Capital standards and banking stability in emerging countries: an empirical approach

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Several emerging countries' jurisdictions are going to implement Basel II prudential directives. For this reason, it is interesting to ask if capital regulation effectively contributed to strengthen banks operating in emerging markets. Throughout this paper we will attempt to give an answer to this problematic. The success of Basel I prudential mechanism known as the *Cooke* ratio and his adoption by the majority of emerging countries will permit us to test if capital standards, largely inspired from *Cooke* ratio, that regulate banks in these countries, have really influenced banks prudential behaviour. Using a non-parametric approach, we found mitigated results, since it seems obvious that more conformity of banks to capital standards induced more profitability to these institutions, restricted their leverage and strengthened their ability to hedge anticipated losses during distress episodes. However, the results also show that in emerging countries, contrary to developed countries, higher conformity to capital standards was not followed by an improvement in credit quality. Consequently, we remain doubtful toward the ability of this prudential mechanism in achieving his principal target in emerging countries' banking systems that is reducing credit risk.

J.E.L : G21, G28

Key words : Commercial bank, emerging country, *Cooke* Ratio, risk-taking, non-parametric test.

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I. Introduction

The Basel Committee on Banking Supervision (the Committee) was created in order to work for harmonization at the international level of capital standards applied to the financial institutions; such a harmonization had not been established ever before. Since the end of the 70's the Committee had published a set of instructions aiming the harmonization of the banking surveillance in G10 countries. Some years later, the Committee, influenced in part by the agreement on bank capital requirements established in January 1987 between United States of America and United Kingdom (Hall, 1999), moved toward the establishment of common standards governing capital adequacy in internationally active banks. The Committee had published in July 1988 a document titled "The Convergence of Capital Measurement and Capital Standards", presenting, in detail, the regulatory framework accepted and adopted by the Committee's members[1]. Before and especially since this initiative more known as *Cooke* ratio, the theoretical and empirical researches sought to verify the impact of such a regulation on bank stability. Recently, this field of research showed concern about banks operating in emerging countries; researchers began progressively to recognize that the adoption of such a prudential rule would necessarily have a long-term desirable effect on bank stability in these countries, mainly on bank loans quality.

The study try to assess empirically how capital adequacy standards influence bank stability, because this regulatory ratio is still adopted by the majority of emerging countries jurisdictions. Moreover, this method is very similar to standard evaluation of regulatory capital defined under Basel II (Powell, 2002, 2004). Besides, as the Financial Stability Institute[2] – FSI (2004, 2006) expects, almost all banking authorities in emerging countries will be able to make operational advanced Basel II directives not before 2015. Thus, this paper aims to check if capital standards, as defined by the Committee, have played an effective role in increasing commercial bank's stability in emerging countries. Sections 2 presents the Basel accords on capital adequacy, and try to summarize the academic discussion over the role of bank capital requirements. Empirical works that tried to judge the influence of capital standards on bank behaviour and probability of default will be exposed in the section 3. The section 4 will present the empirical methodology and the results. Finally, section 5 concludes this paper.

II. Basle Capital Standards

The *Cooke* ratio (*CAR*) is measured as the ratio of eligible capital instruments on risk weighted assets[3]. The Committee fixed a minimum of 8% for this ratio, so each bank should continually maintain an amount of capital superior to 8% of total risk weighted assets (in and off-balance sheet). The numerator of *CAR* ratio should contain eligible equity capital and complementary capital, while the denominator is composed of risk weights tied to different categories of assets held by the bank, these assets include also off-balance sheet items, interest rate and exchange rate instruments (*cf.* Appendix).

[1] United States of America, United Kingdom, France, Belgium, Italy, Spain, Canada, Germany, Netherlands, Japan, as well as Switzerland and Luxemburg. These countries are represented by their respective banking supervisory authorities. Besides, the Committee of Basel on the Banking Control meets four times per year in order to discuss on the advanced of development of the common norms of capital.

[2] An institute created jointly in 1999 by the Bank for International Settlements and the Committee.

[3] See the appendix.

In his 84th meeting in 1997, the Committee[4] had proposed an initiative to modernize the *Cooke* ratio so that capital requirements will be more in phase with the development of financial markets and practices. Thus, in reaction to international banks requests the Committee proposed in 1998 a new measure of bank capital requirements that use an internal model approach to compute credit risk. However, the Committee members thought that this approach was, at that time, still inefficient making banks not able to assess effectively credit risk and to cover it with adequate capital. After rejecting this proposition, in 1999 the Committee tried another solution that aims to use internal notations to build adequate bank capital. Then, Basel II, whose the last revised framework was published in June 2004, was put in place. Basel II explored two new regulatory options: supervision (the second pillar) and market discipline (the third pillar) added to the capital requirements (the first pillar). Besides, the first pillar includes three measures of capital requirements: credit risk, market risk (already considered by the *Cooke* ratio) as well as operational risk.

In the 70's, a very interesting discussion[5] was born in the United States of America around the efficiency of leverage restrictions applied to banks operating under the supervision of the Federal reserve Bank (Fed), the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC). Some authors advocated this kind of regulation consisting in imposing a minimal threshold on the amount of capital that will be used by banks to finance projects (Sharp, 1978; Keeley, 1988; Furlong and Keeley, 1989; Rochet 1992[6]; Freixas and Gabillon, 1999; Santos, 1999; Cooper and Ross, 2002; Repullo, 2004; etc.). They consider that the capital regulation cause banks:

- To avoid financing very risky projects, because if it not the case, the bank should offer itself a bigger guarantee (more equity capital investment),
- To clean-off balance sheet from bad projects, for the same reason mentioned above,
- To choice prudent investments rather than risky ones, especially because the option value of insured debts[7] may create a moral hazard when the insurance premium is not adequately priced,
- To provide her self a sufficient and immediately available cushion in case where investments outcome turn bad after a recession or any economic or financial systemic downturn.

Whereas authors who were sceptic toward such a prudential mechanism (Koehn and Santomero, 1980; Kim and Santomero, 1988; Rochet, 1992; Berger and ali., 1996; Besanko and Kanatas, 1996; Blum, 1999; Calem and Robb, 1999; Hellman and ali., 2000; Kopecky and Van Hoose, 2006; etc.) claimed that capital requirements may induce:

- The inability of banks to satisfy regulatory capital requirements, since their financial structure and the high cost of equity don't enable them to place at their own disposal a minimal amount of capital. Therefore banks will tend to overcome this situation by

[4] Tom de Swaan was the Committee's chairman at this time.
[5] See Santos (2001) and VanHoose (2007) for an overview of this discussion.
[6] Nevertheless, in his paper Rochet advocates the fact that assets risks must be adequately priced and that adding a simple leverage ratio restriction to a risk-based capital standards will induce banks to behave with more caution.
[7] If we consider the insurance of bank debts as a put option on assets then the shareholders will have the right to exercise this right by selling assets at a strinking price equal to the debt value at maturity (Merton, 1977). Thus, if bank value fall down, i.e. a decrease in market value of assets, the bank shareholders will be more incited to exercise their right when debts matures.

trying to invest in high returns but too risky projects,

- Unwillingness of banks, after satisfaction of the regulatory requirement, to pay back their debts (principal and interests) since they are constrained to devote more profits in order to raise new capital,
- Conflicts between shareholders and managers, mainly if the last ones hold less equity instruments than the first ones. So, if managers know that the leverage restrictions are expensive in term of profits, then they will decrease their effort in supervising borrowers, inducing more risky assets-portfolio,

III. Some empirical findings

After the definition and the adoption of *Cooke* ratio by the Committee's members between 1988 and 1993, empirical studies partly influenced by the theoretical debate (born once again in United States) on the prudential role played by capital standards, tempted to check if regulatory requirements may have an unexpected influence on bank's behaviour by giving it an incentive to choose less secure (but more profitable) projects. Thus, the purpose of theses studies was not only to see if leverage restrictions entailed an increase of bank capitalization, but also to know if there are some unexpected effects induced by this regulation on bank's portfolio quality. The problematic took more interest since it covers, henceforth, two questions: How do banks change their capital ratio under such regulation? And if this regulation does limits excessive risk-taking by bank managers?

Shrieves and Dahl (1992) were the first to analyze this problematic empirically, their main innovation was to pretend that banks continually and simultaneously want to reach optimal levels of capitalization and returns. Knowing that expected loan returns and risk are proportional, Shrieves and Dahl (1992) estimated directly risk-preference expressed by banks[8]. The main objective of their study was to examine the behaviour of 1800 American banks under capital standards that came into effect in 1985. The sample was divided in two groups, a group containing undercapitalized banks that is banks whose capitalisation ratios were lower than the threshold fixed by the FDICIA[9] (7%) and a group containing adequately capitalized banks. They found that undercapitalized banks adjusted more quickly their capitalization ratios than adequately capitalized banks. Estimation results also indicated that after the introduction of capital standards regulatory pressure induced had driven banks, with capital ratio near the minimal threshold, to reinforce their levels of capitalization and to curb their risk preferences relatively to other well capitalized banks. Theses findings support the capital regulation mechanism adopted in United States even before Basel I implementation, this was also proven by Keeley (1988). In fact, even before the application of common capital standards in United States by 1985[10], it was feasible to observe the effect of such capital regulation on undercapitalized banks' behaviour. This was the purpose of Keeley (1988) who finds that capitalization gap between adequately capitalized banks (capital ratio above 5.5%)

[8] The most used indicators to infer bank preference to risky investment are the ratio of non performing loans on gross loans and the ratio of risk weighted assets on total assets.

[9] Federal Deposit Insurance Corporation Improvement Act, promulgated in 1991 in the United States.

[10] In United States of America, the FDIC has attempted to require a minimal capital investment to banks sensitive to their risk profile. In 1975 the OCC, the national banks supervisory agency, have suggested a subjective assessment of required regulatory capital (Keeley, 1988). The OCC proposed to exert a regulatory pressure on banks who publish a capitalization ratio lower than capitalization median of the whole banking system (banks that are under the direct supervision of the OCC). In june 1985, in order to strengthen the protection of the FDIC's insured funds, the Fed, The FDIC and the OCC, adopted the same regulation that fixed at 5,5% the minimal primary capital proportion on total assets for each bank independently of her size (Lacoue-Labarth, 2003).

and undercapitalized banks shrank continually between January 1982 and June 1985. The first date announces, according to Keeley (1988), the beginning of discussions between the main three American supervisory agencies (cf. Foot note n°9) in order to find a common agreement to regulate capital investment undertaken by banks under their supervision. The statistical analysis performed by Keeley (1988) indicates that observed mean capital ratios that were below 5.5% in 1981 increased by 2.02 percentage points during the considered period. So it was obvious that during this period the observed levels of capitalization of the two groups of banks, i.e. undercapitalized banks and adequately capitalized banks converged over time showing that capital standards helped regulators to improve banking stability in United States.

Other researchers were inspired by Shrieves and Dahl (1992) model in order to estimate if Basel I standards (*Cooke* ratio) enforcement contributed to strengthen banks in Committee's members countries. Still in United States, implementation of *Cooke* ratio apparently triggered banks to decrease risk-tanking by improving the quality of their assets and to increase their capital ratios (Jaques and Nigro, 1997), although banks that displayed a lack of capitalization exhibited difficulty in generating supplementary equity instruments (Aggrawal and Jaques, 1998) and took more risk in their investment decisions than well capitalized banks (Beatty and Gron, 2001). In Germany saving banks appear to reduce their capitalization when they take on more risk, this is in line with theoretical suggestions according to which implicit or explicit deposit insurance system, when not fairly priced, induce banks to increase their appetite for risky projects (Merton, 1977; Sharp, 1978; Kareken and Wallace, 1978). Moreover, the public statute of these banks may allows them to function with a minimum prudential constraints, so they don't have to adjust their level of risk-taking following a change in capitalization ratio (Heid and ali., 2003). Finally, well capitalized banks tend to increase assets risks following an increase of capitalization, as opposed to undercapitalized banks. Using a sample of 500 Italian banks Cannata and Quagliariello (2006) estimated a simultaneous equations model similar to Shrieves and Dahl (1992) model, and found that banks showing a capital ratio close to the minimum threshold 8% were slower to improve their credits quality between 1994 and 2003. Despite that these banks are more subject to regulatory pressure.

However, contrary to German saving banks, undercapitalized Italian banks reduced more quickly their risk-taking following an increase in their capitalization. Empirical analysis undertaken by Rime (2001) on a sample of 154 banks in existence from 1989 to 1995 proves also that regulatory pressure exercised a significantly positive effect on Swiss bank capitalization. However, the adoption of Basel I rules did not influenced risk-taking by undercapitalized banks in Switzerland proving that despite their fragile situation these banks doesn't commit themselves to improve their loans quality in order to conform with solvency rules. These findings give support to the fact that Swiss banks, generally, tried to conform with capital standards mostly by increasing their capital investment rather than by curbing their risk preference. In a comparative study Van Roy (2005) find that undercapitalized banks based in United State, unlike Italian and French banks, appear more sensitive to the introduction of Basel I capital standards *via* the FDICIA - and its Prompt Corrective Action - since they raised significantly their capital ratios after adoption of the *Cooke* ratio. With regard to Japanese banks, it is rather the opposite that happened since they proceeded simultaneously to an increase of their risk-taking with the increase of their capitalization.

In emerging countries empirical conclusions are as confused as those found in developed countries. Recent empirical approaches derived from Shrieves and Dahl (1992) gives mitigated results. The most complete survey, focusing exclusively on banking systems in 30

emerging countries, was done by Godlewski (2005)[11], although the author doesn't specify the activity field of selected banks (business, saving or commercial banks), he noted that the undercapitalized banks felt difficulties to improve and to maintain their solvency. However, the regulatory pressure showed negative relation with risk-taking initiatives and positive relation with capitalization level. In addition, Godlewski (2005), like Mingo (1975) for the American case, shown that the frequency of intervention conducted by deposit insurance fund to rescue banks (if such a prudential mechanism exists), may induce moral hazard problems by causing these banks to operate with less equity capital. Nevertheless, the deposits insurance system didn't exercise any considerable effect on risk-taking by banks in emerging countries. However, governmental banks (where state is the main shareholder) seems to vary downwards their equity to total assets ratio, maybe because in case of difficulties, an intervention or a subvention is more expected for these banks, this result has also been observed on Indian public banks (Das and Gosh, 2004). Godlewski (2005) observed also that banks operating under weak and opaque legal environment hold more capital, maybe to protect themselves from losses generated by uncertainty prevailing on contracts enforcement. Thus, doubts subsists concerning the impact of capital standards on banks established in emerging countries, as shown in the recent survey of Hassan and Hussain (2005) from the university of New Orleans; the regulatory pressure didn't have any repercussion on commercial bank capitalization operating in a sample of 11 emerging countries. Yet theses banks reduced significantly their risk preference in order to fall into regulatory requirement. In the Middle East and North Africa (MENA), banks seem to conform adequately with capital standards, this was demonstrated by Murinde and Yaseen (2004) on a sample of 98 banks belonging to 11 countries. Indeed, regulatory pressure exerted by capital standards enforcement is likely to incite banks in this region to increase significantly their holdings in equity instruments. However, no evident results suggested that undercapitalized banks wanted to improve the quality of their loan-portfolios between 1995 and 2002. Also, implementation in 1999 of capital standards, following Basel I directives, by the Central Bank of Tunisia had not triggered a reduction of the risk-taking by Tunisian banks, even though capital requirements pushed these banks to boost their equity investments (Bouri and Ben Hmida, 2006). In Egypt the reinforcement of capitalization, subsequent to the introduction of the capital standards, had driven an increase in credit costs fixed by the Egyptian banks. Bennaceur and Kandil (2006) indicate that, in Egypt, following the increase of the banking equity capital investments, the increasing implication of shareholders toward guaranteeing the solvency of their banks, incited them to ask for a higher risk premium. These arguments coincide with the theoretical proposition formulated by Blum (1999). It confirms, to a certain extent, that capital regulation led *infine* to a reduction of Egyptian bank's risk profile. Authors also specify that higher capitalization base didn't restrain Egyptian bank profitability, in fact, capital adequacy induced an increase in assets returns (Return One Assets), possibly provoked by the improvement of credit quality or by relieving the weight of doubtful assets in the balance sheet. However, it was proven by Ling Linen and ali. (2005) that capital standards imposed to Taiwanese banks (24 state held and 16 privately held banks) didn't have the expected effects, since this prudential mechanism merely led to an increase of bank insolvency risk. This result could be interpreted theoretically through the difficulty that felt these banks to increase the return of their assets after conforming themselves with capital requirements and clearing-off risky but profitable investments (Berger and ali. 1996). Nevertheless, to explain their results, Ling Linen and ali. (2005) sustain the hypothesis of optimal portfolio choice introduced, among others, by Koehn and Santomero (1980), pretending that leverage restrictions incites non-sufficiently risk-averse

[11] A sample of 2779 banks based in three different geographic areas: Asia, Latin America and Eastern Europe.

banks to increase the relative level of risky assets composing their loan-portfolio in order to optimize the choice between expected return and volatility.

The motivation behind the conformity of banks with minimum capital requirements could depend, also, on their ownership structure, i.e. on shareholder concentration; this hypothesis has been tested empirically by Godlewski (2005), whose results agree with those found by Jetschko and Jeung (2007). Using a panel data set, Jetschko and Jeung (2007) observed 14 commercial banks and 114 mutual saving banks based in South-Korea, the purpose of their survey was to discriminate between publicly-quoted banks (supposes the absence of major shareholder) and banks of small size, i.e. mutual saving banks which are non-quoted (with a dominant shareholder, so there is a convergence between managers and shareholder's interests). Knowing that the commercial banks are large sized (The mean assets volume estimated by Jetschko and Jeung (2007) is nearly 51 billions of wons, that is 48 billions of US dollars) results indicate that the more publicly quoted-banks are undercapitalized, the more they will have a preference to risky behaviour. This would be due to confidence assigned by the government to these banks because of the easiness with which they can access equity markets in order to refund themselves during critical periods. This result suggests that capital regulation is not binding for large sized and publicly quoted commercial banks in South-Korea, even though these banks operate with a high leverage. On another side Results show that for the non-quoted banks, i.e. the majority of saving banks, the relation between capitalization and risk-taking is negative, whereas it is positive for the commercial banks. Jetschko and Jeung (2007) explain this result by the fact that in large publicly-listed banks the manager's involvement in supervising contracted loans tends to 'dilute' as their share in capital decreases, generating a hazardous behaviour[12]. We suggest an *a priori* different answer, we think that in private banks the manager/shareholder will tend to behave carefully when he invests more of his own funds to finance new projects, whereas at large sized banks equity capital is distributed between outsiders and insiders, therefore more risk-taking serves to reach a higher expected return required by shareholders, thus any capitalisation increase must be satisfied by an increase in profitability and in risky assets[13].

IV. Empirical Methodology and Results

The above-stated empirical studies have all a common purpose that is to test if risk-based capital standards effectively reinforced banking stability in developing and advanced countries. Our approach to this question will be different and, according to us, more concrete. This empirical study is inspired from those done by Keeley (1988), Shrieves and Dahl (1992),

[12] The authors give two different explanations to this risky behaviour : the first goes with Gorton and Rosen (1992) arguments that a bank manager don't want to be fired by outsiders shareholders, so he will be more ready to seek, may be hazardously, new earnings activities. The second explanation is similar to the one proposed by Besanko and Kanatas (1996) stating that the 'dilution' or the decrease of manager's participation in bank equity shares (so a decrease in his expected earnings) discourage him to put adequate effort in supervising outstanding claims.

[13] Dewatripont et Tirole (1994) have theoretically shown that when a bank faces difficulties, especially when their debts outclass their future earnings, thus as it was the case for the S&L's associations during the 80's in the United States, these banks will be probably more exposed to default risk because of a double moral hazard problem. Indeed, in such a circumstance managers and shareholders' interests tend to converge inducing the so-called double moral hazard behaviour. As consequences, when facing financial difficulties, the shareholders will be less involved in manager's investments choices, and hoping for new sources of returns, they will not interfere as long as the situation is critical. This behaviour is known as a gambling on resurrection, however according to Jetschko et Jeung (2007) this was not the situation of the Korean banking system since 2001, the date when the government achieved his restructuring initiatives.

and also Rojas-Suarez (2001a). Nevertheless, our survey is more closer to that performed by Rojas-Suarez (2001a), who tried to verify (on a sample of 135 banks based in South-East Asia and in Latin America) if yes or no capitalization ratio was an effective early warning indicator for banking distress in these countries. The power of capitalization ratio to predict banking crises has been estimated using noise and signal analysis, and also by comparing capitalizations means and medians, observed on failing banks (that were rescued by their respective government) and non failing banks. This comparison was performed using Student *t* test for means comparison and the Wilcoxon test for medians comparison. The results were suggestive, revealing that among constructed indicators of bank fragility (constructed using the CAMEL typology[14]) only capitalization ratio was not robust in predicting banking problems. Nevertheless, we thought that two main shortcomings alter the empirical findings of Rojas-Suarez (2001a, 2001b). The first is that results don't give any obvious ideas on whether there was any stabilizing effects induced by capital standards implementation, to say differently, it is evident, according to Rojas-Suarez's estimations results that even though a bank is well capitalized, it is always subject to bankruptcy, however we think that this risk of bankruptcy may be systemic and independent of loans quality. In other words, if Rojas-Suarez had specified that banking shortcomings have been caused, precisely, by a bad management of credits, by a lack in provisioning, by an under - investment in equity capital or by a highly leveraged loans, in this case we can conclude that the level of capitalization didn't have any effect on these indicators and on the overall stability of banks based in emerging countries. The second shortcoming in Rojas-Suarez (2001a, 2001b) findings is that banking fragility often emerge before the occurrence of a crisis and persist over time, so we don't know if the capital adequacy regulation really helps banks to overcome fragilities during periods where no systemic crisis occurred, however Rojas-Suarez (2001a, 2001b) provided no answers to this question. In this paper, we will run a comparative analysis using data coming from financial statements related to commercial banks operating in emerging countries and also in Committee's members countries, i.e. developed countries. Moreover, through this study we will proceed to a comparison of the financial situation between adequately capitalized banks and undercapitalized banks established in these two groups of countries. To this end, five indicators were selected in order to assess bank stability, these indicators come from the CAEL rating methodology (cf. Foot note n° 14). In order to differentiate between these two categories of banks, we are going to use a non-parametric test called Wilcoxon rank sum test[15]. Data on consolidated basis were extracted from The OSIRIS database (*Bureau van Dijsk Electronic Publishing*, SA) for 1995 – 2005 period. From this database it is possible to observe several commercial banks features i.e. the amount of assets or the volume of activity of each bank, if the bank is quoted on the local stock market, if a bank has either been liquidated or absorbed by another bank or by a banking group, etc. in order to homogenize as most as possible our sample and to make it sufficiently representative we used the following selection criteria:

[14] The CAEL rating process was defined by the FDIC in 1985, it serves to rank banks according to a set of indicators tied to several the overall financial situation of a bank: Capital adequacy, Assets quality, Earnings, Liquidity. The rating method named CAMEL add another indicator of bank stability: Management.

[15] F. Wilcoxon (1945) : « *Individual Comparisons by Ranking Methods* », *Biometrics Bulletin*, vol. 1, n° 6, pp. 80-83. Available on the web : http://links.jstor.org/sici?sici=0099-4987%28194512%291%3A6%3C80%3AICBRM%3E2.0.CO%3B2-P. The Wilcoxon rank sum test (also called Mann-Whitney or Mann-Whitney-Wilcoxon test) is a non parametric approach that permits to classify observations using a ranking methodology rather than comparing values directly. So, Wilcoxon's *w* statistic is similar to the Student's *t*, but it is more desirable than the Student test because it is a non parametric approach that is less sensitive to the non normality of distributions and more robust to extreme values.

- First of all, we can't start this research without keeping commercial banks (Code OSIRIS: 602 commercial Banks) that are submitted to a capital standards similar to the *Cooke* ratio defined by the Committee. To this end, all jurisdictions (out of Committee countries members) that apply a regulatory framework inspired by Basel accords directives were identified using the databases constructed by Barth and ali. (2000, 2003 and 2007) that point out if capital regulation mechanism in a country is compliant with Basel principles.
- Then, we kept the most representative banks, in term of activity volume, in their respective economies by selecting banks whose shares are issued and exchanged on their respective local stock market. Moreover, a bank will be rejected from the sample if their total assets volume doesn't exceed 100 M$.
- During the observation period, banks that have been submitted to a judicial liquidation have been withdrawn of the sample. However, banks that have been absorbed by other banks or by a financial group and banks that merged with other credit institutions have been kept because their financial accounts appear, nevertheless, in the balances-sheets of acquiring institutions.
- Finally, we introduced banks who publish consolidated balances-sheet data in order to avoid double counting problems (Code OSIRIS: C1 and C2).

This selection procedure considerably reduced the original sample and knowing that data related to total capital ratios and to credit quality (the proportion of non performing loans) are often unavailable, our sample shrunk to 307 commercial banks based in emerging countries and 130 commercial banks operating in developed countries, that is the Committee's members (except Belgium, because of data unavailability). Thus, 39 countries have been kept in our sample: 29 belonging to the group of emerging countries situated in four geographical zones and 10 Committee members' countries (*cf.* appendix).

Otherwise, since before 1995 data relative to banks operating in emerging countries is not always available, we chose a period of 11 years going from 1995 to 2005. This choice is, according to us, adequate because during this period all countries members of the Committee and the majority emerging countries jurisdictions have already adopted the *Cooke* ratio or a similar standard. Observations on banks installed in countries that did not began yet to apply Basel I directives in 1995 have not been taken into account, we mention here commercial banks of Brazil or Philippines, for example.

The hypothesis H_0 that we are going to test using the Wilcoxon's statistic *w*, will inform us about what the *Cooke* ratio had brought in term of stability for the commercial banks; especially those based in emerging countries.

> *H0: In emerging countries, where banking authorities adopted a capital standard similar to the Cooke ratio, adequately capitalized banks, i.e. the banks that conforms the most with capital regulation, are more stable than undercapitalized banks. Knowing that bank stability is judged through five indicators: economic asset returns, leverage, loans losses provisions, the proportion of non performing loans and Tier 1 investment.*

Undercapitalized banks are those who publish a Total Capital Ratio, or Cooke ratio (CAR) lower than the first quartile (Q_1) of the *CAR* ratio's distribution. Whereas, adequately

capitalized banks shows a capital adequacy ratio higher than the third quartile (Q_3) of the *CAR* ratio's distribution. We opted for this selection procedure because if we take undercapitalized banks as banks who *CAR* ratio is lower than the regulatory minimum (8% in the United States, or 12 % in Jordan, for example), in this case we can not dispose of sufficient observations in order to perform estimation, for the reason that there is few banks who do not respect minimal requirements in our sample.

The descriptive statistics presented in the Table n°1, give a preliminary result on commercial banks situation in emerging countries (EMR), during the analysis period. First we notice that undercapitalized banks have greater mean size (volume of assets) than adequately capitalized banks, indeed, this can be explained by the fact that big banks can reach national or international financial markets more easily in order to increase their capitalization during critical moments and they are more able to diversify assets risks. This allows them to operate with less regulatory capital. This result is also observable in developed countries (DEVP).

Table n°1. Descriptive statistics*

Variable	Total sample		Undercapitalized ($CAR \leq Q_1$)		Adequately capitalized ($CAR \geq Q_3$)	
	EMR	DEVP	EMR	DEVP	EMR	DEVP
ROA	1.37%	1.11%	0.24%	0.41%	2.985%	1.666%
	(1.11%)	(1.11%)	(0.69%)	(0.37%)	(1.99%)	(1.16%)
LEV	103.41%	93.80%	105.53%	90.01%	109.56%	101.21%
	(98.62%)	(91.67%)	(101.15%)	(94.71%)	(91.61%)	(93.57%)
LLP	2.33%	0.82%	1.92%	0.88%	0.951%	0.864%
	(1.20%)	(0.55%)	(1.11%)	(0.61%)	(1.18%)	(0.48%)
NPL	10.93%	3.22%	10.75%	5.07%	12.32%	2.803%
	(6.27%)	(1.79%)	(6.43%)	(4.83%)	(6.171%)	(1.13%)
CAP	9.51%	7.31%	5.81%	4.69%	14.47%	10.649%
	(8.39%)	(6.22%)	(5.58%)	(4.45%)	(13.06%)	(10.424%)
N	2124	1179	549	300	535	295
Total Assets	3,151	20,348	5,542	42,732	2,055	4,093
(Md$)	(3,524)	(31,973)	(6,075)	(38,216)	(2,103)	(1,813)

* The percentages represents mean values of observed variables (median between brakets) between 1995 and 2005. N is the total number of observations. Total Assets (mean value) are expressed in thousand of million US dollars. Considered samples refers to total sample, undercapitalized banks sample and adequately capitalized banks sample based in emerging (EMR) and developed (DEVP) countries. *ROA*= net Result /Total Assets ; *LEV*= Demand deposit and short term funds /non liquid assets ; *LLP*=Loan loss provisions/Gross Loans ; *NPL*=Non performing Loans/Gross loans ; *CAP*=Tier1/Total Assets.

On the other hand, returns on assets performed by undercapitalized banks are negligible (0.24%) compared to those observed in the adequately capitalized banks (2.98%). In short, let's note that it exist a significant difference between mean *NPL* (Non Performing Loans) ratio observed in undercapitalized banks (5.07%) and *NPL* ratio observed at the adequately capitalized banks (2.80%) based in developed countries, however this difference is less meaningful when considering banks operating in emerging countries. Curiously, it appears that in these countries more capitalized banks suffer more credit losses than undercapitalized ones. Wilcoxon's test will give us more accurate results.

All the tables containing estimations results are in the appendix. We start with testing if there is a significant difference between returns on assets (*ROA*) observed at adequately and undercapitalized banks. First of all, it seems that the Asian banking crisis have provoked a decrease in the *ROA* ratio in the two categories of banks between 1998 and 2000, although the table 4.a shows that it exists a positive and significant difference (the statistical *w* is

significant at 1% for all periods of observation) between the profitability of adequately capitalized banks and the one of weakly capitalized banks. Therefore, according to these findings we can deduce that risk-based capital adequacy enhance profitability of banks, this result confirm and empirical results found by Bennaceur and Kandil (2006). Furthermore, looking at Table 4.a and since our sample is relatively dominated by Asian commercial banks, we can mention that during periods of financial tensions that occurred in South East Asia, profitability in adequately capitalized banks decreased less (with more than 99% of confidence level) than in undercapitalized banks. Banks classification procedure, using the second quartile (Q2), don't reject these results. Moreover, these results are similar to those obtained on developed countries' banks (*cf.* table 4.b). Nevertheless, it is important to make attention to the endogeneity of *ROA* ratio when it is associated to banks' capitalization ratio (*CAR*). Indeed, these results can be biased if we consider the case that more profitable banks are more able to recapitalize using retained earnings, after the distribution of dividends, this can explain why high *CAR* ratio may be associated with more profit, i.e. a higher *ROA* ratio.

On the other hand, adequately capitalized banks seem to operate with a lower leverage ratio (*LEV*) than undercapitalized banks. Thus we think that one of the principal prudential objectives targeted by the adoption of *Cooke* ratio was reached, since that the wilcoxon's statistic *w*, that expresses the leverage difference between adequately capitalized and undercapitalized banks is negative and becomes significantly less than zero between 1998 and 2001. However, table 5.b don't give similar results for banks operating in the Committee's members, since more capitalized banks operate with more leverage. Nevertheless, the results of table 5.b are meaningless because the statistic *w* is not significant.

As we noted earlier in this paper, our sample is dominated by Asian banks, this probably explain why in 1998 there is a significant difference between Loan losses Provision (*LLP*) ratios at adequately and undercapitalized capitalized banks based in emerging countries. The firsts have apparently succeeded to cover more of their expected losses than the seconds during 1995 – 1999 periods, especially in 1998. Whereas, in the following six years (2000 – 2005) undercapitalized banks raised more provisions than adequately capitalized banks (p-value < 4%). We can deduce that less capitalized banks were not able to prevent credit losses accumulation during stress periods. Theses banks exhibited insufficiencies in their provisioning (*LLP*) policies, showing that they were not incited to improve their solvency, probably to not oppress their already weak profits, as the shown in table 4.a.

Concerning the impact of capital standards on credits quality, once again, the results exposed in table 7.a confirm that in emerging countries adequately capitalized banks seems to be more protected against credit losses, since that the difference between *NPL* ratio medians, inferred by the *w* statistic, in the two categories of banks is negative although not significantly. This result is expected, because the level of capitalization should reflect the quality of banks loans-portfolio. Furthermore, the prominent fact is that as shown for the *LLP* ratio (cf. table 6.a.), tests indicate that there is a negative and significant difference (p-value < 10%) between the *NPL* ratios in the respective categories of banks in 1998. Thus, banks that conform the most with capital adequacy standards were not only able to protect themselves against anticipated losses, they were also in position to prevent non performing loans accumulation during episodes of financial distress. Nevertheless, theses findings are weakened by the results showing that *NPL* ratio observed in adequately capitalized banks increased from year 2000 to reach a pick of 13.717% in 2002. Tests suggest also that there is not a significant difference between assets quality in the two categories of banks. Whereas, results displayed in the table 7.b. prove the opposite in developed countries. In fact, in the developed countries it is obvious

that a bigger conformity to the *Cooke* ratio has been associated with an improvement of banks investments quality. Table 7.b. shows that in developed countries undercapitalized banks suffer a proportion of non-performing loans significantly superior (p-value < 1%) to that observed in the adequately capitalized banks for all the whole observed period. So, we can asserts that in emerging countries, contrary to developed countries, a higher conformity to the *Cooke* ratio is not synonymous to a better credits quality, in other words, the influence of such a prudential mechanism would clearly be called into question in emerging countries, since that it didn't succeeded to reach its major objective, that is the reduction of credit risk.

Finally, observing results presented in Table 8.a and Table 8.b, it is obvious that adequately capitalized banks invests more Tier 1 instruments than undercapitalized banks in the two groups of countries. This result is not amazing, even though we notice that the gap in Tier 1 investment observed between the two categories of banks is higher in emerging countries (a higher *w* statistic).

V. Conclusion

The discussion around the influence of capital standards on banking stability in emerging countries clearly expanded following the adoption of capital adequacy directives suggested by the Committee. This study is part of this discussion. The purpose of this paper was to test if conformity to the *Cooke* ratio prudential mechanism is followed by more banking stability in emerging countries, then we sought to see if adequately capitalized banks were more robust than undercapitalized ones. To this end we adopted a simple approach in order to verify if the prudential mechanism consisting in covering credit risk with adequate regulatory capital serves to improve the financial situation of banks operating in emerging countries. We started this paper by revisiting the different empirical results testing the role of bank capital regulation. Some of these results were optimistic about the efficiency of this regulation (Murindes and Yaseens, 2004; Bennaceurs and Kandils, 2006; Bouri and Ben Hmida, 2006), but several findings were pessimistic (Rojas-Suarez, 2001a, 2001b; Godlewski, 2005; Ling Linen and ali., 2005; Jetschko and Jeung, 2007) toward the influence of such a prudential regulatory solution on banks' stability in the emerging countries. This paper used a different approach than precedent empirical contributions. We used a relatively large sample exclusively composed of commercial banks. In fact, the sample includes 307 commercial banks installed in 29 emerging countries situated in four different geographical zones and we extended the study's interest by incorporating 130 banks based in developed countries (countries that are members of the Basel Committee on Banking Supervision) in order to complete the results with a comparative analysis between these banks and those belonging to emerging countries. Moreover, the observation period is large enough (11 years) adding a non trivial temporal dimension to this analysis. Our approach to the role of capital regulation was inspired from works done by Keeley (1988), Shrieves and Dahl (1992) and Rojas-Suarez (2001a), since it opted for a comparison study. This comparison concerned two categories of banks: the adequately capitalized banks, i.e. those that display a high enough capital adequacy ratio, and the undercapitalized banks, i.e. those operating with the weakest level of regulatory capital relative to all banks selected in the sample. In theory more capital investment and adequately risk hedging goes with the improvement of financial situations, but can also induce unexpected behaviour by bank managers. Thus, five indicators have been chosen in order to assess the stability of a commercial bank, these indicators are constructed from the CAEL rating methodology defined in 1985 by the FDIC; these indicators classify banks according to their profitability, their investment in Tier 1 capital instruments, their assets quality and their availability in liquidity. The comparison of these indicators between

undercapitalized banks and adequately capitalized banks using the Wilcoxon non parametric test permitted us to note that in emerging countries:

- Adequately capitalized banks are more profitable than undercapitalized banks.
- Adequately capitalized banks restrain financial leverage much more than undercapitalized banks do.
- Undercapitalized banks invest less Tier 1 instruments and are more vulnerable to credits losses that adequately capitalized banks during period of financial distress.
- There is not a significant difference in credit risk between the two categories of banks. Whereas, in developed countries it is clear that adequately capitalized banks endure less loan losses.

We cannot reject the fact that higher conformity to *Cooke* ratio enabled commercial banks operating in emerging countries to strengthen their profitability, constrained them to reduce leverage and to invest more primary capital instruments. However, the main objective of this prudential mechanism, that is preventing banks from credit losses, has probably failed in emerging countries. Looking at the results showed in table 7.a, we notice that even though banks increase their capital adequacy ratio, they are still, as undercapitalized banks are, exposed to a higher credit risk. We can refer to the theoretical and empirical arguments suggested among others by Koehn and Santomero (1980), Rochet (1992), also Hellman and ali. (2000) and Rojas-Suarez (2001b), to explain these findings. According to the empirical results, for banks based in emerging countries, we cannot accept the H_0 hypothesis since the level of regulatory capital invested by these banks seems independent of their credits quality. However, as we noted earlier in this paper, we cannot deny that higher conformity with the Committee capital adequacy directives is a plausible solution to reinforce commercial bank stability in emerging countries, the unique matter, according to us and to our empirical findings, is how to make capital standards an efficient way in improving banks assets quality in emerging countries.

Let us note, finally, that it would be useful to handle this problematic differently. This study should be more deepened in order to specify reasons behind capital standards inefficiency when applied in emerging countries: Is this inefficiency provoked by the weakness of the legal and judicial systems? Or by of lack of a sufficiently liquid stock markets on which bank equity capital instruments are transacted?

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Appendix

Table 2.a. Profitability in emerging countries' commercial banks

			ROA			
Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	0.462% (0.78%)	2.288% (1.505%)	2.396** (0.0166)	1.072% (1.15%)	1.618% (1.09%)	0.633 (0.5265)
1996	0.8316% (0.75%)	2.585% (1.855%)	3.903*** (0.0001)	0.90% (0.90%)	1.682% (1.29%)	2.136** (0.0327)
1997	0.464% (0.62%)	2.372% (2.08%)	5.517*** (0.0000)	0.790% (0.81%)	2.078% (1.74%)	6.226*** (0.0000)
1998	-0.536% (0.54%)	1.697% (1.155%)	4.464*** (0.0000)	0.157% (0.72%)	1.457% (1.435%)	4.271*** (0.0000)
1999	-0.865% (0.32%)	1.276% (1.53%)	4.197*** (0.0000)	-0.389% (0.51%)	0.966% (0.127%)	4.413*** (0.0000)
2000	-0.117% (0.42%)	1.714% (1.435%)	4.170*** (0.000)	0.181% (0.595%)	1.216% (1.445)	4.758*** (0.0000)
2001	-0.274% (0.375%)	2.185% (1.26%)	5.845*** (0.0000)	0.280% (0.6%)	3.621% (1.50%)	6.031*** (0.0000)
2002	0.066% (0.63%)	1.854% (1.845%)	5.825*** (0.0000)	0.393% (0.71%)	1.743% (1.685%)	6.624*** (0.0000)
2003	0.642% (0.74%)	3.330% (2.625%)	6.948*** (0.0000)	0.905% (0.910%)	2.511% (2.140%)	7.949*** (0.0000)
2004	0.252% (0.88%)	2.635% (2.18%)	6.730*** (0.0000)	0.893% (0.109%)	2.518% (2.150%)	7.588*** (0.0000)
2005	0.576% (0.905%)	3.259% (2.985%)	7.472*** (0.0000)	1.134% (1.090%)	2.772% (2.590%)	7.822*** (0.0000)
1995-1999	0.031% (0.615%)	1.199% (1.765%)	8.855*** (0.0000)	0.370% (0.780%)	1.470% (1.440%)	8.119*** (0.0000)
2000-2005	0.187% (0.715%)	2.510% (1.805%)	14.560*** (0.0000)	0.633% (0.860%)	2.153% (1.870%)	16.181*** (0.0000)
1995-2005	0.240% (0.69%)	2.985% (1.56%)	16.993*** (0.0000)	0.547% (0.830%)	1.914% (1.730%)	18.071*** (0.0000)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *ROA* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *ROA* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 2123 observations on 307 commercial banks based in 29 emerging countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table 2.b. Profitability in developed countries' commercial banks

ROA

Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	-0.094% (0.110%)	2.278% (2.300%)	4.956** (0.0166)	0.474% (0.520%)	1.988% (0.939%)	6.152*** (0.0000)
1996	0.160% (0.260%)	1.353% (2.220 %)	4.746*** (0.0001)	0.522% (0.680%)	1.464% (1.960%)	5.685*** (0.0000)
1997	0.373% (0.190%)	1.949% (1.745%)	5.486*** (0.0000)	0.710% (0.765%)	1.782% (1.74%)	5.851*** (0.0000)
1998	0.444% (0.510%)	1.710% (1.760%)	5.116*** (0.0000)	0.733% (0.750%)	1.571% (1.590%)	5.466*** (0.0000)
1999	0.332% (0.470%)	1.488% (1.440%)	4.384*** (0.0000)	0.928% (1.015%)	9.975% (1.230%)	1.296 (0.1950)
2000	0.595% (0.495%)	1.684% (1.590%)	4.192*** (0.000)	0.957% (0.915%)	1.447% (1.130%)	2.927*** (0.0034)
2001	0.708% (0.360%)	1.662% (1.530%)	4.438*** (0.0000)	0.7680% (0.550%)	1.304% (1.200%)	3.897*** (0.0001)
2002	0.207% (0.265%)	1.335% (1.510%)	4.116*** (0.0000)	0.3651% (4.050%)	1.344% (1.510%)	4.817*** (0.0000)
2003	0.248% (0.200%)	1.725% (1.880%)	4.421*** (0.0000)	0.630% (0.700%)	1.663% (1.700%)	4.857*** (0.0000)
2004	0.582% (0.390%)	1.367% (1.440%)	3.687*** (0.0002)	1.032% (1.020 %)	1.337% (1.260%)	1.878* (0.0604)
2005	0.750% (0.530%)	1.691% (1.330%)	3.430*** (0.0006)	1.030% (0.910%)	1.471% (1.330%)	2.472** (0.0134)
1995-1999	0.161% (0.140%)	1.545% (1.710%)	9.313*** (0.0000)	0.669% (0.760%)	1.524% (1.650%)	11.003*** (0.0000)
2000-2005	0.468% (0.370%)	1.563% (1.490%)	10.160*** (0.0000)	0.759% (0.700%)	1.452% (1.350%)	9.538*** (0.0000)
1995-2005	0.419% (0.370%)	1.666% (1.740%)	15.125*** (0.0000)	0.719% (0.725%)	1.498% (1.480%)	14.503*** (0.0000)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *ROA* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *ROA* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 1177 observations on 130 commercial banks based in 10 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table n° 3.a. Leverage in emerging countries' commercial banks

LEV

Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	89.73% (86.82%)	88.48% (81.49%)	- 0.019 (0.9849)	90.24% (85.52%)	112.75% (93.48%)	1.552 (0.1205)
1996	%114.60 (99.62%)	96.36% (87.48 %)	-1.941* (0.0523)	105.25% (97.97%)	101.32% (92.29%)	-0.540 (0.5891)
1997	102.98% (95.77%)	98.44% (89.18%)	-0.781 (0.4349)	102.26% (95.82%)	101.26% (95.74%)	0.164 (0.8693)
1998	105.79% (99.47%)	102.63% (89.40%)	-2.599*** (0.0093)	106.53% (99.96%)	101.91% (90.08%)	-2.709*** (0.0067)
1999	107.38% (99.05%)	96.59% (87.49%)	-3.002*** (0.0027)	108.74% (104.39%)	105.70% (91.85%)	-3.176*** (0.0015)
2000	107.15% (99.19%)	104.51% (90.91%)	-1.679* (0.0932)	110.43% (101.73%)	102.04% (90.38%)	-3.657*** (0.0003)
2001	108.96% (105.41%)	108.40% (90.88%)	-2.728*** (0.0064)	107.18% (103.67%)	109.61% (97.30%)	-2.427** (0.0152)
2002	108.20% (103.16%)	116.45% (100.96%)	-1.226 (0.2200)	107.83% (103.16%)	114.64% (101.81%)	-1.009 (0.3130)
2003	108.31% (103.67%)	124.79% (101.13%)	-0.954 (0.3403)	101.09% (101.63%)	117.76% (101.13%)	-0.215 (0.8296)
2004	91.84% (100.96%)	112.59% (94.76%)	-1.205 (0.2280)	102.01% (102.18%)	109.20% (97.41%)	-1.739* (0.0821)
2005	103.30% (100.31%)	110.22% (94.24%)	-1.827* (0.0677)	96.39% (100.51%)	103.82% (92.61%)	-2.621*** (0.0088)
1995-1999	103.41% (97.76%)	101.87% (87.87%)	-3.309*** (0.0009)	104.40% (98.72%)	103.82% (92.27%)	-2.917*** (0.0035)
2000-2005	116.83% (101.86%)	113.93% (94.15%)	-3.743*** (0.0002)	106.79% (102.00%)	110.20% (97.18%)	-4.125*** (0.0000)
1995-2005	113.00% (101.22%)	109.56% (91.61%)	-5.482*** (0.0000)	106.17% (101.05%)	108.05% (95.46%)	-4.971*** (0.0000)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *LEV* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *LEV* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 2097observations on 307 commercial banks based in 29 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table 3.b. Leverage in developed countries' commercial banks

LEV

Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	85.55% (95.14%)	95.30% (94.46%)	0.225 (0.8221)	101.09% (93.34%)	98.44% (9.43%)	0.195 (0.8452)
1996	87.71% (91.61%)	100.64% (94.60 %)	1.022 (0.3069)	95.20% (95.78%)	104.03% (95.136%)	0.533 (0.5938)
1997	84.98% (91.59%)	113.31% (96.06%)	1.894* (0.0582)	91.16% (92.76%)	108.31% (95.59%)	2.178** (0.0294)
1998	87.16% (87.34%)	105.68% (94.25%)	1.922* (0.0546)	90.31% (90.13%)	103.51% (94.43%)	2.446** (0.0143)
1999	89.81% (88.11%)	100.23% (93.07%)	0.618 (0.5368)	92.85% (91.22%)	96.67% (94.26%)	0.633 (0.5269)
2000	90.97% (94.75%)	105.03% (95.23%)	1.107 (0.2684)	90.22% (90.98%)	98.56% (93.44%)	0.404 (0.6859)
2001	90.57% (96.46%)	99.57% (91.62%)	-0.046 (0.9637)	91.09% (93.02%)	93.49% (89.37%)	-0.949 (0.3428)
2002	89.81% (95.30%)	98.24% (89.82%)	-0.593 (0.5534)	90.34% (91.21%)	93.97% (88.65%)	-0.811 (0.4173)
2003	92.96% (99.30%)	95.05% (88.52%)	-0.463 (0.6437)	90.18% (91.83%)	91.30% (89.17%)	-0.555 (0.5792)
2004	85.13% (94.71%)	93.84% (91.35%)	0.471 (0.6374)	85.19% (89.45 %)	85.65% (81.85%)	-0.923 (0.3562)
2005	85.97% (94.68%)	92.38% (90.81%)	0.404 (0.6863)	85.21% (86.21%)	86.63% (85.81%)	0.133 (0.8939)
1995-1999	90.13% (93.99%)	101.32% (94.19%)	0.781 (0.4349)	94.06% (92.57%)	101.80% (94.41%)	2.541** (0.0111)
2000-2005	89.63% (96.20%)	97.06% (91.01%)	-0.150 (0.8811)	88.53% (90.00%)	92.08% (88.61%)	-0.599 (0.5493)
1995-2005	90.01% (94.71%)	101.21% (93.57%)	1.554 (0.1201)	91.31% (91.49%)	95.66% (91.58%)	0.373 (0.7093)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *LEV* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *LEV* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 1160 observations on 130 commercial banks based in 10 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table n° 4.a. Loan loss provisions in emerging countries' commercial banks

			LLP			
Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	1.976% (0.900%)	2.276% (0.661%)	-0.087 (0.9307)	1.876% (0.870%)	1.496% (0.661%)	-0.640 (0.5223)
1996	1.493% (0.936%)	1.309% (0.671 %)	-1.010 (0.3125)	1.440% (0.628%)	1.379% (0.882%)	0.926 (0.3545)
1997	1.743% (0.974%)	1.714% (1.077%)	0.709 (0.4786)	1.852% (1.168%)	1.434% (0.885%)	-0.870 (0.3841)
1998	1.842% (0.813%)	3.447% (1.976%)	2.381** (0.0173)	2.087% (1.104%)	3.078% (1.713%)	2.215** (0.0268)
1999	2.943% (1.041%)	1.671% (1.427%)	0.345 (0.7302)	2.756% (1.758%)	2.242% (1.446%)	0.038 (0.9697)
2000	2.535% (1.255%)	0.654% (0.993%)	0.761 (0.4468)	2.299% (1.477%)	1.911% (1.455%)	-0.468 (0.6394)
2001	1.989% (1.304%)	1.914% (1.692%)	-0.121 (0.9038)	1.766% (1.309%)	1.381% (1.499%)	0.889 (0.3737)
2002	2.073% (1.633%)	2.565% (1.654%)	-1.226 (0.2200)	2.104% (1.637%)	2.210% (1.434%)	-1.172 (0.2412)
2003	1.559% (1.170%)	2.283% (1.212%)	0.191 (0.8484)	1.467% (1.170%)	1.811% (1.147%)	-0.217 (0.8286)
2004	1.370% (1.055%)	0.850% (0.784%)	-2.460** (0.0139)	1.391% (1.086%)	0.946% (0.839%)	-2.789*** (0.0053)
2005	1.073% (0.661%)	0.766% (0.653%)	-1.423 (0.1548)	1.063% (0.661%)	0.925% (0.692%)	-0.121 (0.9035)
1995-1999	2.107% (0.930%)	2.209% (1.534%)	2.038** (0.0415)	2.120% (1.154%)	2.108% (1.308%)	1.412 (0.0035)
2000-2005	1.765% (1.161%)	1.519% (1.012%)	-2.125** (0.0336)	1.785% (1.214%)	1.409% (1.056%)	-2.705*** (0.0068)
1995-2005	1.921% (1.143%)	1.708% (1.183%)	-1.082 (0.2794)	1.807% (1.160%)	1.696% (1.164%)	-0.851 (0.3948)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *LLP* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *LLP* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 2053observations on 307 commercial banks based in 29 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table n° 4.b. Loan loss provision in developed countries' commercial banks

LLP

Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	1.127% (0.955%)	1.775% (0.147%)	0.026 (0.9792)	0.929% (0.431%)	1.287% (0.586%)	-0.097 (0.9229)
1996	1.363% (1.036%)	1.592% (0.860 %)	-0.846 (0.3976)	0.109% (0.591%)	1.189% (0.558%)	-0.448 (0.6542)
1997	0.911% (0.869%)	0.627% (0.445%)	-1.526 (0.1270)	0.728% (0.614%)	0.564% (0.481%)	-1.340 (0.1803)
1998	1.036% (0.600%)	1.061% (0.697%)	-0.041 (0.9673)	0.833% (0.517%)	0.879% (0.623%)	0.432 (0.6657)
1999	1.161% (0.778%)	0.979% (0.660%)	-0.939 (0.3476)	0.776% (0.547%)	0.120% (0.575%)	0.757 (0.4490)
2000	0.688% (0.494%)	0.578% (0.454%)	-0.708 (0.4792)	0.808% (0.537%)	0.679% (0.527%)	-0.904 (0.3661)
2001	0.523% (0.538%)	0.729% (0.542%)	0.436 (0.6626)	0.724% (0.591%)	0.866% (0.661%)	0.679 (0.4971)
2002	0.870% (0.581%)	0.810% (0.549%)	-0.548 (0.5835)	1.085% (0.651%)	0.880% (0.761%)	-0.24355 (0.808)
2003	0.801% (0.649%)	0.792% (0.561%)	-0.614 (0.5393)	0.743% (0.670 %)	0.761% (0.596%)	-0.457 (0.6475)
2004	0.738% (0.626%)	0.374% (0.239%)	-2.263** (0.0236)	0.590% (0.442%)	0.405% (0.374%)	-2.132** (0.0330)
2005	0.663% (0.516%)	0.395% (0.262%)	-2.386** (0.0170)	0.527% (0.406%)	0.425% (0.276%)	-1.679* (0.0932)
1995-1999	1.241% (0.955%)	1.075% (0.561%)	-2.909*** (0.0036)	0.873% (0.366%)	1.013% (0.542%)	-0.619 (0.5357)
2000-2005	0.744% (0.546%)	0.595% (0.400%)	-3.429*** (0.0006)	0.767% (0.543%)	0.662% (0.490%)	-2.078** (0.0377)
1995-2005	0.883% (0.616%)	0.864% (0.480%)	-3.329*** (0.1201)	0.811% (0.558%)	0.809% (0.532%)	-1.781* (0.0749)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *LLP* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *LLP* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 1166 observations on 130 commercial banks based in 10 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table n° 5.a. Non performing loans in emerging countries' commercial banks

	NPL					
Période	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	4.176% (2.719%)	7.154% (4.209%)	0.435 (0.6634)	4.174% (2.794%)	6.092% (4.149%)	1.065 (0.2870)
1996	1.834% (7.518%)	3.804% (2.762 %)	-0.740 (0.4593)	6.854% (4.286%)	4.082% (3.371%)	-0.030 (0.9759)
1997	8.451% (5.738%)	4.657% (3.717%)	-0.732 (0.4641)	7.901% (5.256%)	4.237% (3.086%)	-1.423 (0.1548)
1998	7.835% (6.205%)	3.995% (2.887%)	-2.131** (0.0331)	6.974% (4.564%)	6.667% (4.863%)	-0.836 (0.4031)
1999	15.122% (6.976%)	10.738% (8.269%)	-0.475 (0.6346)	15.423% (6.976%)	12.222% (9.305%)	0.463 (0.6436)
2000	12.335% (9.236%)	11.102% (9.335%)	-0.437 (0.6621)	11.456% (9.107%)	12.670% (10.352%)	-0.879 (0.3793)
2001	9.491% (6.981%)	9.750% (5.526%)	-0.721 (0.4708)	10.509% (9.006%)	11.723% (7.215%)	-0.047 (0.9623)
2002	11.071% (9.714%)	13.717% (7.182%)	-0.758 (0.2200)	10.744% (9.815%)	12.200% (7.304%)	-0.942 (0.3462)
2003	9.580% (6.184%)	12.909% (7.376%)	0.730 (0.4654)	10.376% (8.467%)	12.414% (8.551%)	0.819 (0.4129)
2004	9.745% (5.499%)	10.856% (7.476%)	0.708 (0.4788)	9.175% (6.498%)	10.123% (6.446%)	0.431 (0.6665)
2005	6.544% (5.443%)	9.874% (6.513%)	1.292 (0.1964)	5.674% (3.689%)	8.535% (5.570%)	2.380** (0.0173)
1995-1999	9.525% (5.469%)	6.683%% (4.935%)	-1.363 (0.1729)	9.391% (4.955%)	7.552% (4.968%)	-0.443 (0.6576)
2000-2005	9.569% (6.760%)	11.316% (6.945%)	0.383 (0.7017)	9.701% (7.262%)	11.053% (7.215%)	0.772 (0.4403)
1995-2005	10.753% (6.438%)	12.328% (6.171%)	-0.172 (0.8638)	9.530% (6.604%)	10.348% (6.604%)	0.755 (0.4504)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *NPL* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *NPL* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 1649 observations on 307 commercial banks based in 29 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table n° 5.b. Non performing loans in developed countries' commercial banks

NPL

Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	3.989% (3.327%)	1.711% (1.019%)	-1.871* (0.0613)	2.157% (0.970%)	1.234% (0.596%)	-1.794* (0.0728)
1996	3.821% (2.605%)	3.114% (2.934 %)	-0.755 (0.4500)	3.467% (2.605%)	2.363% (0.843%)	-1.950* (0.0511)
1997	4.399% (2.147%)	4.445% (0.492%)	-1.4921 (0.1356)	2.996% (2.105%)	3.059% (0.423%)	-2.067** (0.0387)
1998	5.217% (3.037%)	4.145% (1.085%)	-2.237** (0.0253)	3.733% (1.885%)	3.062% (1.178%)	-2.221** (0.0264)
1999	6.548% (5.575%)	3.627% (1.342%)	-3.030*** (0.0024)	3.517% (1.735%)	3.650% (1.325%)	-0.918 (0.3587)
2000	4.960% (4.263%)	2.755% (1.195%)	-2.647*** (0.0081)	4.679% (2.838%)	2.585% (1.192%)	-2.353** (0.0186)
2001	4.888% (4.581%)	2.125% (1.018%)	-3.469*** (0.0005)	4.185% (4.355%)	2.296% (1.087%)	-3.887*** (0.0001)
2002	5.044% (4.653%)	2.301% (1.187 %)	-3.468*** (0.0005)	4.155% (3.985%)	2.113% (1.187%)	-3.786*** (0.0002)
2003	6.118% (5.914%)	2.541% (1.365%)	-2.843*** (0.0045)	5.043% (4.148 %)	2.183% (1.351%)	-3.943*** (0.0001)
2004	5.317% (5.974%)	2.319% (1.570%)	-2.628*** (0.0086)	3.891% (2.361%)	2.424% (1.249%)	-1.664* (0.0960)
2005	5.423% (5.767%)	1.895% (1.000%)	-3.298*** (0.0010)	3.627% (1.550%)	1.907% (1.083%)	-1.889* (0.0589)
1995-1999	5.149% (3.988%)	3.702% (1.244%)	-3.916*** (0.0001)	3.249% (2.105%)	2.710% (0.969%)	-4.553*** (0.0000)
2000-2005	5.446% (5.550%)	2.332% (1.205%)	-8.161*** (0.0000)	4.231% (3.579%)	2.229% (1.192%)	-7.432*** (0.0000)
1995-2005	5.073% (0.483%)	2.803% (1.137%)	-8.956*** (0.0000)	3.941% (2.605%)	2.391% (1.167%)	-8.278*** (0.0000)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *NPL* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *NPL* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 941 observations on 130 commercial banks based in 10 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table n° 6.a. Tier 1 investment in emerging countries' commercial banks

CAP

Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	4.830% (4.986%)	15.029% (13.372%)	4.362*** (0.0000)	6.088% (5.541%)	12.516% (10.036%)	4.376*** (0.0000)
1996	4.801% (4.771%)	16.803% (12.212%)	5.892*** (0.0000)	6.119% (5.971%)	13.966% (11.293%)	5.697*** (0.0000)
1997	6.383% (5.742%)	12.836% (11.046%)	5.065*** (0.0000)	7.531% (6.453%)	10.706% (9.146%)	5.076*** (0.0000)
1998	6.192% (6.133%)	12.971% (12.804%)	5.647*** (0.0000)	7.296% (6.509%)	11.118% (10.029)	5.181*** (0.0000)
1999	6.116% (5.500%)	14.125% (12.252%)	5.884*** (0.0000)	6.686% (6.411%)	11.820% (10.689%)	6.882*** (0.0000)
2000	5.967% (6.200%)	14.117% (9.335%)	6.576*** (0.0000)	6.636% (6.312%)	11.745% (10.117%)	7.389*** (0.0000)
2001	5.614% (5.059%)	14.860% (13.551%)	7.669*** (0.0000)	6.377% (5.739%)	12.223% (10.856%)	8.617*** (0.0000)
2002	5.274% (4.530%)	13.979% (12.711%)	8.004*** (0.0000)	6.334% (5.643%)	12.019% (10.875%)	8.572*** (0.0000)
2003	5.399% (4.847%)	14.628% (13.346%)	8.195*** (0.0000)	6.546% (6.124%)	12.139% (11.120%)	8.897*** (0.0000)
2004	5.497% (5.199%)	15.258% (13.082%)	8.497*** (0.0000)	6.769% (6.368%)	12.640% (11.487%)	9.673*** (0.0000)
2005	6.066% (5.703%)	15.006% (13.312%)	7.934*** (0.0000)	7.009% (6.697%)	12.362% (10.535%)	8.855*** (0.0000)
1995-1999	5.905% (5.700%)	13.796% (12.463%)	12.123*** (0.0000)	6.876% (6.230%)	11.753% (10.072%)	12.235*** (0.0000)
2000-2005	5.643% (5.231%)	14.795% (13.299%)	18.996*** (0.0000)	6.632% (6.200%)	12.286% (10.870%)	21.544*** (0.0000)
1995-2005	5.811% (5.583%)	14.472% (13.065%)	22.752*** (0.0000)	6.655% (6.175%)	12.058% (10.533%)	24.891*** (0.0000)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *CAP* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *CAP* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 2101 observations on 307 commercial banks based in 29 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table n° 6.b. Tier 1 invesment in developed countries' commercial banks

CAP

Periode	$CAR \leq Q_1$	$CAR \geq Q_3$	*w* (p-value)	$CAR \leq Q_2$	$CAR \geq Q_2$	*w* (p-value)
1995	3.608% (3.817%)	11.687% (11.424%)	5.060*** (0.0000)	5.006% (4.483%)	9.804% (8.640%)	6.198*** (0.0000)
1996	3.736% (3.534%)	12.630% (12.234%)	5.569*** (0.0000)	4.821% (4.611%)	10.285% (9.610%)	6.831*** (0.0000)
1997	3.833% (3.478%)	12.007% (10.791%)	5.897*** (0.0000)	4.724% (4.505%)	9.969% (9.680%)	6.789*** (0.0000)
1998	4.444% (4.021%)	11.935% (11.048%)	5.977*** (0.0000)	5.016% (4.667%)	9.555% (9.045%)	6.072*** (0.0000)
1999	4.354% (3.593%)	10.277% (10.525%)	4.917*** (0.0000)	5.750% (5.216%)	8.592% (7.560%)	3.710*** (0.0002)
2000	4.970% (4.774%)	10.408% (10.431%)	4.435*** (0.0000)	5.806% (5.493%)	8.642% (7.718%)	3.938*** (0.0001)
2001	5.267% (5.055%)	10.660% (10.147%)	4.652*** (0.0000)	5.759% (5.515%)	8.811% (7.981%)	4.503*** (0.0000)
2002	4.814% (4.608%)	9.990% (9.957%)	4.679*** (0.0000)	5.451% (5.005%)	8.936% (8.287%)	5.299*** (0.0000)
2003	5.004% (4.634%)	9.380% (9.196%)	3.278*** (0.0010)	5.583% (5.174 %)	8.848% (9.027%)	4.455*** (0.0000)
2004	5.374% (4.636%)	9.093% (8.265%)	3.009*** (0.0026)	6.455% (5.636%)	8.122% (6.843%)	1.738* (0.0821)
2005	5.685% (4.954%)	9.500% (9.328%)	3.011*** (0.0026)	6.346% (5.478%)	8.188% (7.566%)	2.422** (0.0155)
1995-1999	3.965% (3.765%)	10.317% (10.234%)	9.594*** (0.0000)	5.012% (4.664%)	9.572% (8.976%)	13.752*** (0.0000)
2000-2005	5.049% (4.792%)	9.774% (9.736%)	9.472*** (0.0000)	5.854% (5.280%)	8.612% (8.022%)	9.388*** (0.0000)
1995-2005	4.693% (4.567%)	10.649% (10.425%)	16.282*** (0.0000)	5.488% (4.997%)	9.097% (8.710%)	16.586*** (0.0000)

The *CAR* ratio represents the *Cooke* ratio computed by the bank for each period. Wilcoxon's *w* statistic estimate the *CAP* difference between adequately capitalized and undercapitalized banks. The p-value is between brackets. Mean *CAP* ratio is presented in percentage (the median is between brackets). Estimations are performed using a total of 1178 observations on 130 commercial banks based in 10 developed countries during the period 1995 – 2005. ***: Significance at 1%, **: Significance at 5%, *: Significance at 10%.

Table n°7. Capital requirements under the US/UK accord* and the Basel I accord

Regulatory capital categories	USA/UK accord	Basel I Accord (1988)
Tier 1 : primary eligible capital	• Common stock/equity and premium (UK), surplus (US). • Retained earnings. • General reserves for losses resulting from charges to earnings. • Hidden reserves. • Minority interest in consolidated subsidiaries.	• Ordinary paid-up share capital/common stock • Disclosed reserves
Tier 2 : complementary eligible capital	• Preferred shares that do not mature or that mature on a fixed date and have an original maturity of at least 25 years. • Subordinated debt that can only be converted into primary capital instrument, that is available at all times to absorb losses and provides that interest payments may be deferred if the issuer does not make a profit in the preceding period and/or pay dividends on common and perpetual preferred stock.	• Undisclosed reserves. Asset revaluation reserves. • General provisions/general loan loss reserves. • Hybrid (debt/equity) capital instruments. • Subordinated term debt.
Adjustments made to capital	• Deduction of all intangible assets. • Deduction of investments in unconsolidated subsidiaries and associated companies including, but not limited to, unconsolidated joint venture. • Deduction of bank holding of capital instruments of other banking organizations.	• Deductions from Tier 1 : goodwill • Deduction from total capital: investment in unconsolidated banking and financial subsidiary companies and investments in the capital of other banks and financial institutions.

* This Accord was established in 1987 between United Kingdom (UK) and United States of America (USA) under the authority of the Bank of England, the Federal Reserve Bank, the Federal Deposit Insurance Corporation and the Office of the Comptroller of the Currency.

Table n°8. Risk weights under Basle I prudential requirements	
Risk weights	Category of assets
0%	• Cash. • Balances at and claims on domestic central bank. • Other claims on domestic central governments and OECD countries central banks. • Loans and other assets fully collateralised by cash or domestic central government securities or fully guaranteed by domestic governments.
20%	• Secured claims on Multilateral Development Banks (0% or 20%). • Claims on OECD countries' banks, • Claims on non-OECD countries' banks with a maximum maturity of one year. Loans with residual maturity of at most one year, secured by banks located out of OECD countries. • Claims on foreign central governments in local currency financed by local currency liabilities. • Cash items in process of collection.
50%	• Loans to owner-occupiers for residential house purchase fully secured by mortgage.
De 0% à 50%*	• Claims on the domestic public sector, excluding central government (at national discretion) and loans guaranteed by such institutions.
100%	• Claims on the private sector. • Cross-border Claims on foreign (non-OCDE) banks with an original maturity of one year and over. • Claims on foreign central governments (unless 20%). • Claims on commercial companies owned by he public sector. • Premises, plant and equipments and other fixed assets. • Real estate and other investments (including non-consolidated investment participations in other companies). • Capital instruments issued by other banks (unless deducted from capital). • All other assets.
* Risk weights determined by national authorities.	

Table n°9. Selected countries and number of commercial banks in the sample

Region	Countries	Number of observed banks	Observation period
East Asia and Pacific	China	14	**1997/2005**
	South Korea	8	1995/2005
	Indonesia	19	1995/2005
	Malaysia	10	1995/2005
	Philippines	15	1995/2005
	Taiwan	26	1995/2005
	Thailand	15	1995/2005
	Sri Lanka	5	1995/2005
	India	30	1995/2005
	Total banks	**142 (28 GB*)**	
Middle East and North Africa	Saudi Arabia	9	1995/2005
	Qatar	4	**1997/2005**
	Jordan	11	1995/2005
	Lebanon	6	1995/2005
	Morocco	3	**1997/2005**
	Tunisia	6	**1997/2005**
	Total banks	**39 (4 GB)**	
Latin America	Argentina	4	1995/2001
	Brazil	24	1995/2005
	Colombia	6	1995/2005
	Chile	9	**1997/2005**
	Mexico	10	1995/2005
	Peru	3	1995/2005
	Venezuela	15	1995/2005
	Total banks	**71 (7 GB)**	
OECD counties	Germany	5	1995/2005
	Canada	9	1995/2005
	Danemark	17	1995/2005
	Spain	10	1995/2005
	France	8	1995/2005
	Italia	15	1995/2005
	Japon	25	1995/2005
	Switzerland	3	**1997/2005**
	United Sates of America	30	1997/2005
	United Kingdoms	8	1995/2005
	Total banks	**130**	
Europe and Central Asia	Russia	14	**1999/2005**
	Turkey	15	**1999/2005**
	Poland	11	1995/2005
	Slovakia	3	1995/2005
	Croatia	5	1995/2005
	Czech Republic	3	1995/2005
	Lithuania	4	1995/2005
	Total banks	**55 (2 GB)**	

* Number of governmental commercial banks, in which the State own more than 50% of equity shares.

Table n°10. Capital standards and banking stability in emerging countries: some empirical evidences

	Sample[1] / Periode	Objectives of the study	Estimation methodology	Capital standards influence on banks[2]
This study	307 (29 countries)[3] / 1995-2005	Check if more capitalized banks are sounder than undercapitalized banks.	Wilcoxon non parametric test	- (credit risk) + (assets earnings, leverage, Tier 1 investment)
Rojas-Suarez (2001)	135 (6 countries)[4]/ Episode de Crise bancaire	Test if the degree of capitalization is a good signal for banking distress.	Signal approach Student test Wilcoxon non parametric test	Capitalization levels don't predict episodes of banking crises.
Murinde and Yaseen (2004)	98 (11 countries)[5]/ 1995-2002	Test how banks adjust their levels of capitalization and their risk-taking under regulatory pressure	Simultaneous equations model	+ (Capitalization levels) - (Risk-taking)
Ling Lin, Penm and Chang (2005)	40 (Taiwan)/ 1993-2000	Examine the influence of capital standards on bank solvency and profitability	Ordinary Least Squares	- (insolvency risk)
Bennaceur and Kandil (2006)	28 (Egypt)/ 1989-2004	Influence of capital regulation mechanisms on the cost of credits and on the profitability of banks	Dynamic Panel data	+ (Risk-taking) + (Assets earnings)
Jetschko and Jeung (2007)	128 (South Korea)/ 2002(4)-2004(3)	Assess the impact of capital standards on prudential behaviour of the Korean commercial and saving banks.	OLS and fixed effects	- (Risk-taking in commercial banks)

[1] Number of banks (number of countries).
[2](-) indicate an unexpected bad effect or no effect and (+) means an expected positive effect. Indicators of banking stability subject to this effect are presented between brackets.
[3] East Asia and Pacific, Latin America, Europe and central Asia, Middle East and North Africa.
[4] Latin America et South East Asia.
[5] Middle East and North Africa .