

**New Approaches to Economic Challenges (NAEC)
and
the Committee on Financial Markets (CFM)**

WORKSHOP ON NEW APPROACHES TO FINANCIAL MARKETS

Background note: Lessons from the crisis

In July 2007, the OECD wrote that: "...while institutions focusing on sub-prime lending have been facing severe difficulties, larger financial institutions – and the financial sector as a whole - seem to have weathered the sub-prime crisis relatively well, owing to healthy balance sheets and strong earnings in other areas of their business. Securitisation has increasingly enabled a transfer of risk to investors that are more able and willing to bear these risks."

Securitisation as a means to distribute risk across a larger number of players had two major consequences. First, it resulted in an increasing interconnectedness across financial institutions, while the globalisation of the financial sector increased the connectedness of financial institutions across countries. Second, it gave the impression that the risk had diminished. It hadn't, but the individual shares in the risk, and responsibility for managing it had become diffuse, creating a sense of security that proved illusory. The financial crisis spread rapidly around the globe and reached the real economy, resulting in dramatic drops in stock markets and decreases in business and consumer confidence affecting all economic operators. Financial institutions were unwilling to lend to each other, while households cut back their consumption and started saving more; access to credit became more difficult and more expensive, undermining corporate investment especially among small businesses.

Falling demand caused international trade and inward investment to contract, spreading the crisis to the entire global economy: trade in the OECD fell on average 25% between October 2008 and June. While the fall in trade at the start of the crisis might have been similar to past downturns for individual countries, the synchronisation was not, as almost all OECD countries simultaneously reported drastic decreases in trade. Global interdependence and interactions among countries thus strengthened crisis propagation mechanisms and enhanced the impact on individual countries.

International trade and foreign direct investment are still the two key channels for economic integration across borders. But while these economic linkages between countries are not new, their scale and complexity has substantially increased during the last decades due among other things to the emergence of international production networks. Global value chains have raised foreign direct investment flows and (intra-firm) trade in a complementary manner and have made them increasingly interdependent.

While increased trade is good for economic well-being (an increase of one percentage point in the share of trade in GDP is estimated to raise income level by 0.9% to 3%) trade links can help to spread the negative impacts of a crisis too, and trade itself is affected disproportionately by severe downturns, as the crisis showed. At the end of 2008 and early 2009, world output experienced its sharpest drop since the Great Depression, but global trade contracted even more sharply than during the 1930s.

The trade collapse shows how financial markets and the real economy now interact more closely and more quickly when a shock hits. Easy credit allowed US consumption and housing investment to rise to unprecedented levels as a proportion of GDP. In China, the upsurge was in capital investment. Taken together, this produced a situation where consumers in traditional markets could not absorb the exports

made possible by all this capital investment, especially given the excess global capacity that had accumulated in a whole range of sectors.

Four years before the crisis started, the OECD had warned that integration can have a downside too. In 2003, the OECD's *Emerging Risks in the 21st Century* foresaw that: "In today's highly interdependent and networked world, even a local event can have substantial repercussions in distant regions of the world through its impact on technological or financial networks...".

Many of the trends underlying that OECD analysis have intensified since 2003, and the interconnectedness has intensified. One way of understanding this is to look at countries that are active participants in the global economy. The growth of China and other emerging markets, as well as their increasing integration into the world trading system and more recently global financial system, is a good proxy to track the rise in the number of interconnected nodes making up the economy. The relative size and importance of these nodes has risen with China, and the number of inter-linkages between nodes has risen even more. The increasing complexity of supply chains in trade and manufacturing, ever greater outsourcing of services, rising military collaborations, the global nature of new technological advances, increasing migration and travel, as well the rise and rise of the internet and telecommunications traffic across the world have all greatly increased the number of connections across the nodes.

It is not just that the number of interconnections between nodes has risen almost exponentially. The scope and nature of these inter-linkages has broadened significantly, notably the rapid rise of complex manufacturing supply chains; financial links that result directly from the gradual dismantling of capital controls; and the rise of cross-border communication and spread of information through the internet. These ever-broadening connections between different nodes fundamentally change the behaviour of the system and how the global economy will react to any stimulus, change or shock in one or more nodes in ways that become ever harder to model or predict.

It is not just the number and intensity of links between the nodes that has risen, but also how quickly information, technology, knowledge, and finance move between the nodes. This results in an ever more tightly coupled global economy. Such systems are more efficient, but this efficiency comes at the cost of rising fragility. Evidence that financial and other shocks are spreading more rapidly through the world is mounting.

The crisis revealed how the tools economists used to analyse and understand these developments were not good enough. Bill White argues that the dominant school of economic thought prior to the crisis essentially modelled the national economy as a totally understandable and changeless machine (DSGE models). Moreover, the machine almost always operated at its optimal speed, churning out outputs in an almost totally predictable (linear) way, under the close control of its (policy) operators. But rather than being a machine, the economy should instead be viewed as a complex adaptive system, with massive interdependencies among its parts and the potential for highly nonlinear outcomes. Such systems evolve in a path dependent way and there is no equilibrium to return to. Several characteristics of complex systems are particularly relevant for understanding the crisis.

First, all complex systems fail regularly; that is, they fall into crisis. There were 195 stock-market crashes and 84 depressions between 1860 and 2006. Moreover, the distribution of outcomes is commonly determined by a power law. Big crises occur infrequently while smaller ones are more frequent. There were big crises in 1825, 1873 and 1929, as well as smaller ones more recently in the Nordic countries, Japan and South East Asia.

Second, the trigger for a crisis is irrelevant. It could be anything, perhaps even something trivial in itself. It is the system as such that is unstable. Governor Bernanke of the US Federal Reserve originally estimated

that the losses from the subprime crisis would not exceed 50 billion dollars and they would not extend beyond the subprime market. Similarly, difficulties in Greece in 2010 had far-reaching and lasting implications for the whole Eurozone, although its GDP was only around \$305 billion compared with over \$16 trillion for the EU as a whole.

Third, complex systems can result in very large economic losses much more frequently than a normal distribution would suggest. Moreover, large economic crises often lead to social and political instability.

Complexity arises from interconnectedness, but before the 2008 crisis, the dominant view was that economic and financial interconnectedness enables risk diversification and hence fosters financial stability both at national and global level. This view was in line with policies encouraging the liberalisation of capital flows and the deregulation of derivative markets. After 2008, interconnectedness has been associated with the risk of financial contagion. However, within mainstream economics, the understanding of the mathematical reasons why and when interconnectedness may increase stability or instability has remained fragmented.

Stefano Battiston's explanation is that once a financial system becomes highly interconnected, this opens the way to a collective moral hazard. Market players anticipate that, altogether, they are too-big-and-interconnected-to-fail and this leads to excessive risk taking. In particular, external assets may become overvalued, implying that if the market readjusts, the losses could be devastating. Once risk materialises in potential losses, interconnectedness (which cannot be unwound overnight) is presented as a source of contagion that threatens the whole financial system and hence the real economy. This justifies the socialisation of losses through rescue programmes. Overall, this process leads to increased financial instability, increased inequality, and increased political instability.

The proliferation of financial markets and the relative decline of intermediated credit in recent years have concentrated attention on underlying systemic questions, since surface indicators of good financial health can be seriously misleading. If market participants are hit by the same shocks, are similarly vulnerable and react similarly as well, the implications for the financial system as a whole and the real economy it underpins can be devastating. Similar to the earlier failure of price stability to deliver macroeconomic stability, financial stability is also not sufficient to achieve that objective. The imbalances caused by credit-driven booms go well beyond the financial sector, with the most serious being perhaps a misallocation of real resources.

Looking ahead, the risks of leverage, contagion between counterparties and liquidity mismatches are being rolled into new areas sometimes referred to as the "shadow banking system". This comes about because banks are being re-regulated while the response to the crisis led to extreme monetary ease resulting in historically low interest rates. These low rates undermine the profitability of banks and make it impossible for all cash-rich entities to make money. Pension funds and insurance companies have difficulty meeting their liabilities. This has led to a wholesale change in the activities and the "plumbing" of the financial system. The process of lending and reusing assets is accelerating, and within these activities large systemic banks are focusing less on raw leverage and more on fees and spreads as facilitators. Shadow bank risk is rising, and its degree of interconnectedness with banks in terms of counterparty and indemnification risks will have to be followed more closely. Added to that, the robust investment demand in parts of Asia is stimulating innovation to avoid credit constraints in a manner reminiscent of the lead up to the 2008 crisis in the West.

Increased connectivity does not mean greater homogeneity. Information technology and regulatory reforms have paved the way for fragmentation in financial markets with respect to an increased number of stock trading venues, and have created so-called "dark trading" pools. Different legal regimes across countries and in the growing network of international investment treaties also fragment the business



environment. National laws in different countries sanction foreign bribery with uneven and often insufficient severity, and many investment treaties have created rules that can fragment companies with respect to their investors and disrupt established rules on corporate governance and corporate finance.

Complexity is in the nature of the financial system, but if we want this system to play its role in funding inclusive, sustainable growth, we need to put these fragmented pieces back together in a more harmonious way. International policy organisations can benefit from the recognition of the time-inconsistency inherent in the narrative on interconnectedness and of the associated collective moral hazard.

What can be done, given the scale and intricacy of the challenges? The crisis was due to the unravelling of a number of tensions in the system. These tensions were not reduced thanks to any government policy, but built up until they exploded into a systemic shock that plunged the world into a recession and would have destroyed the financial systems if states had not pumped trillions of dollars into the economy.

If crises are indeed inevitable, then we must have mechanisms in place for managing them. Unfortunately, this was not the case when the global crisis erupted in 2007 and when the Eurozone crisis erupted in 2010. Another lesson is that policy makers must focus more on interdependencies and systemic issues. If the timing and triggers for crises are impossible to predict, it remains feasible to identify signs of potential instability building up and to react to them. In particular, economic and financial systems tend to instability as credit and debt levels build up, either to high levels or very quickly. Both are dangerous developments and commonly precede steep economic downturns.

Policymakers should focus more on avoiding really bad outcomes than on optimising good ones. In many cases, we simply do not have the knowledge to do policy optimisation. In contrast, policymakers have pulled out all the stops to resist little downturns over the course of the last few decades. In this way, they helped create problems such as debt overhang that we still face today.

Economic and financial crises throughout history exhibit many similarities but also many differences. In part this is due to adaptive human behaviour, both in markets and on the part of regulators, in response to previous crises. (Andrew Lo theorises this in his “adaptive markets hypothesis”, according to which financial market dynamics are driven by our interactions as we behave, learn, and adapt to each other, and to the social, cultural, political, economic, and natural environments in which we live; and survival is the ultimate force driving competition, innovation, and adaptation.) So while excessive credit growth might be common to most crises, both the source of the credit and the character of the borrowers might well be different. Such crises have occurred under a variety of regulatory and exchange rate regimes. Moreover, prized stability in one area today (say payment systems) does not rule out that area being the trigger for instability tomorrow. Changes in economic structure or behaviour can all too easily transform today’s “truth” into tomorrow’s “false belief”.

Ultimately, the structure of the global financial system has to be changed. Contagion risk and counterparty failure were the hallmarks of the crisis. While sound corporate governance and a strong risk-management culture should enable banks to avoid excess leverage and risk taking, there are likely always to be some players eager to push complex products and trading beyond the sensible needs of industry and long-term investors in order to drive profits. Indeed, such activity is once again driving the rapid profit growth of some banks, with little having been learned from the past.

Moreover, financial markets innovate at rates that regulators can never keep up with, and the mechanics of the systems through which exposures and funding operate is in the main a mystery to most policymakers. The main conclusion to be drawn is that policymakers need eternal vigilance and, indeed,



institutional structures that are capable of responding to changed circumstances. Do not fight the last war.