

## SPOTLIGHT ON:

### *Hanibal Ante Portas* or Challenges and Possibilities of Applying Basel II Standards

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The evolution of banking has been followed by a strong conflict of interest ever since central banks and fiat money appeared. Banks, and in particular, their owners strive towards, naturally, decreasing own investments (bank capital) and increasing revenues. This sort of moral hazard, which is typical for banking as an activity, undermines stability of an individual bank and the banking system as a whole. A regulator, with acquired experience from difficult banking crises where the highest losses were borne on deposit owners, will attempt to achieve security and reliability of the banking system. Such conflict has been substantially weakened by virtue of regulation, but still remains quite deep because its fundamental causations are active as well: existing information asymmetry in credit markets and its severe consequence – adverse selection when bank resources are invested. The loss that a bank may suffer in striving for maximum revenue may be shifted to deposit owner or the state, in case the state insures deposits. This appearance is also a special type of risk originating from the moral hazard problem, which has been identified and described in banking long ago. These banking specificities in relation to other activities are essential reasons to put banking, in almost all countries of the contemporary world, under strong regulation of state and quasi-state agencies.

#### 1. Introduction

The globalization of banking during the last three decades of the 20<sup>th</sup> century has also led to the globalization of crisis phenomena, as well as the stabilization measures. Huge global crises concerning debts during 1980s led to adoption of Basel I Standards in 1988. Another, possibly even more important reason for introducing Basel I was to level conditions for banks operating on the global market. The Japanese banks at that time had significantly lower reserve levels than banks in Western countries. Other big players perceived this to be unfair competition. The essential group of regulations from Basel I was mainly related to credit portfolio of the bank as a largest share of the bank's revenue assets. Basel I had standardized risk management practice within the bank and practice for the supervision of national banking systems. Although a big step ahead, Basel I soon showed serious weaknesses. Both risk management within the bank and supervision of banking activity, methodologically based on Basel I Standard, were not efficient enough to prevent emergence of new banking crises. The regulators, as well as bank management, needed a more precise, flexible and objective methodology of risk assessment, and regulatory rules based thereof. The biggest discontent, particularly with large banks, was caused by Basel I applying the same standard for all types and amounts of credits – Capital Adequacy Ratio (CAR), a minimum 8% (in European Union and USA). In countries with higher risk exposure that percentage was higher (i.e., 10% in Croatia, 12% in Serbia), in line with the supervisor's assessment of the risk level on the market in question.

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The first important step out of the Basel I Standard was to identify market risk as a significant component of the overall bank risk, and introduction of Value at Risk (VaR) thereafter, as a measure of risk for market portfolio<sup>1</sup>.

## 2. The Main Ideas of Basel II Standards

Further development of banking and financial markets has made it necessary that a new methodology framework is formulated for the safety concept for each bank as well as for the banking system as a whole. In January 1999, the Basel Committee set forth a proposal of the New Agreement, known as Basel II Agreement. The final version of the New Agreement was published in June 2004 and was enacted and entered into force in December 2006 (within the EU, Basel II has been legally binding since January 2007, whereas its application in the USA started in July 2007). Basel II contains three interconnected sets of rules or the three *pillars*: the capital adequacy norms make the first pillar, the second pillar deals with prudential monitoring of changes in capital adequacy, as well as with control over the methodology for risk surveillance used by banks, whereas the third pillar is a market discipline, which entails the identification of necessary information on main risks the bank is faced with and making the foundation for the evaluation of the particular bank's capital adequacy by other market participants. The Basel II Agreement basically retains the definition of capital and bank reserves referred to in the 1996 Basel Agreement Amendment, but it is adjusted in many ways. First, apart from the market and credit risks, operational risk is also explicitly quantified. Second, by the standard approach, all companies in the banks' credit portfolio are listed according to the ratings awarded to them by a qualified external rating agency (ECAI) and certain coefficients are assigned to them. According to these coefficients they are then entered into a bank's reserves and capital. On the other hand, and opposite to Basel I, banks, compliant to Basel II, have the right to develop their own internal methodology for risk assessment which is, then, subject to confirmation to be obtained by the auditor. Naturally, the regulatory body must be capable of carrying out a quality assessment, i.e. of verifying such models. New generations of internal models offer a possibility of more precise assessment of investment risk and better methods of assessing the possibilities of failure to fulfill credit liabilities.

Will the models really fulfill the expectations depends, however, to a large extent on both quality of the model and the data 'fed' to the model. Currently, the tendency is the convergence of different ways of risk assessment developed in the 90s. The convergence point is VaR as a risk assessment and management concept. This leads to quantitative measures of risk assessment being perceived as a lot more significant than with Basel I standard.

From the banks' point of view, the main novelty brought by Basel II standards is the change in the concept of regulation: what becomes perceived as important, instead of the *a priori* given minimum capital or capital adequacy ratio, is the process of risk management within a particular bank. In order to meet the needs, VaR is used. The system is being protected from risk by harmonization of the risk level and the amount of capital and bank reserves. Economic capital of a bank is defined as the difference between VaR and the expected loss, which, in the framework of Basel II, are considered to be incorporated in the price of the product (credit) issued by the bank. Additionally, in the framework of Basel II, three kinds of separate risks are recognized: market, credit and operational risk. For each of them the bank is under obligation to calculate the corresponding VaR, and define corresponding economic capital. The key for making the

<sup>1</sup> VaR is a measure of economic loss which may, at a given probability, occur in a bank transaction or operation. VaR, hence, indicates risk in every potential investment and total bank risk. Today, VaR is a standard measure for quantification of the largest number of risks. Presently, this methodology has many purposes of application: from the risk management within individual bank to definition of regulatory requirements. The term VaR has not appeared in finance before early 1990s. In 1980s, large financial institutions (Bankers Trust, Chase Manhattan Bank, Citibank and others) started to publish the use of VaR in the risk management system. J.P. Morgan Riskmetrics database created the biggest public impact of this idea in 1990s providing basic statistic data for VaR calculation of derivative instruments. Since J.P. Morgan's Riskmetrics was published in 1994, there was a prompt expansion of research in the field of VaR methodology. Although the main scope of VaR application remained within assessment and analysis of market risk exposures, application extended to other types of risks as well. In terms of methodology, VaR is a natural progression of portfolio theory by H. Markowitz. More details on VaR methodology and its application in banking can be found in: M. Vujnovic, VaR analysis of bank credit portfolio, Trag, Belgrade, 2007.

system work safely is risk assessment capacity building of the bank and of the supervisor. The banks are enabled to develop and apply their own or internal models for calculating their needs for capital in addition to the classical, i.e. the so-called standardized approach. This big change enables banks to make a difference between high and low risk transactions, and to define, on the basis of this choice, capital adequacy founded on the risk of each individual transaction. It is necessary, therefore, to develop models to be applied in the process of measuring the contribution of each individual transaction to the total risk of the bank in order to make it possible for this big advantage of Basel II standards to be used in any particular case.

Further on, Basel II directs banks towards tracking the risk and profit relations. When the banks are capable of adding the risk measured by VaR to each and separate transaction, they will also be capable of defining the amount of the requisite capital. The next useful application of VaR is defining the expected profit for the given risk. Based on these results, banks can choose the most profitable products and banking branches by the criterion of the expected profit-risk relation, and also choose the best way to decide upon the prices of the products. Finally, such an approach enables banks to choose their risk reduction techniques.

VaR models are used for forecasting exposure of a financial institution to risks within the defined period in the future (a day, ten days, a month, a year) and within the particular statistical confidence interval. For example, a statement that the daily VaR of the portfolio is 800,000 euros with the 99% confidence interval means that it can be expected that, on average, the bank's portfolio will have a loss that exceeds 800,000 euros per day once every 100 days. Having this measure at disposal, financial institutions can calculate capital adequacy and set risk limits for certain investment types. Capital was previously allocated by distributing the defined amount to segments of the business carried out by banks and other financial organizations. With the introduction of VaR, the space was created for integrated approach to making the total assessment of the risk exposure and a more precise allocation of the available capital to the segments of doing business made in accordance with the recorded risk of given activities. Thus, the concept of nominal limits in this context becomes irrelevant.

The application of Basel II standards represents a true revolution in banking. The main reason: Basel II is logically a far more complicated structure than Basel I standard. Many procedures in banking will either be radically changed or significantly modified. It will take a new generation of banking experts to answer the needs of both banks and regulators. The new generation banking experts will have to possess a high level command of mathematics and statistics but also full comprehension of how to apply the knowledge in banking practice. Both banks and regulatory bodies will have to possess not only formal, legal, but also professional competency. Introducing professional licenses in risk management such as Professional Risk Manager (PRM), the license issued by the Professional Risk Managers International Association (PRMIA) and Financial Risk Manager (FRM) issued by the Global Association of Risk Managers (GARP) is one way of standardizing the knowledge necessary in the period to come. Another way is conducting the reforms of educational programs within the studies of mathematics and economics including the development of Quantitative Finance and Risk Management studies.

Apart from the radical cut made in the employment policy of banks and regulators and turning towards qualifications necessary in the years ahead of us, it will be necessary to put a lot more efforts into acquiring or developing adequate technological solutions within the banking system in our region, and, first of all, collecting an entire set of high quality and adequate data. To be precise, the development of adequate databases is the prerequisite for calibration and the development of risk management models, both regulatory and internal models of banks. Obviously, adaptation to Basel II will require substantial expenditures from the banks in the region. It can be expected, therefore, that some banks will have an urge to bring the costs to minimum, in order to minimize the expenditures. In this case, the changes to be introduced would be minimal, aiming at making the regulator content only formally, without essentially changing the mindset of bankers, and it is precisely this change that can be perceived as the real goal of Basel II. Such banks would consider risk management as a cost center.

But risk management systems can, provided they are set properly, become the actual profit centers. To be precise, Basel II has a great advantage to offer to banks – it provides them with an opportunity to calculate themselves their capital needs by applying internal processes and risk management models (Pillar I). Doing so, they would potentially, not only reduce the reserves, but also, and first of all, direct them towards activities making the highest profit per incurred risk unit. Such approach directly leads to the increase in the value of the bank. Naturally, the reliability of the model is particularly important. It will, therefore, apart from the regulators (Pillar II), be assessed by market competitors (Pillar III) as well. The big change enables the banks to make the distinction between high and low risk transactions at any moment (in relation to the already existing portfolio) and to define, on the basis of this choice, the appropriate capital adequacy. It is necessary, however, to develop adequate models and have competent experts not only in the risk management team, but also among the top bank management, in order to make use of the big advantage of Basel II. In particular, the essence of Basel II can be represented in the following way: instead of the formal approach to risk management as an obligation towards the regulator, risk management must become the basis for bank management, and all decisions on the business operations of the bank must be made on the basis of high quality risk management systems. In this way the entrepreneurial spirit is being “freed” in banking, which was confined by Basel I standards, and, potentially, capital is being allocated in a far, far more efficient manner.

### 3. Serbian Experience up to Date

Serbian experiences with applying the Basel I Standard are almost tragic. Although introduced fairly early into national legislation, this group of regulations was unsuccessfully «applied» throughout the whole decade. The first legal formalization of the capital adequacy principle, classification of assets according to the level of risks and reserves for potential losses, is found in the SFRY Banking Law from the late 1980s. The banking legislation reform in 1993 more extensively explicates Basel I principles: capital census, net capital, capital adequacy. Unfortunately, none of these basic principles were applied. First, inflation devaluated capital census, therefore entry into banking activity depended exclusively upon discretionary decision of the central bank. Such decisions were not motivated by the protection of national banking system stability; hence players introduced into this activity later caused dramatic damage to public interest (pyramid schemes of Dafiment and Jugoskandik Banks). By-law regulation, supposed to ensure implementation of the law, was unfinished and controversial. The Serbian experience registered moral hazard both in banks and regulators to a dramatic extent. Banks, faced with conditions of extremely high risks, and with silent consent by regulators and supervisors, shifted credit risks to deposits. Outcome: insolvency of the banking sector. In the final phase of the Serbian banking crisis, credit supply amounted to merely 10% of their pre-crisis level.

The supervisor, throughout the whole crisis, regularly received financial reports that showed not only high values of banks' net capital, but also high values of capital adequacy ratio. The essential distortion in the supervision mechanism was due to arbitrary classification of banks' assets. Sometimes, absurd situations happened: banks with CAR (indicator of capital adequacy) higher than 9% fell into technical and factual insolvency.

After 2000, the banking system in Serbia began to recover intensively. As well as in other countries of the region, apart from Slovenia, banks seated in the EU took charge of Serbian banking. Simultaneously, the process of introducing modern credit instruments was ongoing, although the market was still insufficiently competitive. Current regulation and supervision of banking in Serbia predominantly relies on Basel I Standards. The basic technical solutions and definitions were innovated in June 2006, after enactment of the new Banking Law, at the end of 2005. In general, the Law itself declares some principles of Basel II Standards (risk based supervision), but does not change fundamental principles of current supervision based on aggregate reports on the basis of international accounting standards. In order to explain vital deficiency of the current reporting practice towards the central bank, let us mention a very simple example. Namely, we can find in reports only aggregate amount in dinars of all securities into which the bank invested

*a) It is interesting that the Serbian banking regulation in that respect lags behind Pension Fund regulation, although both are regulated by the same institution, National Bank of Serbia (NBS).*

on a market. This, certainly, does not tell a word about risk nor the market value of that part of bank's trading portfolio. Similar goes for interest rate and currency risks.<sup>a)</sup> Therefore, although banks are made to invest significant efforts in order to respond to regulator's requirements in terms of reporting to the central bank, the reports prescribed by the central bank are not yet functional for measuring risk faced by the banks. In brief: it is not enough only to collect large quantities of data, it is much more important to collect relevant data. There, obviously, lies the regulator's key role.

The regulation in Serbia still does not recognize the notion of three capital levels nor internal models for risk assessment. System for weighing different types of assets basically represents, together with some specificities related to indexed credits, the Basel I concepts and the amendments to the standards from 1998. Furthermore, innovations in regulation during 2006 and 2007 also introduced new risk definitions referred to in the amendments to Basel I Standards from 1998. The most interesting innovations are identification of new risk types and new notions such as operational and diverse types of market risks. The regulation also stipulated banks to establish special risk management departments.

In short: a more serious implementation of Basel II Standards in Serbia has not started yet. Still, there is no publicly available strategy of its application. On the other hand, some commercial banks, due to pressure put forth by their home offices, started to create teams for implementing Basel II.

#### **4. A Very Useful Experience: Application of Basel II Standard in Croatia<sup>b)</sup>**

*b) This part of the text is contributed by Dr. Evan Kraft, Advisor to HNB Governor concerning introduction of Basel II.*

Croatia, like Serbia, inherited elements of Basel I approach from the Yugoslav 1989 Banking Law. Croatia amended that law in 1993 by adopting a new Banking Law. Supervision of banks, however, has not succeeded to prevent Croatian banks from becoming highly indebted in the 1990s. Rapid growth of crediting financed through a dangerously high level of interest rates on deposits, as well as the high level of country's external debt, led to a banking crisis in 1998–99. In order to resolve that crisis, a new, more rigorous Banking Law was introduced in 1999. The resolving of crisis marked progress in bank supervision and in the quality of implementing Basel I. In 2002, Croatia adopted another Banking Law, this time for the purpose of harmonizing Croatian legislation with the new EU Directive 12/2002.

The process of Croatian accession to the EU, however, has started to develop full speed ahead only since October 2005. Ever since, the EU also moved from Basel I to Basel II Standard.

The accession process to the European Union dictates the pace of Basel II implementation in Croatia. Because Croatian authorities undertook liability to harmonize all resident laws with European Union laws (*acquis communautaire*) by the end of 2008, and since implementation of Basel II became legal requirement for all EU member states as of January 2007, Croatia is planning to implement Basel II until 1<sup>st</sup> January 2009, since EU accession is scheduled for that date. Practically, Croatia committed to adopt new Law on Credit Institutions (LOCI) during 2008 as part of a wider action for harmonizing its legislation with EU laws in the field of financial services.

In fact, the pure coincidence that Croatia became an EU candidate country exactly when Directive 48/2006 was adopted in the EU, creating a liability for EU members to introduce Basel II, substantially narrowed maneuvering space for implementing these provisions in Croatia. Namely, while Croatia has to fully implement this Directive prior to accession to the Union, countries that were already EU member states, at the point of adopting this Directive, had certain flexibility with view to its implementation. On the other hand, countries that are currently not EU members, including countries which have signed or are preparing to sign Stabilization and Association Agreement with EU (such as Western Balkan countries including Serbia) are entirely free to postpone implementation of segments or even the whole Basel II.

It is clear that pace of implementation circumstantially imposed to Croatia represents great challenge and commitment, primarily for the regulators but also, for the banks themselves. For the regulators, initial challenge was simply of legal character – how to decipher quite technical Directive with over 200 pages and turn it into text which is comprehensible for country's lawmakers. The first version of the law was disclosed on Croatian National Bank's website in July 2007. A large number of bylaws were written as well. In all of this, details are very important since detailed instructions related to implementation of new legal framework for risk management are complex, extensive and potentially controversial.

Time frame between adoption of the Directive in June 2006 and date by which Croatian law and bylaws have to be adopted and implemented (end of 2008) is actually relatively short. Also, Croatia has a very small number of countries to look upon. That is, out of 27 Union countries, only Slovenia and Austria have timely (by 1<sup>st</sup> January 2007) introduced adequate amendments in order to harmonize their legislation with the Directive. Many countries, Germany for instance, opted for slower pace of Basel II implementation, therefore delaying adoption of respective laws by mid 2007.

Opportunity cost of effort that regulator has to make in order to harmonize legislation with Basel II, in this case the Croatian National Bank (HNB), must not be underestimated. In transition countries regulators do not have large numbers of highly qualified employees at their disposal, which could be separated from their everyday activities in order to work on Basel II implementation. Also, it is hard to imagine to what extent lawmakers are able to understand and have qualified discussions concerning complex technical issues such as those related to the introduction of Basel II. The only comfort for the regulator is that this entire process is something that does not have to be redone, hopefully, for a number of years. Let us be reminded: 18 years has passed from the adoption of Basel I until adoption of Directive 48 in 2006.

From the mid-term point of view, a bigger problem for regulators is how to build and maintain a team of highly qualified experts in the field of risk management, as well as to develop work methodology, information systems and databases which would allow them to make objective assessments of methodologies and models from the Basel II angle, which will be used for risk management by the banks on Croatian market. In that respect, the Croatian National Bank has already hired a number of mathematicians. In fact, this is an extremely good moment for people with a degree in mathematics or statistics who acquired particular knowledge in finance or economy. The problem is, however, that HNB has to compete with commercial banks on a small and relatively shallow market for such human resources. Although many perceive work in quasi-state institution such as HNB to be attractive due to relatively lower risk of losing a job, HNB, as well as other regulatory agencies, may not compete with private sector in salaries. As a result, these institutions are exposed to high pressure in terms of human resources.

The next question is particularly important: what shall be the quality of risk assessment model, and what is the extent of moral hazard issue with regard to misuse of such models? Banks are, namely, offered carrot in the form of decreased reserves if they manage to demonstrate, based on own models, that such level of reserves is sufficient. On the other hand, regulators do not have enough experience to estimate whether banks have realistic risk assessment models or if the banks are being "smart" enough to obtain desired results by manipulating models. How to assess realistically whether the banks in that respect abuse models? This is not easy to discover and currently local regulators do not have much experience in that sense (in time, we can naturally expect such experience to develop). Experience of other countries, in that sense, can be very useful. Hence, the cooperation through the Committee of European Banking Supervisors (CEBS) as well as with the Basel Committee, in that respect can prove critical at this point, but possibly in mid-term period as well.

It is clear that Croatia has no freedom to categorically prohibit licensing of advanced internal risk models. As an EU member state, it shall have to accept reviewing of all models as soon as LOCI regulation is adopted. Some banks have already invested substantial amounts in developing own

models. Two questions come out. First, a very important question is: Do the banks have adequate data required for model calibration. As far as we know, banks in Croatia have not started to collect respective data prior to 2000. It means that the time frame for existing data is limited (according to Basel, minimum 5 years). What is more important, data comprise incomplete business cycle. This is a serious limitation.

The second important question is whether the banks – members of multinational banking groups should apply models developed in home country, in all other countries where such bank operates, or it is necessary to develop a special model in each of the countries or group of countries, suitable to concrete market conditions in that country. Directive 48 enables use of a single model on the banking group level, and, in fact, facilitates national regulators to accept models by allowing regulator in the home country to reverse negative decisions of the regulators from other countries where bank operates in terms of single model application. On the other hand, such right to overturn the national regulator decisions may turn hazardous. For instance, exposure to risk of Austrian banks is completely different than exposure to risk of the banks in Croatia or Serbia. Moreover, since many regional banks generate their highest profits in transitional and Western Balkan countries, there is also a feedback effect, because operating risks in those countries are becoming more and more important risk component to which the whole group is exposed to.

We have to mention that the cooperation between Croatian and EU supervisors has been, so far, very constructive. Nothing could cause suspicion that supervisors in home countries wished to make Croatian supervisors reverse their decisions. Banks should, of course, have motive to develop own models adjusted to the Croatian market, due to great difference in the level of economic and market development, but also due to difference in banking practice and culture between home country and Croatia. Realistically saying, however, it is uncertain that the large banks operating in many markets would have enough motivation to develop individual model for each market. Some may choose not to use models at all, or to use simplified Standardized Approach in weighing respective risks. Such procedure would logically, although probably less precise and flexible, be cheaper, reliable to certain extent and less controversial with regard to internal models. We may definitely, however, expect appearance of the banks that wish to use the same model in all countries. In that case, consultation between regulator in the home country and regulators in other countries where bank operates shall become inevitable part of the model approval process.

It may happen that, in short terms, banks in Croatia do not use freedom in opportunistic manner, brought in by Basel II, in order to decrease capital reserves. There are two reasons. First, in the beginning many banks might not want to invest in development of own models. Namely, development costs can easily be higher than potential benefit. In time, inasmuch as the banking services market in Croatia converges towards EU requirements, the need to generate special model for Croatia, as well as the costs of using common model on the group level shall gradually decrease.

The other reason is that Croatian banks currently have high capital buffer. Although the minimal capital adequacy equals 10%, the largest number of banks holds reserves exceeding 12%, and some large banks even have reserves amounting to 15% or more. Smaller banks even have bigger reserves. This behavior is partially influenced due to requirements of the rating agencies, which look at Croatian banks that have reserves below 12% with criticism. Another reason is that banks themselves make risk assessments. In any case, since banks capitalized themselves without being forced by the regulators, their motive to implement expensive risk assessment models, solely in order to possibly decrease reserves, might not be that strong. On the other hand, naturally, quality systems for risk assessment and management may help companies to make business decisions with considerably more quality.

Although, as we already discussed, it is unclear whether the banks have capability to develop and use complex models of market, credit or operational risk, it is, however, clear that the Basel II shall have significant role with regard to banks focusing on development of quality systems for

risk management. Basel II specifies more types of risks than Basel I, and requirements for banks to develop strategies and processes for managing each of these risk types. Although, perhaps some of the banks may wish simply to “throw dust in regulator’s eyes” and only do things to which they are absolutely compelled by the regulators, however, as a result of introducing Basel II, the risk management quality shall improve in time, most probably in the mid-term period.

When discussing about Basel II in Croatia we may not skip one issue. This process is firmly linked with country’s EU accession process. After the banks in Croatia acquire right to become branches of home country banks, the banks which decide to do so would be directly regulated in the home country. This may cause considerable shock to Croatian banking system, although we have to admit that even now there are substantial cross-border banking transactions.

Therefore, in the new law on Basel II, subject to review in Croatia, the Croatian National Bank had to balance carefully between the estimate that banks in Croatia are more risky than in EU countries and that too much of restrictive policy may stimulate conversion of resident banks into branch status. It also had to avoid making Croatian banks operate at more unfavorable terms in view of stringency of the criteria applied with respect to multinational banks. Proposal for a law, actually, maintains the minimal level of reserves at 10%, and in that sense the law recognizes higher risk in Croatia comparing to EU. On the other hand, the major part of the law simply implements the Directive 48. The national regulator’s discretionary space, as EU proscribes, is strictly defined, and in practice, greatly restricted.

To summarize, Croatia was, due to circumstances, forced to enter into implementation of Basel II quite rapidly. Obviously, difficulties and conflicts in the process of its implementation may be expected, in particular, because the regulator and banks compete for relatively small contingent of the work force qualified for complex process such as implementation of Basel II. After initial “baby steps”, we can be, nonetheless moderately optimistic in thinking that the Basel II shall raise the level of risk management among banks in Croatia, without high costs caused by possible opportunistic moves from the banks. But, at this point, since there are no precedents in other countries, nothing can be claimed with certainty.

## 5. Concluding Remarks

The key novelty in Basel II standards, with respect to Basel I standards, is that the regulator provides freedom to the bank to participate actively in determining modalities for the calculation of reserves. But, in addition to these benefits, new liabilities also appear both for the banks and regulators. On one hand, the banks will have to invest substantial material and human resources in order to set qualitatively higher level of risk management in their institutions. On the other hand, the supervisors shall also have to develop both HR and technological capacities in order to have successful supervision of systems developed by the banks.

Although, as previously pointed out, expected costs of adjustment are considerable, potential benefits of introducing a system for precise identification of credit, market and operational risk may be huge. Namely, if the risk management culture penetrates through all activities and management of the bank, much more competent business decisions will be made, the quality of management over bank and its parts will rise considerably, and eventually, its market value will increase.

It is realistic to assume that full implementation of Basel II Standard will, in Serbia, as well as Croatia, be related to the process of EU accession. Presumably, if optimistic forecasts for the completion of that process are set for 2012, the question is: Is that enough, little or too much time?

The answer to this question is as follows: the remaining time is quite short and intensive preparations for the implementation must start immediately. Arguments in favor of this position are as follows: First, no matter what, we must not repeat the experience of implementing Basel I Standards in Serbia. Flaws in application would be much more expensive today than they were

before, because the present Serbian banking system is strongly integrated into European banking system through ownership relations.

A key practical problem in applying Basel II Standard is the freedom of choice between the so-called Standardized Approach and internal models for risk assessment. Although the advantages of developing a system for risk assessment and control are apparent, such process requires investments into HR, technology, as well as the change in mindset and procedures both in our banks and the NBS. Optimistic signal: though the supervisor here has still not requested application of VaR methodology, a number of banks have already started to develop VaR model in order to increase precision of risk assessment to which bank is exposed to and/or for the purpose of satisfying home office requirements. It is interesting that among those innovative banks, there are banks of various size, market share and ownership structure. Majority of other banks in Serbia, however, are waiting for “order from above”, that is, from supervisors. On the other hand, supervisor is limited by objective state of own HR structure, as well as HR structures of the banks. Therefore, there is not at all a sense of urgency to introduce Basel II. Such a “balanced delay” has multiple perils. Because, though suitable to some, Basel II cannot be avoided, at least not in mid-term aspect. First, the majority of banks in our market are owned by banks seated in the EU and have to operate in line with Basel II. Second, Basel II will have to be introduced into our legislation within the EU accession process (in case of Croatia, as we have previously seen, it will become binding in 2008 due to expected accession in 2009). Also, instead of the abundance of the purely accounting data that NBS currently collects from the banks, data which can ensure precise risk assessment has to be gathered. As Basel II requires minimum 5 years of relevant data for adequate application of risk assessment models (and it is desirable to have data comprising at least one business cycle), if we wish to implement Basel II until 2012, we have to start immediately to collect *relevant* data at both individual banks and NBS level (in Croatia it is being done since 2000). Furthermore, both NBS and the banks have to start immediately a real campaign for the acquisition and development of human resources and technology able to cope with Basel II challenges. Due to the complexity of the task, the banks that first started to develop sophisticated risk management systems will be in great advantage in comparison with the competition.