

Morita, K.; Nagai, Y., 2011: Japan Economic Focus, Economic Implications of Earthquake. In: Barclays Capital, Japan Economic Research, March 15, 2011

Muramatsu, N.; Akiyama, H., 2011: Japan: Super-Aging Society Preparing for the Future. In: The Gerontologist 51/4 (2011), pp. 425–432

Okada, S.; Takai, N., 2004: Damage Index Function of Wooden Buildings for Seismic Risk Management. In: Journal of Structural Engineering 582 (2004), pp. 31–38

Porto, M.F.; de Freitas, C.M., 2003: Vulnerability and Industrial Hazards in Industrializing Countries: An Integrative Approach. In: Futures 35/7 (2003), pp. 717–736

Porto, M.F.; Fernandes, L., 2006: Understanding Risks in Socially Vulnerable Contexts: The Case of Waste Burning in Cement Kilns in Brazil. In: Safety Science 44/3 (2006), pp. 241–257

Stedman, L., 2011: Japan: Country Suffers Water Shortages Following Earthquake and Tsunami. In: Water21 – Magazine of the International Water Association (IWA); <http://iwapublishing.com/template.cfm?name=news679> (download 15.3.11)

Taleb, N.N., 2007: The Black Swan: The Impact of the Highly Improbable. London

Tanaka, T.; Kazui, H.; Sadik, G. et al., 2009: Prevention of Psychiatric Illness in the Elderly. In: Psychogeriatrics 9 (2009), pp. 111–115

Tokyo Metropolitan Government, 1985: Report on Earthquake Damage Estimation in the Ward Districts of Tokyo. Disaster Prevention Council Report. Tokyo

Vervaeck, A.; Daniell, J.E., 2011: Tohoku Earthquake Articles on earthquake-report.com. Many updates from 11/03/2011 to 28/09/2011

Zsidisin, G.A.; Ragatz, G.L.; Melnyk, S.A., 2005: The Dark Side of Supply Chain Management. In: Supply Chain Management Review 16 (2005), pp. 46–52

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Systemic Risk in Global Finance

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The paper addresses the emergence of systemic risk as a property of global finance. Part 1 describes two factors of the post-Bretton-Woods global financial system which John Eatwell has singled out as pushing the propensity for systemic risk: the focus on single firms, and a misguided focus on homogeneity. Part 2 of the paper then broadens the perspective in order to expose some aspects of a political economy of systemic risk in global finance. Now, after the fact of a global crisis, the major controversy is about the nature of systemic risk: is it mainly an economic problem, or is it a political issue, that is, must it be understood in terms of political accountability and the limits of political regulation? Part 3 discusses some consequences for regulation and supervision within the context of irreducible conflicts between national egoism and global collective goods.

1 Introduction

The veil of ignorance covering the operational modes and the consequences of arcane financial models and instruments becomes a public concern as soon as the failure (bankruptcy) of financial institutions (banks, investment firms, insurance companies, private equity funds, semi-official mortgage agencies like Fannie Mae or Freddie Mac) threaten to engender system-wide consequences. The question is: what are system-wide consequences?

Systemic repercussions of the (possible) failure of financial corporations are closely related to the notion of “systemic risk”. In general, systemic risks emanate from an intransparent interplay of layered and leveraged components of a concatenated compound. The case of the global financial system is an exemplary one, since the focus of all governance and regulatory action has been on single components, i.e., issuers, Chief Financial Officers, individual firms and corporations etc., whereas the interplay of these components has remained intransparent: “A lack of focus on the changing *system* characteristics of the interna-

tional financial system has become a characteristic of international regulatory developments in the past few years” (Eatwell 2004, p. 1).

John Eatwell has given an exemplary account of two of the most acute factors of common concepts of regulation that actually create and enhance systemic risks. The factors he singles out are (1) the focus on single firms instead of a focus on a conglomerated global system of finance, and (2) a misguided focus on homogeneity instead of a focus on heterogeneity as an optimal mix of risk factors.

2 Systemic Risk, Systemic Relevance and Systemic Intransparency

2.1 Non-knowledge and Intransparency

In principle, regulation and supervision of the financial system through central banks, regulatory and supervisory institutions aim at system-wide financial stability. In practice, however, critical standards and rules, i.e., the Sarbanes-Oxley Act or pillar one of Basel II, address single firms and their specific control architectures and risk models. To be sure, Basel II is an important step in establishing a learning mode of the new supervisory review process, aiming at a cognitive supervisory regime in banking. Still, the focus is on single firms and their risk behaviour, neglecting structural issues and negative externalities of the risk strategies of single firms. New types of operational risks emanating from individual firms might coalesce to systemic operational risks and market risks that overwhelm the coping capacities of the individual actors in the financial system: “The internal risk management regime – for credit and market risk, operational risk, compliance risk – needs to meet a more exacting standard. The requirements for operational resilience for technology systems are necessarily more demanding” (Geithner 2004, p. 4). Obviously, this also increases the demands on and difficulties of financial governance in managing systemic risk.

The shifting grounds for regulatory supervision correspond to a marked change in risk perception within global finance during the last decade. In the 1990s, major risks derived from aberrant or criminal behaviour of single firms

and persons. By 2003, the sources of risks had shifted to complex financial instruments and adverse macroeconomic conditions for the business strategies of financial institutions. At present, the systemic effects of individual risk-taking are becoming more accentuated, because the traditional separation of different types of financial institutions, in particular, the separation between banks, insurance companies, securities and funds (already loosened for the USA by the Gramm-Leach-Bliley Act of 1999), is undermined by an intransparent concatenation of risk propensities via diffusing effects of structured credit instruments (Plender 2005). The creation of a massive “shadow banking system” is intended to hide major transactions, to enhance intransparency and to cover critical aspects of the financial system under a veil of ignorance by operating outside of regular banking supervision and national regulation. The shadow banking system “is a nexus of private equity and hedge funds, money-market funds and auction-rate securities, non-banks such as GE Capital and new securities such as CDOs and credit-default swaps. [...] On the eve of the crash, more capital was flowing through it than through the conventional banks” (Economist 2009, p. 20).¹

As the field of options within the financial system is extended into the depth of structured derivative instruments and into the labyrinths of prolonged chains of conditioned events, the chances and risks of aggregate or even systemic effects of mutual reinforcement, snowballing, leverage and positive feedback loops beyond single firms loom large. A complex array of options corresponds to chances of “low-probability, high-impact events” (Kohn 2004). A regulatory focus on single firms necessarily makes governance blind for systemic turbulences. These turbulences certainly start with some actions and decisions of firms, like children throwing snow-balls, but these actions then turn into avalanches by setting off chain reactions that follow the logic of the financial system, and defy the motives and reasons of the people or single firms involved.

When the bubble bursts and the crisis breaks out, systemic risks turn into systemically-relevant threats. Again, nobody can know for sure exactly what event und exactly what organization/institu-

tion is systemically relevant. The notion covers various aspects: (1) an organization is “too big to fail”, meaning that its failure precipitates the downfall of an entire sector of the financial system; (2) an organization’s failure would kick off an avalanche of related failures within the financial system, particularly by destroying the quintessential trust which fuels financial transactions; (3) the failure of a sector of the financial system would expand into the “real” economy, putting firms and jobs at risk, thus impinging on the social security system and connecting to politically touchy fields; and (4) an organization’s failure would touch off social unrest, protest and more violent expressions of deception and insecurity by people affected, again connecting to politically touchy arenas.

The notion of “systemic relevance” implies a responsibility for politics to react to a critical state of financial (or economic) affairs. Its definition derives less from financial/economic reasoning than from political judgments of *political* relevance. Politics finds itself in a double bind of unavoidable non-knowledge and intransparency: political decision-makers have no way of knowing the exact financial/economic implication of a critical situation, since even most of the financial and economic actors involved have no clue to what is going on; and they have no way of knowing whether or not political action (like bailout, guarantees, grants, the creation of “bad banks”, or even nationalization of firms, etc.) will solve the problem, or whether the solution will be the next problem.

An important aspect of the financial system’s logic lies in the temporal deep structure of capital. Since “financial markets are markets for stocks of current and future assets, the value of which today is dependent on the expectations of their future value” (Eatwell 2004, p. 2), present expectations of future asset-price movements and future value dynamics must be based on past experience as well as on concurrent beliefs, assumptions, reasoning and extrapolations of distributed knowledge. No person or institution commands the knowledge or covers the expertise to “run the system”. The system runs itself. Friedrich von Hayek has shown this convincingly for the “simple” regular market, stressing that only the market itself is able to combine the complexi-

ties of distributed knowledge into a construction of operating market: “The knowledge of the circumstances of which we must make use never exists in concentrated or integrated form, but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess” (Hayek 1945, p. 519). Even more so, then, the financial markets rely on a trans-individual aggregation of knowledge and non-knowledge (uncertainties, risks, and ignorance) that no single person or institution is in a position to direct or avoid.

2.2 Uniformity and Homogeneity in Financial Markets

A second form of systemic risk points up the idiosyncratic logic of the financial system even more clearly. Whereas financial innovations and a more elaborate temporal deep structure of financial transactions enhance the field of options in the financial system, a complementary dynamics can reduce that field of options to a dangerous level of uniformity. John Eatwell calls this result a state of homogeneity, as opposed to the crucial heterogeneity which allows markets to prosper: “Markets become illiquid when objectives become homogeneous. When everyone believes that everyone will sell, liquidity vanishes. Markets fall over the cliff when average opinion believes that average opinion has lost confidence in financial assets” (Eatwell 2004, p. 3). What aspects of capital, as a symbolic medium, drive financial markets towards homogeneity, instead of preserving a more balanced heterogeneity of diverse objectives, methodologies, instruments, risk models or time horizons?

Surprisingly, the culprits seem to be exactly those aspects of capital that are responsible for a global financial system coming into being in the first place: liberalization, disintermediation, internationalization, global standards and methods of professionalization “and extensive conglomeration of financial institutions” (Eatwell 2004, p. 4). These factors combine to create a unified and uniform space of global finance, characterized by global infrastructures, global suprastructures (i.e., uniform methods, standards, and models of regulation and supervision), aligned

core business processes and financial products, similar business visions, strategy maps, and core competencies, coordinated rule systems, risk management procedures, and control ideas.

At first glance, these factors seem innocent enough, since they contribute to establishing exactly what is at stake – a global financial system. The unintended consequences of their performance, however, seem to be detrimental to the stability and success of the very system they constitute. This basic ambivalence or built-in contradiction is, of course, reminiscent of Marx' characterization of the capitalist system as inherently self-destructive. Ironically, Marx' diagnosis was premature in presupposing circumstances of the deterritorialized deployment of capital that only the ultimate global breakthrough of the capitalist mode of financial operations have brought into existence – a constellation which Marx may have foreseen by following the logic of the medium of capital.

The astonishingly self-defeating propensity of the financial system is closely related to its temporal deep structure. In order to understand this, it seems helpful to distinguish among three levels. The market economy as a functional subsystem of society fosters heterogeneity because the power of competition drives differentiation, specialization, a Schumpeterian propensity for innovations and a Porterian exploitation of the differential competitive advantages of locations (Porter 1990). Hence, on a first level in a “simple” market economy, there is little danger of forced homogeneity.

However, the trouble with “herd behaviour” and the corresponding urge towards homogeneity begins on a second level, when the decisions to invest and the decisions to sell/buy are distant points in time and therefore lose their automatically-corrective response from the market. The famous “hog cycle” points to the problem of maintaining heterogeneity when extended time frames (i.e., investing in livestock, raising hogs, producing meat and selling the product) and committed resources prevent a fast and flexible reaction to market conditions. Hog cycles still exist today, causing serious problems of excess production capacity in many fields: the automotive industry, memory chips, computers, mobile

phones, ship building, etc. The hog cycle builds on investors' exaggerated expectations in times of shortages, and results in over-capacities because “everybody does the same thing” (homogeneity) instead of everyone doing their own thing (heterogeneity). The metaphor of “cycle” is meaningful in this context, since systemic risk is, to a considerable degree, a consequence of unexpected and unintended cyclical behaviour of concatenated financial processes – and a corresponding inability of political regulation to prevent pro-cyclical, self-reinforcing dynamic processes – hence the focus of the Basel Committee on Banking Supervision (BCBS) (and other institutions) on instruments and measures to initiate “counter-cyclical” effects within ongoing financial dynamics (Elliott 2011).

On a third level, the level of the financial system, the long-term cyclicality of the real economy is replaced and enhanced by the short-term and ultra-short-term cyclicality of electronic financial flows. It takes considerable experience and expertise for people to direct their interventions in a way that avoids unintended or detrimental consequences. It is important to recognize (and it takes a bit of courage to admit) “that we do not know a lot about the underlying dynamics of financial crises in the context of the evolving financial system” (Geithner 2004, p. 4).

3 Towards a Political-economical Approach to Systemic Risk in Global Finance

Systemic risk undermines political legitimacy, because it forces national polities to step in with public money to save systemically-important institutions which are “too big to fail” –, meaning that their failure would do even more damage to public goods (Goldstein, Véron 2011). Indeed, banks have actively merged in order to cross the threshold to become “systemically important” (Brewer, Jagtiani 2009), and to enjoy the advantage of being “too big to fail” (TBTF) (Baker, McArthur 2009). Actually, political systems are being taken hostage by huge banks and other financial institutions, creating pervasive problems of moral hazard and misguided incentives (Rajan 2010, p. 170). “Government policy toward TBTF firms, which has frequently resulted in privatiza-

tion of gains and socialization of losses – when combined with executive compensation at TBTF firms that bears little relation to relative performance – has also lowered public trust in the ‘fairness’ of the financial and economic system” (Goldstein 2011, p. 10). The goal of multi-level policy responses to system risk must be to avoid the forced choice between massive public bailouts and market chaos (Levitin 2011).

The challenge, then, is to cope with uncertainty and ignorance in governing complex systems. For most global institutions, this is daily business, and they would not even think about solid truths and immovable expectations as guidelines for their operations. Some agents of global governance, i.e., the WHO, the IMF or the IRC are quite proficient in handling risks and coping with uncertainty as inevitable aspects of their world. From the vantage point of global political economy, the disturbing part of the knowledge paradox is not an inability or unwillingness of global actors to confront and manage uncertainty. It rather concerns a deficient appreciation of the levels and consequences of ignorance and uncertainty. There is an abundance of knowledge about non-knowledge and pertinent coping strategies for uncertainty at the level of persons. In stark contrast, analysis and practice are just beginning to look at the same phenomena at the level of social systems. Collective intelligence and systemic risks are just emerging as serious topics of governance theory and practice (Eatwell 2004; Krahen, Wilde 2006).

The financial crisis can be seen as a “normal accident” in Charles Perrow’s sense (Perrow 1984), that is, a temporary breakdown of a complex high-risk system. To be sure, the ramifications of this special case of “accident” are beyond most people’s imagination, the costs are astronomical, and will extend well into future generations. But, in essence, the operational logic of this system failure appears to be similar to other catastrophes in other complex, tightly-coupled socio/technical systems. The global financial system is even more complex, since it comprises an array of high-tech infrastructural and operational systems including sophisticated software on the one hand, and complex social interactions and relations on the other.

In addition, it has evolved from a loosely-coupled system, separated by national borders and jurisdictions and by separate business models for different types of financial institutions, into a tightly-coupled system, concatenated by “structured” financial products, cascaded firm and fund structures, globally interrelated financial conglomerates and homogeneous business models across the board. Appropriately, Amar Bhidé has called the global banking crisis “an accident waiting to happen” (Bhidé 2009). The Second Warwick Commission has, for these reasons, argued in favour of a “praise of unlevel playing fields” (The Warwick 2010). And Raghuram Rajan calls the homogeneity of concepts “cognitive capture” of most of the actors involved (Rajan 2010, p. 181).

To clarify the notion of *systemic risk* in global finance, it is helpful to assume three core system’s features of global finance which invite systemic risk: (1) global concatenation, (2) contagion, and (3) tight coupling.

(1) In practical terms, the global financial system has achieved nearly total concatenation after the demise of the Bretton-Woods limitations, and after the recall in 1999 of the Glass-Steagall Act, which was enacted in 1933, explicitly to separate the business spheres of banks, investment firms and insurance companies, in order to create more transparency in various types of financial businesses. During the 1990s, and, in particular, in the period from 2000 to 2007, every financial institution was connected to many other institutions via a variety of financial instruments, which included opaque risks. The situation was aggravated by the gradual emergence of a vast shadow banking system which evaded all official frameworks of regulation and control.

Gradually, global finance has been transformed into a thoroughly concatenated and interconnected system with complex interaction of its parts. It is characterized by strong correlations and interdependencies between the components of the system, a vanishing of borders and limitations, a re-emergence of general-purpose financial institutions, an emergence of financial institutions held to be “too big to fail”, an increasing influence of overall actors like rating agencies and global financial players, an emergence of a shadow banking system which reinforces interrelations and

stacked dependencies, a growing homogeneity of basic economic assumptions as represented by the “Washington consensus” (Williamson 1990), a striking uniformity of business models and risk strategies, leading most actors and firms to look in the same direction and to disregard the same risks. “Large and complex financial conglomerates now have hundreds – and sometimes thousands – of majority-owned subsidiaries, with a high percentage of those subsidiaries located in foreign locations” (Goldstein 2011, p. 10).

(2) Contagion is a feature of a tightly-connected (global) financial system. An internationally- or even globally-diversified portfolio makes sense if investors want to protect themselves against specific-country risks. If, however, a crisis looms, then the connections and relations used to diversify may backfire, and produce unanticipated shocks. Crisis contagion happens when a faltering economy or a financial crisis in one country spreads to an otherwise healthy economy or financial system of another country. Contagion is aggravated by “rational” herding behavior of international investors and by homogeneous concepts, investing and disinvesting strategies, which lead to massive cumulative effects (Krugman 2009, p. 93). Even the highly-sophisticated and sensible rules of Basel II have proven to work in a pro-cyclical manner during the recent financial crisis, thus exacerbating the dangers of contagion.

(3) A tightly-coupled financial system is like an elaborate domino-edifice which looks good in times of prosperity, but which may collapse dramatically in times of stress. Karl Weick’s insights into the consequences of loose and strict coupling (1976) will be used to shed some light on a perplexing recent transformation of global finance from a loosely- to a strictly-coupled system. This structural change has altered the risk predisposition of the *entire* system of global capitalism. It has created new levels of systemic risk, because tight coupling of the system’s elements increases its vulnerability through rapid contagion and an uncontrolled spread of toxic ingredients.

Tight coupling has also been increased by structured financial products like CDO’s or CDS² which combine – and thus tightly connect – diverse businesses, branches, regions and

types of financial firms, like banks and insurances: “Diversifying risk through hedging increases linkages among market participants, which, at least in part, could offset the risk-spreading and foster systemic risk” (Schwarcz 2008, p. 221).

Whereas the details of setting up adequate firewalls must be left to financial experts, for political economy and governance theory, the problem of implementing the principle of subsidiarity relates to the architecture of global finance – that is, the need to change from a tightly- to a loosely-coupled system. A crucial case in point is securitization in general and mortgage securitization in particular.

As soon as securitization creates special-purpose vehicles (SPVs), structured investment vehicles (SIVs), or special purpose enterprises (SPEs) for these vehicles from an underlying pool of mortgages (or mortgages combined with other debts), the quality of financial business changes from regular banking to leveraged investing: “The key to securitization is that the SPV finances its purchases of cash flows from mortgages by issuing securities, which are then called *residential mortgage backed securities* (RBMS) or *commercial mortgage backed securities* (CMBS) because they are backed by the payments by the holders of the mortgages in the SPV portfolio” (Sinn 2009, p. 63). A change in the quality or level of financial transaction occurs because a new *intermediary* is entering the stage, and because the original holder of the mortgage – and his/her risk propensity – disappears behind a compound aggregate of bundled securities. Note that even the rating agencies have been misled by this “disappearance act” to give routinely high ratings for these bundles.

Disconnecting this form of tight coupling through intermediaries according to the principle of subsidiarity would imply explicitly creating a new next level of financial transactions. This separates these kinds of securitization from “regular” banking business, and confines it to a separate form of enterprise (e.g., “Special Purpose Enterprises”, which are but components of the shadow banking system). This enterprise is then subordinated to specific rules and regulations. For example, these rules would have to include an answer to the question whether the original

mortgage holder has to consent to the sale of his/her mortgage, or has a right to veto it.

CDS' are a second case in point related to the first example. CDS-contracts are quasi-insurance contracts, because the buyer pays a premium, and, in return, will receive a sum of money if one of the events specified in the contract, e.g., default of a credit or bankruptcy of a firm, happens. Apart from the moral-hazard problem involved, the instrument mixes elements of investment and insurance, thus increasing tight coupling between investment- and insurance activities. The case is particularly problematic, because the insurance industry is strongly regulated and subjected, for example, to Solvency II as a regulatory- and internal control framework. But the existing control frameworks are not adapted to the new mixture of elements, since the seller of CDS need not be a regulated entity, and the controls are useless in view of highly-leveraged and structured risk portfolios characteristic for sophisticated investment (but not for the insurance business).

4 Outlook: Consequences for Regulation and Supervision

The consequences for defining, understanding and managing financial systemic risk are far from clear. Presumably, no expert would advocate a single overall solution in view of a highly complex and sophisticated problem like systemic risk. And, in principle, it is easy to agree to the idea of the benefits of "cognitive diversity" for handling exceedingly complicated problem constellations. However, the discord and vicissitudes of the international discussion following the global financial crisis are to some extent disheartening. The national states and, in particular, the EU, have missed an opportunity to perform adequately: "The collective performance was inelegant, not least inside the European Union. [...] the crisis underlined the crucial importance of much better collaborative instruments for the oversight and stabilization of integrating financial markets" (Pauly 2009, p. 955). In spite of obvious and looming systemic risks, the political actors in the advanced democratic national states fear the next election more than systemic risk.

It seems a long way to go until the "tragedy of the commons" quality of systemic risk is sufficiently appreciated to bring competing national states to commonly-agreed solutions. The benefits of a vibrant and innovative global financial system are huge, but they accrue in exceedingly differential proportions to different market participants, "each of whom is motivated to maximize use of the resource, whereas the costs of exploitation, which affect the real economy, are distributed among an even wider class of persons" and finally burden the public budgets (and their staggering deficits) of the national states involved (Schwarcz 2011, p. 206).

The first and foremost consequence of systemic risk in global finance, therefore, appears to be to build institutions of global rule-making in finance. It does not have to be and probably will not be a single institution – like the WTO for global trade, or the WHO for global health – but it might be a small number of institutions with distributed expertise and responsibilities centered around the Financial Stability Board for general policy and principles, the Base Committee on Banking Supervision for banking regulation, and the IMF for money and credit policies. This supervisory network might be complemented by activities by the USA and the EU at the national/transnational level to institute systemic risk-oversight councils, in order explicitly to include a macro-prudential and long-term view in their supervisory actions (Katz, Christie 2010, p. 2).

Notes

- 1) CDO stands for Collateralized Debt Obligation.
- 2) CDS stands for Credit Default Swaps.

References

- Baker, D.; McArthur, T.*, 2009: The Value of the "Too big to fail" Big Bank subsidy. Issue Brief. September 2009. Center for Economic and Policy Research. Washington, DC; <http://www.cepr.net> (download 15.3.11)
- Bhidé, A.*, 2009: An Accident Waiting to Happen. Center on Capitalism and Society. Columbia University. Working Paper No. 39, May 2009; <http://www.capitalism.columbia.edu/working-papers> (download 28.10.11)

Brewer, E.I.; Jagtiani, J., 2009: How Much did Banks Pay to Become Too-big-to-fail and to Become Systemically Important? Working paper No. 09-34. Research Department, Federal Reserve Bank of Philadelphia; <http://www.philadelphiafed.org/research-and-data> (download 15.3.11)

Commission, F.C.I., 2011: Financial Crisis Inquiry Report. Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States. Washington, DC

Eatwell, J., 2004: International Regulation, Risk Management and the Creation of Instability. Lecture at the IMF. October 1, 2004; <http://people.pwf.cam.ac.uk/mb65/iss-2011/documents/eatwell-2004.pdf> (download 16.11.11.)

Economist, 2009: Greed – and Fear. A Special Report on the Future of Finance. In: *The Economist*, January 24, 2009, pp. 3–24

Elliott, D., 2011: Filling the Gap in Financial Regulation. An Overview of Macroprudential Policy and Countercyclical Capital Requirements. The Brookings Institution. Washington, DC; http://www.brookings.edu/~media/Files/rc/papers/2011/0311_capital_elliott/0311_capital_elliott.pdf (download 15.3.11)

Geithner, T., 2004: Changes in the Structure of the U.S. Financial System and Implications for Systemic Risk; <http://www.cerf.cam.ac.uk> (see Eatwell)

Goldstein, M., 2011: Integrating Reform of Financial Regulation with Reform of the International Monetary System. Peterson Institute for International Economics. Working Paper WP 11-5, February 2011; <http://www.iie.com> (download 28.10.11)

Goldstein, M.; Véron, N., 2011: Too Big to Fail: The Transatlantic Debate. Peterson Institute for International Economics. Working paper WP 11-2, January 2011; <http://www.iie.com> (download 28.10.11)

Hayek, F.A., 1945: The Use of Knowledge in Society. In: *The American Economic Review* XXXV (1945), pp. 519–530

Katz, I.; Christie, R., 2010: Geithner's Oversight Council Seeks to Identify Firms Posing Systemic Risk. Bloomberg News; <http://www.bloomberg.com/news/print/2010-10-01/geithner-s-oversight-council-seeks-to-identify-firms-posing-systemic-risk.html> (download 18.3.11)

Kohn, D.L., 2004: How Should Policymakers Deal with Low-probability, High-impact Events? Remarks by Governor Donald L. Kohn. The Federal Reserve Board, Speeches; <http://www.federalreserve.gov/boarddocs/speeches/2004> (download 28.10.11)

Krahnert, J.P.; Wilde, C., 2006: Risk Transfer with CDOs and Systemic Risk in Banking. Finance De-

partment. University of Frankfurt, unpublished paper; http://www.bis.org/bcbs/events/rtf06krahnert_etc.pdf (download 16.11.11)

Krugman, P., 2009: The Return of Depression Economics and the Crisis of 2008. New York

Levitin, A., 2011: In Defense of Bailouts. In: *The Georgetown Law Journal* 99/2 (2011), pp. 437–514

Pauly, L., 2009: The Old and the New Politics of International Financial Stability. In: *Journal for Common Market Studies* 47/5 (2009), pp. 955–975

Perrow, C., 1984: Normal Accidents: Living with High-risk Technologies. New York

Plender, J., 2005: Shock of the New: A Changed Financial Landscape may be Eroding Resistance to Systemic Risk. In: *Financial Times*, February 16, 2005, p. 11

Porter, M., 1990: The Competitive Advantage of Nations. New York

Rajan, R., 2010: Fault Lines. How Hidden Fractures Still Threaten the World Economy. Princeton, NJ

Schwartz, S., 2008: Systemic Risk. In: *The Georgetown Law Journal* 97/1 (2008), pp. 194–249

Sinn, H.-W. (ed.), 2009: EEAG Annual Report (European Economic Advisory Group at CESifo). Munich; <http://hdl.handle.net/1814/9648> (download 28.10.11)

The Warwick, C., 2010: The Warwick Commission on International Financial Reform. In Praise of Unlevel Playing Fields: The Report of the Second Warwick Commission. Coventry

Weick, K., 1976: Educational Organizations as Loosely Coupled Systems. In: *Administrative Science Quarterly* 2 (1976), pp. 1–19

Williamson, J., 1990: What Washington Means by Policy Reform. In: *Williamson J.* (ed.): *Latin American Adjustment: How Much Has Happened?* Washington, DC

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