

When Trust Makes it Worse –

Rating Agencies as Dis-embedded Service-Systems in the US Financial Crisis

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1. Introduction

Although the US financial crisis has been described as “**a systemic breakdown**” by the THE FINANCIAL CRISIS INQUIRY COMMISSION no system theoretical analysis of the crisis does exist. This is surprising because The FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES written by THE FINANCIAL CRISIS INQUIRY COMMISSION (FCIR, 2011) and published in January 2011 (FCIR) uses the word “system” 485 times without any reference to system theory. 96 times it is used as “financial system” and 84 times as “banking system”. The reader of the FCIR may wonder what the authors mean by ‘system’ but there is no answer in the FCIR not even in the glossary in appendix A. The term is mostly used as a black box; people somehow dealt with it, put money into it and took money out of it etc. Hence the term “system” is used implicitly and this gives enough reason to interpret it through a system theoretical lens and to look at the US financial crisis from a system theoretical perspective. In this perspective the focal point of trust is not “upon faith in the ‘moral uprightness’ (good intentions) of others” but it “rests upon faith in the correctness of which one is ignorant” (Giddens, 1991, pp. 33-34) because one is not an expert.

Common explanations of the crisis do not use system theoretical approaches to explain the crises instead highlight on individual’s or organizational’s moral or legal responsibility or focus on “wrong” incentives as being “responsible” for the crisis. In this vein Allan and Carletti argue: "There was fairly wide agreement that poor incentives in the U.S. mortgage industry had caused the problem" (2010, p. 3). "The Federal Reserve created a significant incentive for people in many parts of the country to go out and borrow at 1% and buy houses

going up at a much higher rate." (Allen & Carletti, 2010, p. 6). This causation is implicitly based on the assumption of incentive oriented (controllable) individuals. Furthermore it doesn't give an answer it just transfers the question of "poor incentives" to a next level: Who sets incentives for those who set the incentives? Or to put it differently: where the poor incentives set by people who followed poor incentives which were set by people following poor incentives....? It is easy to see that this way of "explanation" does either lead to an infinite regress or to a circular causation. From a system theory perspective it can be discussed how incentives emerge without being precisely intended the way they come out to be. This holds in particular for symbolic token which always have to be interpreted in a specific context. Furthermore incentives are usually communicated by use of signs or symbols which carry information and it is not always clear whether this information is correctly understood or not. This aspect of incentives is not yet discussed in explanations of the crises.

This paper will use a systems theory perspective to firstly describe the crisis in a systems theory terminology and secondly to "explain" it as a re-embedding dis-embedded system in a Giddens' sense. It will argue that communication between rating agencies and investors became a *symbolic token* (Giddens, 1991) which disconnected itself from the reality of securities. It emerged as a closed loop communication between the rating agencies and the investors, no more referring to the securities behind the investments. Then as the investors made their claims, they could no longer be met. The investors' acquired rights could not be fulfilled and the crisis became apparent.

The paper will describe how the sign system "rating" could dis-embedd from reality and became a dis-embedded symbolic token. If such a dis-embedded system develops in congruence with "reality" there is no danger and dis-embedded system can re-embed. To give a metaphorical picture: If a man jumping on a helicopter from a moving train (like in a James Bond or Mission Impossible movie) wants to get back on the moving train it is important that

the helicopter flies with the same speed into the same direction as the train does. Otherwise the man is in trouble. The helicopter stands for the abstract system which can “develop” (move) in congruence with the train (reality) or not. The abstract system can disembedd, (disconnect the man from the train) it can drift away (fly away) or it can develop in congruence with the “reality” from which it dis-embedded. However to re-embed (man getting back on the train) it has to develop in congruence. Later we will go beyond this analogy in more detail.

The paper is structured as follows: In the next section abstract systems are described and it is explained how they operate as symbolic token. Hereafter section three describes investors, securities, rating agencies and ratings in a systems theoretical terminology and derives explanatory hypotheses for the crises. Section four uses the “*THE FINANCIAL CRISIS INQUIRY REPORT*, submitted by THE FINANCIAL CRISIS INQUIRY COMMISSION Pursuant to Public Law 111-21 January 2011” (further called FCIR) to further analyze the hypotheses. Section five concludes with a discussion.

2. Abstract Systems

2.1. Expert systems and symbolic token

Following Giddens societal systems can be distinguished into face-to-face systems and faceless commitments (Giddens, 1991). „The former refers to trust relations which are sustained by or expressed in social connections established in circumstances of co-presence. The second concerns the development of faith in symbolic tokens or expert systems, which, taken together, I shall term *abstract systems*.” (Giddens, 1991, p. 80).

“By expert system I mean systems of technical accomplishment or professional expertise that organize large areas of the material and social environment in which we live today.” (1991, p.

27). Nowadays life is full of expert systems. When sitting in my house, I am involved in an expert system or even in the network of expert systems. I rely on the heating system as well as on the energy flow. When I travel I rely on the airplanes as well as on the pilots' ability to find them. On the other hand most people are part of expert systems. Like lawyers, architects, doctors and rating agencies can be understood as expert systems in this sense. Since lay actors don't have the expertise of expert systems they usually have to trust them. This trust is not mainly in people but in the system or more precisely "we can speak of trust in symbolic token of expert systems, but this rests upon faith in the correctness of principles of which one is ignorant, but upon faith in the 'moral uprightness' (good intention) of others." (Giddens, 1991, pp. 33-36). Expert systems emerge based on the division of labor and specialized skills or knowledge. Lay actors, people who do not belong to the specific expert system, do not fully understand what the experts do. Otherwise they wouldn't need an expert system. In this vein rating agencies are expert systems serving investors by giving information on securities.

By use of their expertise rating agencies produce ratings. These ratings are intended to inform investors about securities. In Giddens' terminology a rating can be understood as a symbolic token. "By symbolic tokens I mean media of interchange which can be "passed around" without regard to the specific characteristics of individuals or groups that handle them at any particular juncture." (Giddens, 1991, p. 22). Symbolic tokens are comparable to the character of currencies. They refer to something but they don't need the referred to be exchanged. Money is an example for a symbolic token but also gradings, ratings and rankings, they are media of interchange. Symbolic token usually don't need additional information to be understood. Everybody knows what five dollars or five Euros mean. Everybody knows what it means when his or her daughter comes home from school with an A. And finally everybody knows what AAA means. But think a minute on how we know what these symbolic token are

“saying”. How do they carry the right information and how is it assured that this information is correctly understood?

2.2. Trust and symbolic token

Symbolic tokens are signs which carry meaning for those using them. Thereby symbolic tokens reduce the complexity of information into several simple signs (AAA, AA+, etc.). Since lay actors usually don't understand the complexity of information in question they have either to trust symbolic tokens or not to use them. How is this trust rationalized from a systems theory perspective? For Giddens as for Luhmann trust in social systems is a mechanism to reduce complexity. For both it is not a moral issue. “We can speak of trust in symbolic tokens or expert systems, but this rests upon faith in the correctness of principles of which one is ignorant, not upon faith in the ‘moral uprightness’ (good intentions) of others.” (Giddens, 1991, pp. 33-34). Hence the understanding of trust in social systems theory is different from any moral inquiry. It makes a differentiated social system possible where no one can understand everything anymore. Luhmann explicitly connects trust to the symbolic. “This is why it (trust, the author) depends on symbolic cover: it reacts to critical information not because of the facts that they report, but because they function as indicators of trustworthiness.” (Luhmann, 1995, p. 129). This understanding of trust is not just a two person relational affair but needs a third instance or entity of reference. “There is no way to trust in anyone in a system where one is not able to refer to an independent consensus” (Crozier, 1963, p. 298); a consensus about an entity of reference which is not necessarily understood by people giving trust. In such situations trust enables people dealing with symbolic tokens as condensed information because they don't understand the full information describing the whole situation in question. A teacher's grading by a single letter like A, B etc. only tells parent something if they trust in the teacher's expertise and if they know what an A,

B etc. means. Hence by means of signs or symbolic tokens lay actors trust the expertise of others as well as the meaning of a symbolic token. To describe such a situation and to see how trust and symbolic token work together it is reasonable to start with Gregory Bateson's perspective on information (Bateson, 1970). A Shannon (Shannon, 1949/1998) perspective is explicitly excluded here because it doesn't involve "meaning" "Frequently the messages have meaning. *These semantic aspects of communication are irrelevant to the engineering problem.*" (Shannon, 1949/1998, p. 31). Weaver interprets this sentence like follows. "In fact, two messages, one of which is heavily loaded with meaning and the other of which is pure nonsense, can be exactly equivalent, from the present viewpoint, as regard information. It is undoubtedly, that Shannon means when he says that '*These semantic aspects of communication are irrelevant to the engineering problem.*'" (Weaver, 1949/1998, p. 8). Instead of the Shannon/Weaver approach Gregory Bateson defines information as "the difference which makes a difference". (Bateson, 1970, p. 7). This definition serves as a starting point for our analysis. Any difference is based on a distinction and any sign or token is a distinction insofar as it designates something and by doing so it distinguishes the designated from the rest of the world and between the designated and the rest is a difference in Bateson's sense. By naming something we simultaneously draw a distinction between it and the rest of the world. This is an implication of George Spencer-Brown's calculus (Spencer-Brown, 1969), which says whenever one names something the precondition of marking it by a name is a distinction. The drawing of the distinction and the marking of one side of the distinction is always done simultaneously. In drawing the distinction and marking one side of the distinction the other side of the distinction is also clear and introduced as well as the space in which the distinction was made. This distinction creates a difference, a difference which makes a difference. Hence the first difference of Bateson's definition can be understood as the difference made by naming something. According to Bateson's definition this difference has to make a difference. What kind of difference is the latter one?

To give an introductory example: If person A says to person B: "yesterday a man died".

Person A makes a difference by distinguishing a man from the rest of the world. However this difference doesn't necessarily make a difference for person B, if person B has no idea who this person was. If however A says "your father died yesterday" this makes also a difference for B and with this second difference the first difference becomes information. The sentence "Yesterday a man died" was just news not information, because the first difference didn't make a difference. There are however other differences in the information context which are important. For our purpose here it is reasonable to distinguish four differences:

- 1) The difference the Sign indicates in being a sign (not noise) (SD for sign difference),
- 2) The difference a sign sending observer (SO; sending observer) wants to indicate by using the sign (SOD for sending observer's difference)
- 3) The difference a sign receiving observer (RO receiving observer) indicates by receiving the sign and (ROD for receiving observer's difference)
- 4) An entity of reference (if available) to which the differences refer (ER; entity of reference).

Any sign which is used gets its functional appreciation in being a sign as a selection out of a set of alternative signs and with this it marks a difference with the other signs. The difference a sign sending observer wants to indicate by using the sign is his understanding or his meaning of the sign. Without any meaning he wouldn't send the sign. However this (his) meaning is not necessarily the meaning a sign receiving observer associates with that sign. Understanding presupposes a common understanding at least to some degree. To reach this degree means to relate it to an entity of reference.

Figure 1 on the one hand connects this terminology to a well known example (teacher's grading) and on the other hand connects the terminology to the key elements of a symbolic token as an abstract system. A teacher (SO) grades a written examination (ER) of a student (RO) with a C (SD). The teacher's idea of the quality of the exam is his difference being

indicated by a C (SOD). The student's idea of his exam is his difference indicated by a C (ROD). The C is the difference the sign C indicates in this context; it is not an A, B, D, E or F; it is a sign and not noise (SD); the teacher's idea (SOD) of the written examination causing the grading; Student's idea of the received C (ROD); and finally the written examination as the entity of reference (ER). There might also be other observers (OO) with their own differences like class mates, parents etc.; OOD (other observers' differences).

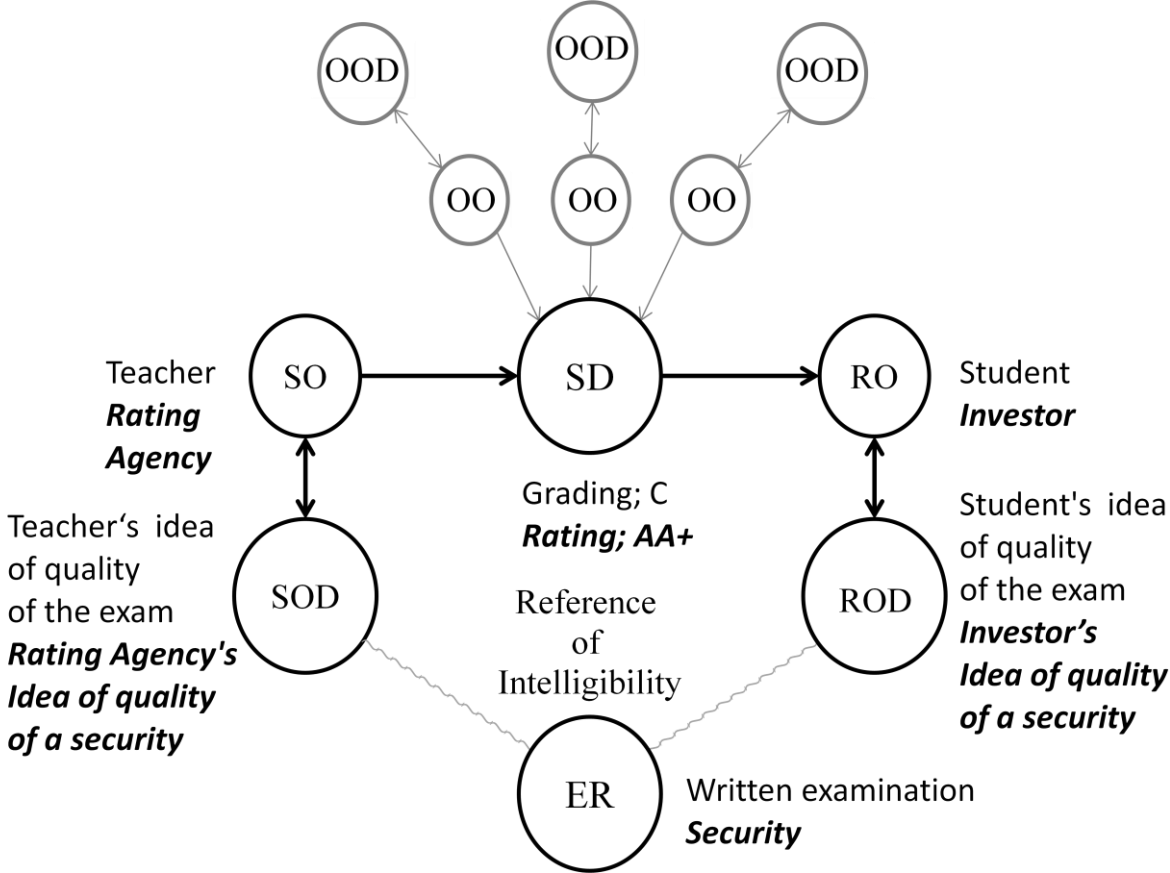


Figure 1 is explained in the text.

The similar holds for the rating agencies: The Rating itself is the first difference, AAA, AA+, and other signs (SD). The rating agency (SO) uses the sign based on its idea of quality (SOD)

of a security (ER) to support investors (RO). Reading the rating investors have an idea of the quality of the security (ROD) on which they base their investment decisions.

Table 1 summarizes the descriptions.

Table 1: Synopsis of descriptions

<i>General description</i>	<i>Indicated by</i>	<i>Grading by teachers</i>	<i>Rating by rating agencies</i>
<i>Difference a sign indicates</i>	SD	C out of A,B,C,D,E,F	AAA, out of AA+, AA etc.
<i>Sending observer</i>	SO	teacher	rating agency
<i>Receiving observer</i>	RO	student	investor(s)
<i>Sending observer's difference</i>	SOD	teacher's idea of quality of the exam	rating agency's idea of the quality of a security
<i>Receiving observer's difference</i>	ROD	student's idea of quality of the exam	investor's idea of the quality of a security
<i>Entity of reference</i>	ER	written examination	security
<i>Other observers</i>	OO	parents, class mates, etc.	financial authorities, house owners, etc.
<i>Other observers' difference</i>	OOD	parents', class mates' and other peoples idea of the quality of the exam	financial authorities, house owners, and other peoples idea of a security

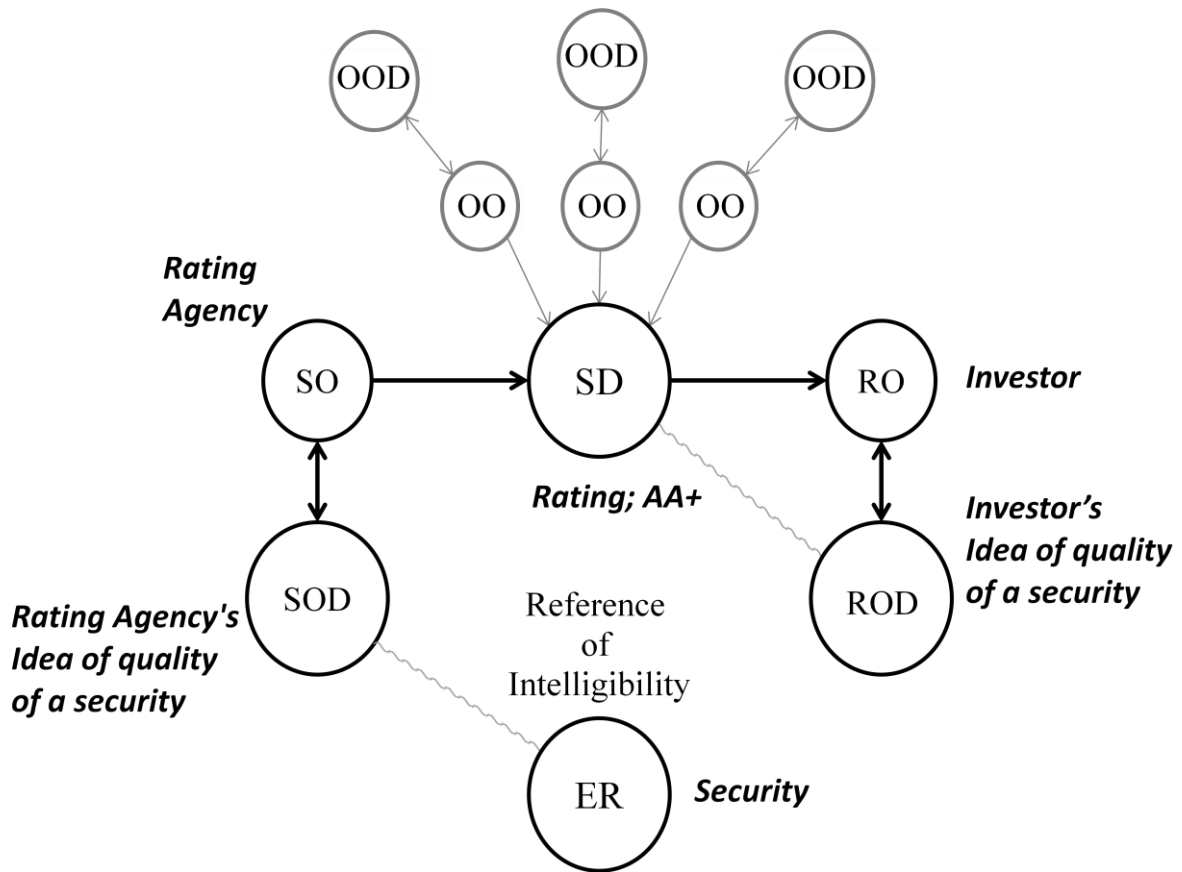
In cases where a sending observer and a receiving observer observe the same entity of reference and do understand this entity in the same way communication is usually not problem and might be even not necessary because of the mutual understanding of the entity of reference. However in most cases like teaching or using symbolic token created by expert systems the entity of reference is not clear for the receiver and therefore the sending observer (usually the expert) has to explain the entity of reference and he does this by using his understanding of the entity of reference (SOD). It is important to be aware that the senders

understanding, his idea of this entity (SOD) is not identical with the entity (ER). And furthermore the sending observer (SO) has no access to the receiver's understanding (ROD) and the receiving observer (RO) has no access to SOD; their connection is via SD, the signs they use in communicating their SODs. If now the receiver has for any reasons no access to the entity of reference or doesn't understand it he either has to trust the sending observer and his descriptions or has to proof if or has to exit or ignore the communication.

Trusting a symbolic token is usually no problem if the receiver has good reasons to assume that the description of the entity of reference is a good one. However if the receiver as a lay actor he has neither access to the entity of reference nor does understand and hence he cannot proof the sending observer's description of the entity. There is no connection between him and the entity of reference. This inability of proving a description is a first and necessary condition for cases in which trust can make it worse. As long as rating agencies follow the practices of giving an appropriate picture of securities by ratings there will be no problem.

3. The US financial Crisis in system theoretical terminology

A problem occurs if rating agencies do not follow the practice of giving an appropriate picture of a security and investors do not notice this. If investors do not understand securities they don't have an entity of reference. In this case they have to trust in the symbolic token here the rating. The situation described in figure 1 change to that described in figure 2. There now is a closed loop between rating, investor and investor's interpretation. The process of this change is now described in terms of symbolic token as well as in terms of the financial 'system' and serves for deriving four hypotheses.



The following process describes the change in four steps which are used as hypotheses for a qualitative study:

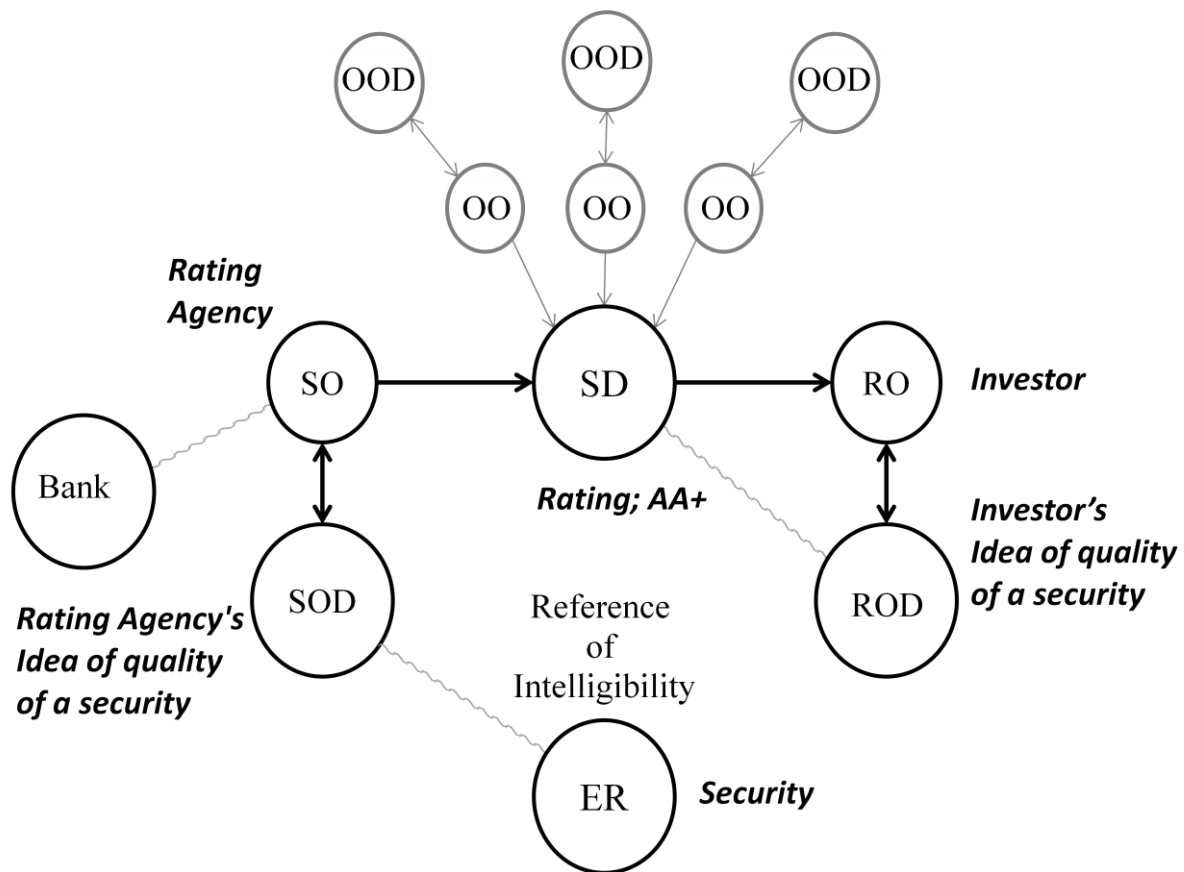
- 1) Investors are disconnected from entity of reference; H1: investors didn't understand securities. (No connection between ROD and ER).

Originally the rating agencies were established to inform investors, to give an appropriate picture about securities for investors' purposes.

- 2) Rating agencies and ratings were introduced as expert system to create a symbolic token to support investors' decision making; H2: Rating agencies were established to support uniformed investors. (an information providing system was established between investors RO and securities ER)

In the crisis case the rating agencies did not only use the ratings to inform investors but more and more to sell securities. They were paid by banks to do so. Since the ratings themselves did not carry this new function investors were misguided. The expert system rating agency was not link to investors; they didn't have an access point to the experts however it was linked to banks selling securities because these banks paid for the ratings. This connection forces the rating agencies to slowly change the purpose of the rating 'informing' about securities to 'selling securities'. This conflict of interests is indicated in figure 3 by showing two entities of reference, the securities and the banks.

- 3) As a consequence rating agencies changed their practice in giving ratings and investors didn't realize; H3: Rating agencies changed their practices to give an appropriate picture of securities because they were forced to over evaluate securities by conflicts of interests.



However rating agencies didn't inform investors about this "new politics". The rating agencies had two options: the first was to create ratings giving an appropriate picture of securities which was in the interest of investors but not necessarily in the interest of those selling securities. The second was to more and more use ratings to sell securities. Here they could either inform investors about this change or not. If they had informed investors about this change the rating information had no value of these investors. In this dilemma rating agency decided to follow those who paid them. But those how paid where not necessarily interested in giving an appropriate picture about securities for investors.

Investors lacking in knowledge of evaluating securities had no other opportunity than to trust ratings, "but this rests upon faith in the correctness of principles of which one is ignorant, not upon faith in the 'moral uprightness' (good intentions) of others." (Giddens 1990, pp. 33-34). They had no opportunity of verifying ratings unless they bought and sold an investment. The faith in the correctness of principles assumes that principles and procedures are there to be

used to construct a rating of securities. But these principles are not known by the lay actor, here the investor. In the same sense medical doctors form an expert system. The patient's faith in the correctness of the principles the doctor uses is an important part to be treated. "The tokens and regimes of expertise of abstract systems circulate in a way that escapes the control of any of their practitioners and clients" (Stones, 2005, S. 325). The patient like the investor can only "proof" the correctness by the results they produce together with the expert system; being healthy in the case of the patient and earning money in the case of the investor. In the case of securities as in the case of medicine if there is a bad outcome the "proof" comes too late, the bad outcome is the proof. Hence they have to trust or not to use the expert system with its symbolic token.

- 4) When investors realized that rating agencies changed their practices and that the ratings didn't carry the information they expected it was too late. The crisis became apparent.

With lodging their claims investors reconnected (re-embedded) to the system as a whole and to the entity of reference in particular. Nor they realized that the symbolic token (rating) – in which they trusted- has been misleading.

4. Data and Analysis

With the "*THE FINANCIAL CRISIS INQUIRY REPORT*, submitted by THE FINANCIAL CRISIS INQUIRY COMMISSION Pursuant to Public Law 111-21 January 2011" a comprehensive description of the crisis is available. The commission described its own task: "*Our task was first to determine what happened and how it happened so that we could understand why it happened.*" (p. xv) .

This report is used to analyze how the crisis was explained ex post. It does not necessarily mean that this report is an ‘objective’ description however it is the most comprehensive document of the crisis. “The Financial Crisis Inquiry Commission was created to examine the causes of the current financial and economic crisis in the United States.” (FCIR, 2011, p. xi). In addition: “In this report, the Commission presents to the President, the Congress, and the American people the results of its examination and its conclusions as to the causes of the crisis.” (FCIR, 2011, p. xi).

So a central goal of the report is to uncover the causes of the financial crisis which are here analyzed from a systems theoretical standpoint. It is only "natural" that the descriptions made here can be deconstructed at any point. In this respect, this paper also deals with distinctions as a consequence of earlier distinctions on the basis of the distinctions of the Commission. It stands in the tradition of poststructuralist body of thought (Baudrillard, 1994, 2005; Deleuze, 1992, 1994; Derrida, 1978, 2004; Lyotard, 1984).

Nevertheless much evidence is found showing the lack of understanding of complexity by the investors on the one hand and the dis-embedding of the ratings as a symbolic token on the other. Taken together it highlights that investors had no real access or touch points to evaluate securities and worse they cannot even realize the dis-embedding and drifting process of the ratings because of the lack of access or touch points.

What does the FCIR say about H1: Investors did not fully understand the busyness of securities.

45 passages in the text (sentences of sections) refer to “understanding” or “not understanding” six refer to the understanding of the crisis as a whole. For example¹: “*Our task was first to determine what happened and how it happened so that we could understand why it*

¹ All report quotations are in *italic* and the page number in brackets.

happened.” (xv). All other 39 passages refer to the understanding or not-understanding. For example: “*The captains of finance and the public stewards of our financial system ignored warnings and **failed to question, understand, and manage** evolving risks within a system essential to the well-being of the American public.* (xvii) Or: “*There was no comprehensive and strategic plan for containment, because they **lacked a full understanding** of the risks and interconnections in the financial markets.*” (xxi). And further: “*Senior executives— particularly at three of the leading promoters of CDOs, Citigroup, Merrill Lynch, and UBS— **apparently did not accept or perhaps even understand** the risks inherent in the products they were creating.*” (p. 188) Also on the level of organization: “*The firm **did not have** an adequate, firm-wide **consolidated understanding** of its risk factor sensitivities,” the supervisors wrote in an internal November 19 memo describing meetings with Citigroup management.” (p. 303) and finally “...major firms and investors **blindly relied on credit rating agencies as their arbiters of risk.**” (p. xvii). The report holds much more of these hints which cannot be reprinted all.*

All in all the report supports hypothesis 1 that investors didn't understand securities and therefore “blindly” relied on ratings.

Hypothesis 2: Rating agencies were set up as expert systems creating symbolic token.

An example for a passage in the text is: „*Lewis Ranieri, a pioneer in the market, told the Commission, when he presented the concept of non-agency securitization to policy makers, they asked, “**This stuff is so complicated how is anybody going to know? How are the buyers going to buy?**”*” Ranieri said, “***One of the solutions was, it had to have a rating. And that put the rating services in the business.***” (p. 68). In a system theoretical language the rating is a differentiation inside the economic system the security business in particular indicating “good” and bad” securities. It obviously doesn't need any further proof that the rating

agencies do exist. It is more interesting how the rating agencies disconnected investors and securities. More precisely the rating agencies and their ratings were positioned between securities and investors: *“This complexity transformed the three leading credit rating agencies—Moody’s, Standard & Poor’s (S&P), and Fitch—into key players in the process, positioned between the issuers and the investors of securities.”* (p. 43).

In this sense the disconnection between investors and securities which was originally apparent because investor did not fully understand securities became now manifested in the rating agencies and their ratings. To put it differently most investors needed simpler and independent information. *“The rating agencies were important tools to do that because you know the people that we were selling these bonds to had never really had any history in the mortgage business. . . . They were looking for an independent party to develop an opinion,” Jim Callahan told the FCIC; Callahan is CEO of PentAlpha, which services the securitization industry, and years ago he worked on some of the earliest securitizations.”* (p. 44). This independence was tried to assure through independent expert forming an expert system and through mathematical models serving as symbolic token. *“Financial institutions and credit rating agencies embraced mathematical models as reliable predictors of risks, replacing judgment in too many instances. Too often, risk management became risk justification.”* (p. xix). Judgments made by experts were more or less substituted by mathematical models with no touch points or access points not even for experts which means that even the expert system disconnected from the symbolic token.

Furthermore the text holds a lot of passages referring to a lack of transparency *„Lack of transparency contributed greatly to the crisis: the exposures of financial institutions to risky mortgage assets and other potential losses were unknown to market participants, and indeed many firms did not know their own exposures.”* (p. 386)

Rating systems were, among other reasons, established to bridge between the world of overwhelming variety of securities and investors not familiar with this variety of securities. As the FCIR puts it: “*This complexity transformed the three leading credit rating agencies—Moody’s, Standard & Poor’s (S&P), and Fitch—into key players in the process, **positioned between the issuers and the investors of securities** (emphasis by the author).*” (p. 43).

Hence the report supports hypothesis 2 saying that rating agencies and their ratings were created to bridge between securities and investors.

Hypothesis 3 says: As a consequence rating agencies changed their practice in giving ratings and investors didn’t realize; H3: Rating agencies changed their practices to give an appropriate picture of securities because they were forced to over evaluate securities by conflicts of interests.

Usually lay actors trust expert systems if among other reasons there are no conflicting interests or more precisely if they are not aware of conflicting interests in the expert system. Investors understood rating agencies as independent parties. “*The **rating agencies were important tools to do that because you know the people that we were selling these bonds to had never really had any history in the mortgage business. . . . They were looking for an independent party to develop an opinion,**” Jim Callahan told the FCIC; Callahan is CEO of PentAlpha, which services the securitization industry, and years ago he worked on some of the earliest securitizations.*” (p. 44). These “opinions” were condensed into the well known three or less letters “AAA” by Standard & Poor’s and Fitch and Aaa by Moody’s and so on to be published easily.

However rating agencies moved more and more in a conflict of interests. A first hint to divergence in interests can be seen in the following statement. “You will also read about the forces at work behind the breakdowns at Moody’s, *including the flawed computer models, the pressure from financial firms that paid for the ratings, the relentless drive for market share, the lack of resources to do the job despite record profits, and the absence of meaningful public oversight.*” (p. xxv) There was pressure from financial firms onto the rating agencies of which the investors were not aware of. A more direct hint to conflicts of interests is clearly indicated by the following statement: „*Put simply and most pertinently, structured finance was the mechanism by which subprime and other mortgages were turned into complex investments often accorded triple-A ratings by credit rating agencies whose own motives were conflicted.*“ (p. 28). And it is even worse: “Participants in the securitization industry realized that they needed to *secure favorable credit ratings* in order to sell structured products to investors. Investment banks therefore *paid handsome fees to the rating agencies to obtain the desired ratings.*” (p. 44). This is an obvious conflict of interests of which the investors were not aware of. In addition new rules in the rating business strengthened the disconnection between rating agencies and a fair evaluation of securities: : „*The Recourse Rule also imposed a new framework for asset-backed securities. The capital requirement would be directly linked to the rating agencies’ assessment of the tranches. Holding securities rated AAA or AA required far less capital than holding lower-rated investments. For example, \$100 invested in AAA or AA mortgage-backed securities required holding only \$1,60 in capital (the same as for securities backed by government-sponsored enterprises). But the same amount invested in anything with a BB rating required \$16 in capital, or 10 times more. ... The new requirements put the rating agencies in the driver’s seat. How much capital a bank held depended in part on the ratings of the securities it held.*” (p. 100). However nobody did expect triple A rated securities to fail. „*Meanwhile, banks and regulators were not prepared for significant losses on triple-A mortgage-backed securities,*

which were, after all, supposed to be among the safest investments. **Nor were they prepared for ratings downgrades** due to expected losses, which would require banks to post more capital.” (p. 100). This clearly indicates that triple A rated securities were expected to be the safest investments as indicated by the triple A. There ratings were not questioned although they were disconnected from the quality of securities investors still trusted the symbolic token triple A. Only a few people did recognize this process of change of the “rules” one of them is *Herb Sandler, the co-founder of the mortgage lender Golden West Financial Corporation, which was heavily loaded with option ARM loans, wrote a letter to officials at the Federal Reserve, the FDIC, the OTS, and the OCC warning that regulators were “too dependent” on ratings agencies and “there is a high potential for gaming when virtually any asset can be churned through securitization and transformed into a AAA-rated asset, and when a multi-billion dollar industry is all too eager to facilitate this alchemy.”* (p. 20). The logic was put upside down: Capital endowments which were originally indicated by ratings now were based on those ratings: “Tying capital standards to the views of rating agencies would come in for criticism after the crisis began. It was “a dangerous crutch,” former Treasury Secretary *Henry Paulson testified to the Commission.*” (p. 100). Investors did obviously not recognize this: “While investors in the lower-rated tranches received higher interest rates because they knew there was a risk of loss, **investors in the triple-A tranches did not expect payments from the mortgages to stop.** This expectation of safety was important, so the firms structuring securities focused on achieving high ratings. In the structure of this Citigroup deal, which was typical, \$737 million, **or 78%, was rated triple-A.**” (p. 72). This all shows that the rating was no more connected to a solid evaluation of investments. However this was realized too late. And the crisis appeared quickly. (H4).

5) Discussion

The presented approach looks at the US financial crisis from a system theoretic a service system theoretic perspective in particular. It tried to show how dis-embedded systems as described by Giddens can disconnect from entities of reference. And it tried to show how symbolic token are in danger to lose their connection to an entity of reference. A crisis can emerge if these disconnections are not realized by the involved parties. They are in a situation that they don't know that they don't know. And their trust is based on self-referentiality, on a closed loop between a symbolic token and the receiver of that token (Varela, 1975; Luhmann, 1995, 2008). Usually people are not aware of a situation in which they don't know that they don't know and they tend to describe these kind of situation by saying "This time it is different". However they cannot give any reason for the difference. This is also indicated in the report: "*That year (2005, the author), the hedge fund manager Mark Klipsch of Orix Credit Corp. told participants at the American Securitization Forum, a securities trade group, that investors had become "over optimistic" about the market. "I see a lot of irrationality," he added. He said he was unnerved because people were saying, "It's different this time"—a rationale commonly heard before previous collapses.* (p. 18).

The more differentiated a society is the more expert systems and symbolic token are established and consequently people are mostly not aware of the entities or reference. They simply cannot be aware because there is too much knowledge in the world for a single person. The danger of disconnection of symbolic token has been discussed extensively in the more postmodern (Lyotard, 1984), poststructuralist (Derrida, 1978, 2004; Baudrillard, 1994, 2005) literature. It also has been discussed in finance (Macintosh, Shearer, Thornton, & Welker, 2000) and in jurisprudence (Rüthers, 2005). This is the first application of these thoughts to service financial services in particular. It show how important it is to understand signs not as

the information the might carry but just as one of several distinctions (Bateson, 1970; Spencer-Brown, 1969). It is also important to understand abstract systems as a consequence of modernity (Giddens, 1991). Particularly service is based on expert systems and often on symbolic token and the analysis of the financial crisis report has shown that crisis in service systems are not purely based on moral or legal responsibilities of individuals and trust in them. Trust as conceptualized in abstract systems is not an issue of morality of legitimacy instead it is a question of enabling cooperation between different social systems often emerging as experts system or symbolic token on the one hand and lay actors on the other. This kind of trust is based on the connection to an entity of reference. If this connection is lost trust can make it even worse.

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