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Financial Derivatives and Responsibility

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Financial Derivatives and Responsibility – How to Deal Ethically With Financial Risk

👤 Simone Heinemann

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EN Derivatives do not simply provide a means to exchange financial risk but in fact can also create risks and future uncertainties which might be – in certain cases – ethically unacceptable. First, I will show that, from a social perspective, the transformation and dispersion of risk caused by trading derivatives might pose ethical problems since derivatives have been involved in the financial crisis 2007 - 09 as well as in other disastrous financial debacles. Secondly, I will identify three criteria or guidelines which are indispensable when dealing with financial risk, especially when trading derivatives. Integrating these guidelines into theory and practice can help market participants understand that taking risks responsibly is part of a necessary framework for promoting ethics and integrity in finance.

FR Les produits financiers dérivés ne se contentent pas de fournir un moyen d'échanger des risques financiers mais, en fait, peuvent aussi créer des risques et des incertitudes à l'avenir qui pourraient être - dans certains cas - éthique-

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ment inacceptables. Tout d'abord, je montrerai que, depuis une perspective sociale, la transformation et la dispersion des risques causées par la négociation des dérivés pourraient poser des problèmes éthiques puisque les dérivés ont été impliqués dans la crise financière de 2007-2009 ainsi que dans d'autres débâcles financières désastreuses. Deuxièmement, j'identifierai trois critères ou directives qui sont indispensables lorsqu'il s'agit de traiter des risques financiers, et en particulier quand on négocie des dérivés. L'intégration de ces directives dans la théorie et la pratique peut aider les acteurs du marché à comprendre que prendre des risques d'une manière responsable fait partie d'un cadre nécessaire pour promouvoir l'éthique et l'intégrité dans le secteur financier.

Comme la crise des subprimes l'a montré en 2007-8, les risques financiers pris individuellement par les parties impliquées peuvent également être associés à des coûts pour des parties autres que le seul créateur du risque – en dehors et au sein du système financier. Ces cas ont notamment une pertinence éthique : la création et la dispersion du risque financier peuvent potentiellement nuire aux traders ainsi qu'à la société dans son ensemble.

Nous devons nous demander quel niveau de risque global est éthiquement acceptable. Et nous devons être conscients que les risques pris au niveau individuel peuvent conduire à la matérialisation des coûts externes réduisant considérablement le bien-être humain.

Every day we make decisions that involve financial and economic risks. Which investment option should we choose? What kind of car insurance should we get? Should we save money or spend it right away? Risk can create opportunities. But it can also imply a possibility of loss which should be avoided whenever possible. Many of our financial decisions which involve risk are taken individually. In many of these cases the consequences, e.g. the gains as well as the losses, only affect the risk bearer himself. But, as the Subprime crisis 2007-8 has shown, financial risks taken by individual parties can also be associated with costs for parties other than the risk creator - outside and within the financial system. Such cases have particular ethical relevance: The creation and dispersion of financial risk can potentially harm traders as well as society as a whole.

One of the means for dispersing risk are financial derivatives. Derivatives are a particular kind of tradable contract. As the name suggests, their trade value is derived from the value of other assets, historically commodities but also corporate shares, currencies, interest rates, etc. Derivatives have often been said to have been involved in several financial debacles as the scandals of Barings Bank, Metallgesellschaft or the fall of LTCM for example. They are especially known for providing leverage. Through derivatives trading a whole range of different and complex products for managing financial risk has become available. Still, their impact on the aggregate level of risk society has to bear is unclear. This paper seeks to show that financial derivatives are an ethical matter. We have to ask ourselves which aggregate level of risk is ethically acceptable. And we have to be aware of the fact that the risks taken on the individual level can lead to the materialization of external costs which may drastically reduce human welfare. In this paper, I will pursue a normative investigation of risk-taking and present three guidelines for dealing ethically with financial risk.

What are Financial Derivatives?

Four main forms of derivatives exist: futures, forwards, options and swaps. All of these instruments are traditionally defined as instruments which insure against, or transfer, risk. One of these basic types of derivatives, a forward, for example, is an agreement by two parties to engage in a financial transaction at a future (forward) point in time. An example of a forward might be an agreement for a farmer to sell ten sackfuls of potatoes to a merchant, six months from today, at a price agreed today, say 100 Euros, which is, let's suppose for simplicity's sake, the market price of today. If the market price of the underlying commodity, potatoes, goes up during the following six months, the value of the contract decreases, since its owner, the farmer, would then have the essentially worthless right to sell his potatoes at a price lower than the market price. If the market price of potatoes decreases during the next six months, the value of the forward contract increases, since the forward would specify a higher price than the market price and the farmer could make a profit despite lower market prices. Thus, derivatives are at the same time instruments for managing, transferring and hedging against risks caused by possible fluctuations of the market value of the underlying asset: In case the market price of potatoes decreases, the farmer can sell his ten sackfuls at the agreed and higher price.

The other three basic types of derivative are similar to the forward contract just described in that they provide a means of trading risk: Futures contracts are standardized forwards which means that they can be exchange traded. The standardization makes it more likely that different parties can be matched up in the futures market, thereby increasing the liquidity of the market. An option gives the purchaser the option, or right, to either buy (call option) or sell (put option) the underlying asset at a specified price either at the expiry date or within a given period. Swaps, which are much more recent financial instruments, are agreements to exchange, or swap, interest payments on loans (very often a floating rate and a fixed rate loan). These basic types of derivatives can be recombined as can be seen by financial constructions such as swaptions (a combination of options and swaps) and compound options (options on options).

Aujourd'hui, la valeur notionnelle des dérivés sur le marché est estimée à plus de \$ 583 trillions – s'élevant à environ 100.000 dollars par personne sur la planète dans des contrats de produits dérivés.

The immense growth of financial derivatives

Derivatives based on physical products originated in the agricultural markets, covering everything from lemons to oil. They can be said to have originated 4,000 years ago.¹ Even today deriva-

1. Cp. Swan, E.J.: Building the Global Market. The Hague: Kluwer Law, 2000, p. 28.

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La symptomatologie de la négociation de produits dérivés révèle qu'ils sont plutôt un problème éthique et pas seulement un problème économique ou mathématique.

Les produits financiers dérivés ne se contentent pas de fournir un moyen d'échanger des risques financiers mais, en fait, peuvent aussi créer des risques et des incertitudes à l'avenir qui pourraient être – dans certains cas – éthiquement inacceptables.

tives based on physical products remain crucial and important markets. Yet, within the last thirty years there was a substantial growth in financial derivatives, based for example on treasury bills and bonds. They have spread in form, with new contracts being invented constantly. The invention of derivatives made it possible for participants in the global financial market, ranging from international corporations with sophisticated financial operations to households with mortgages, to better cope with risk – be it the risk of changes in commodity or stock prices, exchange rates, interest rates or market liquidity. Since the 1970s the range of futures and options contracts trades around the world increased from a handful to a vast and increasing volume. New hedging possibilities opened up so that those who want to reduce the economic uncertainty surrounding them are allowed to do so at a market-determined price, whilst those who are better equipped and willing to bear certain risks have expanded opportunities. Today the derivatives market's notional value is estimated at over \$583 trillion² – amounting to about \$100,000 in derivatives contracts for every person on the planet. Such developments highlight the importance of understanding the risks inherent in derivatives as well as their effects on society.

Why they are ethically relevant

Economists in recent years have devoted an extraordinary amount of time and attention to the study of financial derivatives. Still, the symptomatology of derivatives trading reveals them to be rather an ethical, not just an economic or mathematical, problem. The article will try to illustrate the ethical problems posed by financial derivatives. The heart of the argument will be that derivatives do not simply provide a means to exchange financial risk but in fact can also create risks and future uncertainties which might be – in certain cases – ethically unacceptable. I will unfold this argument, and its implications, in two ways. First, I will tackle the question why we do and should care about derivatives. I will show that, from a social perspective, the transformation and dispersion of risk, caused intentionally by trading derivatives, might pose problems as derivatives have been involved in the current financial crisis as well as in other disastrous financial debacles. Second, I will identify three criteria or guidelines which are necessary when dealing with financial risk, especially when trading derivatives.

Thus far, the examination suggests that derivatives deals probably benefit traders. Derivatives make it possible to commoditize risk and hence to buy, sell, restructure and price risk. Thus,

2. Cp. Bank for International Settlements: Semiannual OTC Derivatives Statistics at End-June 2010. Amounts Outstanding of Over-the-Counter (OTC) Derivatives, http://www.bis.org/publ/otc_hy1011.pdf (28.03.10).

derivatives change the way corporations and banks manage their business and make decisions on risk. In addition to that, derivatives are often a cheaper alternative to investing in the underlying asset. Their significance lies in the lower transaction cost as well as in the possibility of price arbitrage. Price arbitrage refers to the ability to trade on differences between the price of the derivative and the price of the underlying asset, or between prices in different markets. Hence, up to this point, we care about derivatives in a positive way because they serve at least the functions mentioned above. But this approach doesn't seem to be sufficient. For it is still questionable whether such trades benefit society as a whole. In order to go further and to work out why everyone should care about derivatives (even non-traders) it seems important to separate the private and social benefits of financial derivatives.

Il semble important de séparer les bénéfices privés et sociaux des instruments financiers dérivés.

Private benefits and social costs?

From a private perspective, it doesn't appear dubious at all that derivatives provide efficiency and benefit traders.³ For individual parties, derivatives constitute a valuable means in dealing with risk. We can conclude that, within the microethical sphere⁴, emphasis is placed solely on the fact that derivatives always have two sides, a long one and a short one : Individual traders decide which position to take and which risk to manage. A counterparty enters into a contract in order to take over the risk the first party is not willing to bear or vice versa. Both parties act on their own behalf. And, at all times, the positions even out and for every winner there is a loser. To put it another way: trading in derivatives is a zero sum game: One derivatives trader's gain is necessarily balanced by another's loss. If derivatives trading were costless, the positions would just cancel each other out. Derivatives markets would move wealth around but neither increase nor decrease total wealth. But trading derivatives is not costless. Stout estimates (conservatively) that derivatives are costing investors, as a group, tens of billions of dollars.⁵ Still, ex ante, both parties experience an efficiency gain which results from the fact that derivatives enable them to manage risk they might otherwise

3. Efficiency for example through intense competition between intermediaries, providing greater transparency, liquidity and price information. It is in fact not always clear that derivatives benefit traders, see also Stout, Lynn A.: Insurance or Gambling? In: *Brookings Review* 14, 1 (Winter 1996), pp. 40 ff.

4. For further elaboration on the difference between microethics and macroethics and the importance of financial macroethics cp. Steigleder, Klaus: Ethics and Global Finance. Outline of a Macroethical Approach. In: Michael Boylan (ed.): *The Morality and Global Justice Reader*. Boulder, Co: Westview Press, 2011, p. 169-184.

5. Cp. Stout, Lynn A.: Insurance or Gambling? In: *Brookings Review* 14, 1 (Winter 1996), p. 41.

have to bear. In this context, the ethical analysis of derivatives transactions focuses exclusively on the obligations or duties of people in financial contracting and fairness in market transaction, whereas ethical behavior is constituted primarily by the contractual relation in which one party agrees to assume certain duties – in return for some compensation, of course.

Transformation and re-Allocation of Risk

La principale cause de la crise qui s'est propagée à travers le globe a été la transformation et la ré-allocation des risques où l'utilisation de produits dérivés a joué un rôle majeur.

From a social perspective, it is not as simple as that. As the International Monetary Fund (IMF) itself recognized already in 1994, although derivatives can be used effectively to reduce the risk borne by individual agents, they cannot reduce the overall risk in the system but rather can “only transform and re-allocate” risk.⁶ At first sight, the transformation and re-allocation of risk may not pose a problem. However, if we take a look at the financial crisis of 2007/08, a flood of losses has been reported by banks, corporations, funds, state and local governments. The leading cause of the crisis which spread out across the globe was the transformation and re-allocation of risk, wherein the use of derivatives played a major role. A proliferation of further forms of derivatives took place, involving not only asset packaging but the breakdown of risk into smaller and smaller discrete units. RMBS and CMOs were designed to assemble large packages of loans and divide them into slices of obligations that are sold as having different risk and return characteristics. These instruments were aimed at dispersing risk so that risk would not have to be carried by the lender who made the loan but could be traded like a bond or share of stock among different financial investors. At the heart of these instruments lie a calculated analysis of risk and an attempt to divide it so that parties take the risks they want and lay off the ones they do not want.

Systemic Risks and Costs

The risks traders deal with on the micro-ethical level play a major role from a macro-ethical perspective. Individual traders try to seek security through calibrations of risk that will, one hopes, reduce their imagined losses or harms. But, if they are successful in predicting the unknown (and yet uncertain) future and make spectacular gains, they can also make spectacular losses, as various financial catastrophes illustrate. One may think, for instance, of the bond crisis in 1994. Just ahead of the crisis it was widely reported that George Soros had lost \$600 million speculating with derivatives against the yen. When the bond market crashed, concerns came up as many derivatives traders (mostly hedge funds)

6. IMF Survey, 21 February 1994: Banks And Derivatives Markets: A Challenge For Financial Policy.

suffered heavy losses. It was suspected that the traders could start to default on their bank loans and that they could spark a chain reaction affecting the whole financial system. From a systemic perspective, the risk transformed and transferred by individuals may threaten the whole financial infrastructure of the economy – interest rates, mortgage rates, the value of personal and corporate pensions. So called systemic risk may also heighten the possibility for large companies to go out of business. As the current financial crisis shows, even banks may not be “too big to fail” when confronted with systemic risk. As we have seen in the crisis of 2007/08 systemic risk can bring about a systemic shock that affects a considerable number of financial institutions or markets in a strong sense. The general well-functioning of the financial system may be impaired in the case of such an event which means that i. a. savings may not efficiently be channeled into investments and an extreme credit rationing in the real sector (credit crunch) may result. Possible consequences of systemic risks such as the increase of the unemployment rate and with that poverty and homelessness have been in the news since the beginning of the last financial crisis. Systemic risks are threats to the system as a whole which means that they differ from risks that menace specific households, firms, financial institutions or even markets. They can be catastrophic for an economy.

As leverage is a key component of systemic risk, derivatives may play their part in it. Derivative innovations made it possible to hedge risk, but they also made it possible to engage in highly leveraged speculation. In the boom preceding the financial crisis 2007/08, leverage increased massively along with the supply of illiquid high-risk derivatives.⁷

Derivatives also tend to strengthen linkages between market segments and institutions. With that, disruptions in one market are more likely to spill over to and affect other markets which may result in a domino effect. In addition to that, banks had a strong incentive to create products so complex that they could not be sold on exchanges at all. Eighty percent of derivatives are now sold over-the-counter in non-transparent private deals.⁸ Concealing the risks that traders take and disperse adds opacity to the market and poses an unseen risk to the functioning of the financial system should the traders fail. When the risk materializes it may not be possible to prevent a system collapse. Therefore we need to take over responsibility for the risk itself before it's too late – before the risk materializes.

Du point de vue systémique, le risque transformé et transféré par les individus peut menacer toute l'infrastructure financière de l'économie – les taux d'intérêt, les taux hypothécaires, la valeur des pensions personnelles et d'entreprise.

Les innovations en matière de dérivés ont permis de couvrir le risque, mais elles ont aussi permis de se livrer à la spéculation à fort levier financier.

Dissimuler les risques que les traders prennent et dispersent, ajoute de l'opacité au marché et fait courir un risque invisible pour le fonctionnement du système financier, ce qui devrait normalement mener les traders à l'échec.

7. Crotty, James: Structural Causes of the Global Financial Crisis: A Critical Assessment of the 'New Financial Architecture'. Working Paper 2008-14. University of Massachusetts Amherst, August 2008, p. 1-61, p. 47 f.

8. Cp. *ibid.*, p. 25.

Risk, the unknown unknown

It can be concluded that, on financial markets, risk has become a commodity which can be bought and sold according to mutual agreement and which seems to be even more flexible than any other product. Here, the term “risk” refers to both possible (negative) events to which probabilities can be assigned as well as to possible (negative) events to which no probabilities can be assigned. Whereas the former definition describes risk in a narrow sense, the latter definition corresponds to what we call “uncertainty”. To the economist, risk is a term of art which means variation in outcome, chances of gains as well as losses. Consider someone who offers his friend the choice of either receiving a euro or flipping the euro and getting two euros if it comes up heads, and nothing if it comes up tails. A 50 percent chance of receiving two euros is, statistically speaking, worth one euro. Flipping the coin is riskier, however, because two euros or nothing is a more variable outcome than one euro with certainty.

In the financial world, very few problems are akin to coin-tossing problems. In coin-tossing situations we are faced with sharp and objective probabilities which our decisions can be guided by. A typical coin toss is not uncertain, because we know with surety that the probability of either event is 50 percent. Financial decisions are often influenced by much more complex and nuanced conditions. With regard to derivatives, we can assert that their value changes over time and depends on the future behavior of the underlying financial commodity (prices, interest rates etc.) from which the derivative is derived. This behavior is, as of today, unknown. Depending on the unknown future, the risk associated with derivatives is therefore much more difficult to assess. In dealing with derivatives, we cannot know the risks we face, neither now nor in the future, but we must act as if we did, when we strike a deal.

Risk and Ethics

As a matter of fact, risk is inherent in all business activities regardless of the economic order. The critical concern, therefore, is not whether the element of risk is present in a certain business activity. (For risk creates opportunities for economic activity, investment and commerce which contribute to a well-functioning and productive economy.) It is rather the impact of a given transaction on the aggregate level of risk which the community has to bear. On the level of the individual trader, risk can be reduced or remains the same by being transformed and transferred. But this is not the case on the systemic level. If a derivative transaction resulted in an increase of the aggregate level of risk, it might negatively affect economic activity and burden those who are not primarily involved in the transaction. From an ethical per-

Puisqu'il dépend d'un futur inconnu, le risque associé aux produits dérivés est donc difficile à évaluer.

Si une transaction sur des instruments dérivés entraîne une augmentation du niveau agrégé de risque, elle pourrait affecter négativement l'activité économique et faire porter un fardeau à ceux qui ne sont pas principalement impliqués dans la transaction. Du point de vue éthique, les opérations sur des instruments dérivés doivent être considérées comme des situations sociales à risque et ce type de risque ne peut être assumé par les individus ou les groupes qui ne l'ont pas créé.

spective, derivative transactions have to be considered as social situations of risk as risks may have to be borne by individuals or groups who have not created the risk. Thus, derivatives have social externalities. Even if the damage or the loss incurred is only potential, as decisions are made under the conditions of uncertainty, they are of ethical relevance.

The Materialization of the Risk

Ethical problems while dealing with risk arise when – in the event of the materialization of the risk – those bearing the risk suffer a loss of welfare which infringes their rights to individual goods such as physical integrity, well-being and the right to pursue their projects. A systemic financial crisis can involve a massive infringement of rights as it is no more assured that the rights of individual agents are protected. Due to the fact that the breakdown of financial markets can result in extremely adverse effects, institutions both governmental and non-governmental, may be prevented from securing the conditions needed to insure common and public goods. As a matter of fact, there is usually no compensation paid to the ones actually harmed. The process of carrying out the payments and ascertaining the appropriate compensation would involve enormous transaction costs. Besides, often it is impossible to identify the risk imposer as we are dealing with cumulative and multidimensional risks. A well-functioning financial market is therefore morally relevant as it is an indispensable element for the protection of rights. With reference to derivatives, we have to make sure that there are certain negative events that must not be risked and ought to be prevented if possible even if the probability of their occurrence is low. We need detailed considerations and analyses, especially on the impact of derivatives on systemic risk. This is also important as the financial crisis 2007/08 made obvious some upsetting deficits in risk management. Systemic risks caused by financial innovations were neglected. In addition to that, the assumptions in the estimations and calculations of risk were in many cases unwarranted as they portrayed the illusion of being able to make reliable estimations and calculations of probability. The problems cannot always be traced to the derivatives as such. Often, ultimate failures of the top management, who do not see through complicated derivatives transactions, lead to financial catastrophes, as the Barings case illustrates. In order to deal responsibly with financial risk we need to be aware of the fact that the creation and dispersion of risk is ethically relevant, even before a financial catastrophe occurs.

Risk is absolutely central to derivative instruments as well as to the handling of them. The reason we need to care about derivatives lies in their ability to provide tools for the management of risk, as well as in their power to fuel the individual and – most

Une crise financière systémique peut entraîner une violation massive des droits car les droits des agents individuels ne sont plus protégés. Un bon fonctionnement du marché financier est donc moralement pertinent, car il est un élément indispensable pour la protection des droits.

Nous avons besoin de directives qui aident à prévenir les crises systémiques fournissant des méthodes de précaution – tant au niveau micro-éthique qu’au niveau macro-éthique.

En intégrant le concept de prévention des risques systémiques dans la théorie et la pratique, les modèles de risque devraient être revus.

S’ils sont soigneusement choisis et traités, les dérivés peuvent réduire le risque inhérent aux affaires. Néanmoins, il y a des opérations qui peuvent engendrer des effets de levier puissants tout en créant des risques avec une influence négative sur la stabilité économique.

importantly – the systemic dispersion of risk. Systemic risk can be catastrophic for an economy as it may lead to a system collapse and the violation of fundamental human rights. Therefore we need guidelines which help prevent systemic crises providing precautionary methods – both for the micro- and the macro-ethical level:

1. Avoidance of systemic risk
2. Distinguishing risk-generating from risk-dispersing instruments
3. Transparency through oversight

The Avoidance of Systemic Risk

First, we need macroprudential insight which should focus on the financial system as a whole and which seeks to avoid and at least to minimize system-wide distress. We need to understand that risk is endogenously created and transported through the system. Surveillance needs to be accomplished internationally as market participants act on a global level. As far as derivatives are concerned, their impact on the systemic level of risk is still unclear. Further research is required by scientists as well as finance practitioners and professionals in order to bring to light which derivative transactions on the microethical level pose a cumulative risk to the well-functioning of the entire system. By integrating the concept of systemic risk avoidance into theory and practice, calibrations and models of risk would have to be adjusted.

Distinguishing risk-generating from risk-dispersing instruments

Second, we need to develop methods to distinguish risk-generating from risk-dispersing derivative instruments. Whereas carefully chosen derivative deals may reduce the risk inherent in doing business, there are transactions which can provide powerful leverage mechanisms for creating risk with a negative influence on economic stability. More risk can be created for example when by hedging some risks, individual investors gain exposure to another risk. In addition to that, derivatives can also be risk-generating when the risk involved in the transaction is concentrated not among those most capable of bearing it, but among those most willing to take it. Individual traders and institutions may be too confident to bear massive risk jeopardizing the welfare of the system.

The second guideline focuses mainly on connecting the micro-ethical and the macro-ethical sphere: With derivatives, individual traders can place enormous volumes of bets on the movement

of market variables. Especially those derivative transactions involving short-selling, credit default swaps or the speculation on food prices have often been said to be risk-generating, market-destabilizing and welfare-reducing. Also, it is often assumed that speculative derivatives trading used for gambling purposes may increase the risk-bearing of both contract parties, just as gamblers increase their risk by betting. There is empirical evidence that this is likely to result in increased market risk, reduced investor returns, price distortions and bubbles which diminish social welfare. Definitely, more research is needed on the risk-structure of different derivative forms and critical concerns have to be checked closely.

Although the second guideline addresses in particular the behavior of market participants, it seems unrealistic for individual parties to be able to assess which derivative strategy might be risk-generating and which might be risk-dispersing because they only play a small part in the global system of risk. Therefore, institutional regulation is needed to make sure that traders only take over the risks they are able to bear. This can be achieved by demanding risk-adequate collateral such as margin deposits, on exchanges as well as and most importantly on OTC-markets.

La régulation institutionnelle est nécessaire pour s'assurer que les traders ne prennent que les risques qu'ils sont capables d'assumer.

Transparency through oversight

Third, we need to establish transparency through regulatory oversight. In general the writer of the derivative contract doesn't know the identity of the current owner of the contract. In addition to that, the regulator or the state agency, typically the central bank which is in charge of macro-prudential supervision doesn't know it either. Subsequently, it is impossible at this point to determine whether the current distribution of risk inherent in the derivative contracts is systemically stabilizing or destabilizing and whether the owners of the contracts are to interconnected or too big to fail. Very often, it is argued that it is useless to regulate derivatives any further, as traders always find a way to circumvent regulatory acts. Furthermore, it may seem questionable whether regulatory institutions charged to oversee transactions and to foresee systemic risk can realistically accomplish their task as even institutional investors and rating agencies failed to do so prior to the crisis of 2007/08. It is self-evident that systemic risk cannot be completely prevented from occurring, neither by securities regulators nor by financial market authorities. Transparency, expertise and resources are needed to analyze and to determine which risks are ethically acceptable and which are not. Still, this must not prevent us from trying. There is an ethical imperative to gather and share information and to set up regulatory institutions charged to monitor systemic risks created or dispersed by financial instruments and to alert market participants if a buildup of systemic risk is likely to occur.

Il y a un impératif éthique pour recueillir et partager des informations et mettre en place des institutions de régulation chargées de surveiller les risques systémiques créés ou dispersés par les instruments financiers et alerter les acteurs du marché si une accumulation de risque systémique est susceptible de se produire.

Conclusion

Derivatives may improve the allocation of risk, but there is no guarantee that they will. There are certain negative events such as a financial crisis or catastrophe that must not be risked and ought to be prevented.

Up to now, a qualified ethical analysis of the acceptability of aggregate risk generated on financial markets is still lacking. This is probably one of the major reasons why so many mistakes have been made in the management of financial risk. Further research is required by scientists as well as finance practitioners and professionals in order to find out which financial transactions on the microethical level pose a cumulative risk to the well-functioning of the entire system.

L'intégration de ces directives dans la théorie et la pratique aiderait les acteurs du marché à comprendre que le risque financier peut constituer une menace massive pour le bien-être du système et de la société dans son ensemble.

The guidelines presented above (1. Avoidance of systemic risk, 2. Distinguishing risk-generating from risk-dispersing instruments, 3. Transparency through oversight) do not claim to be complete. The aim was to clarify the importance of the tasks and to show that solutions are urgently required. Integrating these guidelines into theory and practice would help market participants understand that financial risk can pose massive threats to the welfare of the system and of society as a whole. Taking risks responsibly is part of a necessary framework for promoting ethics and integrity in finance.