

Emergence of a New Regulation: Informational Disclosure Modalities in the Hedge Fund Opacity World

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Summary

The 2007-2008 crisis has highlighted the tensions related to lack of transparency and asymmetrical information in the hedge fund industry. Damage can be estimated at a micro level by a misallocation induced by a double (*ex ante* and *ex post*) asymmetry and at a macro level by increasing financial and banking instability. One way to resolve market failures is to require hedge funds to disclose more information, but information can be revealed in different ways. We propose an original typology of disclosure modalities by distinguishing the aim of informational disclosure (macro/micro allocation) and the modality (by free bargaining, by a standardized contract, by an obligation toward the regulatory authorities, by publicity). We use Kohonen maps to classify issued proposals and reports. We define two typologies: one of informational disclosure modalities and of financial regulation policy.

Keywords: Informational Asymmetry, Disclosure, Financial Regulation, Hedge Funds.

La crise de 2007-2008 a mis en évidence les tensions liées au manque de transparence dans le monde des *hedge funds*. Cette asymétrie d'information induit une double inefficacité : au niveau micro-économique (aléa moral et sélection adverse) et macro-économique (instabilité financière et risque systémique). La divulgation d'informations connues jusque là des seuls *hedge funds* permet de réduire ces défaillances. Toutefois la divulgation peut prendre différentes formes. À partir des propositions publiées dans différents rapports, nous construisons une typologie originale des formes que revêt la divulgation, en distinguant les conséquences attendues (résolution de défaillance micro économique ou macro économique) et les modalités de révélation (discrétionnaire, contractuelle, auprès des Autorités de Réglementation, publique). L'utilisation des cartes de Kohonen nous permet d'identifier différentes logiques de divulgation et d'opposer différentes politiques de réglementation financière.

Mots clefs: Asymétrie d'information, divulgation, réglementation financière, Hedge Funds

JEL Codes: D43, G23, G28.

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Introduction

The hedge fund industry has undergone a huge expansion over the last ten years² until the aggravation of the financial crisis in mid-2008. Hedge funds promised superior performance to that of index and traditional funds by using new strategies of asset selection³. They developed in a niche of risk management and financial innovation to the benefit of wealthy clients, high-net-worth or institutional investors and have become strategic players in financial globalization by promoting liquidity and information on the financial market.

The scope of hedge funds includes a wide range of financial strategies, from the classical behavior of arbitrage or investment with leverage, to riskier strategies involving speculative positions on OTC markets. A common feature is the relative lack of transparency which prevails in their activities and strategy. The hedge fund industry is reputedly very secretive. Until now, regulators have as a whole recognized the positive influence of hedge funds on the financial markets despite the existence of specific risks (Danielsson, Zigrand, 2006). They argue that opacity permits innovation - creating new strategy, trading in new OTC products - to prompt a search for private information. The disclosure of private information would destroy these private incentives and finally reduce liquidity and market efficiency. Furthermore, given that only sophisticated clients invest in hedge funds, regulatory authorities have no legitimacy to more protect them via public regulation (Edwards, 2003). They assume that these investors are aware of specific hedge fund risks and that risks are sufficiently dispersed. Indeed, hedge fund capital has historically come from high-net-worth individuals. The financial risks are assumed to be known and accepted by experienced wealthy clients. Clients invest with full knowledge of these vehicles judged as risky and so they accept the consequences in terms of losses (Lutton, 2008). Disclosure of private information is very rare: public advertisement is forbidden, regulatory requirements are very slight, and there is no standardized contract. Until now, this informational asymmetry between hedge funds and their stakeholders (clients, prime brokers, regulatory authorities and people in general) has been accepted by supervisors and investors as a trade-off for the promised advantages.

The clients of hedge funds have rapidly widened with the arrival of institutional investors: pension schemes, insurance companies, endowments and more recently funds of hedge funds. Since the stock market crash in 2001-2002 and the decrease of long-term interest rates, institutional investors have been looking for sources of higher returns⁴. The hedge fund industry has seemed very attractive because of its high and allegedly uncorrelated returns. The increasing influence and institutionalization of hedge funds does not change the issue of lack of informational disclosure in the sector.

The 2007-2008 crisis has highlighted the tensions related to financial regulation. The current hedge fund "regulatory consensus" is very light and is based on indirect regulation: regulation on counterparts of hedge fund companies -- principally prime brokers⁵ who lend them money, and regulation on transactions -- regulated markets. Hedge funds are also supervised by

²Between 2000 and 2007, we estimate that the number of hedge funds has more than doubled, going from 3 873 to 10 096 funds. Their assets under management have increased from 490 to 1868 billion dollars, namely an annual growth of 20% (Hedge Funds Research).

³This innovation brought about by the knowledge of management teams has justified a double fee structure (management fees from 1% to 2% of assets and performance fees between 15% and 20% of profits) and the conditions required by alternative management companies (entry gate: investment minimum between \$100 000 and \$5 million, exit gates - withdrawal after at least 1 year, possible quarterly or yearly disinvestment).

⁴Hedge fund returns were very high between 2001 and 2003 in a bear market. This explains the importance of hedge fund inflows over the last six years.

⁵Prime brokers are often investment bank departments (Goldman Sachs, Bear Stearns, Morgan Stanley...)

market discipline via voluntary informational disclosure between stakeholders. To reduce market failures caused by the opacity of hedge funds, three mechanisms could be put into place: a stronger indirect regulation (a higher regulation on prime broker or a pressure to regulate OTC markets), direct public measures (for example, to limit their leverage, force them to invest in regulated markets and extend banking regulation to hedge funds) and thirdly a more efficient market discipline by informational disclosure requirements.

As the crisis highlights the need for more transparency, the proposed regulations are intended primarily to require hedge funds to disclose more information. This is why we focus on measures for informational disclosure, as this is currently the favorite instrument for regulating the banking and financial industry. Yet no consensus has emerged about the implementation of disclosure. This regulation tool is polymorphic; i.e. information disclosure could have different modalities and different aims. The originality of our article is to point out the heterogeneous nature of the agreements on informational disclosure using a typology based on the expected economic outcome of its enforcement. As the recent literature on disclosure shows (see Dye, 2001 for a survey), full disclosure does not guarantee market efficiency or optimal welfare; a contingent trade-off is required. A continuum of arrangements exists from a voluntary commitment between co-contractors to a legal agreement (Talley, 2001). Informational disclosure could be implemented as a soft law, as guidelines and best practices; a requested clause in all private contracts, for mutual funds; a prudential obligation, for banks; or as required public disclosure (company accounting statement).

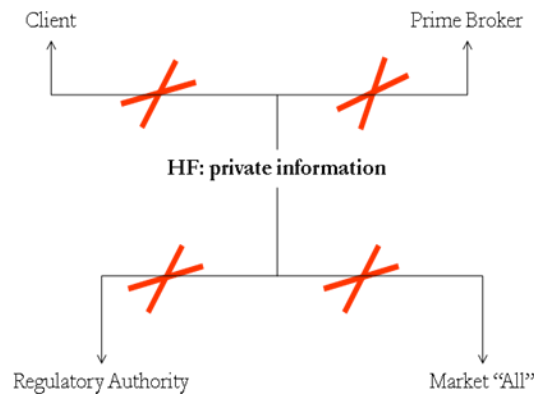
The aim of this article is to analyze the different modalities for disclosing information. The question is how to disclose private information given the aim of communication. Two criteria characterize agreements on informational disclosure. The first is the final aim (micro or macro allocation). The second is the level of informational disclosure: discretionary agreement (private information negotiated by mutual agreement between the hedge fund and its customer), contractual norm (information provided to all the customers on a compulsory or voluntary basis), regulatory (communication to the regulator) and public disclosure (public information). Various reports, guidelines, draft laws have been published and we have worked on them to characterize agreements using our two criteria. This empirical framework allows us to capture the diversity of disclosure agreements. Our article proposes to clarify the polymorphic nature of disclosure by considering the expected consequences. In this way, we will better be able to understand the difficulties in the current discussions about the emergence of new hedge fund regulation.

The first section describes the market failures induced by the secretive hedge fund industry. The second section sets out our typology of agreement. The third one uses this typology to explain the proposals currently made. The fourth section examines our main statistical results. The fifth presents a classification of agreements using Kohonen Maps.

1. Informational asymmetry: micro and macro misallocation

This first section proposes to clarify the market failures induced by opacity in the hedge fund industry. We distinguish the damage according to the different protagonists.

Figure 1: Informational Asymmetries in the Hedge Fund Industry



Two levels of market failure appear and will be developed. **As far micro misallocation is concerned**, a problem of agency relation appears between hedge funds and clients (impairing allocation of individual savings) on the one hand and hedge funds and prime brokers (impairing lending terms) on the other. **Concerning macro misallocation**, the lack of public information and aggregated information about hedge fund activities induces a double inefficiency: informational (causing financial instability) and allocating (systemic risk).

1.1. Individual misallocation

According to Jensen and Meckling (1976) an agency relation is defined as "a contract by which one person or several people (principal) hires another person (agent) to perform in its name one task or another which involves a delegation of some decision power to the agent". There is an agency relation between hedge funds/clients and hedge funds/prime brokers. In both contractual relationships, the hedge fund manager is the informed party: he knows his effort to invest, his level of risk, and the asset positions in the portfolio. Depending on whether or not the principal knows the specifications of the agent and his behavior, the agency relation could induce a relation of adverse selection or moral hazard.

Hedge funds/clients agency relationship

This first imperfection has been documented at length in the case of traditional mutual funds (See Bhattacharya et alii, 1985; Bellando, 2008 for a "review of literature"). The manager is the only one to know the effort he has put into the portfolio management and the information search. The only information revealed to the customer is the profit of the investment. The manager/client asymmetry impairs information efficiency on the market of funds and induces a misallocation of assets. Two situations must be distinguished in this situation of information asymmetry: the one before the signature of the contract and the one after. The distinction between these two *ex ante/ex post* levels is pertinent because it induces different response mechanisms.

Before signing the contract, the client has to look for information on hedge funds, which are private pools of capital or entities associated in a partnership. Therefore, they are not governed by the same rules as other asset management companies in terms of regulatory requirements. Public information is very scarce and advertisement is forbidden. Moreover, hedge fund entities are generally registered in tax havens⁶ with minimal public information. The client must base his decisions on his prior beliefs using some biased signals such as reputation, rumors, meetings and

⁶Most hedge funds are domiciled in the Cayman Islands, the Virgin Islands or the Channel Islands to benefit from tax advantages and very loose regulation

very scarce quantitative data. In such a secretive context, extraneous signals, as well as the address of the manager, may become informative (Tadjeddine, 2010). Some investors sometimes need to call on private detective services to investigate further after initially checking manager registration⁷ and this entails additional cost for them. The contract between investors and hedge fund managers is based on trust. This is why the appearance of honesty is vital. Furthermore, hedge funds could manipulate the situation by announcing partial information such as overestimated past or expected returns or an underestimated risk position. The difficulty in obtaining reliable information about hedge funds is a key issue which induces non optimal selection as well as a misallocation of savings. A way to reduce adverse selection is to produce reliable available data about hedge funds and hedge fund managers. For example, if hedge funds are registered on shore, the local regulatory authority could certify their quality as well as that of hedge fund managers.

After signing the contract, clients have to collect information on the managers' efforts, yet monitoring managers proves to be an arduous task. The traditional moral hazard of delegation activities is exacerbated by the risky environment of financial markets and the heterogeneous nature of hedge fund strategies. The return is an imperfect signal of the quality of management (Malkiel, Saha 2005). Furthermore, to improve return, managers are encouraged to make riskier allocations. The prohibitive and asymmetric commissions and the difficulties in liquidating shares, due to lock-up periods are among the many incentive mechanisms which affect the monitoring of hedge fund managers by their clients (Infovest21 Report, 2009; Aglietta, Khanniche, Rigot, 2010). A way to reduce moral hazard is for managers to disclose specific information to clients about their portfolio allocation, strategy, leverage, and incentive structure.

Hedge fund clients face informational asymmetry which is undoubtedly linked to market uncertainty, but which is exacerbated above all by the secretive hedge fund industry. This double (*ex ante/ex post*) asymmetry keeps them from making an optimal allocation of their portfolio. A regulation on informational disclosure could usefully reduce this market failure.

Hedge funds/prime brokers agency relationship

The second agency relationship concerns the lending contract between hedge funds and prime brokers. Indeed, financial leverage (via derivatives markets) is the major service that prime brokers offer to hedge funds. Prime brokers are usually the lending arm of investment banks; they bear the counterparty risk. For their part, hedge funds offer two opportunities to investment banks: firstly they reduce bank credit risks because they sell credit risk protection and secondly they provide liquidity for securitization operations and other financing strategies.

For clients, there are two *ex ante* and *ex post* asymmetries (Stiglitz, Weiss, 1981). Regarding *ex ante* asymmetry, prime brokers must estimate the risk of hedge fund default. However, because of biased signals or the lack of public information, they may underestimate the risk and therefore provide leverage to hedge funds on lax credit conditions, i.e. very narrow credit spreads and a low initial margin. Hedge funds may have several prime brokers. A way of reducing adverse selection is to make hedge funds disclose all their leverage to their prime brokers. As far as *ex post* informational asymmetry is concerned, the lack of monitoring is due to the lack of private information disclosure and to hidden risk (asymmetrical risk profile). A way of evaluating the *ex post* exposure to risk more correctly is to request detailed information about risk policy.

⁷Hedge fund managers' registration with supervisors is already effective in the United Kingdom (FSA), but not in the United States. Registration constitutes the first morality check of managers because it allows supervisors to carry out investigations on managers' backgrounds and on their investment activities. It is a prerequisite while not a sufficient condition for improving transparency.

As a general rule, both of these issues can be amplified by the fact that hedge funds and prime brokers have an endogamous relationship. Indeed, prime brokers' incomes depend heavily on hedge funds, with hedge funds providing 20% to 30% of the profit of investment banks. Two thirds of this percentage comes from the 200 main hedge funds. As a result, hedge funds are very profitable clients for investment banks and there is fierce competition in the prime brokerage sector to gain market share (Mac Kinsey, 2007). Moreover, prime brokerage is very concentrated⁸, as is the hedge fund industry. For example, in 2006 two investment banks, Morgan Stanley and Goldman Sachs, accounted for more than 40% of total assets.

The current crisis has revealed this vulnerability and shown that the lending channel is a way of transmitting systemic risk. Leverage generates important counterparty risks between hedge funds and prime brokers. In the present financial crisis, counterparty risk has come back with a vengeance to prime brokers and subsequently to investment banks, as shown by the fate of Bear Stearns in March 2008. Until this crisis, prime brokers accepted the lack of transparency and contributed to the procyclical dynamics (Adrian, Shin, 2008). After the crisis, their behavior should change and they may become more wary.

1.2. Macro misallocation

This part questions the contribution of hedge funds to information and allocation efficiency. It has been argued that hedge fund activity may have a positive effect on financial markets. Hedge funds may lead to lower market volatility because they are less likely to engage in momentum trading, that is to say buying into a rising market and selling into a falling one. Through their ability to engage in short selling and to take contrarian approaches, they may also act as a counterbalance to market herding. Moreover, hedge funds may provide attractive diversification. However, they may have possible negative effects on financial stability. It is difficult to estimate their impact because of the lack of reliable data. There have been several episodes where hedge funds were involved like Soros via quantum funds which caused the European Monetary System crisis in 1992 to benefit from the sterling pound attack and the failure of LTCM to remind us that hedge funds may have detrimental repercussions on financial markets and on the real economy. In other words, we can say that macro misallocation may lead to financial instability and then to systemic risk, that hedge fund activities can not only harm financial markets but also players outside the hedge fund investor groups.

Hedge funds raise issues for several reasons, for example the huge increase of assets under management, their management of public savings, their speculative and risky strategies and their immoderate leverage, among others. In order to deliver high return, hedge funds adopt active and opportunistic behavior. They turn their portfolio over far more frequently than traditional funds, so their short-term influence on markets can be greater than the actual capital under management would indicate. They are encouraged to take on riskier investments like the use of immoderate leverage and huge illiquid positions, to name a few. Such investments in the OTC market and illiquid assets promote extreme risks. Indeed, in an attempt to achieve absolute returns, hedge funds resort to highly non-linear strategies which exhibit extreme risks due to asymmetric risk profiles and thick tail risks since they all have excess kurtosis (negative skewness and very large kurtosis). For example, some of the apparently most successful strategies -- *event driven* and *fixed income arbitrage* -- display vulnerability to extreme losses (Aglietta et alii, 2010).

⁸Three quarters of hedge fund managers all over the world are located in the United States and three quarters of European hedge fund managers are located in the United Kingdom. The industry is very concentrated. By 2006, 200 of the biggest hedge funds accounted for three quarters of assets under management (FSF, 2007).

As far as financial instability is concerned, hedge funds raise the main issue of crowded trades. When markets are stable, the presence of hedge funds can boost liquidity, but under stressed conditions hedge funds would be probably the first to exit because they cannot afford to wait when leveraged positions begin to lose money. The crowding of trades or similar positions may further magnify the impact of hedge fund exits on certain fledging or exotic markets where the involvement of regulated institutional investors is less prevalent. In times of stress, if trades are crowded return performance correlations can surge. Moreover, competition encourages hedge funds to have the same strategies; that is to say that a group of hedge funds is exposed to the same risk factors. A research study by ECB confirms: “[...] correlations between hedge fund strategies have been continually increasing since mid-2003 with a peak in 2005” (Garbaravicius, Dierick, 2005). However, the great increase in correlation in times of turbulence may induce contagion. In periods of stress, the probability of extreme losses sharply increases in all strategies and this risk is amplified if leverage is high.

Furthermore, hedge fund behavior is at the root of systemic risk in two indirect ways: leverage and public savings. The first involves prime brokers, or banks, which provide leverage to hedge funds and which will be ailing if hedge funds fail (De Vries, Stork, 2009). In the event of losses or bankruptcies by hedge funds, invested savings fall. Systemic risk arises because hedge fund losses can spread to third parties, such as banks and securities traders. Exposing third parties to hidden risks is a market failure to the extent that third parties are unable to act on such risks by, for example, requiring better credit terms with a bank acting as hedge fund counterparty (King, Maier, 2008). The second indirect channel of systemic risk concerns public saving. As at the beginnings of the hedge funds industry, clients were wealthy families, lost capital had only an individual impact without any real damage. However, since institutional investors are becoming the main clients of hedge funds, lost capital concerns public savings and impacts the real economy by the wealth effect. Indeed, when pension funds post losses, consequences for final investors are detrimental. Pension benefit levels could be lower than expected and/or employees could have to work longer to obtain the same level of benefits.

Only an aggregate signal about private hedge fund information could improve macro allocation. Until the crisis, such a signal did not exist. To prevent financial or real inefficiency, it would be useful to force all hedge funds or potentially systemic hedge funds to disclose information about their portfolio allocation, leverage and level of managed public savings. Better transparency was and still is seen as one of the main instruments for making market discipline effective and preventing future systemic disruption (Garbaravicius, Dierick, 2005).

This section lists the adverse effects of informational asymmetries. By disclosing some private or public information, hedge funds could reduce these micro and macro misallocations. The second section presents the different modalities of disclosing information.

2. Modalities of disclosing information

To understand and clarify proposals and increase information disclosure in the hedge fund industry, we propose a typology based on two axes. Firstly, we consider that the fight against opacity has two distinct major aims: improving micro allocation or improving macro allocation. We have a similar distinction for banking regulation between micro and macro prudential regulation. Secondly, we add the modality of informational disclosure. The literature on disclosure traditionally considers only two situations: insider information or public information (Diamond, 1985). Boot and Thakor (2001) proposed distinguishing among three levels, adding a

level where the market receives substitute information. We have decided to distinguish among four modalities of disclosure, numbered from one to four.

The first level is discretionary disclosure, based on a voluntary agreement, negotiated between the co-contractors (hedge fund managers and their clients or with prime brokers). Confidentiality could be required by hedge fund managers. The second one is contractual disclosure, a clause in all contracts signed between hedge funds and clients or hedge funds and prime brokers. This clause could consist of standards, such as a code of conduct or guidelines, or law. The difference between this and the first modality is that the clause is implemented for all contractors, without any bargaining. This kind of clause exists for mutual funds in Europe, for UCITS contracts, and in the US. The third modality is regulatory disclosure, whereby hedge funds must disclose information to the regulatory authority. The authority could then reveal the information or not. Such a mechanism is today implemented by banks -- certain information is kept secret, other information is revealed in an anonymous or aggregate form. The last modality is public disclosure where information is accessible to all.

Discretionary disclosure

The discretionary approach of information disclosure is a liberal approach by mutual agreement. Like elsewhere in the world of finance, the co-contractors freely agree on the execution modalities of the financial service. The *ex-post* informational asymmetry disappears by the implementation of a bilateral agreement forcing the manager to disclose regular and reliable information. The disclosed information content is confidential and tacit. It depends on the parties involved, their preferences and the balance of power. The information transmitted may have been detailed within the framework of a code of good conduct or private charts. It may be the subject-matter of regular detailed reporting on the portfolio, the teams, the level of risk, the procedures put into place, the expectations and the strategies. The discretionary arrangement may also demand the deposit of assets with a prime broker selected by the customer or else the calculation of the net asset value portfolio funds with a selected institution.

Hedge funds may reveal part of the source of their income information and will accept to do so only under certain conditions. Some examples of these are when the client is in a favorable balance of power because he has a high level of savings, as is the case for pension schemes, and when the hedge fund manager may want a long-term partnership with a financial institution, for example funds of hedge funds, the institution's headquarters if it is the subsidiary of a group. Informational disclosure is the result of economic bargaining, the more influential the clients, the more satisfaction they will get. We can talk about customization in the sense that the customer has access to information he wishes to have. Transparency is put into place between the hedge fund manager and the customer, but only the co-contractors have access to this information which remains confidential.

Contractual disclosure

In this second approach to disclosure, private information is necessarily revealed to all contractors. The contract between hedge funds and clients or hedge funds and prime brokers is standardized. Contrary to the discretionary approach, the information to be disclosed is identical and compulsory for all contractors. This obligation may emanate from a public framework such as the funds' or managers' registration obligation or a leaflet with a list of signals to be published, or it may stem from code of conduct adopted by professional associations. What is at stake is to guarantee good financial service with equal treatment for all the customers or the all prime brokers. Mutual funds are governed in the following way. In Europe, the UCITS directive details all the information which must be mentioned in the leaflet and the advertisement is checked by the regulation authorities. For hedge funds, the idea is to force the publication or communication

of identical information without favoring one or the other. In the case of a contract between hedge funds and their clients, clauses can consist of standardized reporting, the onshore registration of funds/managers, contract standardization with the removal of some clauses such as lock up and minimum amount of investment.

Regulatory disclosure

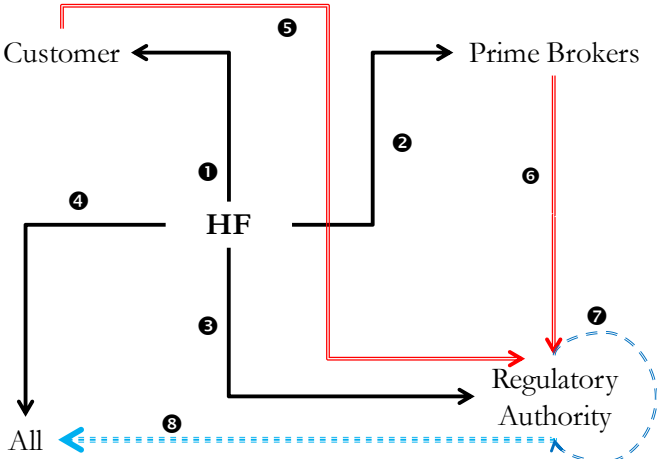
In the third modality, hedge funds have to disclose information to the regulatory authority which is responsible for financial and banking stability. This type of public interventionism is similar to the prudential policy implemented for banks. It could have preventive aims, such as early detection of bankruptcy risks and checking of overall leverage, or possibly curative aims such as determining the key players and defining the appropriate measures. The mode of collecting information can be enforced directly, with hedge funds disclosing information to the regulatory authority, or indirectly, with prime brokers or institutional investors disclosing information obtained from hedge funds. The collected information is not necessarily communicated, but could be disclosed to other national regulatory authorities. In some cases, information could be revealed to all. The disclosed information could involve the leverage, the amount of assets under management, or the main market position.

Public disclosure

The last modality stipulates communication to all. Information is public, available for everyone, whether clients, participants in financial markets, prime brokers or plain citizens. Public disclosure could be justified by the fact that more and more institutional savings (pension funds, insurance, and funds of funds) are managed by hedge funds. Furthermore, as hedge funds portfolio could destabilize market price, announce of their position will promote a fairer market and benefit to everyone. In this liberal world with an equal access to information, everyone could make his own rational choice and evaluate the taken risks. For example, hedge funds could publish their accounts as is the case for public companies. This is already happening in Netherlands when the hedge fund companies rely on public savings and issue shares. It could be also possible to publish regularly financial information, like net value asset or allocation portfolio policy, as for UCITS funds.

Figure 2 summarizes the different ways of disclosing information.

Figure 2: Who discloses to whom?



Hedge Funds could disclose to one or all customer(s) (1), to one or all prime broker(s) (2), to the regulatory authority (3), or to all (4). The regulatory authority could force some regulated clients like insurance companies or pension funds (5) or prime brokers (6) to communicate the

information they received from hedge funds. Lastly, the regulatory authority could communicate the information they collected from hedge funds, prime brokers, or regulated clients to other regulatory authorities, for example to the FSA, SEC, AMF (7) or to all (8). According to our definition, disclosures (1) and (2) are discretionary or contractual modalities; disclosures (3) (5) (6) and (7) are regulatory modalities; while disclosures (4) and (8) are public modalities. The relationships (1) and (2) emphasize the role of auto regulation. The relationship (3) implies direct hedge funds regulation. The relationship (5) refers to an indirect regulation by investment companies (pension fund, insurance, mutual funds companies). The relationship (6) concerns investment bank regulation. The relationship (7) is related to coordination between national market/banking supervisors

3. Data: hedge fund recommendations since LTCM 1998

We carried out an inventory of reports published since 1999 to mitigate specific hedge fund risks (see Annex 1 for references). Proposals have come from public as well as private players: the FED (US Federal Reserve), the FSA (Financial Service Authority), the FSF (Financial Stability Forum), the SEC (Securities and Exchange Commission), the IMF (International Monetary Fund), the IOSCO (International Organization of Securities Commissions), the US PWG (US Presidential Working Group), the AIMA (Alternative Investment Management Association), the HFWG (Hedge Fund Working Group) and the socialist group of the European Parliament (PSE). We introduced in our data base hedge fund draft laws prepared by the EU and the US government. The first one is a draft directive from the European Commission entitled “Alternative Investment Fund Managers” (AIFM). Two draft laws have been published, the first one in 2009 and the second one in 2010. The second one is part of two more comprehensive US regulation reforms, one of which was published by the US Treasury in 2009 while the second one was drafted by Volker in 2010. Our initial set contains 209 proposals, with 30 proposals not related to informational disclosure. They deal with indirect regulation, i.e. regulation on markets and capital requirements for prime brokers, or direct measures to constrain leverage and to limit short selling, for example. Informational disclosure proposals are predominant, accounting for 86% of all proposals. There is a consensus on how to resolve market failures induced by the hedge fund industry, based on prudential policy and market discipline.

Our final qualitative data base contains 179 proposals from 22 reports written by 15 different institutions, with 109 proposals dating from before the crisis and 70 after. There are only 45 different original proposals⁹, some of which are suggested in various different reports. For example, “Initial Due Diligences” is suggested in 13 reports. These proposals have been coded using the criteria described in the previous parts of this article: the level of disclosure (discretionary, contractual, regulatory and public) and the aim (macro/micro misallocation). We would like to mention the intermediate objective, which is to reduce *ex ante* asymmetry, *ex post* asymmetry, financial instability and systemic risk. We have added three elements: the time criterion (after/before the crisis), the nature of the institution (professional, supervisory, political, research) and the geographical origin (Europe, the US, international). We have separately analyzed draft laws published by the EU and the US. Annex 4 gives the characteristics of all the proposals. We have built a variable for each proposal to each report. For example, the AIMA published the *Guide to sound practices for European Hedge funds managers* in 2007, with 10 proposals and we created 10 variables named AIMA20071 to AIMA200710.

Our sample has little data (179 proposals, 45 original proposals), distributed unevenly over time, with various individual contributions (some institutions have published two reports, other one).

⁹See Annex 3 for examples of proposals.

Our data are not cylindrical and nonlinear. That is why is impossible for us to use classical econometric tests. As the aim of our analysis is to classify data, we opt for Kohonen Maps (Self-Organizing Maps). This clustering method is based on Artificial Neural Networks and permits at the same time both to reduce the amount of relevant data by clustering, and for projecting the data nonlinearly onto a lower dimensional display.

4. Descriptive statistics results

This section summarizes the main descriptive results obtained after coding the proposals.

Most of proposals focus on the contractual approach to disclosure, mainly from hedge funds to their clients/prime brokers, and then on the regulatory approach from hedge funds/prime brokers to regulatory authorities and between regulatory authorities (See *Annex 5*). Clients seem to be the favorite recipients of information and prime brokers appear to be the key informational go-betweens between unregulated hedge funds and regulatory authorities. The first two relations are important, but contractual relations between hedge fund managers and clients are at stake. Almost half of the disclosure proposals concern information disclosure from hedge fund managers to their clients. These proposals are consistent with the current regulatory framework: In the absence of direct regulation, the only way to obtain information is a bilateral agreement. Only a few proposals promote a public disclosure.

The 2007-2008 crisis was a turning point insomuch as the proposals¹⁰ aims and disclosure modalities have changed (See *Annex 6*). Before the crisis, the final aim was to optimize micro and macro allocation and the intermediate aims were to mitigate systemic risk as well as to reduce informational asymmetry via contractual disclosure and regulatory disclosure. Since the crisis, proposals mainly aimed at optimizing micro allocation and recommended more contractual relations between hedge funds and clients and prime brokers than between hedge funds and regulation authorities. This result shows that most of the players had identified issues inherent to hedge funds, such as informational asymmetry and systemic risk, before the crisis, but they believed these risks were limited. Players acknowledged that the advantages of hedge fund were greater than the detrimental effects on financial markets. This attitude is consistent with what we have called “regulatory consensus” which respects a good balance between stakeholders’ interests. Hedge funds must benefit from lax regulation, given that they are efficiency-enhancing. Consequently, inherent hedge fund risks could be well controlled via voluntary disclosure by means of the contractual disclosure modality, i.e. market discipline, and not by a restrictive regulatory disclosure modality. The contractual disclosure modality is the linchpin of the change in institutional investors’ governance. “The economic theory of disclosure predicts that hedge funds will disclose information only to the point where the benefits equal the costs. The benefits of disclosure are that a fund can attract more investors, obtain terms more favorable to the fund (e.g., higher fees), and raise capital and enter into trades with counterparties at a lower cost. Hedge funds are increasingly finding that greater transparency is a net benefit, and there is a trend toward disclosing information by voluntarily registering with regulatory bodies” (Shabad, 2007).

It is interesting to consider separately the EU and US draft laws and their change. In times of turbulence, political leaders come to decisions under the pressure of “Main Street”. Political leaders in EU and US decided to propose hedge fund draft laws for the first time in 2009. They endorsed the regulatory disclosure modality to prevent financial instability and systemic risk (priority to macro allocation). The first one is an EU directive proposal for alternative fund managers (April 2009) and the second one is part of the more comprehensive financial reform

¹⁰Proposals related to informational disclosure or not.

plan of the US Treasury (June 2009). Both draft laws were discussed, amended and enhanced during 2009. As a result, a new directive proposal was published in the EU in November 2009 with substantial changes we have included in our data base¹¹. In the United States, a new financial reform plan, the Volcker Plan, has been under discussion since the end of January 2010. This plan is comprehensive, but contains specific propositions inherent to the hedge funds industry and investment banks. We find evidence of continuity in both US hedge funds draft laws. They adopt a macro approach. The US has decided to fight market failures by a macro regulation approach and not to intervene at a micro level to reduce informational asymmetry. On the contrary, the EU, in the second draft directive, tends increasingly to consider it is important to intervene more at a micro level (via contractual disclosure) to fight market failures than at a macro level via regulatory disclosure requirements (See annex 6).



5. Kohonen Maps analysis

The descriptive analyses give us some intuitive results, but this is not enough. Because of the scare and non linear data we have, we decide to use Kohonen maps to comment our database. The Self-Organizing Map (SOM) is the most popular artificial neural algorithm for use in unsupervised learning, clustering, classification and data visualization (Cottrell, Verleysen, 2006). The algorithm has proven to be especially suitable in visual analysis of high dimensional sets, but it could be used also for lower dimensional sets. They have already been applied in various fields in general, and in finance in particular, for clustering elements sharing some similarities. In our case, as there is no consensus about the new hedge fund regulation, the neural classification permits to distinguish proposals and reports and to give us an interpretative analysis of the divergences.

Self Organizing Map

The objective of Kohonen maps (Kohonen, 1995) is the same as that of ACP (principal component analysis), which is to obtain a simple reading of a database. However, the spirit of the two methods is radically different. The Kohonen algorithm is based on the preservation of topology, i.e. the distance between points, between the cloud and the initial representation constructed. Moreover, it permits a more easily understandable classification of qualitative data.

To run a Kohonen algorithm, we have to choose a structure of projection. We have chosen a 3*3 table. During initialization, the algorithm randomly assigns to each cell (*ij*) a vector code size *C_{ij}* (number of variables) by taking an individual *ind* basis and using the formula: *C_{ij}* = *X_{ind}* (vector of variables for the selected individual). During the *t* iterations, the following tasks are performed:

- An individual *ind* is randomly selected in the database;
- The algorithm looks for the code vector box closest to *X_{ind}*, respecting 
- The code vectors of the selected square and the adjacent fields are changed by 

¹¹US final draft law has been promulgated in July 2010 and EU final directive proposal is to be voted in October 2010. Both are in line with last proposals.

The functions $r(t)$ and $\varepsilon(t)$ are called the radius and the gain respectively. They are both positive, decreasing, with no limit at infinity. $\varepsilon(t)$ must be less than 1. The radius function defines the number of adjacent fields changed according to the iteration. The gain function defines the magnitude of the change according to the iteration.

This algorithm is built around the preservation of topology. However, this method has two inherent drawbacks. The first one is that the structure of projection and size are chosen *a priori* and not as the result of calculation. The second one is that the stochastic aspect of the algorithm, random drawings at each stage, can produce different results at the end of the calculation. This disadvantage can be circumvented by repeating the algorithm to ensure convergence by simulation. In our case we repeated the algorithm ten times and got the same projection that we have therefore adopted (Aaron, 2004).

We ran the Kohonen algorithm on the proposal database and on the report database. An individual -proposal or report- is defined by a vector of dimension 6 (discretionary, contractual, regulatory, all, micro aim, macro aim). For example, proposal AIMA20061 is a discretionary modality and has a micro aim. So, vector AIMA20061 is (1;0;0;0;1;0). For reports, we consider the weight of each modality and of each aim. For instance, the vector of HFWG2009 is (0,2;0,8;0;0;1;0).

Given the number of individuals and size of vectors, we had to choose a small size projection (between 4 and 10). We also choose the type of projection (string, tab, and cylinder). We ran the Kohonen algorithm on different projections and different sizes. It appears that the 3 *3 tab reduces the number of the empty classes, is the most robust (similar classes), and the best way to interpret data.

We obtain two Kohonen 3*3 maps: one to classify proposals (Annex 7 and Figure 3), and the other to classify reports (Annex 8 and Figure 4). One map is composed of 9 code vectors, with each code vector characterized by 6 weights (discretionary, contractual, regulatory, all, micro aim, macro aim). A code vector defines a class. By construction, the weights are between 0 and 1. In the map, there is a continuous deformation of code vectors.

Kohonen map of proposals

To facilitate an understanding of Kohonen maps, we will explain the figure in annex 7. This figure is the theoretical map done by the Artificial Neural Networks, as it explains in the previous section. We notice a continuous topological deformation of the code vector in this map. Each connected classes is closed relatively to a Euclidian measure. Class 1 corresponds to a code vector (1;0;0;0;1;0). It groups proposals of informational disclosure based on the discretionary modality with a micro allocation aim. From this northwest point, to the south (classes 4 and 7) and to the east (classes 2 and 3), we observe the deformation the code vector. Toward the south, the weights of discretionary modality and micro aim decrease to 0. At the same time, the weights of regulatory modality and macro aim increase. Toward the east, the weights of discretionary modality decrease to 0. At the same time, the weight of contractual modality increases. We can analyze the same continuous deformation of each class.

In the table presented in the annex 7, each class represents a code vector calculated by the Kohonen algorithm on the basis of our data. Figure 3 gives the result of the Kohonen classifications of proposals: our empirical data (proposals characterized by a vector of six dimensions) are affected to classes calculated by the Kohonen algorithm. Some of the classes are empty, as is true for classes 2, 4 and 8: no proposition corresponds to these classes. Class 1

The first classification enables us to explain the different practical forms of informational disclosure: since a bilateral free agreement to resolve agency problems, to a public disclosure to ensure greater market efficiency. Informational disclosure is ambivalent and the choice between one or another modality depends on political orientation. That is why it is interesting to consider a second classification based on reports in order to reveal the political divergences.

Kohonen map of reports

The second set of Kohonen maps runs a classification on reports. The logic is the same as before. We choose a tab 3*3 (9 classes). Individual is the report characterized by a code vector with 6 dimensions (weight of the different modalities -discretionary, contractual, authority, public-, weight of micro and macro aim). Firstly, we obtain a theoretical neural map (annex 8) and secondly a map with our empirical set (figure 4). We have only one empty theoretical class (class 6). The interests of this classification are double: firstly we notice divergences between the different protagonists and secondly we can observe some evolution before/after the crisis.

Some classes (1, 3, and 9) exhibit orientations underlined previously in the set of Kohonen maps (see figure 4).

- In class 1, informational disclosure is through a public regulator with a macro aim. They correspond to the regulatory type. In the group there are IMF 2007, G20, SEC 2006, Volcker 2010, US Treasury 2009, FSA 2009. This group is more uniform to some extent. It is composed mainly of supervisory and political authorities except for IMF 2007. This group is in line with a Anglo-Saxon liberal tradition: public intervention is justify in order to resolve macro market failures.
- Class 3 is Hayekian type where public disclosure permits resolution of macro and micro mis allocation. The philosophy of this group is to promote public information to prevent market failures in general. Before the crisis, no institution was in this group and since the crisis, there has been only one: PWG 2008.
- Class 9 promotes informational disclosure to clients via respectively discretionary or contractual modality with a micro aim. It corresponds to the individualist contractual type whose aim is to reduce *ex ante/post* informational asymmetry in order to optimize private allocation exclusively. This means that this group recognizes that hedge funds may induce huge informational asymmetry because of their business model, but does not at all acknowledge their negative effects concerning systemic risk. Consequently, information disclosure must be referred to only with their clients via contractual and discretionary modalities. The hedge fund professional associations AIMA and HFWG have belonged to this group after the crisis.

For these three classes, the logic of reports is consistent to the logic of classification of proposals. The other classes of reports are a mix of different logics of proposals. Some of them have a main modality (classes 7 and 8) or a main macro objective (classes 2, 4, and 5).

- Class 7 promotes mainly contractual modality and secondary authority modality. The aim is double: resolve macro and micro mis allocation. This collective contractual type contains: IOSCO 2009, PWG 1998, EU 2009 and 2010, FSF 2007.

- Class 8 promotes mainly individualist modality (discretionary and contractual) to resolve micro misallocation. But, it contains also some authority modality to macro misallocation. This group contains two reports issued before the crisis (HFWG 2007 and AIMA 2007) by hedge fund professional associations. It is closed to the class 9.
- Class 2 has a main macro objective and mobilizes a set of modalities of disclosure. This group is more heterogeneous with regulation authorities, political authorities, and international institutions: PSE 2007, G8 2007, FSF 2007 and FMI 2007. After the crisis, none report is in this group.
- Class 4 has also a main macro objective but the modalities are more explicit: authority and contractual. It contains only one report: SEC 2006.
- The last class (5) is a mix of macro and micro objectives (even if macro objective is dominant) and a mix of modalities (with predominance of discretionary and authority modalities). It contains three reports issued before the crisis: IOSCO 2006, FSA 2005 and FED 2006.

The classes 2, 4 and 5 are close they promote a mix of modalities to resolve macro misallocation. We call them the consensual type.

Consequently, we have distinguished among five groups of players by final and intermediate aim and by disclosure modality: class 1 - the regulatory type, classes 2, 4, and 5, the consensual type, class 3 the Hayekian type, class 7 the collective contractual type, and classes 8 and 9 the individualist contractual type.

Figure 4: Classification of reports

1	2	3
G20 2009	PSE 2007	PWG 2008
Volcker 2010	G8 2007	
US treasury 2009	FSF 2007	
FSA 2009	FMI 2007	
4	5	6
SEC 2006	IOSCO 2006	
	FSA 2005	
	FED 2006	
7	8	9
IOSCO 2009	HFWG 2007	HFWG 2009
PWG 1998	AIMA 2007	AIMA 2009
UE 2010		
FSF 2007		
UE 2009		

Source: Authors' calculation

This new Kohonen classification permits to classify reports and to observe some evolution before/after the crisis:

- the change for the professional associations AIMA and HFWG from the contractual/micro regulation form to the discretionary/micro regulation form after the crisis (from class 8 to class 9);
- the original orientation of PWG for the public disclosure/macro and micro regulation form after the crisis (class 3, the Hayekian type);
- the renunciation of the consensual type regulation by the international institutions after the crisis. They change for the regulatory type (FSA, G20) or the collective contractual type (IOSCO, FSF).

What is at stake in this set of Kohonen classification is to apprehend the new hedge funds regulation in the US and EU. We find evidence that the regulation in EU seems to rest on a mix of contractual/regulatory modality and macro/micro (class 7, collective contractual type) while in the US it is only based on regulatory modality /macro aim regulation form (class 1, the regulatory type). This divergence reveals the different types of logic to think of financial regulation as the opposition of private versus public interest and the Anglo-Saxon versus the Continental European approach.

Conclusion

In this paper, we focus on a particular form of hedge fund regulation: market discipline via information disclosure. Indeed, information disclosure seems to have two advantages: it is an appropriate way to reduce the lack of transparency and particularly *ex ante* / *ex post* informational asymmetry, which may induce micro and macro misallocation involving investor/counterparty damage and financial stability respectively. However, achieving transparency is a difficult task. We have proposed an original typology of disclosure modalities by distinguishing between the aim of informational disclosure (macro/micro allocation) and the recipient of disclosure. We have considered a continuum of informational disclosure agreements: informational disclosure by discretionary deals (private information disclosed by mutual agreement between hedge funds and their clients), by contractual agreement (compulsory information disclosure to all clients), by regulatory requirement (compulsory disclosure to regulators) and via a public modality (public information disclosure).

As most draft law proposals come from regulation recommendations made by experts in their reports, we have analyzed those inherent to hedge funds since 1998 (LTCM bail out) through this typology. Our empirical survey has allowed us to distinguish among five different types of player logic: liberal, collective, consensual, interventionist and Hayekian. These types correspond to different typologies of agreements concerning information disclosure and final aim. They are sorted by increasing order of transparency and from micro to macro allocation aim. Thanks to this typology, we can classify recommendations which have emanated from various institutions and understand the social emergence of new financial regulation in the hedge fund industry.

This typology highlights the divergence between the public view of regulation and the private view. The second one claims for auto regulation to resolve market failures, while the first one promotes the intervention of public authority.

Lastly, this typology also reveals that the US and the EU diverge on the configuration of hedge fund regulation. The final aim and the way of achieving it are quite different. Indeed, for the first time since the beginning of the hedge fund industry in the 1950's, hedge fund draft laws are to be promulgated in the EU and the US. The first is specific to hedge funds while the second is in line with the comprehensive US financial reform. The EU regulation form seems to be a mix of contractual and regulatory agreement modalities in order to enhance macro as well as micro allocation. This choice of regulation form is close to that promoted by international institutions, which is a mix of disclosure modalities to support macro allocation. The EU Commission considered that intervention was necessary at both micro and macro levels. The US administration seems to support a regulation form whose final aim is to optimize macro allocation mainly via regulatory agreement modalities. For the US, supervisors are the only ones able to prevent financial instability and systemic risk and this is why they have to collect information from hedge funds. The US considers that there is no need for a specific law for hedge funds. The issue of information asymmetry is a contractual concern which must be solved between main stakeholders (clients/hedge funds and prime brokers/hedge funds) without external intervention. As a result we understand better the opposition of the US to the first European draft proposal that tended to be more restrictive at the micro level. This form of regulation is not in line with that of the US. No draft laws have taken into account the regulation form supported by the AIMA and HFWG hedge fund professional associations and which is based on the modality of agreement contractual/micro allocation. The same is true for the Hayekian type regulation form which has promoted the agreement modality public disclosure/macro and micro regulation since the crisis. This typology is useful tool to follow the evolution of hedge fund regulation proposals until the law is promulgated.

Annex 1: Sources of empirical framework

Before the Crisis :

- AIMA(2007), *Guide to sound practices for European Hedge funds managers*, May.
- Financial Stability Forum (2000), “*Report of the Working Group on Highly Leveraged Institutions*”
- Financial Stability Forum, (2007), “Hedge funds”, numéro spécial, *Revue de la Stabilité Financière*, avril.
- FSA, Financial Services Authority (2005a), *Wider-range Retail Investment Products: Consumer protection in a rapidly changing world*, Discussion Paper 05/3.
- FSA, Financial Services Authority, (2005b), *Hedge funds: A discussion of risk and regulatory engagement*, Discussion Paper 05/4.*
- HFWG, Hedge Funds Working Group (2007), Hedge funds standards, Consultation Paper; October
- IMF, The International Monetary Fund Global Financial Stability report, GFSR (2007), *Financial Market Turbulence, causes consequences and policies*, October.
- IOSCO (2006), *The regulatory environment for hedge funds: a survey and comparison*.
- IOSCO (2007), *Policy statement on hedge fund valuation principles*, October.
- Rasmussen N. and Van den Burg I. (2007), “*Capital Funds: a Critical Analysis*”, Report of the European Parliament, April.
- U.S. Securities and Exchange Commission (2006), *Performance and Accountability Report*.
- US President’s Working Group on Financial Markets (1999), “*Hedge funds, leverage, and the lessons of Long-Term Capital Management*”, April.
- US President’s Working Group (2007a), “*Hedge Funds and Systemic Risk: Perspectives of The President’s Working Group on Financial Markets*”, July.
- US President’s Working Group (2007b) “*Agreement among PWG and US Agency principals on principles and guidelines regarding private pools of capital*” February.

After the crisis:

- AIMA (2009), “*Guide to Sound Practices for Hedge Fund Administrators*”, September
- Financial Stability Board, FSB (2009), Overview of Progress in Implementing the London Summit Recommendations for Strengthening Financial Stability, Report of the Financial Stability Board to G20 Leaders, September.
- G20 summit (2008) press release, October
- G20 summit (2009) press release, April
- HFSB (2009), “HFSB proposes toughening standards and announces new signatories”.
- HFSB (2009), “Response to FSA Discussion Paper 09/21: A regulatory response to the global banking crisis”
- HFSB Consultation Paper (CP1/2009): Hedge Fund Redemptions
- IOSCO (2009), Technical committee of the international organization of securities commissions, “Hedge funds oversight final report”, June.
- The Turner Review: a regulatory response to the global banking crisis, 2009
- US President’s Working Group (2008), “*Policy Statement on Financial Market Development*”, March.

EU and US Draft Laws:

- Directive of the European Parliament and Council on Alternative Investment Fund Managers (AIFM) First Proposal – April 2009
- Directive of the European Parliament and Council on Alternative Investment Fund Managers (AIFM) Second Proposal with amendments – November 2009 (Gauzes report)
- Directive of the European Parliament and Council on Alternative Investment Fund Managers (AIFM) Final Proposal – May 2010

US Treasury financial regulation reform, Geithner Plan (June, 2009)
Financial reform, a framework for financial stability, Volcker plan (January 2010)
Financial reform bill, (July 2010)

Annex 2: Presentation of the different protagonists

Proposals are from different nationalities, some European, others American or international. We can classify them in four categories. Some of the recommendations come from professional industry or regulatory authorities, others emanate from political leaders or academic researchers. Most of them have published recommendations before the crisis and after the crisis.

AIMA and MFA are hedge fund professional organizations. AIMA is the hedge fund industry's global, not-for-profit trade association with over 1,100 corporate members worldwide based in the UK. Members include leading hedge fund managers, funds of hedge fund managers, prime brokers, legal and accounting services and fund administrators. AIMA is committed to education standards and sound practice manuals. Managed Funds Association is AIMA's US counterpart. Its members are professionals in hedge funds, funds of funds and managed futures funds, as well as industry service providers. Established in 1991, MFA is the leading advocate for sound business practices and industry growth

The Hedge Fund Standards were drawn up by the Hedge Fund Working Group (HFWG). The HFWG, comprising 14 of the leading hedge funds based mainly in London, was set up in 2007 in response to concerns about the industry, including financial stability, risk management, evaluation and voluntary information disclosure. Its aims are to develop guidelines in these areas. The Hedge Fund Standards Board Ltd (HFSB) is a company limited by guarantee. It was set up to monitor conformity to the hedge fund best practice standards. As a custodian of the best practice standards it has the responsibility of ensuring that they are updated and refined as appropriate.

FED and SEC are regulatory authorities. The first is the central bank of the United States. It was founded by Congress in 1913 to provide the nation with a safer, more flexible, and more stable monetary and financial system. The mission of the U.S. Securities and Exchange Commission SEC is to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation. The SEC oversees the key participants in the securities world, including securities exchanges, securities brokers and dealers, investment advisors, and mutual funds. Here the SEC is concerned primarily with promoting the disclosure of important market-related information, maintaining fair dealing, and protecting against fraud.

The Financial Services Authority (FSA) is an independent non-governmental body, given statutory powers by the Financial Services and Markets Act 2000. The FSA is accountable to treasury ministers and through them to parliament. It is operationally independent of government and is funded entirely by the firms it regulates. It is a unique regulator of all providers of financial services in the UK (as well as BAFIN) but Bank of England retains responsibility for systemic risk.

The International Organisation of Securities commission (IOSCO) was born in 1983 from the transformation of its ancestor inter-American regional association (created in 1974) into a truly international cooperative body. IOSCO is recognized as the international standard setter for securities markets. The Organization's wide membership regulates more than 90% of the world's securities markets and IOSCO is the world's most important international cooperative forum for securities regulatory agencies. IOSCO members regulate more than one hundred jurisdictions and the Organization's membership is steadily growing. Its role is to develop international standards.

The Financial Stability Forum (FSF) was a group consisting of major national financial authorities such as finance ministries, central bankers and financial bodies. The Forum was founded in 1999 to promote international financial stability. It facilitated discussion and co-operation on supervision and surveillance of financial institutions, transactions and events. The G20 summit on April 2009 decided to establish a successor to the FSF, the Financial Stability Board. The FSB includes members of the G20 who were not members of the FSF.

The Working Group on Financial Markets (President's Working Group) was created in March 18, 1988 by Ronald Reagan. The Group was established explicitly in response to events in the financial markets during the period around October 19, 1987 to give recommendations for legislative and private sector solutions for "enhancing the integrity, efficiency, orderliness, and competitiveness of US financial markets and maintaining investor confidence". The Group is compounded of the secretary of treasury, the chairman of the board of governors of the Federal Reserve System, the chairman of the SEC and the chairman of the CFTC, Commodity Futures Trading Commission.

The Group of Twenty, G20, finance ministers and central bank governors was established in 1999 to bring together systemically important industrialized and developing economies to discuss key issues in the global economy. The G20 was created as a response both to the financial crises of the late 1990s and to a growing recognition that key emerging-market countries were not adequately included in the core of global economic discussion and governance.

The International Monetary Fund (IMF) is an organization of 186 countries, working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world.

The European Commission embodies and upholds the general interest of the Union and is the driving force in the Union's institutional system. Its four main roles are to propose legislation to the Parliament and the Council, to administer and implement Community policies, to enforce Community law (jointly with the Court of Justice) and to negotiate international agreements, mainly those relating to trade and cooperation. It published the first AIFMs “Alternative Investment Funds Managers” directive proposal in April 2009 and the second one in November 2009.

The US Treasury Department is the executive agency responsible for promoting economic prosperity and ensuring the financial security of the United States. The Department is responsible for a wide range of activities such as advising the president on economic and financial issues, encouraging sustainable economic growth, and fostering improved governance in financial institutions.

The former chairman of the Federal Reserve under Presidents Carter and Reagan was made chairman of the Economic Recovery Advisory Board. He (became at the center of financial and economic debate in January 2010 when Barack Obama endorsed his proposed separation between commercial banking and proprietary trading, a plan dubbed, the “Volcker Rule”.

Annex 3: Encoding of proposals (sample)

Description of proposals	Relation	#	Inform. disclosure	Aim	Intern. Obj.	% Total proposals	% Total proposals before the crisis	% Total proposals after the crisis
<i>Ex ante</i> due diligences	HF=>C	16	2	1	1	8,9%	10,1%	7,1%
Stress tests at aggregate level	HF=>RA	11	3	2	3	6,1%	10,1%	0,0%
Obligation of registration of hedge fund companies	HF=>C	10	2	1	1	5,6%	5,5%	5,7%
Minimum standard of regular and complete disclosure	HF=>C	10	2	1	2	5,6%	5,5%	5,7%
Rules to ensure an equitable treatment of the investors by hedge funds and counterpart	HF=>C	10	2	1	2	5,6%	9,2%	0,0%
Ongoing due diligences	HF=>C	9	2	1	2	5,0%	4,6%	5,7%
Obligation for prime brokers to inform regulators about risk exposure	PB=>RA	9	3	2	4	5,0%	6,4%	2,9%
Best practices	HF=>C	7	1	1	2	3,9%	4,6%	2,9%
Reinforcement of international cooperation between regulatory authorities and hedge funds	HF=>RA	7	3	2	4	3,9%	3,7%	4,3%
Reinforcement of international cooperation between financial and banking regulators	RA	6	3	2	4	3,4%	3,7%	2,9%
Obligation to disclose information about hedge funds with high leverage	HF=>RA	6	3	2	4	3,4%	0,0%	8,6%
Disclosure of stress tests and comments	RA=>AL L	6	4	2	3	3,4%	5,5%	0,0%
Bi-annual surveys on prime brokers aiming to evaluate their exposure to hedge funds	PB=>RA	5	3	2	3	2,8%	1,8%	4,3%
Creation of a systemic risk authority	RA	5	3	2	4	2,8%	0,0%	7,1%
Public disclosure about aggregate leverage of hedge funds	RA=>AL L	5	4	2	3	2,8%	0,0%	7,1%

Source: Authors' calculation

These proposals have been coded using the criteria described in the previous parts of this article: the level of disclosure (discretionary (1), contractual (2), regulatory (3) and public (4) and the micro (1)/macro misallocation (2) aim of disclosure; the intermediate objectives, which is to reduce *ex ante* asymmetry (1), *ex post* asymmetry (2), financial instability (3) and systemic risk (4).

Annex 4: Some proposals made by institutions* (sample)

Institution	Variables	Inform. Disclosure	Aim	Intermediate Objective	Time*	Origin	Status	Proposals
AIMA	AIMA20061	1	1	1	1	1	1	Reputation
AIMA	AIMA200611	2	1	2	1	1	1	Ongoing due diligences
AIMA	AIMA20065	2	1	1	1	1	1	Minimum standard of regular and complete disclosure
AIMA	AIMA20091	1	1	2	2	1	1	To appoint an independent third party
AIMA	AIMA200910	2	1	4	2	1	1	Reinforcement of international cooperation between regulatory authorities and Hedge Funds
AIMA	AIMA20092	1	1	2	2	1	1	An independent and competent valuation service provider
AIMA	AIMA20093	1	1	2	2			Detailed valuation policy document, approved by the Governing Body after consultation with other stakeholders
FED	FED20061	1	1	2	1	2	2	To develop benchmarks
FMI	FMI20074	2	1	1	1	3	4	Initial due diligences
FSA	FSA20051	1	1	2	1	1	2	Best practices
FSA	FSA20052	2	1	1	1	1	2	Hedge fund managers' registration with supervisors
FSA	FSA20055	2	1	1	1	1	2	To promote on shore hedge funds
FSF	FSF20092	2	1	1	2	3	2	Using independent control procedures

Source: Authors' calculations

* We have added three elements: the time criterion (before the crisis (1), after the crisis (2)), the nature of the institution professional (1), supervisory (2), political (3), research (4) and the geographical origin (Europe (1), US (2), international (3)).

Annex 5: Characteristics of informational relationships

Who discloses to whom ?	Different proposals	#	Before crisis	After crisis	Informational Disclosure				Aim		Intermediary Objective			
					Discretionary	Contractual	Authority	Public	Micro	Macro	Ex ante	Ex post	Financial Instability	Systemic Risk
Hedge Funds to all	4	7	5%	3%	0%	0%	0%	100%	71%	29%	71%	0%	29%	0%
Hedge Funds to clients	24	92	47%	59%	18%	82%	0%	0%	100%	0%	40%	60%	0%	0%
Hedge Funds to Prime Brokers	1	4	4%	0%	0%	100%	0%	0%	0%	100%	0%	0%	100%	0%
Hedge Funds to Regulatory Authority	6	31	19%	14%	0%	0%	100%	0%	0%	100%	0%	0%	55%	45%
Prime Broker to Regulatory Authority	4	19	13%	7%	0%	0%	100%	0%	0%	100%	0%	0%	37%	63%
Between Regulatory Authorities	2	11	4%	10%	0%	0%	100%	0%	0%	100%	0%	0%	0%	100%
Regulatory Authority to all	4	15	9%	7%	0%	0%	0%	100%	0%	100%	0%	0%	80%	20%
#	45	179	109	70	17	79	61	22	97	82	42	55	42	40

Source: Authors' calculations

Lecture: Our sample contains 4 different proposals for the modality of disclosure Hedge Funds to all. As some of them are present in different reports, we have in our set of proposals 7 proposals Hedge Funds to all. They represent 5% of proposals before the crisis and 3% after the crisis. The modality of disclosure is public disclosure at 100%. The aim is to resolve micro misallocation at 71% at macro misallocation at 29%. The intermediary objective is to reduce ex ante asymmetry at 71% and financial instability at 29%.

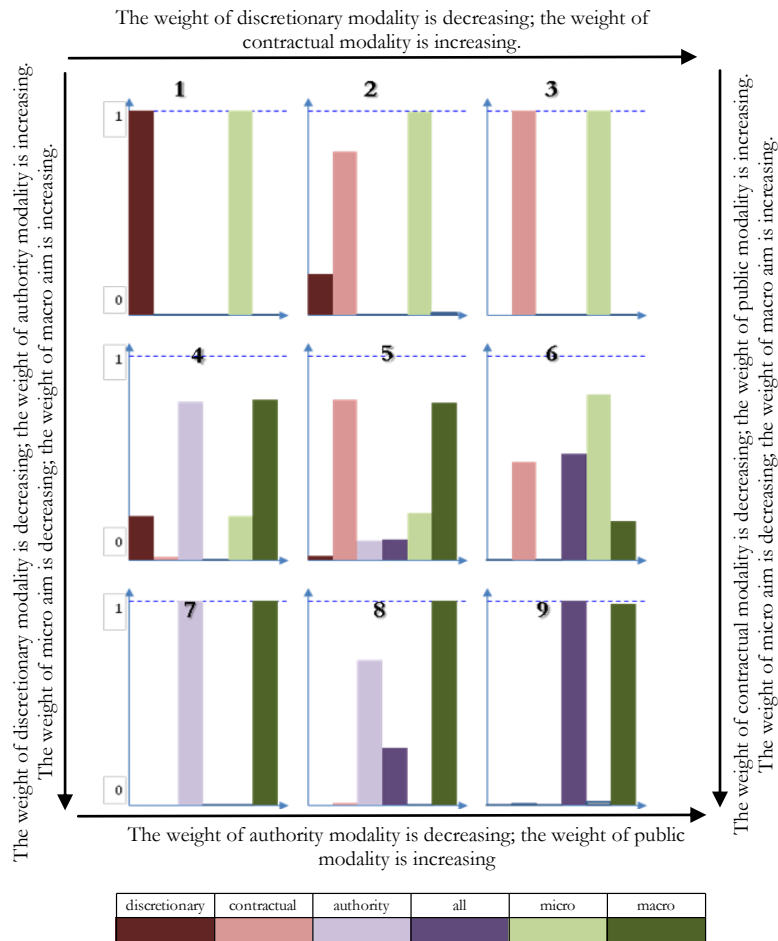
Annex 6: Characteristics of proposals

Proposals of informational disclosure		Total	Before crisis	After crisis	EU Law Draft 2009	EU Law Draft 2010	US Law Draft 2009	US Law Draft 2010	After crisis except draft law
#		179	109	70	8	7	4	3	48
Informational disclosure	Discretionary	9%	8%	11%	0%	0%	0%	0%	17%
	Contractual	44%	42%	46%	50%	57%	25%	33%	46%
	Authority	34%	36%	33%	38%	29%	75%	67%	23%
	Public	12%	14%	10%	13%	14%	0%	0%	15%
Intermediate Objective	Ex ante asymmetry	23%	21%	27%	25%	14%	25%	33%	29%
	Ex post asymmetry	31%	28%	34%	25%	43%	0%	0%	40%
	Financial instability	23%	31%	11%	13%	14%	0%	0%	13%
	Systemic risk	22%	19%	27%	38%	29%	75%	67%	19%
Finality	Micro	54%	50%	61%	50%	57%	25%	33%	69%
	Macro	46%	50%	39%	50%	43%	75%	67%	31%

Source: Authors' calculations

Lecture: The discretionary modality represents 9% of the total of proposals, 8% before crisis and 11% after crisis. This modality is not contained in the EU and US draft Law (2009 and 2010). It represents 17% of proposals issued after the crisis without draft laws.

Annex 7: Kohonen Map of proposals

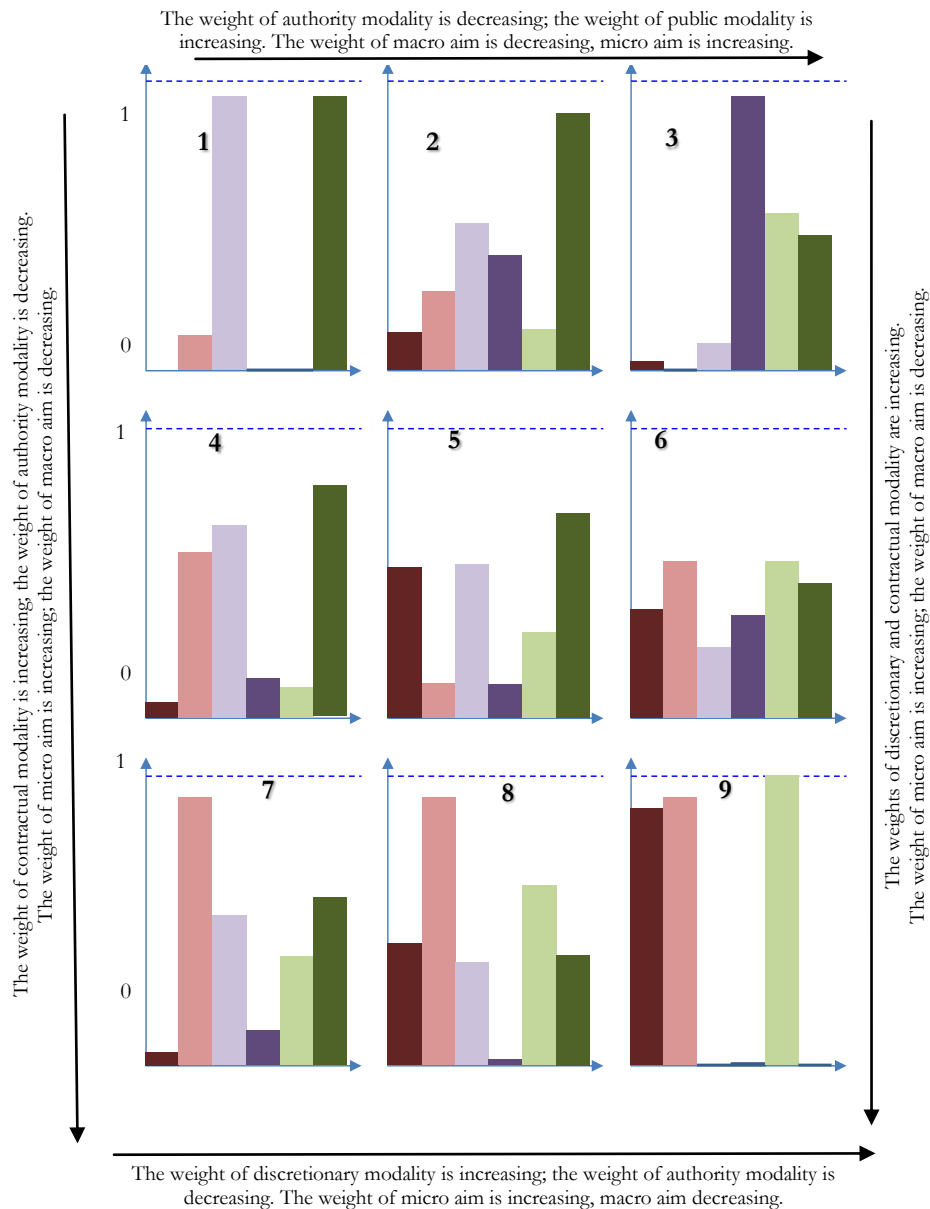


Source: Authors' calculation

Lecture: The class indexed 1 includes individuals (proposals) whose code vector is (1, 0, 0, 0, 1, 0). It corresponds to proposals that promote a discretionary disclosure with micro-economic objective.

The class indexed 5 includes individuals (proposals) whose code vector is (0,02 ;0,78; 0,09; 0,10; 0,23; 0,76). It corresponds to proposals that promote mainly a contractual disclosure with macro-economic objective.

Annex 8: Kohonen map of reports



Source: Authors' calculation

Lecture: The class indexed 1 includes individuals (reports) whose code vector is (0,00;0,30;0,69;0,00;0,00;0,69). It corresponds to reports that promote mainly an authority disclosure with macro-economic objective.

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