

Financial Risks and Management

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Glossary

Behavioral biases Cognitive distortions that cause people to put disproportionate weight in favor of or against one issue or person. With regard to risk, behavioral biases lead to misperceptions of risk and potentially dangerous decisions.

Financialization The term describes the historic trend of the disproportionate growth of the importance of the financial sector relative to the real economy. It is characterized by rising share of the financial sector in gross domestic product, increasing usage of financial products and a growing complexity of financial instruments.

Formalization of risk management Process of the increased reliance of risk managers on mathematical tools and compliance rules while neglecting traditional heuristic methods. Though limiting their own discretionary scope, they justify their actions and decisions by resorting to “objective” numbers, models, and regulations.

Individualization of risk Individuals increasingly bear the burden of risk and are compelled to make their own financial provisions against a whole host of risks (including unemployment, sickness, and retirement). At the same time, individuals struggle to master risky situations due to the growing complexity of modern finance.

Radical uncertainty The decision-making situation characterized by the lack of any quantifiable knowledge about some future occurrences. The notion of radical uncertainty is in stark contrast to the term “risk,” which assumes that not only possible future outcomes but also their probabilities are known in the present.

Risk attitude The willingness of someone to take risks. Sociodemographic factors play a large role explaining differences in risk attitudes.

Risk culture System of attitudes and behaviors present in an organization that shapes risk decisions made by management and employees.

Risk perception The way a person subjectively estimates and “feels” about risk. It can be heavily distorted by behavioral biases.

Systemic risks Possible disturbances of a financial system that may lead to its entire breakdown. They are endogenous, that is, result from the interconnectivity of financial actors and institutions and are amplified by feedback mechanism among them.

Varieties of capitalism Framework for analyzing the institutional similarities and differences among the developed economies.

The global financial crisis of 2007–2008 became a demarcation point for economic and financial geography. The analysis of causes and effects of this major turmoil highlighted the necessity to radically rethink the established understanding of the financial system, financial risks, and risk management.

The after-crisis publications in economic and financial geography switched to conceptualizing financial markets as complex, self-organizing systems characterized by strong interdependences and constant feedbacks between their parts, that is, individual actors, financial institutions, and states. Furthermore, tuning into the *varieties of capitalism* debate, financial geographers pointed to differences among financial systems in developed and emerging economies, high concentration and centralization of investment decisions in global cities, and extreme mobility of capital around the globe. In other words, it was recognized that spatial variance remained and played a role despite the homogenization and globalization of finance.

This new attention to the *situatedness of finance* led to understanding of financial markets not as an abstract and always efficient machine but rather as a set of economic, social, political, and cultural relations of institutions, money, and power. Allying with economic sociology, social studies of finance, cultural studies, and behavioral economics, geographers saw the origins of the financial crisis in uneven allocations of information, capital, income, and financial power, in spatial effects of financial innovations and topology of links between the local and the global. *Financialization*, the increasing influence of financial markets, innovations, and institutions on all fields of economic life, has been discussed as a genuinely spatial phenomenon. Furthermore, the rise of sophisticated technologies such as algorithmic trading and blockchain changed the financial landscape around the globe questioning the notions of the “national state and regulation,” “borders,” and “territory.”

This geographically informed viewpoint on financial markets had consequences for understanding financial risks. The attention turned to the so-called *systemic risks*, that is, to risks that refer to a possible disturbance of an entire financial system and may lead to its breakdown. Systemic risks are endogenous, that is, they result from the interconnectivity of financial actors and institutions and amplifying feedback mechanism among them. As all financial organizations and individual actors have a geographical location, risks are not “spaceless” anymore. In other words, the systemic—and the related geographical—understanding of financial markets highlights that financial structures are themselves a source of uncertainty, instability, and shocks that are

produced in big financial centers and resonate in the periphery. The mitigation of systemic risks is recognized as one of the main functions of prudential financial regulation at the national and global levels, yet the phenomenon itself appeared to be rather poorly understood.

Especially, the impact of the modern financial technology—such as algorithmic trading, Fintech, RegTech, P2P lending, shadow payment systems, blockchain, and digital currencies—on financial stability and their relevance for systemic financial risks is unclear and actively debated among researchers and regulators. On the one hand, it is argued that decentralization and diversification of financial activities that result, for example, from the digital ledger technologies or digital platforms, could rather promote macroeconomic and financial stability. On the other hand, concerns have been raised that financial stability might be jeopardized by induced procyclical dynamics, synchronized flows on Fintech platforms, and sudden systemic relevance of some Fintech entities. Furthermore, the opaque nature of some of the recent developments raised specific concerns. As these technologies operate primarily outside the established banking system and thus are not a subject to the traditional regulation, they not only create new risks but also hide them, posing new challenges for risk management.

Researchers recognized that we are confronted with new geographies of risk production and distribution. They described the *risk cultures* that facilitate risk creation in particular places (e.g., global financial centers) or institutions and mapped out the global geographies of risk. These developments enhance once more the importance of the Knightian distinction between *risk* and *uncertainty* as well as of the Ulrich Beck's concept of *risk society*. Risk as a situation in which the probabilities of uncertain events can be unambiguously and objectively determined is frequently confused in financial risk management with *uncertainty* as a situation in which these probabilities cannot be accurately measured, and, importantly, the list of possible events is never complete. The studies of the global financial crisis demonstrated that this distinction was neglected by regulators and financial risk managers for too long, leading to the illusion of full controllability and predictability of financial risks. As a result, the research on risk management focused on how uncertainties are translated into calculable, manageable, and accountable risks through the specific practices of representing and handling them. In other words, radical uncertainty in risk management was considered to be "organized" (Power, 2008) and tamed in a network of connections within an organization that encompasses financial risk professionals, technological devices, and calculative models as well as trust relations, reputation, and communication; however, according to Beck, risk frequently escapes those institutionalized calculative practices because radical uncertainties related to new technologies and the system's complexity remain their blind spot.

Interesting research emerged recently that widens the scope of risk geographies beyond practices of risk calculations and systemic complexities. It points out that financial risks can originate in *shared narratives* that govern the temporal-spatial expectations in particular countries and regions. For example, according to Pellandini-Simanyi and Vargha, a narrative of European convergence produced the illusion that some Eastern European countries were on a certain spatial trajectory toward the European Union and justified the dramatic increase of debts in these countries that ended in the mortgage crisis. More generally, the accounts of *fictional expectations* and *geographic imaginaries* play an increasing role in the research on practices of central banks, regulators, and credit rating agencies.

At the level of individual economic actors, social and economic geography clearly recognized the varieties of financial literacy, risk perception, and risk attitudes among places and population groups. The literature analyzed the factors that influence financial risk tolerance such as gender, age, wealth, and education. Furthermore, attention was paid to cognitive biases that affect risk perception and risk attitudes such as overconfidence, excessive optimism, urge for conformity, and mimesis, and so on and lead to misguided financial decisions regarding, for example, retirement, consumption, and housing. At the same time, as the *individualization* in the financial sector advances, lay investors and consumers find themselves increasingly responsible for the crucial financial decisions and thus are exposed to severe risks they cannot calculate and mitigate.

In what follows, after elaborating on the various types of financial risks, we will discuss the most important developments in research concerning financial risks and their management at three levels: the level of individual financial players, the mesolevel of institutions, and, finally, the macro, or global, level of the financial system as a whole. It should be noted that this separation is made solely for organizational purposes and is rather artificial due to the interconnectedness of risks at all levels. For example, overoptimistic misjudgment about potential losses by individual investors can lead to excessive risk taking and can create systemic risk in the form of financial market bubbles. Furthermore, the fragmentation and interconnectedness of the financial system allow risk takers to shift negative consequences or their activities to other regions or individual market participants, contributing to an increase of systemic risks.

What Are Financial Risks?

"Financial risks" is a collective term for a variety of different types of risk and uncertainties that are related to the use of financial services. There are five basic types of these services that are associated with financial risks:

- **Financial intermediation** between savers and investors as well as companies and consumers ensure the efficient allocation of monetary resources, the necessary funding of households, governments, and businesses and provision of liquidity. Financial intermediation transforms certain assets or liabilities into different forms of assets or liabilities regarding their risk, maturity, and size, for example, a bank transforms many small money market accounts into one sizable long-term property loan. Various forms of intermediation make the financial system more intertwined so that a collapse of individual financial intermediaries could lead to systemic failure and cause high costs for individuals, firms, and society.

- Smooth **execution of payments** and seamless functioning of payment systems are essential for efficient operation of financial markets and the modern economy as a whole. Traditionally, payment systems around the globe have been provided by banks that are the subject to an extensive prudential regulation that aims to ensure liquidity, guarantee deposits, and handle bankruptcies of financial institutions; however, recent technological innovations brought about the rapidly growing shadow payment systems (e.g., PayPal or cryptocurrency exchanges), also in countries with an underdeveloped banking system (e.g., Kenya's M-Pesa). Next to the increased convenience of payments, shadow payment platforms generate new risks for individual users and for financial stability as they are not buffered by appropriate financial regulation.
- Risk reduction through provision of **financial protection** against the consequences of adverse events in the future (i.e., threats to life, health, income, and wealth risk) such as insurance policies, financial hedging, savings accounts, and pension schemes. It is important to note that these services could also cause additional risks if they are passed along the financial value chain. For instance, hedging by means of derivatives can lead to transferring risks to the parties not involved in the transaction (think of taxpayers assuming losses in case of AIG, 2008). The other examples are catastrophe bonds, which transfer the insurance risks for large natural disasters to unsophisticated private investors.
- Supply of **financial products** that enable investors or speculators to achieve high returns (e.g., investment funds and derivatives). These products generally involve active risk taking and could increase the individual risk. They can lead to significant losses if their risk-return trade-off is wrongly assessed (e.g., due to the lack of financial literacy). Furthermore, the 2008 crisis illustrated how even apparently useful financial innovations such as seemingly safe money market funds can suddenly turn into toxic and dangerous products.
- **Provision of money** (cash, bank money, and central bank reserves) to the economy and safeguarding the functions of money (such as medium of exchange, standard of deferred payment, unit of account, and storage of value) have been the purpose of central banks and commercial banking systems. Clearly, it is a risk that one of the money functions is seriously disrupted, for example, in case of inflation. Recently, however, new forms of money such as cryptocurrencies (e.g., Bitcoin, Ethereum, and others) and debates about central bank digital currencies inspired vast research on what money is today and which new risks technological innovations pose within and across national borders.

It should be noted that all risks mentioned above affect all three levels: individual, organizational, and systemic. Let us now discuss the specificity of financial risks and their management in each case separately.

Risk at the Individual Level

Ulrich Beck stated in his work on the risk society that we face a progressive individualization of risk in the modern world: individuals increasingly bear the burden of risk and are compelled to make their own financial provisions against a whole host of risks (including unemployment, sickness, and retirement). At the same time, individuals struggle to master risky situations due to the complexity of modern finance. The variety, complexity, and sophistication of financial products has been growing, while financial literacy (knowledge and understanding of financial matters) remained low in large parts of the population.

A study of financial literacy among investors, conducted by the US Securities and Exchange Commission in 2012, demonstrated that investors have difficulties to understand even elementary financial concepts. Recent findings in behavioral finance confirmed the very limited literacy in risk issues by "normal citizens" even in the highly educated clusters (e.g., law and medical students).

Next to the illiteracy of retail clients and their profound misunderstanding of crucial risk concepts, another issue should be discussed in more detail, namely, the disinformation of investors and miscommunication of risks to them, which can create or worsen situations of asymmetric information. Miscommunication can appear in two forms: either too many risks are disclosed with too many details or the complexity of risk issues is much reduced.

Disclosure of too many risks adds to the confusion of retail investors, who are not able to distinguish relevant from irrelevant information. At the same time, if risk is reduced to a number (e.g., volatility or risk categories in MiFID II), this may lead to a neglect of other types of risk (e.g., inflation risk). The consequence is a misinterpretation of investment opportunities, which only adds to the profound misunderstandings of retail investors about risk.

Furthermore, behavioral biases influence risk preferences and skew risk perception. Importantly, this phenomenon can be observed not only in the case of amateur investors but also by professional risk managers. Extensive research has been conducted in behavioral economics and finance to identify and analyze the most important risk-related biases such as overconfidence, over-optimism, mimesis, and loss aversion. At the same time, sociodemographic factors determining risk attitudes and risk perception were investigated.

Risks in Individual Financial Decisions

Generally, individuals face four kinds of financial decisions involving risk: (1) hedging their nonfinancial risks with insurance; (2) borrowing to fund large acquisitions like cars or houses; (3) investing; and (4) saving.

Hedging of nonfinancial risks and saving are financial activities guided primarily by the intention to reduce personal risk. While insurance products should reduce specific risks, savings build a financial cushion for unexpected events. They involve costs—the

prices for insurance policies and the opportunity costs of low returns on savings accounts—and these costs must be assessed regarding the intended risk reduction. Misjudgment of risks may lead either to an insufficient risk coverage or to overpayment for risk reduction.

Borrowing and investing, however, involve active risk taking. Therefore, neglect or misjudgment of risks is far more dangerous here because unbearable risk levels can easily have disastrous consequences for the individual financial situation.

Borrowing money to fund consumption in the present leads to the necessity of paying interest and repaying the debt in the future, either from future income or by selling collaterals. Therefore, the development of future income as well as asset values are crucial for the ability to fulfill future obligations. Financial planning is needed to match the future income streams with certain payment obligations.

Assessment of investment risks, however, is an even more complicated issue because risks must be evaluated in the context of returns, which are neither predictable nor calculable in advance. Individuals can easily be overchallenged, lack the necessary financial knowledge, and succumb to biases.

Thus, borrowing with the aim to invest in real estate or equities is especially risky for individuals. In this case, the repayment of debt depends not only on future income but also on the expected future appreciation of asset values. If overoptimistic misjudgments become a mass phenomenon, overleveraged investments lead to financial bubbles like the internet bubble of 2000, or the real estate bubble of 2007, creating systemic risk for the economy.

Behavioral Biases

Humans suffer limitations to their decision making. They are subject to behavioral biases, which lead to distortions and unsatisfactory results. Psychologists have been researching these biases and showed that they are universal across cultures and countries.

Behavioral biases can be categorized according to four reasons:

- Self-deception resulting from limits to learning, for example, overoptimism and overconfidence, cognitive dissonance, self-attribution bias, hindsight bias, and so on.
- Processing errors resulting from reliance on oversimplistic rules of thumb (heuristic oversimplification).
- Emotion/affection stemming from lack of self-control.
- Biases resulting from social influences, for example, imitation, herding, and so on.

Heuristic oversimplification, emotions, and social factors influence especially the biases of private individuals. Self-deception, however, affects not only private individuals but also professionals. Especially, people who are professionally concerned with risk (like risk managers) or risk-return-profiles (like fund managers) often dangerously overestimate their ability to identify and evaluate risk. Experience, better access to information, and past successes can lead to “professional blindness” in identifying new sources of risk and the illusion of being able to control uncertain situations. Especially dangerous is the “hindsight bias,” namely the tendency of people to present past random events as if they were knowable and predictable. It evokes the illusion of future predictability, very often leading to severe underestimation of risk and hazardous actions.

Sociodemographic Factors Determining Attitudes to Financial Risk Taking

Risk attitude refers to the willingness of someone to take risks. Some people might prefer to take more risks due to their higher risk tolerance or attraction to risk, whereas other people exhibit risk avoidance; however, both groups are aware of possible risks and can estimate them. The risk perception, on the other hand, is determined by the way a person subjectively estimates and “feels” about risk; people with a higher risk perception might think that they take less risks than they actually do.

Differences among individuals in risk attitudes and risk perceptions can be explained by psychological and sociodemographic factors. Some factors such as gender, age, wealth/income, education, personal experiences, and attitudes to homeownership seem to be particularly important. Still, it should be noticed that the results of different studies sometimes contradict each other and depend very much on the chosen methodology.

- Gender: several studies indicate that women often perceive a situation to be riskier than do men and are therefore inclined to take fewer risks. Furthermore, they are often more cautious than are men. This combination of risk perception and the intention to take fewer risks should make women more risk adverse than men. The significance of this gender effect, however, is very much disputed. When comparing gender with other demographic factors, some studies find no or only a minor impact on risk tolerance, while others see gender as one of the main explanatory powers among the demographic factors.
- Age: a general belief is that older people have less time to recover from potential losses and therefore are inclined to make less risky investments. Some studies have supported this argument, while others could not find any significant relationship between age and investor risk taking. Some authors even found that older people, on average, make riskier investments than do younger ones, leading to the view that risk tolerance is a concave function of age: risk tolerance first increases with age but decreases after a certain age is reached. At what age the risk tolerance decreases is still debated. Furthermore, a deeper look on the results also shows that the risk attitude of older people is more heterogeneous than for other age groups. While some elders become very risk adverse, others take more risk.

- **Wealth/income:** people who have a high income or who are wealthier can invest in riskier assets because the consequences of a loss are less problematic. Furthermore, wealth can be the result of investing in risky investments with high returns. Therefore, people with a higher income or who are wealthier, should be more risk tolerant than are people with low income or wealth. While this view is confirmed by most studies in general, some authors find that risk tolerance can decrease for very wealthy or high-income earners. If they surpass a certain level, they seem to be more concerned about protecting their wealth rather than increasing it.
- **Education:** people who obtained higher levels of education are generally expected to take more investment risks because they should be better able to assess risks and benefits and also have access to a larger variety of investment options. The better understanding of risks should increase the level of risk tolerance. Indeed, the correlation between higher educational level and increased risk tolerance has been confirmed by some studies. At the same time, research differs strongly in assessing the importance of the education effect. This difference is the result of the lack of a clear definition of the term "education": It may refer to different levels of education, types of school, academic degrees, professional training, years of education, and parental education.
- **Personal experiences:** There is only a small body of research examining the impact of life experiences on risk attitudes. This research suggests that prior experiences with disastrous events, such as financial busts or economic crisis, are very significant in determining risk attitudes. Especially, shock-like unexpected events (e.g., losing money in a stock market crash but also natural disasters or life-threatening diseases) can make people financially risk adverse for the rest of their lives. It is noteworthy that people who became risk adverse because of negative personal experiences generally stay risk adverse, even if their situation improves again. Financial crises and economic depressions therefore have a much longer impact on people's minds than they actually last.
- **Attitude to home ownership:** for private individuals, borrowing to fund a home very often constitutes the biggest financial risk. Because the value of property generally largely exceeds the financial wealth of individuals, it typically involves large borrowing, creating significant financial risk short and medium term. Therefore, borrowing to buy a home involves a trade-off between short- to medium-term financial risk against long-term financial risk, although many borrowers are not aware of this trade-off or they tend to underestimate the medium-term risks of borrowing (e.g., not being able to fulfill the obligations after becoming unemployed).

The attitudes towards house purchase differ very much from country to country due to different tax incentives for home ownership and diverging legislation protecting tenants (such as protections against eviction or rent rise caps). Furthermore, the pension system plays a role: Buying a home very often is regarded as a provision against financial risks at retirement age. Therefore, home ownership plays a bigger role in countries with insufficient pension systems.

Mortgage-backed home ownership can increase systemic risk, as was experienced during the last financial crisis. Developed countries with a high ownership rate, such as Spain, Ireland, or the United States have been hit much harder than have countries with low ownership rates such as Germany or Switzerland. It should be noted, however, that in developing countries where properties are often inherited rather than purchased, ownership rates can be very high without assuming excessive debt.

Financial Risk Management at the Institutional Level

Financial risk management is a function within organizations that aims to detect, manage, and hedge exposure to various risks stemming from the use of financial services. The complexity here is far higher than for individuals because institutions must match various kinds of future income streams and payment obligations, for example, raising funds for investment or working capital requirements, paying wages and invoices, provisioning for future payment obligations like pensions, and so on. Therefore, financial risk management involves an assessment of various assets and liabilities in the present as well as in the future.

Financial and nonfinancial institutions must be distinguished regarding their approach to risk management. Nonfinancial institutions use financial products either to hedge nonfinancial risks or to enable their operations. Financial institutions rather actively assume risk to make a profit either for their own account (like banks or insurance companies) or as trustees for third parties (like asset managers). Managing risk at financial institutions therefore must be seen in the context of a trade-off with profit targets: loose risk management practices may increase short-term profitability at the expense of long-term solvency; misjudgment of risk or carelessness may lead to dangerous risk concentration at financial institutions.

Interesting research has been done in recent years analyzing the rise of risk management as an organizational technosocial practice, as a set of proactive *risk cultures* that vary from institution to institution and ameliorate risks, but that in doing so also create new ones. Since the 1990s, the tightening of legislative and regulatory requirements as well as technological advancements have gradually increased the influence of risk managers and chief financial officers, especially within financial companies. At the same time, it is important to recognize that risk managers in the finance sector face a virtually impossible task. On the one hand, they and their clients need to earn money, and they can only do so by taking risks. On the other hand, it is the task of the risk manager to confine these risks. Restrictions on risk taking might cause costs or even impede attractive business activities. While coping with the difficult and sometimes contradictory requirements and mitigating risks, risk managers can contribute to emergence of new risks and dangers.

Compared with other sectors, these conflicts of interest are much more distinct in the financial sector since the risks there are often more abstract and can lie in the distant future. In particular, risk management is tricky when it comes to complex financial products. After 2008, we could see that risk assessment of many complex financial innovations in the run-up to the crisis failed. In addition, complexity offers an opportunity to hide risks or to pass them to clueless financial market participants. Nowadays, the ubiquitous combination of performance incentives with quantitative targets rewards short-term success and induces financial providers to obtain market products with nontransparent risks. Furthermore, experience has also shown that the pressure on risk managers to give up a cautious stance increases when competitors take more risks and behave aggressively. There is therefore a basic tendency toward the procyclical behavior in risk management. The analyses of the multiple failure of risk management before and during the last financial crisis showed that some banks had eased their risk rules and continued investments in toxic products between 2004 and 2007. For example, risk managers working for the failed mortgage giant Fannie Mae ignored the warnings that their sophisticated risk-control system produced. The managers observed the market development and decided to continue assuming more risk. This example illustrates that risk managers are as prone as lay investors to the influence of emotions, moods, and biases.

At the same time, there was a trend to increase formalization of risk management. To protect themselves in the strict regulatory environment, risk managers neglected traditional heuristic rules (“never put all eggs in one basket,” “margin of safety,” and so on) and increasingly relied on mathematical tools and slavish compliance. Although limiting their own discretionary scope, they justified their actions and decisions by resorting to “objectifiable” numbers or regulations. For example, a parliamentary commission in the United Kingdom examined the collapse of HBOS Bank in 2008 and criticized that risk management in this bank was very much focused on formal procedures but too little on substantive review and assessment of risks; however, exactly this style of formalization persists as regulation tightens, and ever-widening reporting requirements are imposed on risk managers by the supervisory authorities.

The tendency to formalize risk management can lead to blindness and ignorance of new, previously unknown problems. Unforeseen, radically uncertain events, for which no probability of occurrence can meaningfully be determined, are pressed back into a mathematical framework and then falsely appear as measurable and thus controllable. Furthermore, liquidity risk remains one of the most underestimated risks in risk management as it cannot be assessed with the usual quantitative concepts. In the field of open-ended real estate funds, for example, it has become a veritable fund-killer because such funds often had to carry out compulsory sales on bad terms due to cash outflows, which ruined their performance and triggered further withdrawal of money. The hitherto most spectacular fund failure of the hedge fund LTCM in 1998 is ultimately due to the sudden illiquidity of many assets. Also, reputational risk as one of the most severe risks to which modern companies are exposed cannot be caught by formal models.

Understanding and Managing Global Financial Risk

In the aftermath of the financial crisis 2008, the economic and financial geography paid a lot of attention to systemic risks, financial resilience, and macroprudential supervision. Economic geographers gladly accepted the term *geofinance* that was introduced by the CEO of Prudential Regulation Authority Sam Woods (2017). By *geofinance*, he meant the impact of geography (borders, location, and distance) on financial actors/markets and regulation including dynamics between domestic and global risks. The Brexit risk is a good example of how geographical interconnectedness within global financial networks poses material risks to the individual institutions and the entire banking system.

Furthermore, the concept of *financial ecology* developed by Leyshon et al. describes the financial system as made up of geographically distinctive practices, knowledge communities, and financial services that operate in different locations. Knowledge accumulated in different places, concentration of financial services and institutions matter for inclusion of various actors, trust but also for resilience of the system as a whole. The risks in such a system emerge not just due to external shocks but also due to the properties of the ecologies. For example, if banks, regulators, and other system’s parts exhibit *monocultures*, that is, (mis) calculate risks in the same way or share the same narratives, they might escalate the risks at the macro level. Thus, the task of regulators is to enhance the richness of knowledge practices and institutional settings in order to avoid the danger of homogenization. The ability to innovate and accommodate different mindsets and strategies might unsettle the system at times but simultaneously—maybe paradoxically—makes it more resilient. In other words, the total harmonization of financial regulation across borders might damage the resilience of the global financial system.

Similarly, *geographically informed analyses of financial crisis* have supported the spatial approach to asset bubbles, crashes, and their associated systemic risks. The widespread of financial innovations such as derivatives and securitized mortgage-backed securities enhanced the interconnectivity within the financial system and the asymmetry of risk-creation and risk-bearing among nations. The crisis also clearly demonstrated the world economy’s dependence on the financial health of strong financial centers such as the United States. Furthermore, the big multidivisional banks and investment companies still appeared to accumulate the biggest bulk of the toxic products, quickly transmitting the default risks and liquidity risks through the system. The regulatory focus on individual institutions that prevailed within the Basle II regime prior to the crisis proved to be insufficient. As a result, the regulation started to focus not only on the very big too-big-to-fail financial institutions but also on the superspreaders, that is, institutions with the highest level of interconnectedness across the system, redefining the term “systemically important financial institutions.”

Despite all these promising developments in financial geography, the explicit geographical analysis of financial risks at the macro level is still missing. The robust, policy-relevant theories of how exactly space and place as well as geographical imaginaries and narratives shape global risks and influence the macroprudential regulation within and across national borders is the challenge for the future research.

This challenge becomes even greater as the new Internet-related technologies develop a dramatic impact on the functioning and stability of financial markets. The debates about the related risks are just evolving. Importantly, shadow payment systems, lending platforms, and digital currencies challenge the traditional understanding of spatiality as related to nations, territorial jurisdictions, and material locations. They operate in the *cyberspace* that can be understood as the communications within a network of digital computers *conceptualized as a space*. This genuinely new notion of placeness questions the traditional understanding of financial risks and common tools of managing them. Financial stability as a regulatory task already transcends institutions, states, and national borders. Now, with advent of cloud computing and digital ledger technologies, the borders are drawn between noncyberspace and cyberspace, the latter being not just transnational but also difficult to define, observe, and even perceive. There are new risks related to various Internet-based financial objects such as Bitcoin; their possible systemic effects that originate in the cyberspace are still poorly understood. Those risks range from the simple operating risk (failure of the technology) to the liquidity withdrawal from markets as more and more individuals, and institutions hold funds and make payments outside the conventional banking system. The common national and international monetary policy and regulation might be ineffective here.

Geographies of Financial Risks: Going Ahead

Work on overcoming the “spacelessness” of financial risk should continue. It is important to look into the modalities of how risks are interwoven at all three levels (individual, institutional, and systemic) in different countries and cultures.

Clearly, further research into financial subjectivities from an economic geographical perspective and the geographical aspects of financialization and financial subjectification is necessary in order to understand how individual behavior toward risk affects the international financial system. More generally, the consequences of increased involvement of retail investors in financial markets in various geographical locations must be researched further.

Furthermore, the investigations on current reshaping the “geoeconomics,” recentralizing of international finance through the creation of alternative global financial centers and the relating global redistribution of risks should also go on. Also, the studies on financial instabilities and crises in space and time should be continued.

Finally, the task ahead is to further develop geographies of fintech, Internet finance, and *cloud geographies* in order to advance the understanding of cyberspace and the interplay between new borders and risks originating in emerging unregulated cyberterritories.

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