

# Three Early Lessons from the Subprime Lending Crisis:

## A French Answer to President Sarkozy

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## Abstract

European leaders, eager for an explanation absolving them of responsibility, have once again laid blame on the seemingly detrimental role played by hedge funds in this summer's crisis. This crisis is the result of a sudden fall in asset prices, combined with increased aversion to risk on the part of investors.

To suggest that hedge funds are to blame for this crisis is simplistic but tempting, as their speculative, unregulated, and opaque nature make them easy targets—all the while, more delicate market and regulatory issues are avoided.

So, as a counterpoint to these accusations that often come from France, it seemed necessary to us to provide a French perspective on the lessons to be learned with respect to financial regulation in France.

**Lesson one: hedge funds are not responsible for the current financial crisis.**

The sharp fall in value and the temporary illiquidity of asset-backed securities, commercial paper secured against high-risk mortgages supplied by subprime lenders, has sparked a crisis of confidence that quickly spread to the credit market as a whole, going so far as to affect the market for investment grade corporate bonds.

It is hardly possible to deplore the lack of information about the risk exposure of hedge funds and, at one and the same time, to publish precise data on the asset-backed securities held by these very hedge funds.

Investment in hedge funds makes up less than five percent of total institutional investment, and strategies with high exposure to credit risk account for twenty percent or less of assets invested in hedge funds, so it is hard to believe that all transfers of credit risk (in 2006, in the US market alone, \$4.6 trillion worth of securitised debt, derivatives, claim transfers on secondary markets, and other debt instruments was issued) could have been done with hedge funds alone as counterparties.

The problem is that banks, not hedge funds, have been affected by excessive investment in asset-backed securities and in structured credit products that have turned out to be illiquid and that those banks have thus appeared insolvent to their counterparties in the money market. So it is the most heavily regulated institutions in the world—institutions whose new capital rules (Basel 2) were presented three years ago as the result of reflection on the lessons learned from the financial crises of the previous two decades, especially with respect to credit risk—that have required the intervention of central banks on a massive scale.

It is, in any case, hard to imagine central bankers' coming to the rescue of "speculators" and running the risk of increased moral hazard.

**Lesson two: the crisis is linked not to under-regulation but to over-regulation.**

The use of credit derivatives has been subject to codes of conduct as well as to both domestic and international regulation. So the funds that have symbolised the subprime crisis in France are those that respected the rules on the use of credit derivatives put in place in 2003 by the *Autorité des Marchés Financiers* (AMF). In fact, the crisis of confidence in the financial information reported by lenders was caused by the unexpected halt by a major bank in the valuation, subscription, and redemption of so-called dynamic funds. So it was caused not by unregulated parties or by forbidden or murky practices but by regulation that failed utterly to take into account the major risk of illiquidity that goes along with the default risk traditionally associated with credit instruments.

As it happens, French and European regulations that attempt to define rules for the eligibility of assets and the classification of investment funds are a failed approach to the protection of investors and to the resolution of the problems posed by asymmetric information, goals that justify regulatory intervention. Regulators would do well to settle for a smaller but more

effective role. One possibility, for example, would be for regulators to replace an approach linked to classifications, to enforcement of the rules of risk management, or to the certification of aptitudes for investment in particular financial instruments (credit derivatives, alternative investments, and so on)—an approach that is at best inefficient and at worst deceptive—with requirements for information on the risk factors these funds are exposed to, requirements that would thus facilitate the risk analyses as well as the work on classification done by investors and rating agencies. Trying to protect investors from themselves, without the means to do so, is probably the greatest risk of regulation.

**Lesson three: regulation in the works will increase the risk of market illiquidity.**

New accounting standards (IFRS) and insurance-industry rules for risk management (Solvency II), which ban volatility and penalise risk-taking, will have two consequences.

The "better" of the two will dissuade investors from taking risks. From a microeconomic point of view, the assumption is that insurance policyholders will pay far higher premiums in order to continue enjoying current levels of service. From a macroeconomic point of view, this approach will lead to the disappearance of institutional investors capable of taking risks, a phenomenon that will discourage equity capital investment and, more generally, lead to the creation of a rentier economy with disastrous social consequences.

The "worse" consequence is that the financial industry will attempt to skirt these rules through risky financial engineering. This summer's crisis is but an early warning.

### Conclusion

This brief paper is the first phase in the larger work EDHEC plans to do on the crisis in regulation.

We believe that by preferring information requirements, codes of conduct, and certificates of aptitude to modest but justified solutions to the problems of information asymmetry encountered by suppliers of financial products and investors, regulatory authorities—having relieved investors of the burden of seeking information on the risks of their investments and fostered an illusion of confidence that reinforces moral hazard—are complicit in the increase of this asymmetry.

## About the author

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# Table of Contents

Introduction ..... 6

I. Lesson one: hedge funds are not responsible for the current financial crisis..... 7

2. Lesson two: the crisis is linked not to under-regulation but to over-regulation..... 9

3. Lesson three: regulation in the works will increase the risk of market illiquidity..... 11

Conclusion ..... 13

Appendix ..... 14



## Introduction

European leaders, eager for an explanation absolving them of responsibility, have once again laid blame on the seemingly detrimental role played by hedge funds in this summer's crisis. France and its president<sup>1</sup> were quick to cast these funds in their usual roles as scapegoats. In a country with a social and political tradition of blaming its woes on the market, on demands from abroad, and on international finance, this condemnation cannot but reverberate widely.

We believe not only that the criticism of hedge funds is groundless but also that it helps to hide the true causes of this summer's crisis. So, as a counterpoint to these French accusations, it seemed necessary to us to provide a French perspective on the lessons to be learned with respect to financial regulation in France.



*1 - On August 16, 2007, in comments on the subprime crisis (and in keeping with Jacques Chirac's pronouncements on the same subject), Nicolas Sarkozy said, "We can't go on like this, with a few hedge funds borrowing from anyone, whoever it may be, at any price, not knowing who takes the final risk, under any conditions." He adds, "I'm for an economy that makes room for creators, for workers, not for speculators."*

## I. Lesson one: hedge funds are not responsible for the current financial crisis

This crisis is the result of a sudden fall in asset prices, combined with increased aversion to risk on the part of investors. The sharp fall in value and the temporary illiquidity of asset-backed securities, commercial paper secured against high-risk mortgages supplied by subprime lenders, has sparked a crisis of confidence that quickly spread to the credit market as a whole, going so far as to affect the market for investment grade corporate bonds.

To suggest that hedge funds are to blame for this crisis is simplistic but tempting, as their speculative, unregulated, and opaque nature make them, once again, easy targets—more delicate market and regulatory issues are avoided. It is regrettable that even the most sober-minded economists, with neither facts nor figures, are attempting to lend credence to this accusation. Although it has long been discredited by both theoretical and empirical research, waving the spectre of the evil speculator who threatens the efficiency of the market and the good capitalism of the "real" economy continues to go over all too well.

It is hardly possible to deplore the lack of information about the risk exposure of hedge funds and, at one and the same time, to publish precise data on the asset-backed securities held by these very hedge funds. In fact, in the United States, the only reliable published data are those made available through the Shared National Credit (SNC) programme. And these data do not distinguish among such non-traditional lenders as hedge funds, pension funds, insurers, or, more generally, the entire community of institutional investors. What it is possible to state with certainty is that the last five years have seen banks (to better manage and to diversify their credit risk as well as to prepare for more stringent solvency requirements) use securitisation and credit derivatives to transfer (at a profit) a significant share of their debt. Between 2002 and 2006 the proportion of non-bank lenders rose from 9.5% to 14.3% and these lenders now hold 51% of high-risk loans.

Investment in hedge funds makes up less than five percent of total institutional investment, and strategies with high exposure to credit risk account for twenty percent or less of assets invested in hedge funds, so it is hard to believe that all transfers of credit risk (in 2006, in the US market alone, \$4.6 trillion worth of securitised debt, derivatives, claim transfers on secondary markets, and other debt instruments was issued) could have been done with hedge funds alone as counterparties.

It should be noted as well that the subprime crisis has led to tension not just in the securitisation, derivatives, and structured-debt markets, but also to the markets (unappealing to hedge funds but staples of the "sleep-at-night" portfolios of conventional institutional investors) for corporate bonds and treasury notes. Indeed, central banks stepped in when, as a result of this mismatch between supply and demand in this traditional treasury note and corporate bond market, interbank liquidity fell prey to undue pressure.

Finally, even if the direct or indirect exposure to subprime risks turns out to be greater for hedge funds than for other investors, it must be emphasised that this market accounts for \$1.1 and \$1.2 trillion, or only 12% to 13% of the American mortgage market. Default rates have recently risen from 11% to 14%, but this rise is hardly a major risk. According to Federal Reserve estimates, potential losses linked to American residential real estate should amount to around \$100 billion, while overall losses on stocks, credit derivatives, and fixed-income products exceeded \$1.2 trillion as of 15 August 2007. To be sure, collateralised debt obligations (CDO) on securitisation funds very often incorporate leverage to increase the returns of the different tranches sold to investors, and, as a result, they can generate exposure and losses greater than the volume of distressed debt. The problem is that banks, not hedge funds, have been affected by excessive investment in asset-backed securities and in structured credit

## I. Lesson one: hedge funds are not responsible for the current financial crisis

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products that have turned out to be illiquid and that those banks have thus appeared insolvent to their counterparties in the money market. So it is the most heavily regulated institutions in the world--institutions whose new capital rules (Basel 2) were presented three years ago as the result of reflection on the lessons learned from the financial crises of the previous two decades, especially with respect to credit risk--that have required the intervention of central banks on a massive scale.

It is, in any case, hard to imagine central bankers' coming to the rescue of "speculators" and running the risk of increased moral hazard. Promoting the notion that, come what may, the supervisors of international banking and finance will help investors through the crises that they themselves have set off cannot but encourage irresponsible behaviour and weaken the link between risk and return that is at the foundation of the economy. Christine Lagarde's call for a reduction in the European Central Bank's day-to-day rate to "help the markets" has all but doomed this reduction.

In conclusion, centring criticism on hedge funds and on their purported need for greater transparency seems to us not to square with reality, and it may divert the attention of regulators and investors from the much greater problem posed by inappropriate regulation.

## 2. Lesson two: the crisis is linked not to under-regulation but to over-regulation

Each crisis is an opportunity to shore up regulation (or to claim to do so). Politicians achieve legitimacy by showing that the market cannot work without them, and investment professionals are given a fresh start, as new rules afford them the opportunity to wipe clean past errors.

Recent statements by European leaders, in particular those of France's president Nicolas Sarkozy, speak to this opportunity, and we wager that regulators and central bankers will soon make recommendations going from new codes of ethics (from the more liberal among them) to an armoury of prohibitions and restrictions on investment in so-called speculative funds (from the more interventionist). But the regulatory impulse cannot withstand even the slightest analysis of current legislation. The use of credit derivatives has been subject to codes of conduct and best practice as well as to both domestic and international regulation. So the funds that have symbolised the subprime crisis in France are those that respected the rules on the use of credit derivatives put in place in 2003 by the *Autorité des Marchés Financiers* (AMF). The firms that managed them had investment programmes approved by the regulator and spelling out the risk-control mechanisms specific to each. In fact, the crisis of confidence in the financial information reported by lenders was caused by the unexpected halt by a major bank in the valuation, subscription, and redemption of so-called dynamic funds. So it was caused not by unregulated parties or by forbidden or murky practices but by regulation that failed utterly to take into account the major risk of illiquidity that goes along with the default risk traditionally associated with credit instruments. Liquidity plans that liquidate assets gradually, depending on their level of liquidity, plans presented in a report on a survey (conducted jointly by the AMF and

the insurance and banking industry supervisors) of the French financial markets on the use of instruments for the transfer of credit risk, have turned out to be dangerous. Not only do they aggravate the crisis by creating sale imbalances in asset markets that had been unaffected by the increase in subprime defaults, but they also lead to portfolios with a greater concentration of high-risk assets and/or of assets whose illiquidity no longer permits reasonable pricing; as a consequence, investors in these open funds were treated unequally and the funds were ultimately closed, even though they were labelled money market or treasury funds.

In the end, rules on the use of credit derivatives will have done nothing at all to protect investors; on the contrary, by fostering the illusion of protection and of government backing, they have, as they often have, reinforced the phenomena of adverse selection<sup>2</sup> and moral hazard.<sup>3</sup> The academic literature on regulation has shown that there is always a danger in trying to use bans to protect investors when regulators lack the means to enforce those bans or to verify their effectiveness, as such practices encourage investors to rely on ineffective regulation and to stop examining the quality and the risks of the products being offered them.

Paradoxically, then, bans can turn out to be extremely dangerous. It is because regulation restricts access to hedge funds that French investors, hoping for returns comparable to those of arbitrage funds (funds that turned out to be much less risky), were driven to invest directly in dynamic money market funds with high exposure to subprime risk.<sup>4</sup> It should be noted that none of the French funds closed in the last few weeks was a hedge fund. Likewise, countries such as Switzerland, which have looser regulation for investing in hedge funds, have had

2 - Adverse selection or anti-selection is a statistical and economic phenomenon in which a bad offer on the market tends to dominate and will make an offer of higher quality, necessarily more expensive, disappear. It can appear when a client has trouble verifying the skills and experience of his suppliers, the suitability of these skills or of the products offered, or the contents, quality, and risks of a product or service. When it comes to risk management, regulatory certifications or classifications backed by industry supervisory authorities can discourage investors from seeking for themselves the information that would help them overcome problems such as those currently affecting the markets.

3 - Moral hazard is a perverse effect of flawed regulation or of regulation whose effectiveness is impossible to verify, an effect that thus makes possible abuse and even fraud, to the detriment of consumers and investors, who are unduly reassured by the existence and publication of this regulation. The belief that the authorities will step in to bail out failing institutions to assure the overall liquidity of the banking and financial system may encourage banks and other concerns to think that they are protected from themselves and to take greater risks when facilitating credit, engaging in market transactions, or making investment decisions.

4 - Between 13 July 2007 and 17 August 2007, the average loss of the five worst performing treasury funds marketed in France and complying with the rules set out by UCITS 3 was 6.0048% as opposed to an average loss of 1.031% for their ARIA equivalents.

## 2. Lesson two: the crisis is linked not to under-regulation but to over-regulation

far fewer problems with their treasury funds, as their managers have not had to resort en masse to exotic credit instruments in an attempt to buttress the performance of their portfolios.

As it happens, French and European regulations that attempt to define rules for the eligibility of assets and the classification of investment funds are a failed approach to the protection of investors and to the resolution of the problems posed by asymmetric information, goals that justify regulatory intervention. Indeed, by conferring official and approved status on classifications derived from inappropriate financial criteria, current regulation may encourage investors to make less than optimal portfolio allocations (with the unjustified exclusion of funds labelled risky) or, worse, to underestimate the risks of the financial products they are offered, as in the case of the mutual funds labelled "monétaires euro" by the AMF, some of which recently suffered heavy losses;<sup>5</sup> all the while, the very same AMF, in its 2006 stance on enforcing standards for the presentation of cash flow statements, as spelled out in IAS 7, deemed these funds the equivalent of cash, that is of short-term, highly liquid investments easily convertible into a recognised amount of cash and subject to a negligible risk of fluctuations in value.

Regulators would do well to settle for a smaller but more effective role. One possibility, for example, would be for regulators to replace an approach linked to classifications, to enforcement of the rules of risk management, or to the certification of aptitudes for investment in particular financial instruments (credit derivatives, alternative investments, and so on)—an approach that is at best inefficient and at worst deceptive—with requirements for information on the risk factors these funds are exposed to, requirements that would thus facilitate the risk analyses as well as the work on classification done by investors and rating agencies. Trying to protect investors from themselves, without the means to do so, is probably the greatest risk of regulation. After the crises of 1998 and 2001, which amply tested

international credit markets, the emphasis on international codes of conduct for the use of credit derivatives,<sup>6</sup> the conclusions drawn from market surveys, as well as the severity of new rules put forward by domestic regulators have likely fostered institutional investors' misplaced confidence in the ability of regulators, to protect them from credit risk and thus hastened memory losses with respect to the setbacks suffered by these markets during these earlier crises.

5 - Over the last month (from 13 July 2007 to 17 August 2008) a fund labelled "monétaire euro" lost more than 1%.

6 - Joint Market Practices Forum "Statement of Principles and Recommendations regarding the Handling of Material Non Public Information by Credit Market Participants," 2003.

### 3. Lesson three: regulation in the works will increase the risk of market illiquidity

In a major EDHEC study<sup>7</sup> on the effects of a substantial reform on the solvency evaluations of European insurers—and in the near future, perhaps, of pension funds—we showed that the convergence of new accounting standards (IFRS) and Solvency II would make a profound impact not just on the asset management practices of institutional investors, but also on the stability of the financial system.

This convergence will result in a double penalty for assets, such as stocks, subject to high volatility. This is so, for one, because balance sheets and even income statements will be subject to the rigors of the quarterly evaluation at fair market value of these instruments and, for another, because requirements for working capital will be substantial if, in the end, the industry adopts for its internal models the standard calibration put forward by the committee of European insurance and occupational pensions supervisors (CEIOPS) in its surveys on the impact of the new regulations.<sup>8</sup> Insurers are long-term investors, so regulation whose principles are based on those set out by the Basel 2 capital rules—conceived for lenders who, as a result of their role in the transformation and creation of money, are subject to short-term constraints and to a short-term risk of insolvency—seems to us totally unwarranted and likely to prevent the transfer of risk to the regulated institutional investors who, ultimately, are the natural suppliers not just of liquidity but also of capital.

Although research has shown that the ability to make periodic allocation revisions can encourage financial decisions different from those resulting from mere short-term optimisation, Solvency II ignores the asset-liability management issues<sup>9</sup> of institutional investors, favouring instead short-term financial indicators that lead to less than optimal allocations and that not only penalise

the performance of assets—and thus the services or the cost of services offered by the insurer—but also threaten the ability of investors to deal with the liabilities in their books.

The accounting standards and insurance-industry rules for risk management that ban volatility and penalise risk-taking will have two consequences.

The “better” of the two will encourage investors to stop taking risks. From a microeconomic point of view, the assumption is that insurance policyholders will pay far higher premiums in order to continue enjoying current levels of service. From a macroeconomic point of view, this approach will lead to the disappearance of institutional investors capable of taking risks,<sup>10</sup> a phenomenon that will discourage equity capital investment and, more generally, lead to the creation of a rentier economy with disastrous social consequences.

The “worse” consequence is that the financial industry will attempt to skirt these rules through risky financial engineering. This summer’s crisis is but an early warning. Institutional investors may have resorted en masse to the securitisation of subprime loans, derivatives thereof, and structured debt products, but it was above all because these products offered attractive returns and low volatility.

Because of underlyings with non-Gaussian risk profiles—for which volatility is thus not at all representative of risk—or with the help of structures that permit the creation of non-linear risk profiles or of instruments that are not assessable and often lack established markets, the new credit instruments have allowed institutional investors—in particular, British and American investors, who for several years have been bound by rules similar to those being prepared

7 - Amenc, N., Foulquier, P., Martinelli, L. and S. Sender “The Impact of IFRS and Solvency II on Asset-Liability Management and Asset Management of Insurance Companies,” EDHEC Publication, November 2006. A summary of this study can be found in the appendix to this paper.

8 - EDHEC has often called the flaws and inconsistencies of their recommendations for the Solvency II directive to the attention of European insurance industry supervisors. See Foulquier, P. and S. Sender, “QIS 2: Modelling that is at odds with the prudential objectives of Solvency II,” EDHEC Position Paper, December 2006; Foulquier, P. and S. Sender, “CP20: Significant improvements in the Solvency II framework, but grave incoherencies remain,” EDHEC Position Paper, January, 2007; and Foulquier, P. and S. Sender, “QIS3: meaningful progress towards the implementation of Solvency II, but ground remains to be covered,” EDHEC Position Paper, June 2007.

9 - CEIOPS recently took into account comments from industry professionals on asset-liability management; the committee suggested a calibration option that would allow adjustments in the working capital required for stocks, depending on the likely duration of the stock being held, but this approach, which fails to take into account liability risks, is incompatible with risk management and at odds with the principles of Solvency II as a whole.

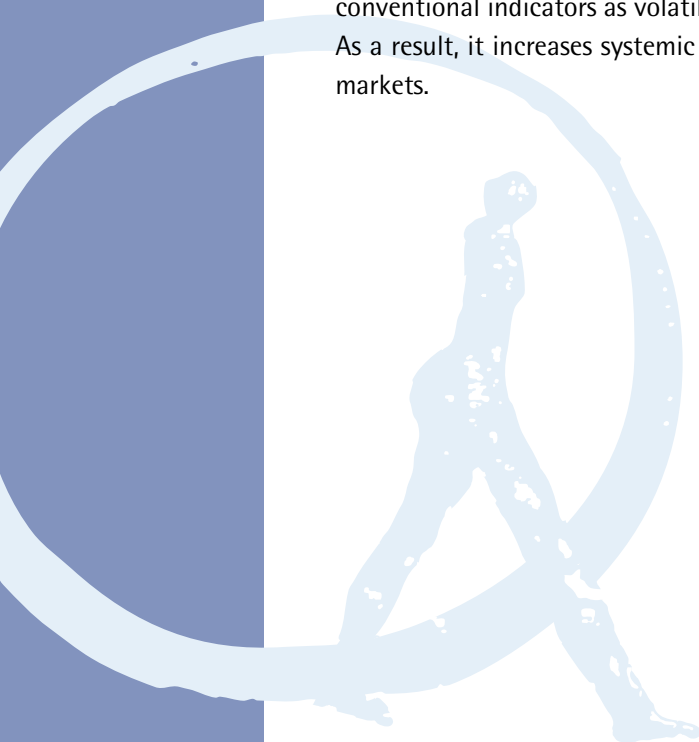
10 - With the CEIOPS proposal (QIS3) for the calibration of risk in the standard formula for working capital, investment in private equity would become practically impossible, as this calibration assumes that 45% of this investment would be covered by the insurer’s capital.

### 3. Lesson three: regulation in the works will increase the risk of market illiquidity

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for Europe—to ignore (to the detriment of their control of extreme risks) the consequences of volatility in their books and in their solvency ratios.

In a world where competition among investors is ever greater, whether in the price of services (insurance premiums, controlling of pension costs) or in profitability (returns on life insurance contracts, for example), accounting and prudential regulation that fails to take into account risk is an incentive to take risks not measured by such conventional indicators as volatility or even VaR. As a result, it increases systemic risk in financial markets.



## Conclusion

This brief paper is the first phase in the larger work EDHEC plans to do on the crisis in regulation. Our aim is to cast doubt not on the skills or the intentions of those drafting the regulations but on a regulatory mindset that, by dint of viewing market participants as incompetent or motivated by evil intentions, has lost a sound theoretical basis for intervention. Recall that if the presence of regulators is justified it is not because they are more competent than investors or than all other participants in the markets but because there are asymmetries of information that it behoves them to reduce. We believe that by preferring information requirements, codes of conduct, and certificates of aptitude to modest but justified solutions to the problems of information asymmetry encountered by suppliers of financial products and investors, regulatory authorities—having relieved investors of the burden of seeking information on the risks of their investments and fostered an illusion of confidence that reinforces moral hazard—are complicit in the increase of this asymmetry.

## Appendix

### Summary of "The Impact of IFRS and Solvency II on Asset-Liability Management and Asset Management in Insurance Companies"

By Noël Amenc, Philippe Foulquier, Lionel Martellini, and Samuel Sender, November 2006

The profound changes in the risk management of insurance companies, brought about by the increasing complexity and variety of risks over the last two decades, have made it necessary to revise prudential regulations (Solvency II) and to adapt the international accounting standards (IFRS).

The objective of the new accounting standards is to offer a better view of all companies, particularly with regard to the risks they run. However, our study shows that the definition of these regulations and their application to insurance companies are often at odds with their initial objectives: those who adopt good asset management or asset-liability management (ALM) practices in order to reduce their exposure to risk are often heavily penalised. These standards result in additional volatility in pure accounting terms, the extent of which does not correspond to economic reality.

With regard to Solvency II, we feel that the latest CEIOPS proposal, contained in the QIS 2,<sup>11</sup> is inapplicable as it stands due to the inadequacy of its risk calibration. While Solvency II highlights the issue of taking extreme risks into account and aims to create an incentive for companies to measure and manage these risks, this calibration is an incentive to engage more in opportunistic arbitrage than in the improvement of risk management.

In an effort to demonstrate the inadequacy, and even contradictions, which one may find between certain IFRS definitions and Solvency II proposals on the one hand, and the aim to make insurance companies accountable for their risk management approaches on the other, EDHEC has published this major report.<sup>12</sup> The first part of this report provides an analysis of the IFRS and the Solvency II provisions, in light of the asset management and ALM issues facing insurance

companies. The second part examines state-of-the-art techniques in these areas, with particular focus on their suitability and relevance with regard to the requirements for insurance companies to better manage their risks. The third section goes on to provide details of the limits placed by the new IFRS environment on insurance companies in terms of asset management solutions in the presence of liabilities, thereby highlighting the additional volatility constraints on income statements and shareholders' equity brought about by these new accounting standards.

#### The objectives of the IFRS and Solvency II require the implementation of more sophisticated risk management techniques

The first stage of the profound changes taking place in the risk management practices of insurance companies—phase I of the IFRS—has been operational since 2005 and for the moment only concerns companies that take savings from the general public. This is the phase that causes the least disruption, as it mainly involves the implementation of the 'fair value' principle for all assets, a practice that is already widely used by the financial markets. However, we will see that the secondary effects are far from negligible and that the volatility generated in income statements and/or shareholders' equity is such that it will impose new constraints on insurance companies, particularly because of the need to implement advanced asset management and ALM techniques.

Phase II of the IFRS is expected for 2008 and will extend the integration of risk to liabilities. Provisioning calculations or even approaches and the explicit inclusion of options and guarantees will then have to be completely revised; this should bring about new constraints for insurance companies, which appear to be showing greater levels of interest than in phase I.<sup>13</sup>

<sup>11</sup> - The CEIOPS Quantitative Impact Study 2. Since publication of this study, CEIOPS has done another study, Quantitative Impact Study 3 (QIS3), that responds in part to criticism by EDHEC and by industry professionals, but its recommendations remain unsatisfactory. See Foulquier, P. and S. Sender, "QIS3: meaningful progress towards the implementation of Solvency II, but ground remains to be covered," EDHEC Position Paper, June 2007.

<sup>12</sup> - The Impact of IFRS and Solvency II on Asset-Liability Management and Asset Management in Insurance Companies, by Noël Amenc, Philippe Foulquier, Lionel Martellini, and Samuel Sender. This study, sponsored by AXA IM, was presented at the EDHEC Institutional Days, which took place in Paris on 21 and 22 November 2006.

<sup>13</sup> - It should be noted that this problem is already raised in phase I by the LAT (Liability Adequacy Test) on the one hand, and by the development of European Embedded Value on the other.

Finally, the third phase—Solvency II—which, unlike the IFRS, will concern all European insurance companies, is expected by around 2010. Our study shows, however, that the impact on asset management and ALM, and in particular the questions related to the integration of risk, will be visible as soon as the broad outline is given for the standard capital requirement formula (around 2007). Solvency II reinforces requirements for the evaluation and management of risk, the notion of which has been widened not only in terms of its scope (financial market risk, ALM, lending, underwriting and operational risk) but also its modelling (distribution law, correlation, study of extreme risks), evaluation and risk management (derivatives, reinsurance, securitisation and diversification). EDHEC believes that while the IFRS tend to add additional and unfortunate financial management constraints, Solvency II may bring about more structural changes to asset management and ALM.

Now, a major step in the development of Solvency II has just been completed with the publication of the QIS 2,<sup>14</sup> which aims to use the responses given by insurance professionals to provide a quantitative estimate of the global impact of the new solvency system. On this particular point, EDHEC believes that while the initial proposals respond quite well to the required balance between sensitivity to the primary risk factors faced by insurance companies, on the one hand, and the complexity and soundness of the different approaches tested, on the other, the calibration of the proposed standard formula's parameters is totally inadequate in light of the economic capital requirements it engenders. These requirements reach a level that is between two and four times that provided for by Solvency I, depending on the associated risks and activities, while the regulatory authorities consider insurance companies today to be well capitalised. It would appear that the CEIOPS suggests measuring risk using a VaR of 99.5%, but that the calibration of risk model factors has no bearing on this figure. This report therefore highlights certain errors in relation to the treatment of the volatility of certain risk factors in various areas:

- In general insurance, the historical volatility of the combined ratio does not appear to be an appropriate measure of risk, as it supplants any optimal management between the technical result (insurance operations) and financial result. It therefore constitutes a hindrance to the implementation of techniques for managing risks which in order to be hedged involve a volatility that will require additional capital.
- Stress scenarios require excessive capital needs, in particular volatility of 40% for stock markets over one year, which, as in the case of life insurance companies in the US, could completely discourage the holding of stocks. When the stress scenarios are compared in terms of historical data, it is also interesting to note that the volatility figure used for stocks has no bearing on that used for the yield curve.
- The inclusion of the volatility of assets in the capital requirements formula leads to certain aberrations: for example, a long-short strategy requires much less capital than a strategy which aims to minimise the variance of a low beta equity driven portfolio.
- The treatment of options and the explicit absence of any consideration for dynamic asset allocation or hedging strategies are at odds with the objectives of Solvency II.<sup>15</sup>

While the objective of Solvency II is to create an incentive for insurance companies to better measure and manage their risks, the provisions proposed for their calibration sometimes contradict the objectives themselves. It would appear that the applicable regulations need to be revised; this could be achieved in 2007.

To conclude our analysis of the new prudential and accounting provisions, we believe that the 'financialisation' and sophistication of asset management and ALM techniques over the last few years should continue to grow. It should lead to an optimisation of the management of economic capital, through better asset-liability adequacy and more dynamic management of the

<sup>14</sup> - See footnote 11.

<sup>15</sup> - "No consideration should be given to management actions or active trading strategies" (QIS2).

differentials in duration and convexity between the assets and liabilities (more structured and sophisticated interest rate products, caps, floors, swaptions, CDS, etc.). It will also result in a transfer of some of the risks of mass insurance (securitisation of automobile and residential portfolios) and large risks (natural catastrophe, mortality and life expectancy bonds) towards the financial markets. Finally, it will privilege better management of the extreme risks of financial assets, as well as the optimisation of diversification, even though it is still early for evaluating the degree to which it could boost and broaden asset allocation towards alternative investments, private equity, structured credits, etc.; this will depend on how those assets are treated in the standard formula, which we hope will be different to that proposed by the QIS 2.

To respond to these issues, part II of the EDHEC study provides a look at the state-of-the-art asset management techniques in the presence of insurance liabilities, as developed over the last thirty years, both in the academic and professional spheres. In particular, we show how techniques for dynamic asset management in the presence of such liabilities can be implemented using different supports (long-term bonds, derivatives, mutual funds, structures or a combination of these supports), with the dual objective<sup>16</sup> of managing liability risk exposure ('liability-matching portfolio') and effectively managing asset performance. However, part III shows that depending on the strategy used, the accounting methods for treating the variation of the 'fair value' of each asset, as well as hedging operations, lead to greater or lesser volatility in the income statement and in shareholders' equity and therefore result in an accounting bias in terms of strategic financial choices that we feel is completely at odds with the reality of economic volatility.

The IFRS bring about an additional volatility constraint (which clouds actual risk exposure) both with regard to hedging solutions for liability risk...

The hedging of liability risks can generally be done using three strategies: by constituting a bond portfolio, by using derivatives or by a combination of these two approaches.

The use of a bond portfolio to hedge liability risks immediately involves several challenges in purely financial terms: one must find bonds with appropriate maturity in relation to that of the liabilities, manage the hidden options in the insurance liabilities (which is almost impossible with bonds) and endure insufficient financial profitability. From now on, the accounting treatment of bonds and insurance contract liabilities where the risk is placed on the insurance company will generate volatility in the income statement (particularly with regard to immunisation techniques that require dynamic management of the bond portfolio) or in shareholders' equity (and therefore in the solvency margin).

While much of the bond portfolio is acquired with a view to securing returns paid to policyholders, as well as insurance liabilities, and as a result is generally held until maturity, the IFRS demand that the variations in quarterly or half-yearly unrealised bond profits (classified as AFS) be included in shareholders' equity, while the corresponding entry in liabilities remains part of historical costs. This volatility is completely artificial and in no way reflects either the value of an insurance company (dissymmetry in the treatment of the impact of an interest rate variation on assets and on liabilities) or the actual risk being run by an insurance company. The IFRS thereby reduce the financial management of liability risk hedging over several years, or even decades, to a scenario whereby assets are immediately liquidated (with no adjustment of liabilities).

16 - The authors of the study present a general analysis of the separation theorem from modern portfolio theory in the context of asset-liability management, as formalised by L. Martellini in 'The Theory of Liability Driven Investments', *Life & Pensions Magazine*, 2, 5, pp.39-44, 2006. This general analysis places LDI solutions in an innovative and consistent theoretical context.

Mindful of the excessive nature of this approach, the IASB suggested the implementation of a new asset category during the transition phase—HTM (held-to-maturity)—so as to correct this accounting mismatch (assets being valued at historical cost as with insurance liabilities). However, the accounting consequences for a HTM bond that is sold are so harsh as to have effectively dissuaded most insurance companies from using this asset category<sup>17</sup> (in fact, some have no asset classified as HTM).

The second solution for hedging liabilities, involving the use of derivative instruments (swaps, swaptions, etc.) should allow the establishment of improved financial management solutions by allowing customisation through on the one hand the implementation of better cash flow matching and, on the other, the management of non-linear risks that are included in the liabilities' hidden options. However, the appropriate treatment of derivatives requires either an overhaul of the IFRS or profound changes in the culture of financial markets. Today, the variation in value of the hedge performed using derivatives is fully included in the income statement, while, as we have seen, its corresponding entry, which is constituted by the change in value of the liabilities, has no accounting status.

This mismatch can result in such volatility in the income statement that the IASB established exceedingly cumbersome concepts referred to as 'hedge accounting', 'shadow accounting' and the 'fair value option'. Again, however, the conditions required for the application of hedge accounting are so demanding (in particular proof of the effectiveness of the hedge) that insurance companies have made little use of it. The second problem for which, unlike in the banking world, there is no favourable and simple solution<sup>18</sup> is that of macro hedging. In practice, the last half-yearly publications of 2006 have shown that these two issues alone are sufficient to bring about very high volatility in the income statement, a volatility which is not always understood by the financial markets, which in such cases do not

hesitate to penalise the stocks of the company concerned.

The third solution for hedging liabilities is the creation of a bond portfolio that is complemented by derivative instruments (fixed-to-floated swaps, forward-start swaps) which, depending on the strategy used, make it possible to shorten or extend the duration of the bond portfolio. From an accounting point of view, this solution naturally combines the two mismatches mentioned for each of the last two strategies.

In practice, insurance companies maintain their mixed (bond-derivative) strategy at the cost of major efforts in communication (not without certain incidents, as seen with the last half-yearly publications): the financial community is not always inclined to delve into the depths of derivatives accounting and prefers to penalise those companies whose high volatility is accompanied by an explanation that is too complex or too opaque.

### ... and effective performance management

As developed in our analysis of state-of-the-art asset management techniques, the second component of good financial management practices in an insurance company, based on the separation theorem, is the search for high quality performance from the asset portfolio. EDHEC suggests the use of the core-satellite approach to manage performance. The issue of optimising management and defining the asset risks is tackled in the core portfolio. A company can go about this in two ways: by employing risk diversification techniques to determine the optimal asset allocation decisions, on the one hand, and, on the other, by employing insurance portfolio techniques whereby risk hedging is performed using derivative instruments or, equally, dynamic asset allocation strategies, generating nonlinear returns (convex payoffs) that will ensure tight control of the risk of loss or underperformance.

<sup>17</sup> - More generally, the HTM category makes both dynamic management of interest rate risk and active management of credit risk impossible, which in turn means that the bond portfolio cannot be well managed in financial terms.

<sup>18</sup> - The report provides an analysis of the limits and inadequacy of the shadow accounting solution proposed in phase I of the implementation of the IFRS.

The first strategy, consisting of risk management on the basis of an optimal asset allocation decision (for example, where a certain percentage of stocks and bonds is defined as the optimal reference), requires frequent transactions as prices fluctuate to ensure that the asset portfolio is constantly adjusted so as to match the reference percentages at least.<sup>19</sup> Using simulations, we demonstrate the superiority of this strategy when compared to a buy-and-hold strategy, in terms of its capacity to reduce the volatility and/or the CVaR (extreme risks) of the portfolio performance. Generally, this strategy used to be implemented by mutual funds, which had the advantage of not being consolidated, meaning they caused no volatility in the income statement. Now, with the IFRS, major mutual fund holdings are usually consolidated. Furthermore, variations in minority mutual fund shareholdings are considered to be variations in liabilities and are recognised in the income statement. Such accounting constraints penalise this optimal allocation strategy, which is particularly effective in financial terms, bring about high volatility in the income statement and/or shareholders' equity and necessarily impact heavily on the solvency margin.

The second risk management strategy is to consider optimal hedging with a view to generating non-linear returns as a protection against the risk of losses or underperformance. This strategy can be put in place using derivative instruments (an out-of-the-money put option, for example), structured products or even a dynamic asset allocation strategy (for which we have already mentioned the associated accounting problems). From an IFRS standpoint, the harsh constraint in derivatives handling of having to demonstrate and document the effectiveness of the hedge means that insurance companies must endure high volatility in the income statement, linked to the variation in the derivatives position with no corresponding variation in the underlyings. With regard to the treatment of structured products, the IFRS consider them as hybrid instruments made up of a host contract (the underlying) and one or more derivatives.

Generally, the accounting treatment of these two components is done separately, which brings us back to the volatility and mismatch problems that are specific to derivatives.

### Concrete numeric example of accounting volatility in risk management based on optimal asset allocation

Various numeric simulations were performed throughout this study to support our findings. One of the simplest, but no less informative, is a comparison between the accounting results of a buy-and-hold strategy, which consists of a direct investment in the global DJ Euro Stoxx index where the position then remains unchanged, and those of a strategy designed to determine the optimal allocation of the different sector indices that make up the DJ Euro Stoxx (with dynamic readjustments making it possible to return at regular intervals to the defined optimal allocation level) so as to minimise the portfolio's extreme risk (CVaR) with no expected constraint on profitability. This simulation was performed for a period of 13 years (January 1993 to December 2005).

As shown in the table below, dynamic management (PF Min CVaR) makes it possible to considerably reduce volatility and extreme risks in relation to the buy-and-hold strategy, i.e. where one invests in the DJ Euro Stoxx and waits 13 years without making a single transaction.

However, the accounting treatment under the IFRS favours the buy-and-hold strategy, because it is possible to classify stock portfolios as AFS (Available For Sale). Quarterly or half-yearly variation in the market value<sup>20</sup> of the DJ Euro Stoxx index will have no impact on the income statement but will only affect shareholders' equity.

By contrast, with the dynamic asset allocation strategy, which makes it possible to reduce financial volatility and extreme risks, the quarterly and half-yearly variations in the market value of

<sup>19</sup> - Fixed mix strategy. One can also adjust in line with variations in the risk parameters, leading to rebalancing in order to preserve optimal allocation with respect to the new estimated values of these parameters.

<sup>20</sup> - According to the company's chosen frequency for accounting publications.

<i>from Jan 1993 through Dec 2005</i>	<b>Average Return</b>	<b>Maximum Drawdown</b>	<b>Volatility</b>	<b>Weekly 5% VaR</b>	<b>Weekly 5% CVaR</b>
<b>DJ EURO STOXX</b>	<b>11.62%</b>	<b>62.99%</b>	<b>19.13%</b>	<b>4.36%</b>	<b>7.10%</b>
<b>PF MinCVaR</b>	<b>13.82%</b>	<b>48.33%</b>	<b>16.76%</b>	<b>3.81%</b>	<b>6.39%</b>

Source : EDHEC, *The Impacts of IFRS and Solvency II on Asset-Liability Management and Asset Management in Insurance Companies*, Noël Amenc, Philippe Foulquier, Lionel Martellini and Samuel Sender, EDHEC Publications, November 2006.

the portfolio made up of stocks from the DJ Euro Stoxx sector indices will be directly visible in the income statement. The volatility of the income statement under this management approach will be almost 17% (as against 0% under the buy-and-hold strategy, even though the latter results in greater financial volatility), with a maximum drawdown of 48% (as against 0% under the buy-and-hold strategy, which in reality results in a maximum drawdown of 63%). Finally, it is worth mentioning that this accounting impact on the income statement is in no way a reflection of shareholders' equity (after integrating the results), as this equity varies as shown in the above table, with greater volatility, maximum drawdown, VaR and CVaR under the buy-and-hold strategy.

### The IFRS represent a harsh restriction on good financial management practices in European insurance companies

With regard to the application of the IFRS to insurance companies, EDHEC believes that neither the method chosen (two-phase approach) nor the adaptational decisions made are satisfactory; above all, they are at odds with the intentions of the body for international accounting standards:

- While the concept of fair value is at the heart of the IFRS structure, and in view of the importance of defining a consistent representation of a company's financial situation, the exclusion, on the one hand, of an insurance company's liabilities on the pretext that they are too difficult to evaluate because they are not traded on the market is not consistent with the decision, on the other, to treat derivatives and structured products at fair value, even though they may be just as untradable and difficult to

value. This inconsistency is one of the principal sources of volatility in the income statements of insurance companies. At a time when prudential regulators—mainly through Solvency II—and the body for international accounting standards (via the LAT) are promoting internal models for the evaluation of asset-liability adequacy, the idea of excluding the majority of an insurance company's liabilities from an actuarial analysis appears to be contradictory.

- EDHEC feels that the implementation of the IFRS undermines the very notion that financial accounts are a reflection of the value and risks of an insurance company. They impose constraints in terms of the volatility of the income statement and shareholders' equity that appear to be completely at odds with the objective of the IFRS to make insurance companies accountable for the management of their risks. While Solvency II encourages insurance companies to improve the measurement of the extreme risks of their assets and liabilities so as to better manage them, the accounting result of good practice in the management of extreme risks is most often a financial situation that appears to be more risky than if the insurance company had done nothing at all.

- Finally, a more conceptual and fundamental contradiction comes of this analysis. While insurance companies strive to improve the management of their long-term risks (liabilities often have a lifetime of several decades), this management approach is handled in accounting terms by an analysis of the quarterly or half-yearly variation in the market value (which generally reflects short-term risk premia) of assets, liabilities and their associated hedges. Such an approach leads to insurance companies

being considered as liquidating their assets and liabilities on an ongoing basis, whereas, in fact, they employ long-term management techniques to protect their liabilities, an approach which justifies a policy of allocating to risky assets that are partly non-liquid.

The idea of using the fair value principle for assets and liabilities by including all of their risk factors is clearly a significant step forward for financial management in insurance companies. However, this new, more 'financial' approach to accounting must not replace financial analysis, which in our opinion must remain independent from the chosen accounting approach. It is up to financial analysts, investors and regulators to understand an insurance company's asset allocation and risk management policy by examining its balance sheet. Under no circumstances should the mathematical result that is reached by comparing and contrasting more or less sophisticated accounting figures, even if they are termed 'fair value', play the primary role in the evaluation of a company's risks, consisting of an analysis of the consistency between its asset allocation and management policy and the assessment of its liability risks.

It is likely that the failure to sufficiently distinguish between the role of accounting and that of financial analysis, a phenomenon that has been heightened in recent years by the prominence in accounting of the true and fair view principle, has led to the inconsistencies highlighted in this study.

Instead of simply recording a company's operations and possibly providing a discounted value of its worth, the IFRS, by also claiming to provide a consistent and universal framework for the analysis of a company's value and its risks, reveal an ambition that is in our opinion disproportionate and dangerous.

**Conclusion: From a Fair-Value-based to an ALM-based approach to the evaluation of risks and solvency of insurance companies**

While nobody would dispute the value of having a real view of the impact of the primary financial and actuarial risk factors on an insurance company's accounts, we feel it is regrettable not only for the insurance sector but for the economy as a whole that the fair value of assets and liabilities be a basis for analysing the financial soundness and solvency of insurance companies.

For most of their activities, insurance companies have long-term or even very long-term liabilities that in turn justify long-term allocation. Measuring their solvency on the basis of short-term values is not only incompatible with the need for investment in assets that, while risky, yield very positive average long-term returns, but also means that any genuine asset-liability management is an illusion, even though the regulators actually hope to promote ALM.

Similarly, EDHEC feels it is contradictory to favour the implementation of internal risk analysis models within the scope of the new prudential provisions (Solvency II), while at the same time basing the ultimate assessment of a company's solvency on ratios taken from accounting values.

EDHEC believes that the only basis for analysts and regulatory authorities to assess the financial soundness and durability of an insurance company should be an analysis of the consistency between the liability risks and asset risks and an evaluation of the consistency and robustness of the asset-liability management models used.

This ALM-based approach to financial analysis presupposes that there is precise documentation of the company's ALM allocation policy and the robustness tests that have been performed. This information should serve to support the LAT tests, which are planned for the transitory phase of the application of the IFRS to the insurance sector.

EDHEC believes that neither the solutions put forward by the IASB to circumvent or diminish the short-term nature of the IFRS nor the transitory provisions are satisfactory. They ultimately render accounts more complex, arbitrary and unclear, and they increase accounting risk without offering any real solutions to facilitate good financial ALM management practices in insurance companies. On the contrary, we have shown in this study that good ALM, risk and asset management practices remain heavily penalised by the accounting provisions.

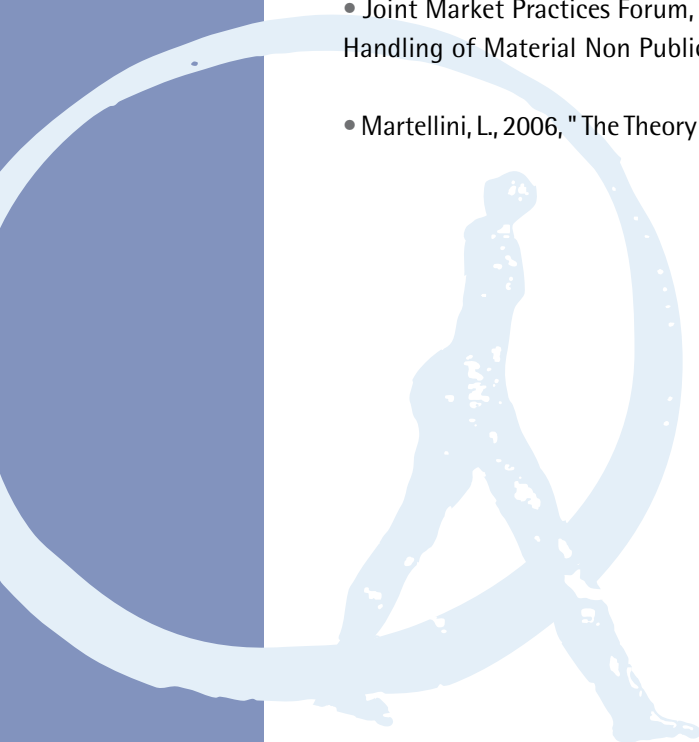
EDHEC hopes that European regulators and financial analysts will take full stock of the consequences of the new 'financial' approach to prudential regulation, Solvency II. This means abandoning all references to external and accounting approaches to solvency evaluation in favour of an evaluation of risk measurement and risk management procedures, internal models and the choice of risk parameters that underpin asset allocation and liability management decisions. In light of this, EDHEC regrets the approach chosen by the CEIOPS, as put forward in the QIS 2. Not only does it not correspond to the state of the art in global and optimal management of risk and insurance capital, but furthermore, and more importantly, in cases such as the treatment of options or the explicit absence of consideration for dynamic allocation strategies, it is at odds with the objective set out by Solvency II to control financial risks.

In conclusion, EDHEC feels that the particular nature of long-term investors' liabilities, be they insurance companies or pension funds, is such that both regulators and financial analysts need to attach greater importance to the ongoing concern principle (which is an accounting principle), rather than suppose that the notion of fair value will transcend the whole of the accounting doctrine. It is only by finding this necessary balance that the invaluable contribution of the IFRS to the transparency of risk, particularly market risk, will not be undermined by the legitimate aim of allowing

institutional investors, and insurance companies in particular, to continue to operate as long-term investors and perform their invaluable role of constant liquidity providers for the market and the economy at large.

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## Notes



EDHEC is one of the top five business schools in France. Its reputation is built on the high quality of its faculty (104 professors and researchers from France and abroad) and the privileged relationship with professionals that the school has been developing since its establishment in 1906. EDHEC Business School has decided to draw on its extensive knowledge of the professional environment and has therefore focused its research on themes that satisfy the needs of professionals.

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