The Basel III Accord, Operational Risks and their Influence in World Financial Crises

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Abstract- Some researchers argue that the extension of the global financial crisis that began in 2008 prepares for bankruptcy, not of companies or organizations, but of entire countries, which is estimated to represent a contingency of catastrophic dimensions. The various market agents have responsibility for those disturbances created by the inefficient management of financial risks, so it is inconvenient to place responsibility only on regulatory bodies such as the Basel Committee on Banking Supervision at the Bank for International Settlements (BCBS- BIS) as this institution only issues management suggestions. In this context, this paper analyzes the environment in the first place that came into effect in the Basel Accord III and the comments from experts on why previous agreements failed to reduce the effects of the various international financial schisms. Moreover, although the events of financial risks are widely disseminated so far in the 21st century, it is considered that the stakeholders of the various organizations are unaware of the specific characteristics of the various financial risks, including the so-called operational risks (OpR) which are considered largely responsible for market instability. Therefore, the main objective of this work is to establish their differences and characteristics, in order to assist in the understanding of these OpR and their efficient management. Finally, a summary of the status of implementation of the agreements of Basel III in relation to the OpR and the possible effects on international markets in the coming years due to its late entry into force or its non-implementation, as well as some suggestions issued by the BCBS-BIS that could work to mitigate the effects of the OpR is presented.

Keywords-- Operational Risks (OpR), Basel Accords, World Financial Crashes, OpR Management

I. Context of the Basel III Accords

Most estimates of the Basel Committee on Banking Supervision at the Bank of International Settlements (BIS-BCBS) on the entry into force of the Basel II Accords, was estimated by mid-2007 or early 2008 [1]. However, the outbreak of the subprime mortgages in 2007 [2], showed from the start that the Basel II Accords had deficiencies that made attempts to manage financial risks efficiently and with maximum transparency insufficient [3].

Thus the subprime mortgages bubble burst occurred among other reasons for the shortcomings of the Basel II Accords, particularly because it allowed the mispricing of financial risks. These shortcomings were amplified with the cyber-technological development of the market, with investors' disinformation and with the unprecedented period of liquidity in 2001-2007 [2] [4] [5] [6] [7] [8] [9].

In full swing of the explosion of the real estate bubble two high-impact events occurred in the international financial system:

1) After the fall of the Bear Stearns bank [10] [11] with losses estimated at 395 billion dollars, there was the bankruptcy of the fifth investment bank in the world, Lehman Brothers [12], with losses estimated at 600 billion dollars, resulting from excessive exposure to subprime mortgages and due to the ambition of traders and brokers around the financial system [13] [14].
2) Exposing the biggest scam so far discovered and which indicted the broker Bernard Madoff, declared responsible for designing a pyramid scheme or Ponzi scheme, which was estimated to be the cause of a 50 billion dollars fraud [15] [16].

These experiences did not seem to generate adequate reflections by market players, as researchers like Norberg [17] show how the rulers intervened in previous crises, creating management policies that have always generated even worse crises in international markets.

Moreover, Prager [18] states that governments have mismanaged the crisis and have made the same mistakes repeatedly. This is evident in decisions concerning monetary policy [19], high-risk policies [20] and that combined with financial innovations and the era of communication via the Internet have created an environment for a new financial crisis of catastrophic connotations [21].

Some researchers argue that the extension of the global financial crisis prepares for bankruptcy, not only of companies or organizations, but of entire countries, which represents a crisis of greater impact [22] [23].

This reasonable doubt is evident by the crisis generated by the PIIGS countries (Portugal, Italy, Ireland, Greece & Spain), which have shown high levels of dependence on their partners and maintain a continuous exposure to country defaults.

It is to be noted that the case of Greece is the most representative of these countries in terms of the origin of its crisis related to OpR, given that it occurred due to the massive fraud of macroeconomic data generated by the rulers of the Hellenic country [24].

Another relevant case is the Spanish case. In 2008 it was stated "that no effects of the crisis were detected" [25]. Later, in 2012, the risk premium of the country reached up to 622 points compared to the US, its highest level so far this century. Even so, Spain's option was against the bailout [26] [27].

In 2015, it is estimated that Spain has emerged from recession, but the foreign debt tripled from 2008-2015 and

absorbs 97.7% of GDP, creating doubts about the veracity of the data issued by government spokespersons [26] [27].

It is notorious among other cases, the crisis of Bankia with its massive internal fraud which represented Spain as a source of OpR and critical systemic risk to the international financial system [28] [29] by the opacity of the data and their subsequent unreliability

In the analysis of emerging countries the Venezuelan case needs to be highlighted whose risk evolved from being classified in 1976 by Standard & Poors (S & P), Moody's and Fitch as Aaa, to becoming one of the countries with the highest level of risk in the world, since according to S & P [30] [31] [32] classification fell in 2012 to B + or B2. By 2015, Venezuela has continued its descent down to CCC or Caa3 [33] [34] [35] [36].

II. THE BASEL III ACCORD

Faced with the prospect of a new crisis with the disastrous possibility of bankruptcy of nations as predicted and as was observed for the specific case of Greece, Spain and Venezuela, Jimenez [37] states that this scenario highlighted the inability of the Basel II Accord, to safeguard the stability of the system, which assumed its objective. However, Saurina and Persaud [38] argue that it was not necessary to revise the Basel II Accord, but simply to apply it rigorously.

Thus in [39] and [40] it is observed how the Basel III Accord fits like a comprehensive set of reforms developed by the BCBS to strengthen the regulation, supervision and risk management of organizations. These measures aim to:

- ✓ Improve the ability of markets to face disruptions caused by financial or economic stress of any kind
- ✓ Improve risk management and good governance of organizations.
- ✓ Reinforce transparency and disclosure of organizations' information

The reforms are aimed at:

- ✓ The regulation of individual organizations (micro-prudential dimension), to increase the responsiveness of each institution in periods of stress.
- ✓ The systemic risks (macro-prudential dimension) that can accumulate in the markets as a whole, as well as the procyclical amplification of these risks over time

These two dimensions are complementary, since increasing the resistance of each organization the risk of disturbances is reduced in the overall system. A summary of the scope of the Basel III Accord and its overall application is presented in Table I [41] [42].

TABLE I
BASEL II VERSUS BASEL III
Calibration of the Capital Framework
Capital Requirements and Buffers (Numbers in percent)

	Common Equity (After Deductions)		Tier 1 Capital		Total Regulatory Capital	
Basel Accord	**II [%]**	**III [%]**	**II [%]**	**III [%]**	**II [%]**	**III [%]**
Minimum	2	4.5	4	6	8	8
Conservation Buffer		2.5				
Minimum Plus Conservation Buffer		7		8.5		10.5
Countercyclical Buffer Range	0 – 2.5					

Source: [1] and [43]

Unlike Basel I and Basel II, both focused primarily on the level of reserves that organizations must maintain for economic losses, Basel III focuses primarily on the risk of "bank run", requiring different levels of capital for the different types of bank deposits and other loans. Basel III is not a substitute but rather complements, for the most part, the guidelines already known as Basel I and Basel II [44].

Gutiérrez and Fernández [45] point out that the implementation of Basel III, should assume that the adjustment will entail transitional costs: in a four-year horizon (ie 2015), for every percentage point increase in the capital required, GDP will decline by a maximum of 0.19%. If the implementation period is reduced, the impact on GDP would possibly be greater and be noticed before.

It is to be noted that [41] shows the full implementation of Basel III within 8 years after approval, raising the risk that a new crisis would occur before it is fully implemented, as it happened with Basel II.

III. MAIN STRUCTURAL DIFFERENCES AMONG FINANCIAL RISKS

In the context of the Basel Accords, the first thing is to differentiate the financial risks when it comes to managing them in organizations, especially in cases where the risks overlap with each other, making it difficult in some cases to identify them.

From Table II based on [46] [47] [48] [49], it follows that the financial risks have structural differences in various aspects, such as inspection levels, the maximum amount of loss and the portfolio.

TABLE II
STRUCTURAL DIFFERENCES AMONG FINANCIAL RISKS

	Market Risk	Credit Risk	Operational Risk
Inspection Levels	Currency Tables /Portfolio	Credit Portfolio	Business Lines
Risk Categories	Interests	Segments	Loss event category
Portfolio Items	Investments	Credits	Processes
Total Maximum Loss	Market Value (Excluding retail sales and derivatives).	Credit Volume	Liquidation Value of Organization
Losses Maximum Number	Number of Investments	Number of Credits	Unlimited

Source: Authors

IV. OPERATIONAL RISKS ACCORDING TO THE BASEL ACCORDS

A. Definition of Operational Risks

The GARP[1] and the BCBS-BIS [50] [51] [52] [53], have so far is the most widespread definition of operational risk (OpR): "*The risk of loss resulting from inadequate or failed processes, people, technology or external events*".This definition includes legal risk, but excludes strategic and reputational risks.

According to the definition of OpR and BCBS-BIS [1] [52] [54] [55], the main sources of risk are:

1) Human Resources

They are the operational risks arising from the inadequate management of human capital that runs the process and/or its inability to run it. Other factors identified include: deficiencies in knowledge, skill and/or experience of staff, lack of motivation of staff to achieve the objectives, violation of policies, rules or procedures of the organization, fraud and corruption

2) Processes

They are the OpR generated by design deficiencies, in the implementation of activities and/or absence of a procedure. Some examples include: deficiencies or lack of process updating, ineffective or inadequate controls, lack of procedures and/or policies .

3) Systems or Technology

The OpR which result from the vulnerabilities in the systems particularly due to failures or insufficient technology. Examples that can be mentioned: Programming errors, malfunction of computer systems, erroneous processing of information.

4) External events:

Those risks arising from adverse circumstances or changes caused by the environment in which the organization operates, usually the result of climate change or events caused by third parties. Some factors include: Terrorist acts, power outages, floods, fires, droughts, vandalism, social instability, political changes and outsourcing.

La Fig 1, muestra cómo se producían los riesgos de acuerdo a su fuente para el año 2002. Es importante resaltar que detectar cual es la fuente principal de los riesgos, permite una más rápida y sencilla gestión de estos.

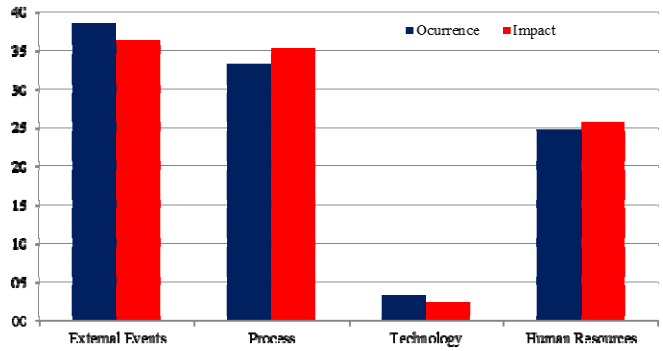

Fig 1 Porcentaje de incidencia de los OpR de acuerdo a su origen
Source: BCBS-BIS [56]

B. Operational risks versus operations risks

From the definition of OpR it is detected as the main feature that it is associated with the processes. That is, where there is no process that can be affected, there will be no OpR [57].

Moreover, it is important to distinguish between operational risk and operations risk, because in 1994, the BCBS-BIS [58] defined it as "Operations Risk", until 1998 [59] when it change the semantics to "Operational Risks".

In the Anglo-Saxon literature the term "Operational Risks" is widely accepted. However, in the Spanish literature, both terms "Operations Risk" [60] and "Operational Risks" [61] [62] [63] have been used either, which creates confusion especially when it comes to using the term in non-financial companies.

Therefore, in the analysis of financial risks the definition of operational risk previously explained will be considered and operations risk will be considered as part of the OpR, particularly those concerning the consequences caused by the complexity of the production processes of organizations [37] or exclusively due to losses from operational failures [64] [65].

C. Main factors causing OpR

La desregulación y la globalización de los servicios financieros, junto con la creciente sofisticación de la tecnología financiera han creado una variedad de nuevos OpR en los mercados. Según el BCBS-BIS [49] [53] [54] y Chernobai [66], tales riesgos se presentan por los siguientes factores

Deregulation and globalization of financial services, along with the growing sophistication of financial technology have created a variety of new OpR in the markets. According

[1] GARP: Global Association of Risk Professionals

to the BCBS-BIS [49] [53] [54] and Chernobai [66], these risks are presented by the following factors:

- ✓ Increased use of automated technology
- ✓ Importance in the growth of the integration of information technology (IT) and shared services through entities.
- ✓ Need to reduce earnings volatility and achieve cost efficiency.
- ✓ Increased complexity of products and developments thereof.
- ✓ Increased customer demands
- ✓ Increased large-scale mergers and acquisitions.
- ✓ Evolution in agreements with contractors (outsourcing).
- ✓ Increased regulatory approach legal issues, fraud and compliance.

D. Status of the OpR management in the context of Basel III Accord

Since the Basel I accords were implemented in 1988 they have been updated to reach Basel III, released in 2010 and formalized in 2011 [40]. Despite these agreements, financial crises still happen, without detecting that the remedies suggested are sufficient to avoid a total collapse of the global financial system.

Magnusson [67] shows how the results of the investigation performed by DeMPA [2] indicate significant deficiencies among 27 developed countries in terms of operational risk management at the end of December 2009.

At this time, most of these countries had weak frameworks for the management of OpR. Among the countries evaluated, only a quarter of them met the minimum efficiency requirements for debt management and data security and only 6% showed effective practices in areas such as segregation of duties, staff training and business continuity [67].

In 2011, TEPCO [3], an electric power company, was affected by external events: An earthquake measuring level 9.0 on the Richter scale and the subsequent tsunami provoked a double contingency that has had serious effects both in the environment and in the energy and financial markets in Japan and in the rest of the world [68] was presented. This event shows how despite efforts by market players to manage the OpR we are still very far from correcting its effects.

Thus, in December 2013, the BCBS-BIS [69] published a report assessing the overall progress of the G-SIB [4] in the adoption of the principles of the Basel Committee for effective data aggregation and reporting of risks. The evaluation found that many banks are having difficulties in the initial stage of implementation, covering governance, architecture and processes for strong data aggregation. Of the 30 banks identified as G-SIB by the BCBS-BIS and the FSB [5] between 2011 and 2014 ten reported that they would not be able to meet the full implementation of the principles for the of January 1, 2016 deadline giving as the main reason the resources devoted to data centers and centralized data aggregation [70] [71] [72].

Maldonado [73] reinforces the OpR as described above and suggests a risk source as represented by technological change. The speed of technological progress raises doubts among financial institutions, which have to face complex selection and investment decisions.

Proof that the lesson of the crisis of technology companies at the dawn of the 21st century [74] [75] [76] [77] was not understood in its exact dimension is the resurgence in 2014/15 of a new bubble created by unrealistic prices of companies like Yahoo, WhatsApp, King, Zynga, Twitter, LinkedIn and Groupon among others, declaring company values of billions of dollars which simply do not have real support [78] [79] [80]. It is considered that since the price of shares of these companies is based on estimates without any scientific rigor, it can be generating a new systemic risk created by the risk appetite of market players.

E. Principles for the rational management of OpR

The World Bank [81] believes that the structure and management of organizational policies should support the good practices of human resource management with sufficient and properly trained personnel, formal descriptions of work, training plans and individual development, and performance evaluations in accordance with guidelines established by [82].

Finally, OpR managers should be subject to codes of conduct and conflict of interest guidelines [83]. Preferably, these guidelines should be reviewed and updated at least annually. Product that one of the lessons of the crisis has been to have good capital ratios and liquidity at the level of individual institutions, as well as micro-supervision does not guarantee the stability of the system as a whole [84].

From [49] [71] [85], it is detected how the Basel Committee has made progress in its proposals for OPR management for banks. Basically, they propose to examine three essential aspects: the structure of governance, risk management and disclosure of information [43].

Figure 2 summarizes 180 different criteria for sound management of operational risks. The responsibilities of senior management, management of the environment OpR, business continuity and public disclosure are highlighted.

[2] DeMPA: Debt Management Performance Assessment

[3] TEPCO: Tokyo Electric Power Company

[4] G-SIB: Global Systemic Important Banks: 30 largest banks of World Financial System

[5] FSB: Financial Stability Board

Fig 2 Principles of Operational Risk Management
Source: [54] [71] [82] and [43]

V. Conclusions

It is concluded that despite efforts by the BCBS-BIS to propose new regulatory frameworks for the financial system, this will not really be strengthened until management approaches to OpR and other financial risks are not focused on responding to the demands of stakeholders. The appetite for risk should be regulated and self-managed. Simultaneously, markets and all the organizations that comprise it should be monitored rigorously and consistently.

In addition, reports of BCBS-BIS show the implementation progress observed in the G-SIB, where it is detected that only 10 of the 30 systemic banks in the world, carries a high implementation of the guidelines of the Basel II III Accords. It is estimated that the implementation of these Accords is less when applied to non-financial organizations. Hence the importance of designing OPR management models tailored to the specific need of each business reality.

Finally, differentiation and precise definition of financial risks is especially important in the correct orientation of these management efforts. It is to be noted that while for experts market players these concepts turn out to be obvious, real business experience shows that stakeholders do not know the difference between operating and operational, as well as differences between the various financial risks and the scope of each of them. It is clear that these doubts affect negatively the identification, quantification and assessment of risks and the analysis of their correlations.

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