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Published two times a year, the journal is the official publication of *The European Centre of Managerial and Business Studies*, academic organization devoted to the study and promotion of knowledge about financial economics. The journal has been established in year 2009 as a descendant to *Journal of Applied Economic Sciences* (JAES). Two issues are published per volume. All articles and communications are available online for free. Printed copies can be ordered at a cost. The editors maintain classic *double blind peer review* procedure aiming at high academic standards but at the same time emphasize dynamic referee process so that the journal tracks scientific progress in real time.

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- Conference Session Chairs;
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Invited manuscripts will be due till October 15, 2010, and shall go through the usual, albeit somewhat expedited, refereeing process.

Schedule

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INSURANCE REGULATION AND THE CREDIT CRISIS. WHAT'S NEW?

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Abstract

Prior to the 2008 global credit crisis, some developments had occurred in the regulation of the insurance industry worldwide. At different speeds, the world was heading toward a more risk-based solvency regulation and some convergence on principles and criteria.

We see a common thread in the present discussion and in the way events happened. We consider that the great debate in the industry is a fundamental decision: whether to engage in other than core business activities. If the industry focuses on its insurance business, the argument for specialized regulation and the continuity of a conservative and prudent line of business is strong. Instead, if the industry deepens its identification with other lines of financial business, the specialized supervision arrangement does not hold. The move entails both possibilities of new, riskier and promising business, but also perils, since the industry "buys" the systemic characteristics that distinguish other financial institutions.

Keywords: regulation, insurance, financial crisis, integrated supervision, financial conglomerates

JEL Classification: L51, G22

1. Introduction

Prior to the 2008 global credit crisis, some developments had occurred in the regulation of the insurance industry worldwide. At different speeds, the world was heading toward a more risk-based solvency regulation and some kind of theory and practice convergence on principles and criteria.

In the business arena, we have witnessed the boundaries between different financial services blur, in particular, among some insurers that were routinely engaged in banking-type activities. The growing presence of conglomerates in financial businesses, carrying out more than one financial activity (banking, capital markets, insurance, mutual funds and pension funds) fostered the discussion of an integrated supervision of all the financial services. Many countries implemented reforms in that direction (Demaestri, and Sourrouille 2003).

The 2008 crisis shed light on new information about former tendencies. Many (leading) insurers engaged in banking-type activities experienced problems and the entire industry, even those devoted to their core businesses –underwriting risks– suffered from the deflation in asset prices. Local authorities had to rescue some financial institutions.

The discussion, then, encompasses older and newer components:

1. Proposals to ameliorate the way risks are addressed in solvency regulation;
2. Concern about ways to deal with systemic risk;
3. Questions over the way with which cyclical downturns are dealt, preserving the solvency of the institutions;
4. The quest to universalize sound principles;
5. Conjectures about market tendencies towards the further dilution of differences between financial products;
6. The analysis of the convenience of maintaining the isolation between different kinds of businesses;
7. Accountancy criteria and standards to improve transparency and disclose accurate and useful information;
8. National coordination (at the US level) and supranational standards (in the EU);
9. Global accountancy standards and regulatory principles, including the proposal of an international college of regulators;
10. A renewed interest in evaluating the pros and cons of integrated financial supervision;
11. Disagreement on the role and scope of market discipline, moral hazard and bailouts;
12. Consumer protection issues;
13. Ethics in business.

In this paper, we try to see a common thread in the present discussion and in the way events happened. We see underlying tendencies, which have not varied, and the crisis as a set of warnings. We review the arguments and discuss their pros and cons. We conclude that the industry is still solid, its regulation is evolving correctly and we consider that the great debate in the industry is a fundamental decision: whether to engage in other than core business activities. If the industry focuses on its insurance business, the argument for specialized regulation and the continuity of a conservative and prudent line of business is strong. Instead, if the industry deepens its identification with other lines of financial business, the specialized supervision arrangement does not hold. The move entails both possibilities of new, riskier and promising business, but also perils, since the industry “buys” the systemic characteristics that distinguish other financial institutions. In this case, the industry also subjects itself to a more banking-type regulation, which has its own dangers, namely, of equal treatment for unequal industries.

The ideas presented in this paper are organized in the following way: after this introduction, Section 2 explores the rationale for insurance regulation and the specifics of insurance; Section 3 describes the path that regulation has followed in recent years; Section 4 discusses the credit market crisis and Section 5 concludes.

2. The rationale for insurance regulation and the specifics of insurance

Insurance is an arrangement providing individuals with protection against the risk of losses resulting from various hazards by pooling risks. This can potentially lead to moral hazard and to countermeasures in the form of, for example, co-insurance and deductibles. In an economy without any information imperfection and other frictions, the capital market would be able to handle the insurance function without help from specialized agents through the exchange of contingent claims on different states of the world. In the real world, with frictions, specialized insurers arise (Baltensperger *et al.* 2008).

The business model of insurance differs from that of other financial services providers. Unlike banks, which rely mainly on short-term deposits or short-term credit funding, insurers are funded by advance premium payments. In most cases, the premiums paid cannot be withdrawn on demand or prematurely. Even life policies generally apply early-withdrawal penalties. Thus, traditional insurers are much less susceptible to a liquidity panic. In addition, insurance risks represent a high proportion of the risk profile of insurance companies. They are diversified and, to a larger extent, uncorrelated with market risks. The industry rarely uses leverage to enhance investment returns, and its investment horizon is long term (Pan European Insurance Forum 2009).

The market failures of financial markets may justify government intervention in terms of welfare economics. Following Demaestri and Guerrero (2003), the correction of financial market failures is linked to three essential objectives of financial regulation: consumer protection, systemic stability and the efficiency of the financial markets. The first objective refers to the potential of intermediaries’ decisions, which can affect the wealth of their (less sophisticated) customers, since firms can go bankrupt or operate imprudently, negligently, incompetently or fraudulently. The goal of systemic stability is important because financial systems are subject to runs, panics and bubbles. The instability of financial systems translates to the real economy and financial crises could have high costs. The efficiency of the financial system impacts on the real economy, triggering better investment decisions, improving risk management and yielding more effective payment mechanisms. As Table 1 shows, the primacy of each goal is different in diverse intermediaries.

Table 1. Primacy of essential objectives in the regulation of different intermediaries devoted to their core business

Essential objective	Banking	Securities	Pensions	Insurance
Consumer protection	Medium importance	Relatively low importance	Relatively high importance	Medium importance
Systemic stability	Relatively high importance	Medium importance	Relatively low importance	Relatively low importance
Efficiency of the system	Relatively high importance	Relatively low importance	Medium importance	Medium importance

Source: Demaestri and Ferro (2004).

Table 2 presents one classification of different financial intermediaries and the features that characterize them. By and large, insurance liabilities are not traded in liquid markets but are fulfilled over the lifetime of a policy. Unlike banks, insurers usually keep a significant amount of the risk they securitize: they do not package their entire exposure (CRO Forum 2009).

Table 2. Taxonomy of financial services

Intermediary	Main business	Contracts	Maturity	Risk involved
Banking	Loans and investments from deposits.	Fiduciary. Heterogeneous assets.	Long-term assets. Short-term liabilities.	Credit, term and market risks. Important systemic risk.
Securities	Capture of investment funds (primary market). Risk management (secondary market).	Fiduciary, through commissions (brokers). On their own account, through spreads (dealers).	Short and long-term.	Underwriting or best effort (primary market). Trading (secondary market). Medium systemic risk.
Pensions	Management of investment portfolios. Liabilities could be exogenously or endogenously determined (defined benefits versus defined contributions)	Fiduciary through commissions.	Short-term assets. Long-term liabilities.	Agency risk. Significant market risk. Medium systemic risk.
Insurance	Management of investment portfolios. Liabilities determined actuarially.	Fiduciary Protection with premiums.	Short-term assets. Long-term liabilities.	Protection through the pooling of risk. Possibility of catastrophic risks. New risks related to climate change

Source: Demaestri and Ferro (2004).

Insurers have shown an increased involvement in banking-type activities in recent years, strengthening the case for an integrated regulation and supervision. However, an important difference remains. The problem of contagion still lies largely with banks, and not with insurers. Hence, regulation derived from this concern must remain specific to banking. Reinsurance contributes endogenously to containing probabilities of institutional default in the insurance industry. Consequently, the latter has no need for public liquidity insurance or similar regulatory schemes.

In the specific case of the insurance industry, market failures are connected with severe asymmetric information problems and principal-agent conflicts, which could lead insurers to incur excessive financial risk or to engage in abusive market practices. Insurance consumers, particularly individuals, face challenges to assess the financial risk of the insurers and properly understand the terms of insurance contracts. They also could find it difficult to compel insurers to fulfil their obligations under their contracts (Grace, and Klein 2009).

Regulation could be conceived as delegated monitoring (Dewatripont, and Tirole 1994). Consumers find the costs of monitoring so high that it becomes cheaper for the government to undertake this task and take actions against insurers that incur excessive financial risk. Regulators can also facilitate market discipline by promoting the transparency of insurers' financial condition and risk.

The need for solvency regulation is based on the classic agency problem of differing incentives between firm owners and debt holders. The insured are, in essence, firm creditors and, under certain conditions, are subjected to excessive risk taken by the insurers. Information could alleviate agency problems but its acquisition can alter its financial strength after a policyholder has paid premiums before the coverage periods end (Eling *et al.* 2008).

3. The path of regulation in recent years

An increasing number of countries have employed or are moving toward a “prudential”, “preventing” or “principles-based” approach to insurance regulation (focusing on solvency and the way in which insurers manage their financial business), in contrast to a “protective” or “conduct regulation” (which is concerned with the way firms conduct their business with their customers). The latter approach is often designed as “rules based”. In this section we will discuss three cases: the US, the EU and the Swiss experiences.

The US

The US insurance market is the largest in the world; 31 percent of the worldwide premium volume was generated in this market in 2006 (measured as direct premiums before cession to reinsurers). In the US there is a pre-crisis debate about restructuring the institutional framework for insurance regulation. The US insurance companies are chartered exclusively at the state level and subject to rules and regulation in each state where they conduct business. Part of the industry supports the creation of an Optional Federal Charter (OFC) for insurers. The states and other segments of the industry oppose an OFC. Beyond the move to increase the federal role in the insurance regulation, other pressures exist for reforming regulatory policies on efficiency grounds (Grace, and Klein 2009).

Every state and US territory has a chief government official who is responsible for regulating insurance companies and markets. Insurance commissioners regulate insurers’ admission or licensing, solvency and investments, reinsurance activity, transaction among affiliates, prices, underwriting, claims handling, and other market practices. Regulators also oversee producer licensing and market practices, along with certain other areas related to insurance companies and market functions. Information and resource constraints and the difficulties of supervising companies operating in multiple jurisdictions have caused states to defer primary solvency regulatory authority to the domiciliary commissioner.

An important degree of coordination and uniformity in solvency regulation among the states has been achieved through the National Association of Insurance Commissioners (NAIC) including its promulgation of financial reporting requirements and its solvency regulation certification program. The state system of limited, ex post assessments to pay a portion of insolvent insurers’ obligations is considered appropriate (Harrington 2006).

Under the state regulatory system, insurers must obtain approvals from each state every time they offer a new product, change a form, or change their prices. Agents who sell insurance must also be licensed to do business in each of the states in which they do business (Litan 2009).

The states have appealed to the NAIC to coordinate regulation. The NAIC is a private, non-profit association comprising the chief insurance regulatory officials of the 50 states, the DC, and the four territories. It was established in 1871 with special emphasis on insurers’ financial condition and expanded its activities to include market regulatory issues. The NAIC functions as an advisor to, as well as a service provider, state insurance departments. Commissioners use the NAIC to pool resources, discuss issues of common concern and align their oversight of the industry. The NAIC develops model legislation of a voluntary nature (Klein 2000).

Box 1. The history of the state regulation of insurance in the US

State regulation of insurance originated in the early XIX Century and was backed by an 1868 Supreme Court ruling holding that insurance was not commerce and therefore not subject to federal regulation of interstate commerce (Litan 2009). In 1944, the Supreme Court ruled that insurance is interstate commerce when it takes place across state lines, and that Congress could therefore regulate insurance. The Congress responded by enacting in 1945 the *McCarran-Ferguson Act*, which states that the continued regulation and taxation of insurance by the states is in the public interest, and that no act of Congress “shall be construed to invalidate, impair, or supersede” any state law enacted for the purpose of regulating or taxing insurance. It also provides the “business of insurance” with a limited exemption from federal antitrust law (Harrington 2006). The enactment of the *Graham-Leach-Bliley Act* (GLBA) in 1999 eased Depression-Era financial regulation (the Glass-Steagall Act of 1933) that hampered the ability of banks and other financial institutions to provide a full range of financial services companies

to merge and engage in new business activities and the cross selling of financial services and products, while attempting to address the regulatory issues raised by such combinations (Klein 2000).

In 1993 the NAIC instituted formal regulatory *Risk-Based Capital* (RBC) requirements that placed a floor on the capital that an insurance company could hold without triggering regulatory action. Prior to the development of RBC standards, US solvency regulation varied between the states and relied on a fixed minimum capital.

Capital and surplus provide a cushion against unexpected increases in liabilities and decreases in the value of assets. Capital is also intended to fund the expenses of a rehabilitation or liquidation of an insurer with minimal losses to policyholders and claimants. When an insurer's capital and surplus fall below the minimum standard, it is considered legally impaired. When an insurer's liabilities exceed the value of its assets -that is, its capital and surplus are negative-, then it is considered insolvent.

In addition to the RBC standards, each state still has its own fixed minimum capital requirements, which range from US\$ 0.5 million to US\$ 6 million. Furthermore, many state insurance regulators use their own measures to screen insurers (Eling, and Holz Müller 2008).

Each formula for every line of business recognizes the correlation between various types of risk. The formula applies a covariance calculation to determine the appropriate risk-based capital. The levels of regulatory action are determined by the risk-based capital after covariance. It reflects the fact that the total risk of a portfolio comprised of several different risks (if they are not perfectly positively correlated) is lower than the sum of the isolated risks (Baltensperger *et al.*, 2008).

The ratio of Total Adjusted Capital to Authorized Control Level Risk-Based Capital results in the action levels indicated in Table 3.

Table 3. RBC action levels in the US

Action level	Percent of Authorized Control Level	Requirements
Company action	200	Company must file plan
Regulatory action	150	Commissioners must examine insurer
Authorized control	100	Commissioner authorized to seize insurer
Mandatory control	70	Commissioner required seizing insurer

Source: Klein (2000)

The EU and Switzerland

Premiums for all 27 EU countries, taken as a whole, accounted for 37 percent of worldwide premiums in 2006. The Swiss market alone accounted for 1.1 percent of the worldwide life and non-life insurance business at the same time. The extremely high share of overseas activities conducted by Swiss insurers explains the relatively high volume related to the size of the country.

The focus of regulation has shifted to ensuring institutional solvency in general, that is, to ensure that insurance companies are able to honour their payment obligations in a continuous way with high probability, the most important instrument being that of a generalized capital and reserve regulation, supplemented by additional supervisory rules. This trend is reflected in the EU's Solvency II initiative. In Switzerland, the corresponding development resulted in the *Swiss Solvency Test* (SST).

The third generation Insurance Directives established a passport system (single license) for insurers in the EU based on the concept of minimum harmonization and mutual recognition.

The implementation of the new regulatory framework followed a two-stage process: Solvency I and Solvency II. Solvency I, introduced in 2004, made modest modifications in the fixed ratios and rules-based capital standards that had already been introduced in the 1970s. Solvency II, intended to go into effect in 2012, will focus on an enterprise risk management approach. Further characteristics of the upcoming standards will be the use of internal models to calculate capital requirements and the consideration of two levels of capital requirements: the actual capital of a well-capitalized insurer is supposed to be equal to or higher than the SCR (Solvency Capital Requirement, also called Target Capital) and also higher than the MCR (Minimum Capital Requirement) (Eling, and Holz Müller 2008).

Solvency regulation proposed in Solvency II was strongly influenced by the Basel II agreements on banking regulation. Solvency II (like Basle II) has a three-pillar structure. The first pillar contains

quantitative regulations for insurance company capital requirements. Along with technical provisions, rules exist to determine the minimum capital required and the (usually higher) target capital. Conditions for internal and standardized risk models are included in this process. They incorporate both, asset and liability risks. The former does not necessarily include asset-liability matching (Eling *et al.* 2008). Pillar I takes an integrated balance sheet approach and considers assets, liabilities and the interdependence between them. The liabilities are subdivided into technical provisions and the SCR, the MCR being a fraction of the SCR. The assets are subdivided into assets covering the technical provisions and the available solvency margin (to cover the SCR; if the available solvency margin is larger than the SCR, the residual is the excess capital). Both assets and liabilities are calculated at market value. On the liability side, the calculation of the technical provisions is based on their current exit value. The technical provisions are thus the sum of the best estimate of the liabilities and a risk margin based on the cost-of-capital method. The SCR corresponds to the economic capital an insurer needs to limit the probability of ruin to 0.5 percent (Eling, and Holzmüller 2008).

Table 4. Solvency I limits

The Solvency I MCR is given by the maximum of the premium basis (PB) and the claims basis (CB) (P denotes the net premiums in the period, C is derived on the basis of the average claim payments over the last three years net of reinsurance):

$$PB = 0.18 [\min(P; 50 \text{ million euros})] + 0.16 [\max(P - 50 \text{ million euros}; 0)]$$

$$CB = 0.26 [\min(C, 35 \text{ million euros})] + 0.23 [\max(C - 35 \text{ million euros}; 0)]$$

$$MCR = \max(PB; CB)$$

Source: Eling and Holzmüller (2008)

One of the most important innovations of Solvency II is the possible use of internal, instead of standard, risk models to determine the target capital. To be eligible to use an internal risk model, the supervisor must certify an insurer's model, a process that requires detailed documentation of the selected model and its underlying assumptions. A periodic examination of the model is also required to ensure that the model is properly adjusted to the dynamic financial environment. If an internal model is used, the resulting target capital should not be lower than the minimum capital requirements provided under Solvency I rules. Insurers who choose not to use an internal model, or whose internal model is unacceptable to supervisory authorities, must calculate their target capital using a standard risk model. Similar to the Risk-Based Capital Standards in the US, the model includes interactions among these risk categories by using a root formula in aggregating different risk categories (Eling *et al.* 2008).

Pillar II focuses on the qualitative elements of supervision. Principles for internal risk management and internal risk control, along with associated supervisory interventions, are the main elements of the second pillar (Eling *et al.* 2008). It is regulatory, devoted to the supervisory review process and focused on insurers' good monitoring and management of risks plus adequate capitalization (Appleton 2009). It introduces a more in-depth supervisory review for a better understanding of the insurer's business and its risk management (Van Rossum 2005).

Pillar III has to do with disclosure and market discipline. It seeks to harmonize supervisory reporting requirements that allow capital adequacy to be compared across institutions (Appleton 2009, Van Rossum 2005). Several additional objectives are considered, such as discouraging the publication of competition-distorting information. Furthermore, coordination should be sought where appropriate with international financial reporting standards (IAS/IFRS) and other relevant disclosures (Eling *et al.* 2008, World Bank and International Monetary Fund 2005).

In Switzerland, the Swiss Solvency Test (SST) determines a target capital deemed necessary for the insurance company to survive the risks it has assumed with adequate security (high probability). This target capital is compared to the available risk-bearing capital. The target capital serves as an indicator or warning signal: if capital falls short of the target capital, it indicates the need for corrective measures; either additional capital has to be built up or risks have to be reduced so that insolvency can be avoided. SST allows for a menu choice available to the supervised companies in determining their target capital. The supervisor provides a standard model. The development of company-specific, internal models of risk evaluation is allowed and actively encouraged. Target capital under SST is made up of two components, expected shortfall and minimum capital. Expected shortfall is the

average loss (change of risk bearing capital) over a year exceeding the 99 percentile (average of the 1 percent worst outcomes). It is used as an estimate of the capital, which is necessary for the company to survive with high probability the fluctuations in capital resulting from its insurance, market and credit risks over the subsequent year (Baltensperger *et al.* 2008).

4. The credit market crisis

In 2006, the insurance industry managed US\$ 18.5 trillion in assets, that is, 11 percent of global financial assets. This placed insurers only slightly behind pension funds (US\$ 21.6 trillion) and mutual funds (US\$ 19.3 trillion) (Geneva Association 2008). The direct impact of the crisis on (core business) insurance was limited owing to the wide diversification in insurer's investment portfolios. The credit crisis has not questioned the basic business model of the industry, specifically, insurance risk underwriting. Insurance economists expect investment write-downs directly related to sub prime mortgage instruments not to exceed US\$ 80 billion. This corresponds to around 3.5 percent of the global (re) insurance industry's capital or a 0.5 percent of invested assets. The banks, according to the IMF, have suffered considerable higher credit losses (an estimated US\$ 600 billion) (Liedtke 2009).

A second impact has been observed on financial institutions where the core insurance business was complemented through other financial services activities. AIG and Fortis experienced significant losses in financial products (mainly Credit Default Swaps and other financial guarantees) and in banking activities. Their insurance operations, however, have been reported sound.

The third form of impact is investment losses, very sensitive to the timing of the crisis and the moment the assets were realized (Geneva Association 2008).

As with previous crises, the fundamental cause could be traced to an overextension of credit and a mispricing of risk (Pan European Insurance Forum 2009, The Task Force 2009).

The massive transfer of credit risk involving entities from various financial sectors has basically relied on an insurance-like financial instrument: the *credit default swap* (CDS) contract. CDS contracts are instruments that guarantee the payment of the loans principal and interest when the loan defaults. The protection seller receives a fee in exchange for this promise. Originally, CDS contracts were used in the context of bond issues. Financial guarantors elevated the credit ratings of complex structured financial instruments, making these products attractive to more conservative investors (including insurers). Also, the participation of insurance companies as counterparties to investment and commercial banks in credit default swap transactions enabled the latter to hedge their credit risks, thus permitting them to continue to expand their securitization activities, including in the form of collateralized debt obligations involving sub prime mortgage-related debt (Schich 2009).

AIG was perhaps the world's largest insurance company and, in fact, was quite a complex large financial group. AIG consisted of a global financial service holding company with 71 US-based insurance companies and 176 other financial services companies. It was a major seller of default protection through its Financial Products Unit, which was managed at the level of the group's holding company. Between 2001 and 2005, CDS represented 15 percent of the total gross margin for the AIG group. Due to the rapid expansion of CDS trades, underlying assets amounted to US\$ 500 billion, including sub prime loans (Ezawa, 2009). In 2008, the company's Financial Product Unit reported a loss of around US\$ 10 billion for the full year 2007, and, later, an even higher loss for the first half of 2008. In March 2009, AIG reported, at US\$ 60 billion, the highest quarterly loss a US corporation had ever reported. Financial market indicators of the parent company's health deteriorated especially during fall 2008 and spring 2009. In mid-September 2008, AIG's credit rating was downgraded and the company was required to margin a substantial amount of collateral by its counterparties. The company had difficulties liquidating assets quickly enough and on September 16, 2008; AIG fell under the supervision of the US government. Based on systemic grounds, the US government felt obliged to provide a support package for AIG, agreeing initially to lend US\$ 85 billion in exchange for a nearly 80-percent equity stake. The rescue package was expanded to US\$ 150 billion in November 2008, partly to fund an entity designed to retire CDS contracts by purchasing the underlying assets from banks. In March 2009, the rescue package was restructured for a second time in four months (Schich 2009).

According to one estimate published in August 2009 by Bloomberg, the insurance industry might have absorbed about US\$ 261 billion in losses and write-downs from the crisis at that time. This compares with an estimated US\$ 1102 billion on the part of major banks, and US\$ 238 billion on the

part of US government-sponsored enterprises (Freddie Mac and Fannie Mae). AIG accounted for an estimated 40 percent of total losses incurred by insurance companies from the beginning of 2007. The aggregate shortfall between write-downs and losses on the one hand and capital rise on the other amounted to about US\$ 103 billion for the selected insurance companies covered by Bloomberg. The losses disclosed by affected financial institutions were, thus far, largely mark-to-market losses on hard-to-value assets (Schich 2009).

5. Concluding remarks

The crisis left some lessons and questions with respect to regulation and the supervision of the financial markets. A possibly very incomplete list is the following:

1. Should we preserve the difference between the financial products?
2. In recent years financial institutions have become conglomerates or supermarkets of financial products. Should we consider un-grouping or de-conglomerating?
3. In a world of differentiated intermediaries, concentrated in their core businesses, specialized regulators make sense. However, do the latter make sense in a world where insurers incur credit activities, alter their risk balance and regulators only exercise partial control over their activities?
4. Both regulation and market discipline failed to anticipate and prevent the crisis. Can regulations foresee a crisis? Should market discipline be devoted to the short term and regulatory efforts for the strategic long term of the financial industries?
5. Too-big-to-fail policies imply moral hazard consequences, as any guarantee scheme does. At the same time, they were unavoidable in the middle of the crisis. Should we consider setting limits on the growth of financial companies/groups?
6. What sound principles should be included in future regulations?
7. Will we experience more crises in our lifetime?

Points **1.** through **3.** are interconnected. In general, the financial crisis is expected to encourage insurers to remain focused on their core business of risk underwriting. As far as core insurance activities are concerned, regulation has proven adequate and effective. The companies that have suffered most in insurance as a consequence of the credit crisis are mainly those that combined insurance and banking-type operations. But what reasons explain the move to conglomerates and entry into non-insurance-type activities? New products are more complex, less understood, and “sexier” to market. The potential associated benefits of scale and scope have led to the creation of financial groups offering both banking and insurance products. While supervisors understand that well-managed financial conglomerates can reduce risk through diversification, they also fear that they might increase systemic risks and over-leverage themselves through multiple gearing of solvency (Van Rossum 2005).

Likewise, the main factors, evaluated in Demaestri and Guerrero (2003), that have driven integrated financial supervision in various countries are: **1.** financial innovation (new products and greater complexity), **2.** the rise of financial conglomerates, **3.** the quest for regulatory coherence, **4.** grey areas in the attributions and powers of specialized regulators, and **5.** growing globalization in the provision of financial services. The correspondence is direct. The group supervision is a way for regulators to gain a comprehensive understanding of each group’s risk profile and risk concentration. It aligns the supervisory regime to reflect the way the groups are actually managed and supports the harmonization of standards across jurisdictions (CRO Forum 2009).

Large, complex financial institutions have to be supervised in their entirety because of the potential systemic damage they can generate. As indicators of the latter, we can address criteria, such as size, leverage, and the degree of interconnection with the rest of the financial institutions.

The alternative to a world with conglomerates plus integrated supervision is to break up those institutions. More dialogue and consensus have to be reached quickly since timing depends on business and technological change. Recent discussions seem to suggest that there may be a growing perception that a period of “de-conglomeration” or “ungrouping” may lie ahead, with an increasing separation of joint ownership of insurance and banking activities. One recent proposal posed that financial institutions are required to adopt specific corporate structures that ensure the separation of capital for the different types of uses. Specifically, some proposals suggest requiring financial institutions that pursue more than one type of financial activity to adopt the structure of a non-operating holding company (Schich 2009).

There currently appears to be an emerging consensus that more extensive information-sharing and co-ordination activities among supervisors and closer scrutiny of the activities of all financial group entities are needed. Effective group supervision should capture all entities of a group and take into account intra-group relationships, governance and risk management procedures, capital requirements and allocation, transferability of funds, and so on (Schich 2009). Still, the pros and cons of such an institution call for careful discussion, keeping in mind the differences between insurance and banking. Contagion and systemic risk are characteristic of banking, not insurance. Integrated supervision risks absorbing insurance regulation by generalizing banking regulation, based on, perhaps, an exaggerated view of the similarities of insurance and banking. The nature of these services, the risks involved, and the derived need for public regulation differ considerably. Consequently, different approaches are justified. An integrated view of insurance and bank supervision makes sense with regard to their capital market activities (Baltensperger 2008).

The International Association of Insurance Supervisors (IAIS) proposed an innovative collegial structure for supervising cross border groups (CRO Forum 2009).

Point 4. is a matter of reasonability. A regulation cannot and should not attempt to eliminate the ups and downs in financial markets or the real economy, but improved regulation will reduce both the frequency and severity of a future crisis. Market discipline has been considered an alternative to regulation by some observers and a complement for a majority of them. The inclusion of the second pillar in Basel II and Solvency II is recognition of the latter view. But the market viewpoint is short run; it is in its very dynamic nature, and nothing is wrong with that. Regulation must focus on the long run, the big picture and the strategic view. Public policies should continue to provide incentives for sound risk and capital management. The crisis reinforces the case for Solvency II, in particular, its principle-based economic and risk-sensitive approach. However, Solvency II should not necessarily be seen as a template for regulations elsewhere.

Points 5. to 7. are related as public actions, rather than underlying tendencies. We have witnessed massive government actions to contain the crisis and avoid a systemic breakdown of the international financial system. As policy makers move from short-term action to discussing reforms in the regulatory framework, it is crucial that these initiatives are grounded in sound regulatory principles and focus on systemic risks, as the Pan European Insurance Forum (2009) suggests. The new supervisory system would also provide supervisors with the mechanisms to detect any threats to insurers' ability to fulfil their obligations to policyholders early on. Limits on bailouts should entail a loss of capital for shareholders of failed financial companies, the loss of benefits or employment to executives of these institutions, and some losses for the creditors in general of the compromised intermediaries. The former is no more than the principle of co-insurance. Effective financial regulation must create the right incentives for the proper conduct of market participants (shareholders, creditors, regulators and management).

Regulators have to work to achieve a convergence of accounting standards. The market-consistent valuation of both assets and liabilities should become a principle to back financial information and prudential oversight in the valuation field. The use of a market-consistent valuation of the entire balance sheet will better reflect the insurance accounts and promote transparency. IFRS, nonetheless, should be adjusted to avoid the pro-cyclical effects of mark-to-market valuation of financial instruments for which there is no longer substantial market liquidity. In stress times, rules have to be eased, and in good times they have to be tightened. Mark to market creates distortions when there is exceptional market volatility. Regulators need to take a discretionary approach in turbulent times. They should not force companies to raise more capital to shore up reserves for assets that are undervalued simply because the stock market moves up or down every day (interview with Robert Klein 2008).

Transparency regarding financial products has to be improved. Unethical and deceptive practices in the sale and promotion of financial products and services became an issue in the run up of this crisis. Ensuring that marketing and sales practices consistently and properly protect the interests of consumers is a separate mandate from prudential regulation and should be pursued to recover the public's confidence and develop a lasting reputation.

References

- [1] Appleton, Paul. 2009. IFRS Phase II and Solvency II. *Ettudes et Dossiers* N° 350. The Geneva Association. February.
- [2] Baltensperger, E. *et al.* 2008. *Regulation and Intervention in the Insurance Industry - Fundamental Issues. The Geneva Reports. Risk and Insurance Research.* The Geneva Association. February.
- [3] Chandler, Seth J. 2000. Insurance Regulation. In *Encyclopedia of Law and Economics*, ed. Boudewijn Bouckaert. Cheltenham, U.K.: Edward Elgar Publishing.
- [4] CRO forum. 2009. *Insurance Risk Management Response to the Financial Crisis.*
- [5] Cummins, D., Harrington, S., and Niehaus, G. 1994. An Economic Overview of Risk-Based Capital Requirements for the Property/Liability Industry. *Journal of Insurance Regulation* 11.
- [6] Demaestri, Edgardo, and Sourrouille, Diego. 2003. Integrated Financial Regulation and Supervision: Experiences in Selected Countries. Sustainable Development Department. *Technical Papers Series*. IFM-139. Inter-American Development Bank. December.
- [7] Demaestri, Edgardo, and Guerrero Federico. 2003. The Rationale for Integrating Financial Supervision in Latin America and the Caribbean. Sustainable Development Department. *Technical Papers Series*. IFM-135. Inter-American Development Bank. July.
- [8] Demaestri, Edgardo, and Ferro, Gustavo. 2004. Integrated Financial Supervision and Private Pension Funds. In *Supervising Private Pensions: Institutions and Methods*, issue no. 6 of the Private Pension Series, OECD. September.
- [9] Dewatripont, Mathias, and Tirole, Jean. 1994. *The Prudential Regulation of Banks*. Cambridge: MIT Press. Walras-Pareto Lectures N° 1.
- [10] Doff, René. 2008. A Critical Analysis of the Solvency II Proposals. *The Geneva Papers* 2008, 33. The Geneva Association.
- [11] Eling, Martin, and Holzmüller, Ines. 2008. An Overview and Comparison of Risk-Based Capital Standards. *Working Paper on Risk Management and Insurance*. Institute of Insurance Economics, University of St. Gallen. June.
- [12] Eling, Martin, Schmeiser, Hato, and Schmit, Joan T. 2008. The Solvency II Process: Overview and Critical Analysis. *Risk Management and Insurance Review*, Vol. 10, No. 1.
- [13] Ezawa, Masahiko. 2009. *Key Notes: Latest Industry Movement and Required Actions*. Accenture.
- [14] Grace, Martin, and Klein, Robert. 2009. Insurance Regulation: The Need for Policy Reform. In *The Future of Insurance Regulation*, forthcoming Brookings Institution Press (Martin Grace and Robert Klein, Editors).
- [15] Grace, Martin, Klein, Robert, and Phillips, Richard. 2003. Insurance Company Failures: Why Do They Cost So Much? Georgia State University, *Center for Risk Management and Insurance Research Working Paper* No. 03-1.
- [16] Geneva Association. 2008. The Credit Crisis and the Insurance Industry. Ten Frequently Asked Questions. *SC 2 Insurance and Finance*, November 19th.
- [17] Harrington, Scott. 2006. Federal Chartering of Insurance Companies: Options and Alternatives for Transforming Insurance Regulation. Prepared for the *Third Annual Insurance Reform Summit*, Networks Financial Institute, Washington DC. NFI at Indiana State University, Policy Brief 02, March.
- [18] Holzmüller, Ines. 2008. The United States RBC Standards, Solvency II, and the Swiss Solvency Test: A Comparative Assessment. *Working Papers on Risk Management and Insurance* N° 59. Institute of Insurance Economics, University of St. Gallen. August.
- [19] Klein, Robert. 2008. Interview. In *The Forecaster*. December.
- [20] Klein, Robert. 2000. Regulating Insurer Solvency In a Brave New World. *Center of Risk Management and Insurance Research*. Georgia State University. September 21.
- [21] Liedtke, Patrick. 2009. Desafíos y oportunidades de la actividad aseguradora internacional. Presentation at *4° Seminario Latinoamericano de Seguros y Reaseguros*. Buenos Aires, May.
- [22] Litan, Robert. 2009. Regulating Insurance After the Crisis. *Initiative on Business and Public Policy at Brookings. Fixing Finance Series* 2009-02. The Brookings Institution.
- [23] Pan European Insurance Forum. 2009. Insurance View. Regulatory Consequences of Financial Crisis. *PEIF*. Paris.

- [24] Schich, Sebastian. 2009. Insurance Companies and the Financial Crisis. *OECD Journal Financial Market Trends*, volume 2009, issue 2. October.
- [25] Skipper Jr., Harold, and Klein, Robert. 1999. Insurance Regulation in the Public Interest: The Path Towards Solvent, Competitive Markets. Prepared for *The Coordinating Committee on International Insurance Issues Coalition of Service Industries*. Center for Risk Management and Insurance Research. Georgia State University.
- [26] The Task Force. 2009. Principles on Financial Reform. A Bipartisan Policy Statement. *The Pew Charitable Trusts*, Brookings Institution. December.
- [27] Van Rossum, Anton. 2005. Regulation and Insurance Economics. *The Geneva Papers* 2005, 30. The Geneva Association.
- [28] World Bank and International Monetary Fund. 2005. *Financial Sector Assessment. A Handbook*. The World Bank and the International Monetary Fund. Washington DC.