

## Who Listened?

### Unappreciated Teachings of New Institutional Economics Related to the Financial Crisis of 2008

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The financial crisis of 2008 has many causes. We argue that one of them is the disregard of facts that the New Institutional Economics (NIE) attached particular importance to, viz., the existence of positive transaction costs, incomplete foresight and bounded rationality. Our point is that the classical bias of the theory of financial markets and financial firms together with the breath-taking progress in information technology of the last 30 to 40 years contributed to the development of an overoptimistic appreciation of the possibilities of financial deregulation. The idea caught on that an expansion of the boundaries of risk trading largely depends on the progress of information technology and data processing – a hopeless and dangerous point of view as it turned out.

The purpose of the present paper is to comment briefly on this view from the perspective of the NIE – supported by a few remarks of distinguished economists made during the early history of the financial crisis of 2008. The paper concludes with a couple of insights resulting from the application of the NIE to financial economics.

#### I. Prelude on Terminology

1. *Basic assumption of the New Institutional Economics (NIE)* is the existence of transaction costs in the sense of costs “of running the economic system” (Arrow (1969), 48), i. e., including the costs of adapting to unforeseen events and of repairing errors resulting from bounded individual rationality. Some of these costs are hard to define and measure. We therefore prefer to describe the basic assumption of the NIE more de-

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tailed as positive transaction costs, imperfect individual foresight and bounded individual rationality.

2. *Markets are conceived as organizations*: Given transaction costs, the classic competitive market process does not automatically work by itself. Markets become specific social entities that can be distinguished according to which goods are traded on them and how they are organized. Rational actors, who plan to buy or sell a specific (type of) good, face therefore two (interrelated) institutional choice problems:<sup>1</sup>

(1) to choose a formal or informal organization “market” (a “market order”) within whose limits they wish to trade specific goods – like on a stock exchange or after-hours trading, a weekly farmers market, a market for brand name goods, an online market; and

(2) to choose a specific formal or informal organization of the exchange contract they wish to conclude with their particular trading partner.

Both are non-market coordination problems – the first is a problem of collective action between multiple suppliers and demanders (an interface between economy and polity); the second is one of bilateral action between single suppliers and demanders. The first coordination problem consists in the setting up, reorganization, choice etc. of a public or private collective good,<sup>2</sup> viz., a more or less sustainable<sup>3</sup> formal or informal organization “market”, within which traders wish to do business. The provision of the collective good “market order” is the fundamental function of the explicit or implicit organization “market”, which is related to Olson’s logic of collective action.<sup>4</sup> The second coordination problem con-

<sup>1</sup> See *Furubotn/Richter* ((2005), Ch. 7); *Richter* (2007).

<sup>2</sup> A private collective good would be a club good in case of a closed market or a private public good in case of an open market – similar to *Coase’s* (1974) light-house example. The decline of the provision of privately ordered public goods may be the result of badly governed principal-agent contracts between today’s capital owners and their agents (their “salaried executives and their salaried managers and submanagers.” *Schumpeter* (1942), 141). *Schumpeter* speaks in this context of the erosion of ownership interests (“... the figure of the proprietor and with it the specifically proprietary interest have vanished from the picture.” *Ibid.*). It is tempting to illustrate the wealth destroying consequences of such an employee run capitalism by the fallout of the financial crisis of 2008.

<sup>3</sup> In the sense of containing more or less effective provisions against market failures such as the “lemon effect” or monopolistic dominance (cornering). Note: There may be more or less “dangerous” organizations “markets”. Which one traders choose to trade on reveals their subjective risk preference.

<sup>4</sup> “...the provision of public or collective goods is the fundamental function of organizations generally.” (*Olson* (1965), 15).

cerns the organization (choice of governance structure<sup>5</sup>) of a pair wise exchange between individual traders.

3. *Contracts include also relational contracts*: Following *Macneil* (1974) we distinguish between “classical” and “relational” contracts.

- “Classical” contracts or “complete” contracts are clean and precisely specified. They abstract from social relations between parties to the contract (as in the case of tradable claims for money such as commercial bills or bond certificates) and are exclusively enforced by court orderings.
- “Relational” contracts are more or less “incomplete contracts” (*Hart* (1987), 752) characterized by “relatively deep and extensive communication by a variety of modes” between contracting parties (*Macneil* (1974), 723).<sup>6</sup> The contractual parties agree, explicitly or implicitly, about the procedure (the organization or governance structure) that will be employed to deal with problems as they may arise as in franchises, joint ventures, long-term supply contracts or labor contracts. Legal enforcement of (“classical”) contractual obligations (public ordering) is supplemented, or substituted for, by forms of private ordering.

4. *Objects of trade on financial markets are claims of money*. They can be contingent or unconditional claims. A typical contingent claim<sup>7</sup> (“Arrow security”) is an insurance contract that allows the shifting of risks “and thus permits individuals to engage in risky activities, which they would not otherwise undertake.” (*Arrow* (1970), 137). The much criticized financial derivatives are contingent claims, i.e., money claims whose value is derived from the value of “the underlying” such as an asset, an index or other item (like weather conditions or the residual value of a firm). Derivatives include plain gambling contracts<sup>8</sup> as well as genu-

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<sup>5</sup> *Williamson* (1985).

<sup>6</sup> Note: “It is possible to think in terms of a whole spectrum of different types of contracts as defined from a legal standpoint” (*Macneil* (1974), 738). At one extreme, we have the “classical” contract, while at the other end of the spectrum we find relations or arrangements such as marriage and employment relations (*Furubotn/Richter* (2005), 156).

<sup>7</sup> *Arrow* (1953).

<sup>8</sup> “A person engages in gambling if he stakes or risks something of value upon the outcome of a contest of chance or a future contingent event not under his control or influence, upon an agreement or understanding that he or someone else will receive something of value in the event of a certain outcome.” (<http://definitions.uslegal.com/g/gambling/>).

ine insurance contracts (like property insurance). Securitized claims of money are impersonal obligations (like bearer bonds or asset-backed securities<sup>9</sup>); they are unconditioned claims. All risks of the borrower are borne by him.<sup>10</sup>

## II. First Theme: Institutional Characteristics of Financial Markets

Different from markets for goods and services, financial markets are characterized

- (i) by the ease (low costs) with which financial products (money claims) can be fabricated and transacted (as compared with the production and transaction of material goods or services);
- (ii) by the comparatively high costs of acquiring credible information about the counterparty's hidden information and hidden action, i. e., the relatively high measurement costs (*Barzel* (1982)) of financial products;
- (iii) by the importance of the resale value ("liquidity") of financial products for their owners because financial products, different from produced goods and services, serve largely as assets;<sup>11</sup>
- (iv) by the relevance of their linkage with the real part of the economy: the "purchasing power of money loans";
- (v) by the fact that financial assets lend themselves particularly well for speculative purposes and, since they are strongly codependent, tend to provoke systemic risks.<sup>12</sup>

As a consequence of (i) to (v), the quality of financial markets is based on the quality and administration of their governance structure (or organization) that compensates for their above-enumerated features. Investors in financial assets, especially securitized money claims, are particu-

<sup>9</sup> Like mortgage based securities. Problematic are the activities of "structured finance" (*Coval* et al. (2009)), the manufacturing of AAA-rated securities such as Collateralized Debt Obligations (CDO's). They are created by pooling and repackaging of cash flow producing financial assets into securities that are then sold to investors and "enhanced" by Credit Default Swaps (CDS's).

<sup>10</sup> *Hellwig* ((1998), 334).

<sup>11</sup> Financial markets are mostly "resale markets" whose quality depends above all on the level of reliability of the organizational safeguards against market failures (such as the lemons effect).

<sup>12</sup> Systemic risks were provoked by the manufacturing of Collateralized Debt Obligations (CDO's) or CDO's-Squared etc. (*Coval* et al. (2009)).

larly vulnerable to the lemons effect, i. e., to the collapse of the markets on which the assets of their choice are traded. Considerate investors will take this into account by their choice of financial products among already existing market organizations or by attempting to intervene in the design of evolving market orders (a collective choice issue). The probability of the collapse of an asset market is the smaller the greater the credibility of the seller's promise to refund the money (the debtor's liability). In other words, the quality of the debtor's liability matters. It may be reinforced by private or public deficit guarantees.<sup>13</sup> Incomplete foresight and bounded rationality may be allowed for by suitable arrangements of debt contracts like profit/loss sharing contracts combined with co-administration (as of venture capital agreements) or plain non-market constructs (public collective actions) such as licensing, private or public regulation, limited liability, bankruptcy – or “large business organizations” (Arrow (1970), 141).

Only in Arrow's time-state-preference theory<sup>14</sup> are financial markets perfect and risks optimally distributed. No promises are broken ex post (and thus credible ex ante). In equilibrium, each consumer maximizes his *Von-Neumann-Morgenstern*-(expected-)utility subject to his wealth constraint.<sup>15</sup> However, financial markets of real life are imperfect because of positive transaction costs, imperfect foresight<sup>16</sup> and bounded individual rationality. As a result, “... not all risks which it would be desirable to shift can be shifted through the market.”<sup>17</sup>

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<sup>13</sup> Simple convertibility of tradable (private) money claims into real goods can be substituted (as in the case of a paper currency) by an institutional arrangement that helps to avoid the oversupply (“inflation”) of such money claims. In the case of inconvertible paper money it took quite a while until the discovery of a workable institutional replacement of the convertibility of paper into gold or silver. Rating agencies can be helpful but they are insufficient, as insufficient as purchasing power measuring statistical offices would be, if left on their own, in case of inconvertible paper currencies. Credible commitments of the issuer of bonds are needed: of the state in case of paper currencies, the private or public financial intermediary that issues tradable private money claims such as structured asset backed securities.

<sup>14</sup> Ingeniously described by *Debreu* (1959). Trade in common stocks is not included in time-state-preference theory, and transaction costs are assumed to be zero, individual rationality and foresight to be perfect.

<sup>15</sup> *Hirshleifer* ((1970), 231 ff.).

<sup>16</sup> “Unknown events” as opposed to “known events and their likelihood”; an extreme type of unknown event are “Black Swan” events (*Taleb* (2007)).

<sup>17</sup> *Arrow* ((1970), 139); Arrow puts the problem as follows: “What we observe is that the failure of the price system to handle risk-bearing adequately leads to a diminished use of prices even in contexts where they would be most useful in

The imperfections of financial markets imply asymmetric information and thus a distortion of the incentive structure of contracts.<sup>18</sup> Interestingly, incentive structure problems seem to have been disregarded by financial economists like *Ross (1976)* who deals with overcoming the incompleteness of a contingent claims market through the introduction of options written on existing assets. The basic welfare idea behind it is: An expansion of the frontiers of risk trading is Pareto improving. This appears to have been the basic welfare justification of the rising wave of asset securitization during the last 20 or so years. *Allen/Gale ((2006), 17)* express this as follows,

“... if there are enough derivatives and contracts, markets will effectively be complete and allocation of risk will be the same as in the Arrow-Debreu equilibrium. This is the sense in which credit risk transfer is desirable.”

### III. Second Theme: On the Nature of Financial Firms

Financial firms (such as commercial banks) – as firms generally – exist as a consequence of the imperfections of financial markets due to transaction costs, incomplete foresight and bounded rationality. They coordinate by non-market mechanisms the basic financial operations such as origination (including underwriting), guaranteeing, servicing, and funding of money claims.

Interestingly, this essentially Coasian (*Coase (1937)*) observation seems to have been completely disregarded by leading representatives of the modern finance literature. Thus, *Greenbaum/Thakor ((1995), 389 f.)* in their textbook on financial intermediation ignore the Coasian explanation of the nature of the firm. For them transaction costs appear to be the equivalent to information costs that become irrelevant with the advances in information technology. As a consequence, they argue, it will become easier for investors to rate assets, and therefore reduce informational gaps between investors and the originator of the loans. “Moreover, information technology has been the key to the serving and monitoring provided by financial institutions, especially with stripped cash flows. This facilitated securitization” (390). *Greenbaum/Thakor* conclude that

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bringing about a careful and flexible confrontation of needs and resources” ((1970), 141).

<sup>18</sup> Arrow relates to insurance against failure of business or of research projects which has not arisen because “...the incentive to succeed may be too greatly reduced.” Note, Arrow wrote this about 40 years before the widespread use of credit default swaps and its devastating effect on the originator of loans.

“... securitization is likely to grow, as long as workable solutions to the moral hazard problem can be developed.” (437)<sup>19</sup>

Regarding the moral hazard problem,

“... we can expect banks to develop workable risk-sharing contracts to overcome the problem. Such an advance is likely to open the floodgates to the securitization of hitherto unsecuritized assets.” (ibid.)

The answer of the market to the expected development of “workable risk-sharing contracts” was the introduction of credit default swaps (CDS), which certainly helped opening the floodgates to securitization. But instead of solving the moral hazard problem they aggravated it. Unaware of the upcoming developments *Greenbaum/Thakor* continued:

“With the growth of securitization, some banks may simply become specialists in evaluating credit risks and monitoring borrowers. This would create the impetus for a new banking system. A new payment system might emerge around the securities markets, mutual funds, and credit cards.” (ibid.)<sup>20</sup>

The financial crisis of 2008 darkened this prospect of the future of banking. Still, given the undeniable progress in information technology, securitization remains an option. It might be a viable one, provided its proponents are willing to offer an institutional answer to the related NIE problems of imperfect foresight and bounded rationality. The mere strengthening of the information infrastructure – as suggested by *Shiller* ((2008), 121) – would be an insufficient answer. Instead, institutional arrangements are needed that (1) contribute to the credibility of the commitments of issuers of financial products and (2) account for imperfect foresight and bounded individual rationality. Relational contracts or systems of relational contracts (like financial firms) may serve as a measure

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<sup>19</sup> *Greenbaum/Thakor* continue: “If these solutions involve some form of recourse on the part of the originator, then they will need to satisfy accountants, regulators, and contracting parties.” Yet as it turned out later, recourse did not matter.

<sup>20</sup> *Rajan/Zingales* ((2000), 210 f.) touch the same chord: “Technology change, especially the improvement in communications technology, and institutional change, such as the advent of credit rating agencies, have loosened the link between depositors and local bank.” Referring to these developments, R&Z illustrate their hypothesis that the old boundaries of the corporation, defined in terms of the ownership of physical assets, are becoming less meaningful than the ability to link the firm’s talented employees to it. The authors refer to *John Meriwether*, the former vice-chairman and head of bond trading at Salomon Brothers, who left 1994 Salomon together with a group of talented traders to establish a new venture, Long Term Capital Management (LTCM). The group was enlarged by *Myron Scholes* and *Robert C. Merton* who shared the 1997 Nobel Memorial Prize in Economic Sciences. Still, LTCM went under after six years of existence.

against imperfect foresight. Their interposition into the chain of classical financial contracts (money claims) may serve as shock absorbers and thus help to avoid its braking like glass in a crisis. The existence of bounded rationality requires the use of legal tools that convey to investors (in a practical and easy to understand way) and instruments that express the credibility of the issuers' promises (like mortgages or government guarantees; the judgments of rating agencies or other "information brokers"<sup>21</sup> should not be confused with guarantee instruments). All that seems to have been ignored by financial firms or traders and their supervisory authorities in recent years.

Finally, protection against systemic risks requires collective action: public regulation that may be supported, or even substituted, by private organizations like clearing houses or security exchanges. The present situation is special insofar, as, after the deregulation of the 1980s, financial actors seem to have lost ground (*Quinn* (2009)). Their financial innovations of asset-based securities in combination with credit default swaps<sup>22</sup> (by some people misunderstood as guarantee instruments) induced a massive creation of disputable papers that wound up as "toxic waste".

#### IV. Finale: What Did We Learn?

Basically four major insights:

- (1) *It is a basic error to equate transaction costs with information costs*<sup>23</sup> and to conclude (quietly) that the advances in information technology and their enormous savings in information costs are drawing reality (so to speak) nearer prevalent microeconomics or finance theory.<sup>24</sup> Transaction costs include also the costs (or economic consequences) of the shortcomings of imperfect foresight and bounded

<sup>21</sup> Whose performance "... is assessed on the basis of how well its predictions did relative to observed events subsequent to the predictions;" following *Ramakrishnan/Thakor* ((1984), 416), who analyze the question when it will be beneficial for agents engaged in the production of information to form coalitions.

<sup>22</sup> Credit default swaps (CDS) are contracts in which the buyer makes a series of payments to the seller and, in exchange, receives a payoff if a credit instrument goes into default or in case of a specified credit event like bankruptcy. Interestingly, it is not necessary for the buyer to own the underlying credit instrument. As a result, a large speculative bubble in CDSs seems to have evolved.

<sup>23</sup> As done, e. g., by *Foley* (1970), *Hahn* (1973), *Niehans* (1971); or later by *Greenbaum/Thakor* (1995). See also *Dahlman* ((1979), 148).

<sup>24</sup> "Prevalent" in the sense of constraint maximization under perfect rationality and perfect foresight (risk but no Knightian uncertainty).



rationality. It would be hubris to claim that men are on their way to become one day omniscient and perfectly rational – and that capital markets become efficient<sup>25</sup> – thanks to the progress in information technology and computer science. The existence of transaction costs (in above sense) has institutional consequences that cannot be answered by neoclassical optimizing procedures.

- (2) It is another *basic mistake to believe that (sustainable) market organizations* (a public good) *would form themselves within no time by some invisible hand mechanism.* North ((1993), 12), in a cautionary tale, relates to economists, “doctoring the ailing economies of central and Eastern Europe,” who believed that the necessary institutional features of a free market would appear and “be the automatic outcome of getting the prices right through elimination of price and exchange controls.” The evolution of a private or public organization “market” – a collective good – is related to Olson’s logic of collective action, and as we know from history, its evolution by way of invisible hand mechanisms tends to work slowly and at high costs.<sup>26</sup> “Fortunately, however, the work of the invisible hand can be accelerated substantially, and transaction costs lowered remarkably, by planned collective action undertaken through either public or private auspices.” (*Furubotn/Richter* (2005), 20 f.) Anyway, we have no choice but accept the vital necessity to find appropriate institutional answers to the coordination problem that may be anything between “markets and hierarchies” (*Williamson* (1975, 1985)). Economic, social or legal history appears to offer more relevant answers than constrained optimization techniques. At any rate, in discussing institutions, it is more promising to think in (imaginable) concrete social relationships than in mathematical functions and to ask to what extend known properties of institutions (1) improve a system’s adaptability to the unforeseen, and (2) take into account the shortcomings of human bounded rationality.<sup>27</sup>
- (3) *Credible commitment* (i. e., credible liability) *of debtors* (not information per se) *is an important preservative against the “lemons principle”*<sup>28</sup> and the resulting collapse of markets,<sup>29</sup> an insight that applies

<sup>25</sup> *Fama* (1970).

<sup>26</sup> For example, we know that in primitive societies the absence of effective government contributes to limited exchange in property (*Posner* (1980)).

<sup>27</sup> By the use of appropriate organizational or legal tools together with “fast and frugal” heuristics for individual decision-making.

<sup>28</sup> Bad products drive out good products (*Akerlof* (1970)).

even more so to financial markets than to markets for material goods and services. Even though credibility (trust) cannot be bought over the counter – it can be acquired in a roundabout way by help of formal or informal institutions such as trustworthy private or public guarantees, licenses given by someone trustworthy, etc.<sup>30</sup> As for financial products, credibility of commitments (of liability) is a particularly delicate issue. Thus, *Shiller* ((2008), 117) rightly stresses the effects of the “continued growth of computer, data collection and processing capabilities, ‘smart’ technology, and rapid, inexpensive communications” – but we don’t agree with his argument that they would “provide dramatically effective tools ... to correct some of the egregious faults in the economy’s institutional foundation.”

- (4) *Relational contracts* or *systems of relational contracts* and their organizational fallouts (like financial firms lead by Knightian entrepreneurs<sup>31</sup> – but also public organizations like the European Central Bank or the Federal Reserve System) offer institutional solutions able to adapt to the unforeseen. They can serve as shock absorbers (as elastic interlinks) within the otherwise brittle chain of money claims (a chain of classical contracts) and thus can help avoiding the collapse of financial markets in a crisis.

Most of above insights seem to have been ignored or were superseded by an overoptimistic believe in the advances of financial theory and seemingly high-powered products of structured finance like Collateralized Debt Obligations (CDO’s), CDO’s-Squared etc. There is hope that liability suits may unleash legal controversies that will bring down to earth such high-flying applications of mathematical finance and statistics – and that new institutional economists will start now, at last, to analyze the institutional structure of financial markets, a field they seem to have ignored hitherto.

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<sup>29</sup> As the markets for structured securities such as Collateralized Debt Obligations (CDOs), CDOs squared etc.

<sup>30</sup> *Fururbotn/Richter* ((2005), 245).

<sup>31</sup> *Knight* (1921).

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## Summary

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#### Unappreciated Teachings of New Institutional Economics Related to the Financial Crisis of 2008

Who was listening before the Financial Crisis of 2008 to Arrow’s warnings and the teachings of Coase? Due to transaction costs, incomplete foresight and bounded rationality not all risks that would be desirable to shift can be shifted through the market. Financial firms and other institutions take on part of the burden. To expand the frontier of risk trading requires institutional answers – in particular new forms of credible commitments. Improvements in information technology alone do not do the trick. (JEL D40, E40, E44, G 20, G21, G28, G29)

## **Zusammenfassung**

### **Wer hörte schon hin?**

#### **Unbeachtete Lehren der Neuen Institutionenökonomik, die sich auf die Finanzkrise von 2008 beziehen**

Die Finanzkrise von 2008 hat verschiedene Ursachen. Eine davon besteht unserer Auffassung nach in der Missachtung von Tatsachen, die erst in der Neuen Institutionenökonomik besondere Berücksichtigung finden: positive Transaktionskosten, unvollkommene Voraussicht und eingeschränkte Rationalität. Es sind diese Tatsachen, die dem Handel mit Risiken Grenzen setzen. Wir vertreten hier den Standpunkt, dass die klassisch-ökonomische Ausrichtung der herrschenden Theorie der Finanzmärkte und Finanzunternehmen zusammen mit dem atemberaubenden Fortschritt der Informations-Technologie der letzten 30 bis 40 Jahre zu einer übertrieben optimistischen Einschätzung der Wirkungen einer umfassenden Deregulierung des Finanzwesens beigetragen hat. Anhand von Zitaten aus der Literatur wird gezeigt, dass in der Vorgeschichte der Finanzkrise die Vorstellung um sich griff, die Erweiterung des Handels mit Risiken hänge allein oder in erster Linie von Fortschritten in der Informations-Technologie und Datenanalyse ab – eine aussichtslose und gefährliche Vorstellung, wie sich herausgestellt hat. Wie die Neue Institutionenökonomik zeigt – und wie man aus alten Erfahrungen hätte wissen können – verlangt die Ausdehnung des Risikohandels mehr, nämlich zugleich die Entwicklung geeigneter, neuer institutioneller Arrangements, darunter vor allem neuer Formen glaubwürdiger Leistungsversprechen der Kreditnehmer. Fortschritte der Informations-Technologie allein sind unzureichend.