

# “The silent Basel III practice: evidence from the Canadian banking system and ethical banks”

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## The silent Basel III practice: evidence from the Canadian banking system and ethical banks

### Abstract

The recent subprime crisis has constrained governments to inject liquidity into the banking system. Hence States are willing to make financial institutions more responsible for their activities: in the future they will be asked to have sufficient capital available to absorb at least part of the losses. These are exactly the principles of Basel III reform.

Basel III intends to include on the one hand far more effective ways for assessing and limiting the liquidity risks which individual institutions face and on the other hand a better understanding of market wide liquidity risks.

Canadian regulation already applies Basel III. The aim of this paper is to discuss the implementation of this reform in the European context. More specifically, the paper intends to prove that the new Basel III provisions represent a well-balanced answer to the crisis. Evidence will be given through a group of banking institutions characterized as ethical banks, which already applied the criteria of Basel III without any loss of profitability.

**Keywords:** Basel regulation, core capital leverage ratio, commercial banks, ethical banks, narrow banking, systemic risk, banking crisis, Canada, Europe.

**JEL Classification:** G01, G21, G28.

### Introduction

Since the 80's, the global financial system has faced several crises which have led regulators to consider new conjectural and structural problems. The fluctuations of share prices have made speculative and risky strategies more viable. Several crises (the DotCom bubble, the sub-prime crisis...) have led economists and financial analysts to the following conclusions. First of all, systemic risk has increased during the last 30 years. To solve this problem, regulators have come up with rules to evaluate information more efficiently (e.g., implementation of IFRS). Second, the recent collapse of stock markets shows the importance of preventative procedures.

One cannot doubt that banks bear a large responsibility for the current financial situation. They were perfectly aware of the nature and the extent of the continued exposure to their off balance risk and the asset-based securitization (ABS) they carried on their balance sheet. The explosion of these new products and actors has contributed to the increase of the global level of risk and to the emergence of systemic risk. This excessive disintermediation and the large amount of liquidity on the market could then be considered as the origin of the global financial crisis that affected on the one hand banking institutions and on the other hand financial markets. Speculation in real estate and financial innovations, which enable the banks to sell rights to the mortgage payments and related credit risk to investors through a process called securitization, have led to a considerable increase of systemic risk<sup>1</sup>. As a consequence, the crisis caused panic in financial markets and en-

couraged investors to take their money out of risky mortgage bonds and to put it into commodities.

In that context, the pillars of Basel II have been criticised, in particular because of their reliance on the opinion of rating agencies and also on an internal model to determine the level of reserves to be imposed on banking institutions<sup>2</sup>. Despite the fact that regulators intend to take into consideration the different risks that banks have to face, the global trend of instability over the last two years proves that this was inefficient. In light of this situation, the solution could be to allow central banks to force banking institutions to over-capitalize in order to be capable of assuming all or part of their losses in times of crisis, which is exactly the objective of the proposition for Basel III.

The Basel Committee has attempted to identify the most efficient and effective means of incorporating larger non-risk weighted debt limit. Basel III intends to include on the one hand far more effective ways for assessing and limiting the liquidity risks which individual institutions face and on the other hand a better understanding of market wide liquidity risks.

Canadian regulation already applies Basel III. The aim of this paper is to discuss the implementation of this reform in the European context. More specifically, we intend to prove that the new Basel III provisions represent a well balanced response to the crisis. Evidence will be given through a group of

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<sup>1</sup> Buiter, W.H. (2008). 'Lessons from the North Atlantic financial crisis' Working paper, LES, Universiteit van Amsterdam, CEPR and NBER, No DP6596.

<sup>2</sup> Basel II introduced the three pillars based on a revised minimum capital framework: pillar 1 including credit risk revised market risk rules and new operational risk charges, pillar 2 supervisory new process and pillar 3 market discipline based on mandatory and voluntary disclosure. Basel II was considered not adapted for small banking institutions as it was too costly; it was an unsuitable system for larger establishments, given that it did not succeed in preventing the last crisis. For more details see Antonicelli M.A., Bernasconi F. and di Salvo R. (2005). 'La conformità a Basilea 2 nelle piccole banche: il caso delle banche di credito cooperative' Cooperazione di credito January-March.

banking institutions constituted by the Canadian banks and the so called ethical banks, which already applied the criteria of Basel III without any loss of profitability. Our final question will be: as regards the new fluctuating context, will Basel III be a sufficient paradigm to guarantee for the future the stability of our global financial and banking system?

### 1. The financial environment after the crisis

The recent subprime crisis has constrained governments to inject liquidity into the banking system. Hence States are willing to make financial institutions more responsible for their activities: in the future they will be asked to have sufficient capital available to absorb at least part of the losses. Banks are in the business of borrowing short and lending long. Hence, they create credit that allows the real economy to grow and expand. The regulation is unnecessary if:

1. Financial markets efficiently allocate savings towards the most promising investment project which leads to profit maximization.
2. Assets prices reflect underlying fundamentals.
3. These markets have the capacity of self-regulation.

However, Rosengren (2008) mention that banks have part of the responsibility in financial as they are highly leveraged: by shrinking their asset after a negative capital shock, they contribute in amplifying economic shocks. Banks also tend to lend more when times are good and less when times are bad (Blum and Hellwig, 1995).

To answer these issues, two solutions are possible:

1. The introduction of new capital requirement in the regulation: this is what is proposed through the Basel III approach. If banks will go on performing both traditional and investment banks activities, they will have to satisfy minimum capital ratios to control credit risks. For Kashyap and Stein (2004), capital regulation is an instrument for the regulator to incite each bank to internalize the systemic risk and disruptions suffered by financial agents.
2. The narrow banking approach: banks are excluded from investing in equities derivatives and complex structured products, which will be undertaken exclusively by investment banks. This will be a return to a world where banking activities are tightly regulated and separated from banking activities (see Kay, 2009).

These two issues are discussed successively in what follows.

The theoretical bank capital channel literature states that an increase in bank capital may reduce the probability of financial distress but also reduces liquidity creation by banks by decreasing the aggre-

gate amount of deposits (the 'financial fragility-crowding out' effect, as Berger and Bouwan (2006) put it). Consequently could Basel III be considered as a suitable reform made for the banking system? The new agreement from the Basel Committee on Banking Supervision will regulate the minimum requirements on capital reserves of banks, which is to amend the rules for banks member countries. It is hoped that these new rules will strengthen the stability and growth of the global financial system. The aim of the new ratio stated by Basel III is then to cover potential loan losses, holdings of subordinated debt, hybrid debt/equity instrument holdings, and potential gains from the sale of assets purchased through the sale of bank stock.

A criticism that has been made to the preceding regulation is its pro-cyclical effect. As Jones (2000, p. 36) states: "*in recent years, securitization and other financial innovations have provided unprecedented opportunities for banks to reduce substantially their regulatory measures of risk, with little or no corresponding reduction in their overall economic risks*".

Therefore, the other major rules, the counter-cyclical capital buffers will introduce a new concept in regulation: the prevention of financial and economic crisis. Authorities will be given power to impose additional counter-cyclical charges only during periods of excessive growth.

The key elements within the new measures are based on five fundamental reforms. Core tier 1 capital (equity and earning) is more than doubled from 2 to 4.5 per cent. This is supplemented by an additional conservation buffer of 2.5 per cent which raises the core tier 1 ratio to 7 per cent. Banks operating between 4.5 and 7 percent will be subject to restrictions on dividend and bonus payments to protect capital from short-term dilution. Hence, the accord intends to increase capital reserves which are composed into two tiers:

1. "Tier 1 Capital": Disclosed cash reserves and other capital paid for by the sale of bank equity (i.e., stock and preferred shares). Tier 1 is the privileged ratio of the regulators as it has the highest degree of liquidity and could be available rapidly.
2. "Tier 2 Capital": Reserves created to cover potential loan losses, holdings of subordinated debt, hybrid debt/equity instrument holdings, and potential gains from the sale of assets purchased through the sale of bank stock. This ratio constituted complementary equity that could be used if necessary.

Enhancing the buffers of banks is also a tool used by regulation authority to control the commercial

banks with a leveraged ratio of about 12 to 15 (to be compared with a leverage going from 25 to 30 in the investment banks in 2008, as stated in the figure below). One of the major lessons of the last crisis is the following: the higher is the leverage, the more difficult it is for financial authority to identify the origin of the problem and to benefit from the relevant instrument to solve the problem. The comparison of our ratios in the next section will prove that Canadian regulation, which already use the parameters proposed by Basel III, manage to better face the subprime crisis. The leverage is less than 20 which enables authorities to better control the banking institutions. The impact of instability sources can be correctly identified and governments are capable of founding the sufficient liquidity to prevent the system from entering in the banking run.



Source: Company reports.  
Notes: Assets divided by equity.

**Fig 1. Leverage ratios for major international banks**

Another fundamental and longstanding approach is to prevent banks from investing in derivatives and complex structured products, which will be undertaken exclusively by investment banks (Kay, 2009) on 'Narrow Banking' and Kotlikoff (2010) on 'Limited Purpose Banking'. In this way, banks have 100% liquid reserves, or 'narrow banking' as originally conceived by Henry Simons, Irving Fisher and Milton Friedman inter alia (Katlikoff, 2010). This would dramatically reduce leveraging and lending. Concretely, how to define a narrow bank? This is a bank that holds negotiable assets financed by secured funding. This is opposed to the traditional transformation where a bank holds a credit portfolio financed by insured deposits (as defined in Julio Ramos Tallada (2009)). This definition evidences one crucial point: assets and credit are not perfect substitutes. Contrary to assets, credit cannot be liquidated without cost. Credit portfolio includes liquidity risk. In other words, 'there are clear links between bank lending behavior and bank balance

sheet liquidity, which suggests that the bank lending may turn out to be a very significant source of monetary transmission when the banking system is relatively illiquid'<sup>1</sup>.

The key attributes of narrow banking includes:

1. No lending of deposits.
2. Extremely high liquidity (typically short-term assets, e.g., bonds).
3. Extremely high assets security (typically government bonds).
4. Lower interest rates paid to depositors.
5. Specific regulatory framework with high level of scrutiny.

In the next section devoted to the empirical evidence, we will justify how these criteria fit the behavior of an ethical bank as regard the core banking business. This explains the inclusion of such banking structure in the chosen sample.

## 2. Aim and objectives of Basel capital requirement revision

In order to understand the purpose of our analysis, it is necessary to recall the evolution of the different regulation before the Basel III system. The first ratio, the Cooke ratio defined by Basel Committee specifies an amount of capital a bank should have as a percentage of its total risk-adjusted assets. Two conditions were imposed to banking institutions:

1. Tier 1 Capital + Tier 2 Capital / Liabilities  $\geq$  8%: in other words, 8% of a bank's risk-weighted assets must be covered by Tier 1 and Tier 2 capital reserves.
2. Tier 1 Capital / Liabilities  $\geq$  4%: Tier 1 Capital must cover 4% of a bank's risk-weighted assets.

This system has proven to ignore important differences between loans within a given asset category. Hence Basle II has replaced the ancient system by defining three pillars:

- ◆ Pillar one, which reflects risk determination and assessment, induces to define new capital requirements. Three different risks were taken into consideration: market risk – risk of losses due to fluctuations of market prices (unchanged); credit risk – risk of default of outstanding loans (modified); operational risk – risk from disruption from people, systems, process or disaster (new).
- ◆ Pillar two, the supervisory review, stresses the importance of bank management in developing an internal capital assessment process.

<sup>1</sup> Cf. Bean, C., J. Larsen, and K. Nikolov (2002). 'Financial frictions and monetary transmission mechanism: theory, evidence and policy implications', ECB Working Paper, No 113.

- ◆ Pillar three, the market discipline, enhanced disclosure.

The minimum capital requirement or Mc Donough ratio can be defined as followed:

$$\frac{\text{Total equity}}{\text{Credit risk (85\%)} + \text{Market risk (5\%)} + \text{Operational risk (10\%)}} \geq 8 \tag{1}$$

Different methods were used to evaluate each type of risks. The aim of this paper is not to explicit these methods but to justify why authorities have judged necessary to change the paradigm to better control market and banking instability. Hence, we will not detail the technical aspects to evaluate each type of risks. What is important for us is the relevance of the capital adequacy directive. As

exhibited in the graph below, the minimum equity requirement of Basel II was supposed to enable banks from covering expected losses (coming from non-performing loans as an example), exceptional losses (emerging from a fluctuating economic situation). With this system the uncovered exceptional losses should have been limited to an extremely reduced probability.

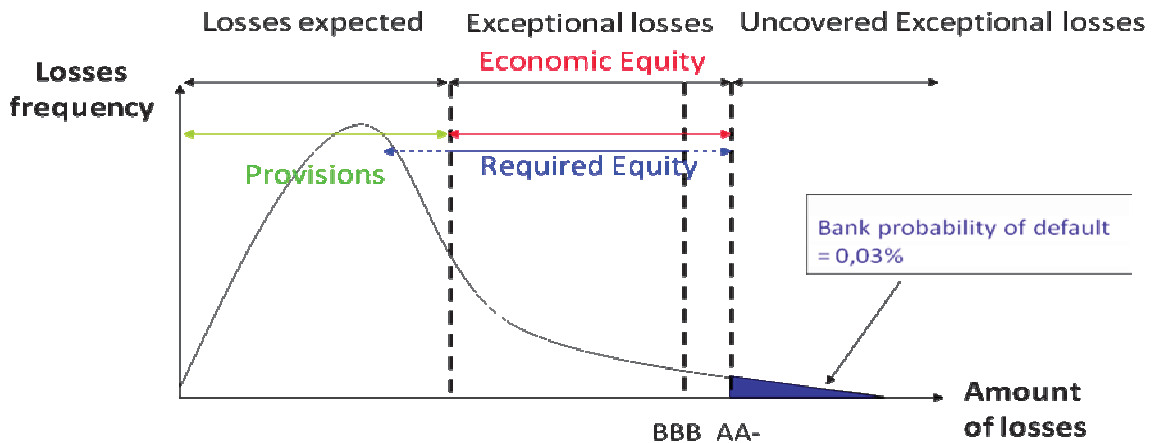


Fig 1. Minimum equity requirement of Basel II

There is a clear consensus that one of the root causes of the financial crisis was excessive leverage in many of the world’s banks and investment dealers, exacerbated by a lack of common standards for the quality and level of capital (e.g., section 1). The remedy, undoubtedly, will be higher standards and common definitions of what should constitute Tier 1 Capital. In addition Tier 2 basically constituted by reserves in order expected losses through time is quite stable. We then intend to prove that the reinforcement of Core capital and Tier 1 will be a guarantee for banking stability. The second argument will be to provide arguments against bank complaints towards a higher level of capitalization.

### 3. Empirical evidence: a comparison of Europe-Canada

We conduct our analysis by comparing the situation of European and Canadian banks. Why? One lesson of the last crisis is that Canadian banks have resisted better to financial shocks because of their level of capitalization. As Ratnovski and Huang (2009) state, Canadian banks have exhibited relative resilience in the credit turmoil. They have a higher share of depository funding (vs. wholesale funding) in liabilities and a number of regulatory and structural factors that prevent them to take excessive risk. In

fact, Canadian banks already apply Basel III. To prove this evidence, let us first describe the core characteristic of the Canadian banking system. This banking system is based on 4 pillars:

1. A banking system remaining largely national.
2. Well-diversified and managed institutions.
3. A well-regulated system: as regards leverage, Canadian banks should respect a ratio assets/capital < 20; hence, they must control their size.
4. They are well-capitalized: core capital > 7% and the ratio of solvability (equity ratio) > 10%.

Our objective in this paper is to discuss the implementation and the adequacy of Basel III on the basis of a sample composed by:

1. 2 Canadian banks, namely 1 commercial – Royal Bank, 1 cooperative – Toronto Bank.
2. 4 European Banks, namely 2 commercial banks – BNP and HSBC among which one HSBC has 314 branches in Canada, 1 cooperative bank – Rabobank, 1 Ethical bank – the Alternative Bank Switzerland.

Hence, our sample includes diversified banking structure: traditional commercial banks and cooperative banks. The aftermath of the subprime mortgage crisis has accelerated a pre-existing process of ethical ap-

proach in the banking industry. Today, all banks claim to be socially, environmentally and economically committed to the philosophy of sustainable finance. To concretize this new objective, commercial banks have stressed their commitment to sustainable development, for instance by signing the Equator Principles or by issuing SRI products. However, a category of banks, the so-called ethical banks can be considered apart. Since their foundation in the mid 1980s, their objective is to meet society's new demand for ethical principles in banking business.

Contrary to traditional banks, it is important to highlight that ethical banks believe that profitability should not be only measured in financial terms, but also in social terms. For ethical banks, this means that maximizing profit is not the only objective guiding their activities. The social and environmental added value should also be taken into consideration. This point is illustrated by one of the founding statements of Alternative Bank ABS, one of the Swiss ethical banks studied in this paper, which states in part:

“The ABS Bank puts its ethical principles before profit maximization and conceives its activity as an alternative to the dominant economic logic, which is the principal responsible for the worsening of ecological problems and the increase of social and economic inequalities”<sup>1</sup>.

Indeed, this criterion seems far more effective for distinguishing ethical from traditional banks. Whereas the sustainable approach is an integral part of the former's overall strategy and perhaps their “raison d'être,” for traditional banks the new ethical fashion is just an accessory instrument for attracting new clients and thereby maximize profits. This latter point is – as it has always been – their primary aim and everything else is subordinated to it. For ethical banks, it is the other way round. Hence, ethical banks are different in the financial activities they promote:

1. They are concentrated in savings collection/credit distribution.
2. They privilege to finance projects with a social and/or environmental dimension.
3. They promote the Solidarity between depositors and borrowers. Hence they can grant loans at lower interest rates if the projects create social value.
4. They focus on local and regional coverage; their international strategy is reduced to the minimum.
5. They do not participate in the financial market.

These types of banks illustrate the second paradigm described in section 1: the narrow banking. They concentrate their activities to the core business by collecting deposits and granting credit to finance investment project of enterprises. They use financial markets for refinancing purposes on the basis of long-term assets.

Moreover, our sample includes both PLC banks and cooperative banks to prove that the statutes of institutions do not prevent the implementation of the new rules. We also include institutions that not only want to follow the regulations (like traditional banks in Canada, which manage to better face the sub-prime crisis by implementing the criteria proposed by Basel III) but also freely choose to be more drastic than the actual regulation: these banks, so-called ethical banks, are closer from the narrow banking.

We compare Canadian and European banks to prove that a strict regulation does not prevent banks to be profitable.

To do so, we have selected a couple of ratios for several reasons:

- ◆ First, we calculate reserves which essentially constitute Tier 2 capital in order to prove it stability through time. Two consecutive years, 2008 and 2009, will be used to exhibit this evidence.
- ◆ Second, we calculate core capital and Tier 1 of the criteria proposed by Basel III for our sample: it will prove that strict capitalization already exists in some part of the world.
- ◆ Third, we evaluate the off balance sheet and the size to put evidence that these two factors increase the speculative activities of banking institutions. We intend here to exhibit the difference between Canadian and European banks in that context.
- ◆ Fourth, we give the ROE for all banks included in the sample to justify that more capitalization does not prevent from being profitable.

The reference year for the three last calculations is 2009 for two reasons: first, Basel III has not been implemented yet and second because the consequences of the financial crisis have been over gone. Hence, the idea is to discuss their new position as regards the financial environment. In other words, should a new crisis occurred, would Canadian and European banks be in the same position to face the shock.

The distinction between Tier 1 and the core capital is an interesting factor to evaluate:

1. First, the amount of liquidity available to cover risk and losses that could come from the granted loans and the market positions.
2. Second, the amount of this liquidity that could be affected to an increase of equity necessary in case of recapitalization if losses are becoming too important.

<sup>1</sup> Mario König and Aglaia Wespe: L'histoire d'une banque extraordinaire: L'Alternative. Zurich, Banque Alternative BAS, pp. 47-48.

An analysis of the detailed balance sheet of each banking institution chosen in the sample provides us with the necessary information and will enable us to a more diversified discussion as regards the capacity of each institution to face external shocks.

The results are presented in the two following tables.

Table 1. Reserves level for European and Canadian banks

	2008	2009
BNP	2.5%	2%
Rabobank	3.2%	3.1%
ABS	9%	11%
HSBC Group	4%	3.5%
HSBC Canada	2%	2%
Toronto Dominion	5.5%	5.8%
Royal Bank	4.3%	5.1%

Source: Different balance sheets; calculations of the author.

This table shows the capability of banks to evaluate the risks that could occur while practicing their cur-

rent activities. With a fixed confidence interval of 5%, banks can identify good clients from bad ones<sup>1</sup>. Hence, the problem does not come from the credit activities but more on the asset side. As mentioned by Bill Downe (2010), European and Canadian banks work on the basis of 'universal model'. This model balances wholesale and retail activities: it balances assets and liabilities (as banks collect deposits from individuals and businesses, and lend to both). This leads European and Canadian banks to have a stable retail and commercial deposits and a healthy loan-to-deposit ratio.

But, as Downe noted, one strength of the Canadian banks is the nature of their participation in mortgage lending. Canadian banks tend to originate mortgages and hold them on their balance sheets, which is not always the case for European banks. Hence, besides promoting diversification of risk, Canadian universal banks have a better knowledge of their customers which could probably explain the performance as regards their risk control. This will constitute our next point.

Table 2. Capitalization and risk level for European and Canadian banks

	Royal Bank	Toronto Dominion	BNP Paribas	HSBC Group	HSBC Canada	Rabobank	ABS
Core capital = Capital given to shareholders+ reinvested profits	5.5%	7%	2%	4%	6%	6%	5%
Tier 1	13%	11.3%	12.5%	10.8%	12%	13.8%	10.5%
Off balance sheet	46%	30%	20.19 x balance sheet	11.2x balance sheet	62%	4.5%	1.5%
Size assets = x.capital	16.3	17.1	27	17.4	16.3	16	7.25
ROE	10.65%	8.4%	10.8%	13.3%	7%	8%	11%

Note: Year 2009.

Source: Banks' balance sheets; calculations of the author.

This table leads to the following comments. Canadian banks, thanks to a more controlled regulation, have recovered the loss of the subprime crisis: their net income has increased and the dividend payout ratio continuously increases (for Toronto Dominion it has doubled from 2008 to 2009 as shown by the analysis of their balance sheets). The strategy of Canadian banks, which is concentrated on national basis enables more diversification at the local level, leads to more control as regards systemic risk and prevents institutions from contagion effects at the global level. As regards the rescue program few things have been said on the Canadian banks, specifically because of this efficient regulation.

For the European banks, all banks included in the sample reached a satisfactory Tier 1 (HSBC and BNP Paribas have increased its level of 2%, Rabobank-1%). However their core capital remains low in comparison to Canadian Banks. A distinction must be done between BNP Paribas and HSBC on one side and Rabobank on the other side. BNP and

HSBC are traditional universal banks that exhibit a rather low core capital. Diametrically opposed, Rabobank, the cooperative bank, where financial activities are less relevant than for universal bank, is capable of constituting a higher level of core capital. This core capital is even comparable to the one of Canadian banks. Let us go one step further and consider the specific case of HSBC group and HSBC Canada. The Canadian branch follows the local regulation and manages to maintain its market share.

If we now observe the result as regards size and off-balance sheets, several differences are to be noticed between the Canadian and the European banks:

1. The regulation in Europe does not impose any control on size, which could lead to more risk for the whole banking system (too big to fail principle).

<sup>1</sup> Sources: the analysis of the balance sheets of each banking institutions.

2. A predominance of the off-balance sheet exists for European banks: if these activities are sources of the banking margins (margins come from the difference between received income (loans) and interest given to deposits, the fees and the financial participation (cf. choice between arbitrage and speculation), they can provoke financial instability for the whole system.

Particular cases point out the interest of Basel III: HSBC Canada and ABS. HSBC Canada follows the country rules as regards size and capitalization which does not prevent the institution from being profitable as the Canadian banks (they restrict the off-balance sheet and control the size). Hence, to be more drastic is not an obstacle for profitability.

The ethical bank ABS located in Switzerland imposes itself a higher level of capitalization. Its top management judges this amount of capitalization necessary to face external shock. It does like Mr. Jourdain 'de la prose sans le savoir': this institution applies Basel III before its implementation. Its profitability is comparable to Canadian banks, it has no off-balance sheet, and it concentrates its activities on local and national level. Moreover they have gained clients after the subprime crisis (the number of client quasi doubles from 2007 to 2008).

Hence, one can conclude that Basel III is not as strict as narrow banking. The objective is to increase the level of capitalization in order to improve the capability for banks of absorbing shocks. As a consequence, it will impose rules to control banking size in order to protect economic agents and public institutions from the 'too big to fail' principle. Since the last crisis, this principle has given evidence to be very costly. The Canadian solution has proven to be efficient without any loss of profitability.

However, historical evidences prove that banks tend to arbitrate between the loss of efficiency induced by strict respect to the regulation rules and the costs led by the punishment for non-respect to this proper norm. Second, the conformity of banks as regards regulation requirements could be undermined by an increase of capital if the manager (insider) fear a decrease in expected profits or if the cost of supervised credit is relatively high (Kopecky and Van-Hoose, 2006; Blüm, 1999). The respect of a minimum level of capitalization will incite the managers to maximize the asset values, to increase the risk to cover the cost induced by the increase of capital (Besanko and Kanatas, 1996). Hence, the relation between regulatory capitalization and the level of risk will be positive. Hence, if the proposition of

Basle III constitutes one solution for future crisis, it can be considered as the unique way to solve the problem of the instability for banking system. A proper evaluation of risk on the short, medium and long term for financial institutions is probably the only tools to guarantee efficiency and solvency for financial actors and economic agents.

### Conclusion

To be efficient, regulation should be capable of reducing opacity by imposing better accounting standards, of forcing the banks to reveal information, of imposing higher provisions for banks which undertake risky activities. As all these measure have not been sufficient to control the exponential growth of capital flows we face since the last decade, Basel III has proposed to reinforce capital requirement in order to reduce the leverage in finance. Our results prove that these new rules are feasible and prove that the complaints of banking institutions to apply Basel III are unjustified. If the new capital ratio will oblige the banks to mobilize more liquidity, Canadian and ethical banks point out that profitability is not reduced. Ethical banks impose such constraints by choice: they just want to use financial market to refinance themselves and not for speculative purpose. Canadian banks illustrate a case study of understanding of the advantage for higher capitalization: its implementation is not a problem for the whole banking system.

Hence, the reform is necessary and the way to implement it could be inspired by these institutions. Capital ratio is one measure to control risk but it is not the only one. The Canadian or ethical model is at that point useful to add several criteria such as size for example. In that sense, Basel III allows a ratio leverage of 30 which is more than the one, proposed by Canadian authorities and equals to 20 as it is stated in our calculations (see, for example, BNP Paribas).

This last point leads us to the following observation. The regulators will have to take into consideration the European specificity in order to guarantee the success of the reform. In other words, Basel III is a progress towards more responsibility for banking stability. It is not a revolution as the system is less drastic than other regulation rules such as the Canadian paradigm. As such, one can probably wonder that more control will be necessary in the future to impose more ethical behavior for the banking institutions. Future crises can only be controlled by the continued improvement of risk management which can be the object of future research.

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