having certain inadequacies in its legal framework to combat bribery and corruption, including no criminal liability for corporations, inadequate sanctions, and inadequacies in statutes of limitations,

- In Peru, the government is encouraging state-owned energy companies to play a greater role in the economy, similar to Chile and Brazil, so companies in this industry may be dealing with more government entities and officials going forward,

- In Venezuela, nationalization of key industries has resulted in a sharp drop in FDI with increased government interactions for companies continuing to conduct business there,

- Venezuela has the highest level of perceived corruption among South American countries based on Transparency International's 2011 Corruption Perception Index with a score of 1.9,

- Ecuador ranks 130 out of 180 in the World Bank's "Ease of Doing Business" 2012 ranking by scoring poorly on certain sub-indices including (i) Starting a Business, (ii) Protecting Investors, and (iii) Getting Electricity.

Accordingly, the unique business and regulatory environments in many South American countries may require companies to assess corruption risk on a country-by-country basis.

The political climate of Latin America shows the peculiar facet within the international geostrategic relationships. In fact Latin America incurs serious risks. The international framework is getting a very significant and complex stage in terms of the international relations for Latin American countries, as much as the new dimensions for the international economy, and allows showing the evidence of complex vulnerabilities for which the solutions seem very difficult in the present context (see Filipe *et al*, 2012).

6.   Corruption in Latin America

Corruption, as can be seen, got deteriorated along the last years. Comparing 2011 Transparency International Corruption index metrics with those of a decade earlier, it can be seen a surprising trend of increased corruption across much of Latin America. A wide range of economic, political and cultural factors influence a nation's level of corruption. Many of these may be found on Latin America (see Morris, 2004). In Brazil, for example, corruption [and human trafficking] has increased greatly over the past few years owing to the high rates of poverty, income differentials, illiteracy, gendered cultural practices, discrimination and homelessness, all of which have been described by Bales (2005) as critical 'push' factors (see MPDFT - Ministério Público do Distrito Federal e Territórios - 2010).

For investors, Latin America represents a perplexing dichotomy. On the one hand, strong resource prices, an expanding middle class, and rising discretionary consumption present tantalizing opportunities to global companies. But fortune-hunting businesses must contend with increasing corruption, and not just when trying to sell goods and services to governments. Wherever government oversight is needed - to obtain a permit, import a component, inspect a facility, or police a district– the specter of corruption is near (Price, 2013).

Organized crime is also an important pillar of corruption in Latin America and shall be referred. While the Colombian, Peruvian, and even Bolivian governments managed to pulverize the power of cocaine cartels, those managing distribution channels for the drug have become the enemies of the state in other countries. In Central America, Mexico, Venezuela, Trinidad and Tobago, Jamaica, Bahamas, the Dominican Republic, Paraguay, Argentina, and Brazil, the organized crime has grown and became more consolidated, fueled by the incredible profits of drug trafficking and distribution. Per capita cocaine consumption in Buenos Aires is now believed to exceed that of most U.S. cities. In Jamaica, the two leading political parties are both accused of taking contributions from rival street gangs who control the nation's drug trade. Venezuela's military leaders are accused by some of colluding with Colombian drug producers (Price, 2013).

Galán Páchon (2010) categorizes, citing Casal and Associates (2004), that there is a set of incentives/weaknesses that encourage corruption, as follows:

- A civil service in transition towards professionalization and meritocracy.

- Confused and often redundant legal systems.

- Complex and bureaucratic procedures and regulations.

- Oversight and control weaknesses.

- Inefficient control on the part of the legislative branches.

- Dysfunctional judicial systems.

- Social control weaknesses.

- Limited awareness of the issue, in conjunction with attitudes and opinions that do not reflect the extent of the problem.

- Insufficient political will.

Price (2013) defends that the greatest weapon against corruption, therefore, is austerity. Latin America became a more transparent region in the 1990s (versus the 70's and 80's) because low resource prices and

aggressive debt servicing obligated governments to manage costs. By privatizing government-owned resources, infrastructure, and manufacturing firms, many of the vehicles of corruption were taken away from their puppet masters. After a decade of prosperity¸ some Latin American leaders have deluded themselves into thinking that they can manage energy companies, mining operations, steel production, electricity distribution, ports, and highway tolls. The reversal of Latin America's privatization trend is worrying on two fronts - it threatens the region's competitive standing and provides new channels for government corruption.

In fact, corruption is growing considerably again in Latin American countries. As stated by Price (2013), the data presented by Periodistas Frente a la Corrupción (PFC), which publishes a report every year highlighting a considerable number of corruption cases which have actually been indicted, show a set of examples, being some of them pointed out as follows:

- an unfinished highway in Ecuador costs taxpayers $106 million when the winning quoted $36 million;

- in Guatemala, the Ministry of Communications awarded $27 million to fictitious suppliers linked to government officials;

- in Venezuela, the massive public housing program paid close to $800 million to phantom companies as well as builders who never broke ground.

These are just a handful of indicted cases, a drop in the veritable bucket of existent corruption, estimated by some to be anywhere from 5 to 10 percent of overall government spending and 10 to 30 percent of infrastructure spending in Latin America (Price, 2013).

There is a trend that shows that the situation on corruption in general is getting worse (figures in 2010 already showed this tendency - see Galán Páchon, 2010).

More recently, for instance, in Brazil, the 'Lava Jato' operation (car wash operation) is a set of ongoing investigations by the Federal Police of Brazil, involving for example more than 1000 search warrants and seizure, temporary arrest, pre-trial detention, aiming to establish a money laundering scheme that moved from 10 to 20 billion *reais* in bribes. Started on 17 March 2014, the operation counted until February 2016 with 38 operating phases, during which more than 100 people had been arrested and convicted.

This operation investigates crimes of active and passive corruption, mismanagement, money laundering, criminal organization, obstruction of Justice, fraudulent exchange operation and receiving undue advantage. According to investigations and contributions received by the task force of *Lava Jato* Operation, are involved administrative members of the State oil company Petrobras, Brazil's largest

political parties and politicians, including mayors and Governors of States, as well as businessmen from major Brazilian companies.

There are also many suspicions on corruption in Olympic Games in Brazil. In several phases since the attribution of the Games to Brazil until posterior phases the corruption suspicion accompanied the Brazilian Olympic Games.

7.   Chaos and Theory Applied to Latin American Countries

This work deals with the way societies in Latin America have to deal with corruption and political risks to manage structures and promote development.

In this chapter several examples are given to show how American countries are undermined by corruption and significant political risks, which provoke serious obstructions to socio-economic development in these countries. Governments are themselves a serious source of structural instability in these countries, provoking socio-economic disintegration in administrative organizations and a deficient context in companies' structures development. Clammer (2012) refers the 'social disorganization' to express the degeneration of a functional system, what can be easily visible in many Latin American countries.

The 'drop of honey effect' metaphor is perfectly adjusted to this study since here is profusely illustrated how simple facts may have a very strong effect in one country's structures and also internationally, in terms of social, political and economic impacts. Some recent cases in Brazil (being yet some of them in court) are examples of the importance they have to the development and to the course a country and a region takes. The example of Lava Jato operation is illustrative. In June, 2015, the arrest of the then-President of Odebrecht, Marcelo Odebrecht, was evaluated by analysts as a serious blow to one of the largest Brazilian multinational, which became one of the icons of Brazil international projection. This situation has resulted in a very serious problem for this multinational company, which had then tremendous implications in Brazilian economic activity and unemployment. Furthermore, a set of individual events has had recently tremendous impact in the Brazilian economic situation and in its international image, reflected in the Brazilian poor scenario for business and international investment perspective for foreign companies.

The perspective presented in this chapter may be seen as being pessimistic. Countries in Latin America have great potential to get developed and could initiate a strong and impetuous road to progress, but they are bound up, losing a set of excellent opportunities they have to develop and not taking advantage from their excellent capabilities in general and also in particular from their large natural resources availability. Chaotic systems reflect the situation exposed in this chapter considering the situation of these countries. Also the situation is similar considering their international context. Besides, international transactions are often invisible. However they show a face exposed from a market conducive to obscure relations and corruption in these countries. Several examples exist in relations between companies that involve even

States and multinational companies, which reflect the existence of chaotic systems and generators of unstable relationships.

8. Final Remarks

In this chapter, political risks and corruption in Latin American countries are analysed using chaos theory. The present situation about this topic is analyzed for these countries. The conclusion that, in general, there is a new wave of increased corruption in the Latin American countries gets obvious, understanding it in the light of chaos theory.

It is well recognized that Latin American countries in general potentiate an interesting perspective basis for investments, with considerable returns, as historically it is perceived that they have a great potential to develop and that making business may allow interesting results. In truth these countries may be potentially attractive to companies to establish there but many dangers around the corner constitute obstacles to a real establishment and often companies retract. In fact, political risks are considerable and corruption is always present when, in the international scenario, business attractiveness is studied by companies considering to invest on these countries. In recent years corruption is perceived to be increasing.

Chaos theory is adequate to analyse social disorders and their consequences. Corruption itself is the mirror of a society dealing with social organization forms propitious to develop several ways of social distortions. Better policing, change of mentalities, changes in organizational structures and cultural changes involving ethics and morality are required. The nature of social disorganization is essential to understand the emergence of phenomena as violent crimes, endemic corruption and the nature of chaotic socio-economic systems that are the image of several Latin American countries.

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