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The evolution of prudential regulation between the financial crisis and the health crisis

L'évolution de la réglementation prudentielle entre la crise financière et la crise sanitaire

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Abstract

The context of this research comes particularly after the occurrence of subprime financial crisis in 2007 and the health crisis that occurred at the end of 2019, which put the four corners of the world in endless turmoil. The main objective of this article is to highlight the new Basel Accord 4, whose implementation of his recommendations will be spread over a period of 11 years (2017-2028) as well as its challenges and prospects after three decades of implementation of Basel regulations (since 1988). A few months before the start of implementation of this reform, initially planned for January 2022 and postponed until 2023 due to the health crisis, we will focus on clarifying the changes made by this new Basel Accord, by showing its contribution and impact on the financial system in view of the current international economic circumstances, particularly after the spread of Covid-19 which has impacted and disrupted the global economy. Nevertheless, the stakes are high for the banks, mainly because a global financial crisis could arise in the near future.

Keywords: Subprime Crisis; Prudential regulation; Basel Committee; Basel IV Accord; Covid-19.

Résumé :

Le contexte de cette recherche vient particulièrement après la survenance de la crise financière des subprimes en 2007 et plus qu'une décennie plus tard la crise sanitaire survenue fin 2019 qui ont mis les quatre coins du monde dans une tourmente interminable. Cet article a pour objectif principal de mettre en lumière le nouvel accord de Bâle 4, dont l'exécution de ses recommandations s'étalera sur une période de 11 ans (2017-2028), ainsi que ses enjeux et perspectives après trois décennies de mise en œuvre de la réglementation bâloise (depuis 1988). A quelques mois du début d'exécution de cette réforme (prévue initialement en janvier 2022 et reportée jusqu'en 2023 en raison de la crise sanitaire), nous nous intéresserons au cours de cet article à éclaircir les modifications qu'a apportées ce nouvel accord de Bâle en montrant son apport et impact sur le système financier au vu des circonstances économiques internationales actuelles particulièrement après la propagation de Covid-19 qui a impacté et bouleversé l'économie mondiale. Néanmoins, l'enjeu est majeur pour les banques, essentiellement parce qu'une crise financière mondiale pourrait survenir dans le futur proche.

Mots-clés : Crise des subprimes; Réglementation prudentielle; Comité de Bâle; Accord de Bâle IV; Covid-19.

Introduction

Since the occurrence of the subprime financial crisis in 2007/2008, the financial system is undergoing constant changes and mutations to ensure its stability on a global scale, through the introduction and implementation of new changes and regulatory constraints, and if there are revisions or improvements of international regulatory standards already established in the field of prudential supervision of banks over time.

So to strengthen the international financial system for all financial institutions with significant international activity, the Basel Committee since its creation in 1974 had the main mission of promoting best banking practices and making progress in prudential regulation, this is translated in the entry into force of the Basel I accord in 1988 and its ramification in 1996, the signing of a second Basel Accord in 2004, and then three years after the occurrence of the global crisis, the third Basel Accord was emerged with changes that take into account the new international financial context.

In addition, it is important to point out that banks today can face various types of risks, but the crucial issue is that they will strive to preserve their profitability while remaining vigilant with regard to the reforms that have entered into force.

Indeed, for a resilient and immune financial system, and so that banks can withstand possible shocks at the global level, regulators have deemed it necessary and essential to finalize the reform of the Basel 3 accord with a new wave of regulations in the form of proposals and recommendations for the financial and banking industry. This new reform, which began since 2017, is called Basel 4 accord, which was planned to be executed from January 2022 and completed in 2027. However, it was postponed until 2023 due to the spread of the Coronavirus at the end of 2019.

So, the main question that we are asking is as the following: **What contribution and what impact of the evolution of banking regulation mainly after the financial and the health crisis?**

From this problematic, we formulate two research hypotheses:

- The Basel 4 accord will have a contribution and an impact on the banking industry, especially after the spread of Covid-19.
- The health crisis will have some implications on the implementation of this evolution of banking regulation.

In order to have theoretical answers through this article, after the introductory section, our paper will be structured into 3 sections, a literature review of the subprime financial crisis as well as the evolution of banking regulation, also the Basel 4 with its impact and contribution, then, the implications of Covid-19 on the implementation of Basel 4. Finally, the document will ended with a conclusion.

1. Literature review

1.1. Subprime financial crisis

For an article dealing with the fourth Basel Accord in the context of the evolution of prudential regulations, it is opportune to recall the circumstances of the most serious financial crisis that shocked the whole world more than a decade ago and its causes which have harmed the international financial and economic system.

According to El Bakkouchi (2014), the underlying forces of the initial phase of the subprime crisis lie in a poor control of financial innovations in the subprime mortgage market and in the bursting of a house price bubble in the private housing market. Subsequently, this crisis evolved into a generalized liquidity crisis marked by the depreciation of financial assets, the fall of the stock markets and the collapse of the net assets of financial institutions. The panic that gripped the markets peaked in September-October 2008 and affected Europe as much as the United States. The freezing of liquidity markets let to a credit crunch, the largest ever observed, it profoundly affected economic activity in the United States and in the industrialized countries.

In the same context, Bakkouchi (2014) underlined that the financial crash of autumn 2008 led the central banks, in the first place the Federal Reserve, to go even further in directly taking charge of financing the economy. Faced with the massive extension of the crisis to the real sector of the economy (illustrated in the United States by the threats of bankruptcy of General Motors, Chrysler and Ford) and the risks of deflation, the central banks proceeded from October 2008 to an accelerated reduction of their interest rates. In the United States, the Fed[1] broke the historic low of 1% and in December raised its key rate between 0% and 0.25%. In the United Kingdom, the Bank of England reduced its interest rate from 5% to 0.5% within a few weeks. The European Central Bank in turn lowered its key rate systematically from 4% to 1%. Declines of a certainly exceptional magnitude, but which did not go beyond the register of classic interventions.

For Ramault Jean-françois (2019), it is always opportune for scientific work relating to banking regulation, to recall the causes of the crisis that affected our economic system ten years ago, «

[1] The Federal Reserve of the United States or the Central Bank founded in 1913 by the Federal State of the United States following several banking crises including the American banking panic of 1907.

the most serious financial crisis since the great depression" as Barack Obama mentioned. Especially since this is a crisis seen as an "event that appears once in a century» (Tafara, 2012). This episode of global turmoil has revealed to the ordinary citizen the credit method used by American banks, the subprimes[2], as well as the mortgage loan securitization system. System whose responsibility is to be put forward in the fact that this crisis was not concentrated in the only American market but spread across the planet given that banks from all over the world could buy American consumer credit shares. The use of this method, which can be described as a risk management on the part of the organization that uses it, ultimately eliminates some of the risk associated with loans.

Tafara (2012) notes that in essence, this crisis is the result of developments in financial markets and services. During the last fifteen years, the structure and the main characteristics of the financial world have changed dramatically. The current turmoil is probably the result of the system failing to adapt to these fundamental changes (Tafara, 2012).

Moreover, according to some authors, only after a catastrophic fall in the markets, lawmakers and regulators overcome the resistance of the financial community and adopt understandable legislative reforms (Ferran et al, 2012).

According to Neisen & Röth (2017), the Basel Committee is learning from this financial crisis and thus, since 2012, it has started to reorganize the methods based on internal models[3].

1.2. Evolution of banking regulation (Basel 1, 2 &3)

With a view to avoiding the recurring crises experienced by financial institutions, the Basel committee[4], which brings together the major central banks on an international scale, along with the prudential authorities imposed on banks a number of rules, which must be observed in order to ensure the stability of the banking system. These rules, called the Basel Accords, have been developed and enriched over the years.

[2] Il s'agissait en effet de crédits octroyés à des ménages modestes qui n'auraient pas pu, dans des conditions normales d'emprunts, avoir accès à une ligne de crédit.

[3] These are statistical models that banks can use to determine the amount of their capital requirements. The more risks a bank is exposed to, the more capital it must hold.

[4] Created in 1974 by the ten main industrialized countries, the Basel Committee, a forum that is held regularly within the framework of the BIS on the question of banking supervision, is responsible for strengthening the soundness of the global financial system as well as the efficiency prudential supervision and cooperation between banking regulators. It now brings together supervisors from 27 countries (South Africa, Germany, Saudi Arabia, Argentina, Australia, Belgium, Brazil, Canada, China, South Korea, Spain, United States, France, Hong Kong

Considering the speed at which financial crises can arise and spread across the globe, and the constant acceleration of financial innovation, banks must increase their level of capital and liquidity to insulate banking systems and the global economy against unpredictable risks. Unfortunately, markets tend to have short memories, and it is usually after a period of overconfidence fueled by apparent calm that significant risks arise for the banking system (Bank for International Settlements, 2011).

Cieply (2018) concluded that the objective of prudential regulation is to reduce the likelihood of bank failure. For this, as part of their day-to-day activity, banks are required to comply with management standards. The Basel Committee on Banking Supervision (BCBS) has proposed most of these standards. They aim to contain each of the major risks to which banks are exposed, in particular the risk of liquidity and insolvency (Cieply, 2018).

Furthermore, Pierandrei (2015) considers that banking is one of the most regulated economic sectors in the world. In order to prevent the scale of banking crises, mainly the Basel Committee has put control mechanisms in place. They aim to help retail and investment banks to control their credit or market risks through a prudential approach combining risk measurement with a minimum equity allocation (Pierandrei, 2015). The revisions relating to the Basel recommendations have taken place in order to impose them on an equal footing for all banks forming the banking landscape, which allowed profound changes at the level of the systems starting from Basel I in 1988 to Basel II in 2004, then Basel III in 2010 in order to comply with the minimum requirements of prudential regulation in a harmonized manner.

1.2.1. The context of Basel I

The main policies dedicated to improving the regulatory framework were deployed following major financial crises. Most economists agree that major crises have a recognized benefit: that of improving the banking and financial regulatory framework. In 1974, the central bank governors of the G10 countries established the Committee on Banking Supervision Rules and Practices. In 1974, the central bank governors of the G10[5] countries established the Committee on Banking Supervision Rules and Practices. The objective of this Committee is to ensure the

[5] Composed of the main industrialized countries in the world, the G10, of which the number of countries composing it is not necessarily 10, is in particular responsible for being a source of financing for the IMF. The G10 is currently made up of Germany, Belgium, Canada, the United States, France, Italy, Japan, the Netherlands, the United Kingdom, Sweden and Switzerland.

guarantee of the effectiveness of banking supervision on an international scale (Haj Khlifa, 2016).

In this sense, the Committee created the Basel I Accord in 1988. According to Dhafer and Cesbron (2012), this agreement sets up a system which makes it possible to better control the measurement of credit risks. A minimum ratio of 8% is then imposed between a bank's own funds and the risks it bears on the markets or the credit risks it takes with its customers.

In fact, Basel I was launched in 1988 after a period of financial deregulation which allowed banks to form international conglomerates bringing together many professions such as retail banking, corporate finance and particularly market finance. Faced with this overwhelming growth of financial institutions, the prudential authorities wished to supervise the profession by establishing regulatory constraints in terms of equity (Bernard, 2010).

This regulatory constraint is in the form of a ratio called Cooke which, according to Cieply (2018), required credit institutions to respect permanently a ratio of at least 8% between their own funds and weighted credit commitments relative to their risk. The weighting was based in Basel 1 on the nature of the counterparty, following a purely institutional criterion (Cieply, 2018).

In 1996, the Basel I Accord was amended to require banks to build capital to cover market risks. At the end of the 1990s, however, it appeared that, combined with financial innovations,
the arbitrary nature of the Basel I risk-weighting system created arbitrage opportunities for banks and reduced the effectiveness of banking regulation. Consequently, the Basel Committee began discussions to revise the existing system and the supervisory authorities of the G10 countries adopted the so-called "Basel II" agreement in 2004. This has been gradually implemented in Europe since January 1, 2007 (Van Roy, 2008).

1.2.2. The context of Basel II

From 1999, the Basel Committee embarked on a reform of the prudential system in order to strengthen the stability of the international financial system. The Basel Accord of 1988 was deemed insufficient at the time. The risks taken into account were too limited; they only concerned credit risk and, since 1996, following the bankruptcy of Barings[6], market risks were only taken into account in an additional manner[7]. Moreover, the very measure of risk, like that of equity, appeared too crude. The system was built on fixed weightings based solely on

[6] One of the UK's most prestigious banks went bankrupt in 1995 following losses to 28-year-old Nick Leeson, one of its traders.

[7] If once the credit risk has been hedged, the quality of own funds was sufficient to cover the market risks.

institutional logic and the definition of regulatory capital only imperfectly reflected economic capital[8]. In response to these criticisms, a new agreement known as the "Basel 2 Accord" was signed in June 2004. This agreement recommended the establishment of a new tool for steering and monitoring capital adequacy (Cieply, 2018).

According to Thoraval (2006), the Basel II system, which aims to allow finer and more complete coverage of banking risks, has three complementary and interdependent pillars. These three pillars each constitute a major innovation, in that they embody the transition from a prudential system based on simple quantitative rules to a more complete standardization also integrating respect for principles, beyond a refined quantitative approach (Thoraval, 2006).

In the same context, Dhafer and Cesbron (2012) argue that faced with a financial system that has become more complex in particular, due to the increasing importance of globalization; the Basel Committee has strengthened its regulations. The new system is then based on three pillars explained briefly in the following:

- **Pillar 1: The foundation of minimum regulatory requirements**

Pillar 1 defines the minimum capital requirements. It aims to ensure minimum coverage, through equity, of credit, market and operational risks. Compared to the Basel I solvency ratio, the originality of Basel II is not only due to a wider range of risks covered (operational risk is not implicitly understood by the "Cooke" ratio), but also the possibility for banks to choose different levels of sophistication for the calculation of capital requirements. Thus, for credit risk and operational risk, they will be able to use either flat-rate weightings graded according to the quality of the counterparty[9], or internal ratings[10] (Thoraval, 2006).

- **Pillar 2: Structured dialogue between establishments and supervisors**

According to Thoraval (2006), pillar 2 has a specific feature that distinguishes it from the other two. It rationalizes and in fact justifies the practice of many supervisors of carrying out a quantitative and qualitative examination of all risks using its own tools but also that of the risk monitoring processes developed by the banks themselves. The result of this work may give rise

[8] The amount of own funds that the institution considers necessary to cover its risks while regulatory capital is only defined by the regulator.

[9] For credit risk, this is the case with the standardized approach, which consists of applying a weighting to exposures based on the intrinsic quality of the counterparty, on the basis of a rating issued by an external credit assessment body, whether it is a rating agency or other bodies.

[10] For the internal credit risk ratings approach, institutions will have the option of calculating all of the parameters taken into account for capital requirements or only part of them.

to various actions, including, in particular, additional capital requirements under pillar 2 (Thoraval, 2006).

Adding to this, according to the same author, this pillar establishes a process of prudential supervision. It complements and reinforces the first pillar. It includes: the bank's analysis of all of its risks, including those already covered by pillar 1, the bank's calculation of its own funds requirements for economic capital; the comparison by the banking supervisor of his own analysis of the bank's risk profile with that carried out by the bank itself, with a view to adapting its prudential action, whether through equity above the minimum requirements or any other appropriate technique (Thoraval, 2006).

There is another specificity relating to this pillar, for Thoraval (2006), bank controllers have for a long time "practiced" it without knowing it; in reality, the innovation of Basel II was simply to systematize, and thereby to make more homogeneous and coherent between them, approaches until then most often isolated.

According to Dhafer (2012), the objective of pillar II is twofold: on the one hand, to encourage banks to develop techniques for managing their risks and their level of capital and, on the other hand, allow regulatory authorities to increase regulatory capital requirements if necessary.

- **Pillar 3: Transparency and market discipline**

Improving financial communication makes it possible to strengthen market discipline, seen as a complement to the action of supervisory authorities. Information is made available to the public on assets, risks and their management. Practices must be transparent and standardized (Dhafer, 2012).

For Thoraval (2006), the third pillar concerns market discipline. It aims to improve the financial transparency of banks, by requiring them to communicate the information necessary to enable third parties to assess the adequacy of their own funds. Better market discipline is hoped for.

According to Verboomen and De Bel (2011, p.50), the third pillar of Basel II seeks to promote market discipline by formulating a set of requirements relating to the publication of information intended for the market. The communication of this information, which is both quantitative and qualitative in nature, must enable the various market players to transparently assess the main data relating to a bank's risk profile and its level of capitalization.

The crisis of 2007-2008, causing by contagion one of the most serious financial crises of all time. Theoretical analyzes of this global financial situation have made it possible to highlight the inadequacies of the Basel II system, in particular in terms of the quality of banks' own funds and also in terms of apprehension of certain risks, the first of which is liquidity risk. In this context, the implementation of reinforced prudential rules quickly appeared, as an imperative need (Saber, 2018).

1.2.3. Basel III : Strengthening of the Basel II system

For Pierandrei (2015), from Basel 2 to Basel 3, the banking risk control system and the strengthening of prudential constraints have become tougher for banks. The required equity thresholds have been raised, and new leverage and liquidity ratios have been introduced to reduce moral hazard in the event of a banking crisis.

In 2010, the Basel Committee published the Basel III accord in order to meet the Basel II limits with the aim of preventing possible future crises (Hologne, 2014).

Yota (2016) estimates that in reaction to the 2008 financial crisis triggered by the real estate crisis in the United States and which put the world financial system in general and the banking system in particular in difficulty, the Basel III Accord was published in 2010, then the revised document was released in June 2011. For the Managing Director of the Bank for International Settlements (2010), Basel III fundamentally strengthens (or even, in some cases, radically revises) international capital standards. The new arrangement, together with international liquidity standards, is a key element of the global financial reform agenda (Yota, 2016). The implementation of Basel III will be gradual: the first measures entered into force on January 1, 2013, while all measures must be applied on January 1, 2019. These agreements mainly focus on four points: the redefinition of own funds, setting up a capital or mattress of precautions and counter-cyclical measures, setting up ratios and covering certain risks (Yota, 2016).

In the same context, Dhafer and Cesbron (2012) argue that following the 2008 crisis, the Basel Committee reacted and took a number of measures to strengthen the “resilience” of the banking sector. It is then a question of consolidating the solvency of banks, of developing more important liquidity monitoring, to improve the capacity of banks to absorb the shocks resulting from financial and economic tensions and finally to reduce and control the risks of spillover into the real economy.

In the same context, the Basel Committee has therefore decided to put in place five actions, which, to avoid an upheaval in the markets, will not be jointly applied, but will have to be fully implemented in 2019 (Hologne, 2014).

According to the BCBS (2010), the main objective of the Basel 3 accord is to:

- Strengthening the level and quality of own funds (Tier one and Core tier one[11]) :
- Improving the quality and consistency of equity capital: this involves improving the quality of banks' hard core capital (core tier 1) to strengthen their capacity to absorb losses.
- Increasing the amount of equity: the banking sector must have an increasing amount of equity, currently the Core Tier 1 minimum is 2% which will be increased to 4.5%, the minimum Tier 1 equity ratio is raised from 4 to 6%.

- The implementation of a leverage ratio :

The crisis revealed that many banks have accumulated excessive leverage while exhibiting strong capital ratios, these leverage effects accentuated the downward pressure on asset prices, and destabilized the financial system. It is for this reason that the Basel Committee introduced a new ratio in order to limit the effect of debt leverage in the banking sector and to hedge the modeling risk. This leverage is defined by the ratio of equity to the balance sheet total (total assets or liabilities).

- Improving liquidity risk management by creating two liquidity ratios * Net Stable Funding Ratio (NSFR) and Liquidity Coverage Ratio (LCR) *:

The crisis has highlighted the absence of appropriate measures in the existing regulations, banks have found it difficult to maintain their liquidity despite an adequate level of capital. In addition, Basel II excludes in its pillar I two essential risks, namely liquidity risks and interest rate risks, in front of which no capital quota is foreseen. This is why the Basel Committee has introduced two ratios: the first relating to short-term liquidity (LCR), and the second relating to the long term (NSFR).

- The introduction of stress tests by Basel II, and their effective application by the Basel III agreements:

Financial institutions must be able to have a global vision of their risk management, of their strategy, and of determining the amount to be held in equity. Therefore, stress tests constitute an effective tool for obtaining this global vision.

The final version of Basel 3 published in 2010 for implementation between 2015 and 2019 is summarized in the following six points by Pierandrei (2015):

- Definition of required own funds.

[11] Also called the hard core of equity, it is the most solid part of the equity of financial institutions. It is made up of the share capital of these institutions and their results put in reserve.

- Capital buffer[12] for conservation in equity.
- Counter-cyclical[13] cushion.
- Leverage ratio.
- Liquidity risk.
- Counterparty credit risk.

At the end of these Basel provisions, we can deduce that this evolution of prudential regulations from Basel 1 (1988) to Basel 2 (2004) until the effective implementation of Basel 3 (2010-2019) showed that regulators have learned the lessons learned from the financial crises that rocked the international banking sector, and highlighted flaws in the supervision of financial institutions.

2. Basel 4 Accord: Finalization of the Basel 3 reforms

Introduced in December 2017 and officially considered by the Basel Committee as a reform to finalize the third Basel Accord, it is commonly referred to as Basel IV by the financial industry, as the reforms and changes announced are significant.

According to the French Banking Federation (2018, p.5), the G20[14] describes this finalization of Basel III as "a worldwide harmonization of risk calculation methods, without significant increase in equity or discrimination between banking models.

However, this reform, which includes the flagship measures of the last Basel agreement and its various implications for the banks, leads to further increase the capital requirements with regard to the loans granted, in contradiction with the mandate of the G20. The consequences are so significant for European banks.

Indeed, the new rules of Basel 4 could cost 70 billion euros to French banks. This is the reform of all dangers for European banks given that the measures recommended by the Basel Committee to refresh the rules for calculating capital could indeed result in an increase of more than 20% of required capital by the regulator, that is, a bill of 350 billion euros for all European banks and 70 billion for the French banks alone.

[12] A mandatory capital reserve that financial institutions are required to hold in addition to other minimum capital requirements.

[13] A capital surcharge aimed at protecting the banking system from potential losses linked to the exacerbation of cyclical systemic risk.

[14] The Group of 20 brings together the main world economies, made up of the nineteen richest countries and the European Union including finance ministers, heads of central banks and heads of state, created after the succession of financial crises in the 1990s

In addition, the Basel Committee for effective implementation postponed the new provisions that were to enter into force at the beginning of 2022, from January 2023, the delay is justified by the epidemiological context linked to the COVID-19 health crisis which affected the whole world, all sectors combined, including the international financial and banking system.

2.1. Basel IV contribution

The Basel IV reforms, complementing the Basel III reforms announced in 2010, are mainly focused on improving and restoring the credibility and reliability of the methods used for the calculation of risk-weighted assets[15] (BCBS, 2017). Here are the main changes compared to Basel 3:

Table 1: The main changes

	Basel 3	**Basel 4**
Extension of risk coverage	Capital requirements for market risk increase significantly. They are calculated on the basis of a 12-month period of market stress. The risk of credit valuation adjustment is now integrated into the system.	Revisions to standard approaches for calculating credit risk, market risk, credit valuation adjustment risk and operational risk allow greater sensitivity to risk and better comparability. The constraints placed on the use of internal models aim to reduce the undesirable variability in the calculation of RWAs by banks. An output floor[16] limits the benefits that banks can derive from the use of internal models for calculating minimum capital requirements.
Limitation of bank leverage	A leverage ratio limits the accumulation of debt aimed at financing the investments and activities of banks (bank leverage), reducing the risk of a deleveraging spiral during a downturn.	Large global systemically important banks (EBISm[17]) are subject to higher leverage ratios.

Source: CBCB, 2017, p.2

[15] The Risk-Weighted Assets constitute an estimate of the risk determining the minimum level of regulatory capital that a bank must maintain to face unforeseen losses. A prudent and credible calculation of RWAs is an integral part of the risk-based capital framework.

[16] The minimum capital floor or the minimum provisional or provisional balance that a banking institution is obliged to preserve without any risk of loss. The stated goal is to build the capacity of the banking entity.

[17] A systemically important banking institution is one whose failure, due to its size, complexity, volume of activities or systemic interconnection, could jeopardize the financial system and economic activity.

All reforms are planned to be putting in place by 2023 at the latest, except the capital floor, which will have a five-year transition period (2023-2028) to allow banks to adjust gradually. Thus, there are six reforms proposed by the BCBS as the following:

Table 2: Reforms of Basel 4 proposed by BCBS

1	**Revision of the standard approach to credit risk, in order to improve the risk sensitivity of the existing approach.**
2	**Revision of the internal method approach to credit risk, with the stated objective of limiting the use of certain internal models (especially for portfolios with low default risk).**
3	**Revision of the credit assessment adjustment mechanism (CVA) with a revised standard approach and the removal of the internal method.**
4	**Revision of the current standard approach to operational risk, which will also replace the advanced approach.**
5	**Setting up a capital buffer linked to the leverage ratio for banking institutions of global systemic importance (G-SIBs).**
6	**Establishment of a capital floor ensuring that the risk-weighted assets (RWA) of banks derived from internal models cannot be less than 72.5% of RWA as calculated according to the standard approach.**

Source: PWC, January 2018, p.6

International regulators consider that banks have plenty of time to prepare for the implementation of the new reforms and proposed interim arrangements that will allow a reasonable and orderly transition to the adoption of the new standards. The table below shows the various revisions of Basel 4 with their effective dates before the one-year postponement due to the health crisis.

Table 3: 2017 reform implementation schedule (Before the one-year postponement)

2017 REFORMS	EFFECTIVE DATES
REVISED STANDARD APPROACH FOR CREDIT RISK	**January 1, 2022**
REVISED CREDIT RISK FRAMEWORK BASED ON INTERNAL RATINGS (IRB)	**January 1, 2022**
REVISED CREDIT VALUATION ADJUSTMENT SYSTEM	**January 1, 2022**
REVISED OPERATIONAL RISK FRAMEWORK	**January 1, 2022**
REVISED MARKET RISK FRAMEWORK	**January 1, 2022**
LEVERAGE RATIO	**Existing definition of exhibitions: January 1, 2018**
	Revised definition of exposures: January 1, 2022
	Volant applicable aux EBISm : 1er janvier 2022
OUTPUT FLOOR	**January 1, 2022 : 50%**
	January 1, 2023 : 55%
	January 1, 2024 : 60%
	January 1, 2025 : 65%
	January 1, 2026 : 70%
	January 1, 2027 : 72.5% (target level)

Source : CBCB, December 2017, p.8

According to PricewaterhouseCoopers (2018, p.10), the impact of Basel IV will probably not be as important as that of Basel III, which has thoroughly reviewed the composition of capital, the solvency ratios, but also put in place a series of new requirements on liquidity, the maximum authorized leverage and capital buffers.

The overarching objective of the Basel Committee is to finalize Basel III, therefore, the Basel IV reform is not a revolution but rather an evolution of prudential rules to ensure a resilient and secure banking system.

2.2. Basel IV impact

The impacts of this reform will be numerous and significant. First of all, many because the entire denominator of the solvency ratio will be reviewed. All the risks (credit, market and operational are thus redesigned) with the aim of reducing the variability of risks and the positive effects of internal models compared to the standard method.

The consequences of these reforms will also be very important, and this, at all levels for organizations (PwC, 2018, p.11):

- **At the financial level**

Because this reform will sharply increase the level of weighted risks. The upward granularity of the standard method of credit risk, the revision of the scope of internal models, the revision of their calculation parameters, the implementation of the new capital floor but also the review of the CVA (Credit Value Adjustment)[18] or the calculation of operational risk are all elements that will increase the volume of weighted risks and therefore the requirements in terms of equity and cost of capital.

- **At the operational level**

Banks must already get ready to analyze the impacts of Basel IV and reflect on the operational implications that revisions of standard methods and internal models will require. Thus, all the banks will have to carry out major projects and mobilize human and financial resources in order to meet the agenda.

- **At the strategic level**

Basel IV will clearly have strategic impacts on the organization, with the main need to anticipate the impacts and estimate them, in order to make the best decisions in relation to the economic model of each structure.

[18] The market value of a counterparty's default risk. It is measured by the difference between the risk-free value of a portfolio and its value, taking into account the potential default of the counterparties.

With a cost of risk and a higher cost of capital, banks will therefore have to face a new challenge which will force them to reposition themselves on certain products in order to maximize their profitability.

Moreover, the capital floor being one of the main constraints of this reform, banks that have developed internal models will eventually have to assess the relevance of a return to the standard method for certain exposures for economic reasons.

- **At the organizational level**

The operational implications will strongly impact the organization of each of the banks. Banks will therefore have to get into working order in order to adapt to the new rules.

This will require mobilizing teams, setting up working groups and launching projects in each of the areas affected by Basel IV. All bank departments will be affected by these reforms:

- The risk department, first of all the one in charge of calculating the RWAs and who will carry the bulk of the project.
- The finance department, which will have to provide new information, but will also be in charge of assessing the cost of capital as well as the impact on equity.
- The sales department will have to estimate the impact of Basel IV on products marketed, but also subscribed / purchased by the bank. Some exposure categories will see their RWA increase, so it is important to incorporate these impacts into marketing and product design.

Following Parchimowicz and Spence (2020), even if one of the main articulated promises regarding Basel IV was not to increase capital requirements, it is likely that they will increase indirectly due to the change in the regime of models and floors of production. Moreover, regulators are well aware of all these consequences, as evidenced by their reaction to the postponement of the implementation of the Basel IV reforms triggered by the coronavirus crisis.

3. The implications of Covid-19 on the implementation of Basel 4

For almost two years, the global economy has continued to suffer and grapple with the effects of the Covid-19 pandemic, in March 2020, the BCBS issued a press release stating that the Basel III standards have strengthened the resilience of the banking system and that the global system has higher levels of capital and liquidity, thus enabling it to better absorb losses (BIS, March 2020), then another press release was issued in April 2020, whereby the BCBS outlined some additional requirements including those for G-SIBs[19] (BIS, April 2020).

In all jurisdictions, central banks and supervisory agencies are now taking measures aimed at providing fiscal and monetary support, for example by providing additional liquidity to banks. Also, by using the capital buffers already in place, by encouraging changes to loans and documentation, by strengthening communication and coordination during cross-border financial transactions for a clear regulatory treatment, and also ensuring that there is no change in the current rules that will give banks some breathing space as this crisis passes.

Banks and financial institutions around the world have started to prepare for a worse recession than initially expected. By early 2020, European banks had already prepared for a timely recession later in the year, amplified and accelerated by the Covid-19 pandemic (Ewing, 2020). Additionally, EBISs like JP Morgan Chase and Wells Fargo have set aside $ 6.8 billion in reserves to anticipate loan defaults in the coming year.

According to Bilis (2020), If the serious health crisis seems to confirm the merits of banking regulation in Europe, it can also offer an opportunity to financial institutions: Otherwise, it is about taking enough time to prepare well for the future of the global economy. The new Basel 4 rules aim to reduce the gap between the results of Risk-Weighted assets between the internal ratings-based (IRB) approach and the standardized approach (SA). Roughly speaking, we can deduce that the Covid-19 pandemic could have a major impact on financial institutions facing an uncertain future.

Conclusion

Since the entry into force of the Basel regulations in 1988 and over the course of economic contexts, prudential rules are evolving through revisions and series of reforms that fill in the gaps in the regulatory framework with a view to remedying the weaknesses detected by the banking system and in order to cover the risks inherent in banking activity during a global financial crisis.

The Basel 4 Accord, being a set of planned reforms that finalizes the Basel 3 Accord, is seen as a new wave of regulations for the financial and banking industry introduced with a view to ensuring the stability of the international financial system.

However, Basel 4, or the finalization of Basel 3 in the jargon of regulators, will certainly have consequences on the financing of the international economy while taking into account the

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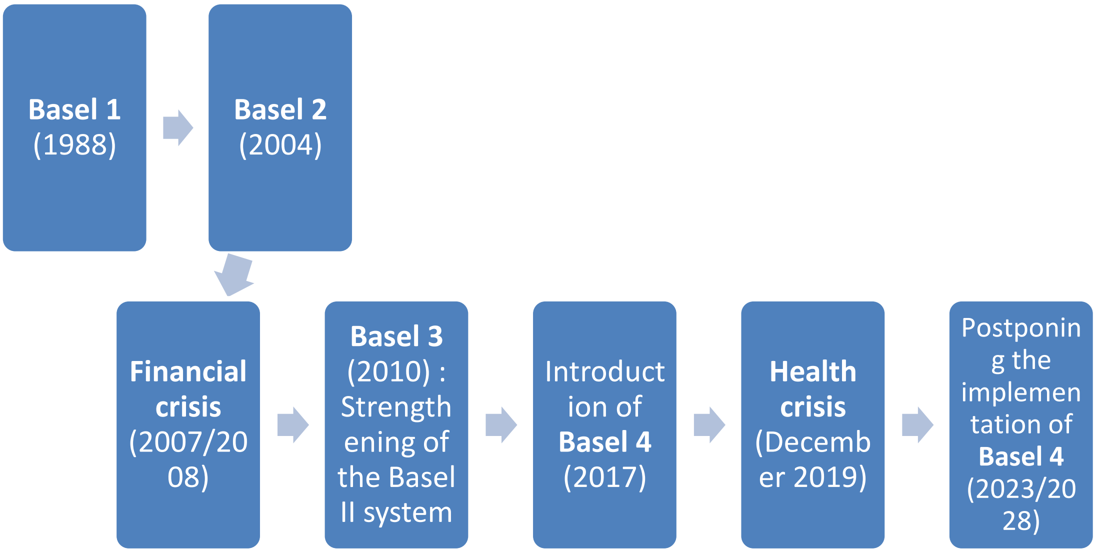
current economic context characterized by financial repercussions linked to the spread of the Covid-19 pandemic that was recently one of many drivers of changes in all the world, that said, the key questions, to which we will probably have answers after the full implementation of the reforms of the last Basel agreement (end of 2028 according to the new regulatory timetable for the implementation of the Basel 4 reforms), are as follows : What will look like the financial and banking sector after Covid-19 pandemic ? Will the banks still be able to be solvent and generate profits despite all these constraints and regulations? In addition, will they still be able to withstand a possible new global financial crisis? The business models of banks were already under significant pressure before Covid-19 forced the global economy to pause, so several challenges that banks are expected to meet by optimizing the implementation of these reforms, given that the regulatory agenda will be very busy for years to come. Otherwise, in order to schematize our problematic, we have developed a conceptual model of our research in Annex 1 below.

At the end of this article, we can say that our research hypotheses can only be confirmed after the full implementation of Basel 4 reforms, given that we don't have a global vision of the next events in relation to the Covid-19 pandemic, and we don't know when will this health crisis end. This panoply of prudential rules governing international banks to strengthen the financial system will continue. However, the postponement of one year due to the pandemic is now facing major challenges in order to meet the regulatory schedule; however, the stakes are high for the banks precisely because a new financial crisis could shake the world in the years to come following the financial and economic repercussions of the health crisis. All of this will generate important debates over the next few years.

ANNEXES

Annex 1: A conceptual model of our research (Evolution of prudential regulation between financial crisis and health crisis)



Source : Author

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