I. Introduction: the unsustainable has run its course

The simmering turmoil in financial markets came to the boil on 9 August 2007. On that day, a number of central banks felt compelled to take extraordinary measures in an attempt to restore order in the interbank market. The disorder was triggered by a freeze on redemptions from a small number of funds that had invested in structured finance products backed by US subprime mortgages of recent vintage. When or where it will end, no one can say with certainty. The duration of the turmoil, its scope and the growing evidence of effects on the real economy have come as a great surprise to most commentators, private as well as public.

Yet it is essential that we understand what is going on. How could problems with subprime mortgages, being such a small sector of global financial markets, provoke such a dislocation? Answering this question is crucial to assessing how severe the economic consequences of these events might be. It is also crucial for determining how policy should respond. Current difficulties must be overcome as a first priority. But, equally importantly, new reforms must be introduced and implemented to reduce the likelihood of such potentially costly events being repeated. As difficult as today's challenges might be, they also provide a motivation for institutional change that should not be ignored.

To date, most analysis of the turmoil has focused on the market segments where it all began, and the particular role played by new financial developments. The school of "What is different?" has emphasised shortcomings in the way the originate-to-distribute model of banking was extended to the mortgage sector. It has also highlighted the expanded role played by highly innovative structured products, their encouragement by rating agencies, and the recourse to off-balance sheet vehicles by banks eager to reduce their use of regulatory capital. All of this is important and points to useful policy prescriptions.

Nevertheless, this approach only complements a more fundamental analysis that helps explain not only the recent financial turmoil, but also rising inflation as well as the sharp retrenchment in many housing markets. The school of "What is the same?" would note the parallels between this period of financial and economic turmoil and many earlier ones. Historians would recall the long recession beginning in 1873, the global downturn that began in the late 1920s, and the Japanese and Asian crises of the early and late 1990s respectively. In each episode, a long period of strong credit growth coincided with an increasingly euphoric upturn in both the real economy and financial markets, followed by an unexpected crisis and extended downturn. In virtually every instance, some form of new economic discovery or new financial development provided a further "new era" justification for rapid credit expansion, and predictably became a focus for blame in the downturn. Against this background, even what has been identified as different, above, remains fundamentally the same.

What has been happening: a description

Over the last two decades, much seems to have gone right in the global economy. Inflation has been maintained at very low levels almost everywhere and, until recently, was showing remarkable stability. At the same time, growth has generally been high, with that in the last four years being the fastest on record. Along with these features, economic downturns in the advanced industrial economies have been so shallow since the early 1980s that they gave rise to the accolade "the Great Moderation". Moreover, the fact that the advanced industrial countries had proven so resilient to recurrent episodes of stress in financial markets was hailed as a further indicator of better functioning economies. In particular, the maintenance of low inflation by credible central banks was seen to have played a crucial stabilising role throughout most of the industrial world.

Yet the very mention of financial shocks leads on to two less reassuring questions. The first is why both the frequency and the magnitude of such episodes of financial stress seem to have risen. And the second, sparked in particular by the events surrounding the distressed hedge fund LTCM in 1998, is whether the centre of the global financial system might eventually prove as vulnerable as the periphery. The events of the past year have demonstrated that these causes for concern are not misplaced.

The financial turmoil began in the market for US subprime mortgages, and the markets for structured products based on them. Delinquency rates in the subprime market had started to rise in early 2005, almost contemporaneously with outright declines in house prices, but there was no significant market response to this development until early 2007. Credit spreads on such products then began to widen, rating downgrades increased, and the process accelerated sharply in August. The trigger, as already mentioned, was the decision by a small number of investment funds to freeze redemptions, citing an inability to value their complex assets. From this small beginning, the financial disruption then fanned out to virtually every corner of the system.

By early August, a combination of growing concerns about the valuations of complex products, liquidity risk and counterparty risk had led to a host of other markets being negatively affected. There was an effective collapse of the market for structured products based on mortgages, a massive withdrawal of investors from the asset-backed commercial paper market, and a sudden drying-up of interbank term money markets in the major currencies. This last development manifested itself in the form of an unprecedented gap between expected policy interest rates (over a one- to three-month horizon) and the rates at which the largest banks were prepared to lend to each other. While it was almost inevitable that difficulties in the subprime market would eventually have some repercussions for the financial institutions at the centre of this market, the force and speed of the impact took virtually everyone by surprise.

Moreover, these disturbances in the short-term money markets quickly began to be reflected elsewhere, reinforced by growing pessimism about the macroeconomic outlook and a general rise in risk aversion. The rates on core government bonds from advanced industrial countries initially fell sharply. Simultaneously, high-risk corporate spreads widened, and the corporate takeover market virtually collapsed. Equity prices did not respond at once, but eventually fell significantly, in particular the shares of financial firms. In a number of countries, but especially the United States, residential property prices came under increasing downward pressure, and the commercial property market also began to soften. Finally, volatility rose sharply in most financial markets, as did the cost of purchasing insurance against that volatility.

Given the central role played in the US subprime market by banks headquartered in the United States and Europe, it was not surprising that they had begun to announce losses. More surprising, and worrying, was the frequency with which announced losses were revised upwards, and how much the ratio of revealed losses to known exposures diverged across banks. In the beginning, however, confidence was maintained that banks had adequate capital to absorb these losses. Thus, there was initially no concern that there would be a significant effect on credit conditions, much less a "credit crunch".

This assumption was threatened as early as the third quarter of 2007. It became increasingly clear that the size of banks' balance sheets, and the associated need for capital, were set to rise involuntarily as contracts made earlier to provide liquidity support were activated. Not least, a number of structured investment vehicles (SIVs) which banks had set up to hold assets off their balance sheets had to be reabsorbed as their independent sources of funding dried up. Confidence was further shaken, albeit later temporarily restored, around the turn of the year when a number of global banks announced both the need to supplement their capital levels and their success in raising equity from sovereign wealth funds. Another severe jolt to confidence came in March 2008, when Bear Stearns, a large US investment bank, ran into major financial difficulties with frightening speed. However, the erosion of confidence was more than offset when the Federal Reserve helped the bank to merge with the still larger but healthier JPMorgan Chase. Still more recently, concerns have also begun to mount about the capital adequacy of a number of medium-sized banks, particularly in countries where such banks have large exposures to the housing and construction sectors.

As for other financial institutions, they too were drawn into the drama. At money market mutual funds, withdrawals rose early in the turmoil but inflows later surged as investors sought safety. Correspondingly, the funds themselves became increasingly conservative and unwilling to provide term funds to banks. Hedge funds, dependent on prime brokers, faced calls for margin as asset prices fell, and these calls became increasingly insistent with time. Many were forced into asset sales, further depressing prices, and some even into default. A number of insurance companies and pension funds, while sheltered to some degree by differences in accounting standards, announced sizeable losses related to subprime mortgages and associated structured products. Perhaps even more worryingly, a number of "monoline" insurers, which have traditionally used their high ratings to provide investment guarantees to borrowers such as US states and municipalities, were either downgraded or threatened with downgrades by rating agencies because of guarantees provided for structured products. In this way, concern about counterparty risk spread ever further.

In the United States, it was initially thought that the disturbances in the subprime sector would be contained, and that consumer spending and the general economy would not be much affected. In the event, neither of these assessments proved realistic. The housing sector suffered heavily under the weight of sharply falling house prices and a massive build-up of unsold homes. Moreover, as measured household wealth fell and job losses rose, consumer spending receded and the economy threatened to slip into recession. Again linked to the financial turmoil, evidence also began to mount around the year-end that credit conditions were tightening, to the potential detriment of both consumer and corporate spending. In other parts of the advanced industrial world, partially but by no means entirely insulated from the financial turmoil, growth remained rather more robust. Accordingly, the consensus forecast for Europe and Japan in 2008 was revised down less than for the United States. In parts of Europe, there was evidence that relatively weak consumer spending was holding back aggregate demand. Nevertheless, exports from both Europe and Japan remained strong, driven in both cases by demand from emerging market countries. China and other Asian countries were of notable importance, but so too were a large number of countries in Latin America, the Middle East and elsewhere which were benefiting from higher commodity prices and improved terms of trade.

These developments, together with the continued rapid growth of the emerging market economies, led to an increased focus on the sustainability of domestic demand in the emerging world. Towards the end of 2007 it was being suggested not only that these economies might "decouple" from the United States, but also that their increasingly strong fundamentals (and lack of exposure to the subprime market) had actually transformed them into a "safe haven" from the financial turmoil seen elsewhere. This optimism initially led to large-scale capital inflows and support for asset prices in many emerging market economies, even as asset prices elsewhere fell sharply.

As concerns mounted about the possible scale of the US downturn, however, the mood began to change. Indeed, upon closer scrutiny, doubts about the longer-term health of the emerging markets began to surface. In China, the extraordinarily rapid pace of fixed capital investment, much of it recently in heavy industry, fuelled worries about misallocations as well as the broader effects on both global commodity prices and the environment. In the Middle East, fears intensified that different countries might be pursuing similar strategic development plans that would eventually result in problems of excess supply. And in central and eastern Europe, large and rising current account deficits in many countries seemed increasingly unsustainable. Reflecting concerns of this nature, and financial developments elsewhere, capital inflows have recently moderated, and by mid-May 2008 stock prices had fallen from previous highs in a number of important countries.

Rising inflation is another factor which has dampened optimism about sustained growth, not only in the emerging market countries, but in the advanced industrial countries as well. Higher food and energy prices have been at the heart of this development, but it is clear that inflationary pressures are now being seen across a broader front. While difficult to measure, it seems that the "gap" between global supply and demand had been very much reduced by the end of 2007. Indeed, the prices paid by a number of advanced industrial economies for imports from China, which had fallen for over a decade, have recently been rising significantly, and there are good grounds for believing this will continue. For countries whose currencies have recently depreciated, such as the United Kingdom and the United States, underlying inflationary pressures are highly likely to be exacerbated.

This combination of rising inflation pressures and financial disturbances slowing demand growth is open to a spectrum of interpretations. On the one hand, if slower growth were thought just sufficient to hold global inflation in check, albeit with a lag, this could be viewed positively. On the other hand, the eventual global slowdown could prove to be much greater and longer-lasting than would be required to keep inflation under control. Over time, this could potentially even lead to deflation, which would evidently be less welcome. Unfortunately, when one considers the possible interactions between a weakening real economy, high household debt levels and a severely stressed financial system, such an outcome, even if unlikely, cannot be ruled out entirely.

What has been happening: an explanation

Many academics have theorised about the underlying causes of the recurrent periods of stress which have scarred the financial landscape for centuries. Hyman Minsky's work in the 1970s seems of particular relevance to current circumstances. He warned that a continuous worsening of credit standards over the years would eventually culminate in a moment of recognition and recoil (what others have since dubbed "a Minsky moment"), when market liquidity would dry up. For Minsky, however, the liquidity crisis was only a symptom of the underlying credit problem, reflecting the reality that market liquidity is always crucially dependent on the continued availability of funding liquidity. Irving Fisher painted a similar picture of deteriorating credit standards in his famous research into the origins of the Great Depression. Finally, a number of other prewar theorists warned about the danger of poorly assessed credits leading to asset bubbles, deviations in spending patterns from sustainable trends and an inevitable economic downturn.

Consistent with such concerns, a number of unusual economic and financial trends have indeed been very much in evidence in recent years. The first has been very rapid rates of growth of money and credit, amidst evidence for an underpricing of risk more generally. Such high rates of credit and monetary growth at the global level in recent years reflect the interaction of monetary policy, the choice of exchange rate regime in a number of countries and important changes within the financial system itself.

It is perhaps best to begin by noting that policy interest rates in the advanced industrial countries have latterly been unusually low by postwar standards, due to the absence of any strong inflationary pressures. This outcome reflected the building-up of central bank credibility over many years, but was also facilitated by a combination of positive supply side shocks, largely related to globalisation, and weak investment demand in a number of countries (including Germany and Japan) in the aftermath of earlier periods of excessively rapid expansion.

This policy stance might have been expected to cause a general depreciation of the currencies of the advanced industrial countries, particularly the US dollar, relative to emerging market currencies. However, in many emerging economies, upward pressure on the currency was met over an extended period by an equivalent easing of monetary policy and massive foreign exchange intervention. The former is likely to have contributed to higher asset prices and increased spending in the emerging markets. The latter, via the investment of official foreign exchange reserves, is likely to have further eased financial conditions in the advanced industrial countries. In this way, the monetary stimulus to credit growth became increasingly global.

This is not to deny that changes in the financial system over the years have also contributed in an important way to unfolding events. In particular, the various innovations associated with the extension of the originate-to-distribute model have had a major impact. Recent innovations such as structured finance products were originally thought likely to produce a welcome spreading of risk-bearing. Instead, the way in which they were introduced materially reduced the quality of credit assessments in many markets and also led to a marked increase in opacity. The result was the eventual generation of enormous uncertainty about both the size of losses and their distribution. In effect, through innovative repackaging and redistribution, risks were transformed into higher-cost but, for a while at least, lower-probability events. In practice, this meant that the risks inherent in new loans seemed effectively to disappear, buoying ratings as well, until they suddenly reappeared in response to the trigger of some realised loss that was wholly unexpected.

It is also a fact that, prior to the recent turbulence, the prices of many financial assets were unusually high for an extended period. The rate of interest on long-term US Treasuries (the inverse of the price) was so low for so long as to be dubbed a “conundrum” by the previous Chairman of the Federal Reserve. Moreover, the risk spreads on other sovereign debt, high-yield corporate bonds and other risky assets also fell to record low levels. Equity prices in the advanced industrial countries continued to be well (if not clearly over-) valued, and those in many emerging markets rose spectacularly. Residential property prices hit record highs in virtually all countries with the exception of Germany, Japan and Switzerland, where property markets were still recovering from the excesses of the 1980s and early 1990s. Even the prices of fine wines, antiques and postage stamps soared. Similarly, the cost of insurance against market price movements (approximated by implied volatility) was sustained at unusually low levels for many years. Admittedly, arguments about fundamentals can be adduced to support independently each of the above trends. However, in the spirit of Occam's razor, it is particularly notable that all of these patterns are also consistent with credit being freely available and having a low price.

Finally, it is also a fact that spending patterns in a number of countries have deviated markedly from what had been longer-term trends. In the United States and a number of other major economies, household saving rates trended downwards to record low levels and were often associated with mounting current account deficits. By contrast, in China there has, equally unusually, been a massive increase in fixed investment. As with high asset prices, these patterns are consistent with a plentiful supply of cheap credit.

Taken together, the above facts suggest that the difficulties in the subprime market were a trigger for, rather than a cause of, all the disruptive events that have followed. Moreover, these facts also suggest that the magnitude of the problems yet to be faced could be much greater than many now perceive. Finally, the dominant role played by rapid monetary and credit expansion in this explanation of events is also consistent with the recent rise of global inflation and, potentially, higher inflation expectations.

Given such a complex environment, it will obviously be difficult for policymakers to maintain price stability, significant real growth and financial stability all at the same time. Equally obviously, different policymakers might reasonably arrive at different conclusions as to what needs to be done using policy instruments. In turn, this might have implications for exchange rate movements as well, posing a further complication for policymakers.

What has been happening: the policy response to date

Almost from the first day of the turmoil, central banks overseeing the major financial centres responded to the seizing-up of money markets with more frequent and sometimes larger than normal money market operations. While different operating systems across countries occasionally made their efforts look dissimilar, they all shared the same primary objective of ensuring that overnight rates stayed effectively at levels consistent with policy goals. As time passed, a number of central banks augmented their standard procedures, being prepared in particular to accept a wider range of collateral from a wider set of institutions, to engage in operations at longer maturities, and to coordinate their efforts internationally. The Federal Reserve felt the need to be especially flexible. It successfully introduced a new facility to auction discount window credit, to address the stigma associated with the traditional use of the discount window. Moreover, after the assisted takeover of Bear Stearns, the Fed agreed to extend loans to primary dealers as part of its normal operations, although these firms are not commercial banks and, indeed, are not even supervised by the Federal Reserve System.

At the beginning of the turmoil, many thought that such liquidity injections would suffice to deal with what was perceived as largely a liquidity crisis. However, as time progressed and evidence accumulated of weakening economic activity and growing counterparty risk, it became clearer that such measures, though necessary, might well be insufficient. They would buy welcome time, but would need to be supplemented with other policies, both cyclical and structural.

Given its flexibility, it is not surprising that attention first turned to monetary policy, which almost everywhere has been easier than was expected six months ago. That said, the complexity of the circumstances has led to a wide variety of responses.

In a number of countries, in particular Australia, Norway and Sweden, policy rates have been increased. Evidently, it was judged that, in some combination, the remoteness of the domestic financial sector from the crisis, the level of observed inflation and inflationary pressures warranted such tightening. In a number of other jurisdictions, in particular the euro area, policy rates have been left unchanged in spite of earlier indications that they might be raised. Here, the judgment seems to have been that high measured inflation, strong economic momentum and concerns about upward pressures on wages effectively counterbalanced the prospective threats to growth and disinflation arising from any potential unwinding of previous excesses. Finally, in some countries policy rates have been reduced, in the case of the United States dramatically so. There, the threat of recession was seen to be most evident and it was believed that, in the interim, inflation expectations were not likely to move up to a persistently higher level.

The potential for fiscal policy to be used to maintain global growth was also widely discussed. However, those few countries whose previous disciplined behaviour had increased their room for manoeuvre were also those whose economies were showing the most momentum. As a result, the only countries that did act speedily were the United States and Spain. All the same, some other measures that could ultimately affect taxpayers were also implemented. Most prominently, some US government-supported agencies have been attempting to support prices by buying large volumes of mortgage-backed securities, and by extending guarantees against other such instruments. In Germany, direct state support was provided for a number of institutions caught up in the US subprime crisis. In the United Kingdom, the eventual need to nationalise the country's fifth largest bank, Northern Rock, clearly spread the government's potential liabilities even wider.

The turmoil has also elicited a strong regulatory response. Regulators in a number of countries encouraged their banks to seek private sector recapitalisation. Increased transparency about valuation methodologies and associated disclosure of losses were also recommended in a number of analytical studies, from both the public and private sectors. And, finally, numerous recommendations were made as to how lending criteria and the use of structured products might be improved in the future. Implementation will, however, face many difficulties, not least the need to avoid exacerbating near-term market tensions in the pursuit of laudable medium-term objectives.