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Financial Services

# The Credit Crisis: Correction or Catastrophe?



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# Introduction

The current market situation has been likened to a perfect storm in which credit losses and tighter liquidity feed on each other – creating a cycle of fire sales, which depress prices, which further increase downward pressure. Add to this a possible geo-political shock or global economic downturn and you have the makings of a much greater and systemic crisis. Others are less willing to foretell catastrophe and see recent events as a correction that brings a much needed re-pricing of risk in a diversified, well capitalised industry that is perfectly able to weather the storm.

‘Diversification through distribution’ has been a key driver of financial services growth over the last decade. The flipside of diversification is of course that more share the pain should it occur. The question now is the degree to which the repackaging and distribution of risk has increased moral hazard and conflict of interest, and by how much it has over-inflated the credit bubble and delayed its bursting. Net, has the benefit of diversification been outweighed by the size of the problem that now exists?

In this paper, we present a range of scenarios for the evolution of the current crisis, and the ability of institutions to survive the balance sheet and liquidity shocks that may emerge. Despite the current “heart attack” conditions, we don’t expect the long-term trends for repackaging and distributing of credit to reverse. Clearly the current situation will take time to work through, but in our view we are not witnessing a fundamental failure of the now standard originate-to-distribute model, but rather a set of failings on some specific issues which must be addressed. That some players have managed not just to survive, but to thrive, points to some important lessons for management. Specifically they will need a much tighter grasp of their credit and liquidity exposures and be prepared to respond quickly to any worsening in the environment.

## How low will it go?

Early signals of the current crisis were seen in the first months of this year with announcements from US sub-prime lenders Household and New Century that 2005 and 2006 vintage loans were defaulting at significantly higher rates than expected. Driving this was a combination of background interest rate rises, interest rate resets and, more fundamentally, the reliance of sub-prime mortgage performance on rising house prices. Perhaps misleadingly, institutions that stress-tested their sub-prime exposures concluded that senior positions were relatively secure, and few anticipated the risk aversion that would subsequently mark senior positions down to 80 cents in the dollar. This risk aversion, coupled with the highly leveraged and mismatched funding strategies of off-balance-sheet investment vehicles and other credit investors, has been one of the defining features of the current crisis.

Bottom-up estimates of losses from the US\$1.3–1.4 TN outstandings of sub-prime mortgages are in the range of US\$200-300 BN, although these estimates are contingent on the evolution of US house prices – and these are showing signs of rapid and perhaps unprecedented decline. Current market prices for sub-prime-linked securities imply higher losses in the region of US\$400 BN. Couple this uncertainty over magnitude with the uncertainty of who is holding sub-prime risk – as of December 2007 approximately US\$1 TN (or over 70%) of exposure is still to be accounted for – and the drivers of the liquidity crunch are all too apparent:

*In the words of one bank CEO “We know there are losses but not their full extent or where they are still to be realised. This undermines the confidence of investors and counterparties and consequently evaporates liquidity. The lack of liquidity crystallises more losses through unwinding of positions and asset sales, but we don’t know where. And so it continues.”*

In terms of understanding the impact of the crisis on the industry, we need to look at two issues:

- Balance sheet holes – whether there is a material risk to the earnings and solvency of particular institutions or whole categories of institution
- Liquidity holes – whether there will be further ‘Northern Rocks’ as a result of funding short-falls

## Balance sheet holes

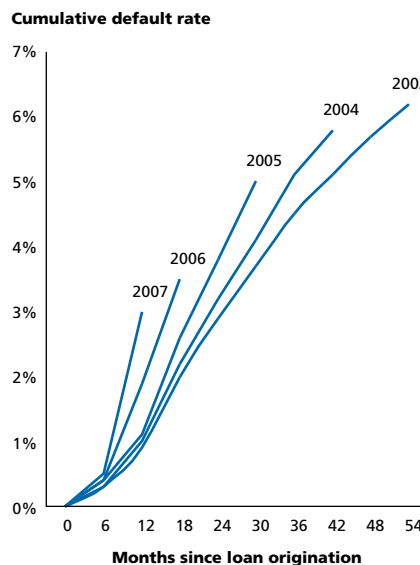
Without trying to 'call the cycle', banks need to consider how the current US sub-prime crisis might spill over into the broader international economy, and the effect that this would have on their earnings, balance sheet and solvency, as well as longer term decisions on future business model, risk appetite and strategy.

### Sub-prime vintages, seasoning and house prices

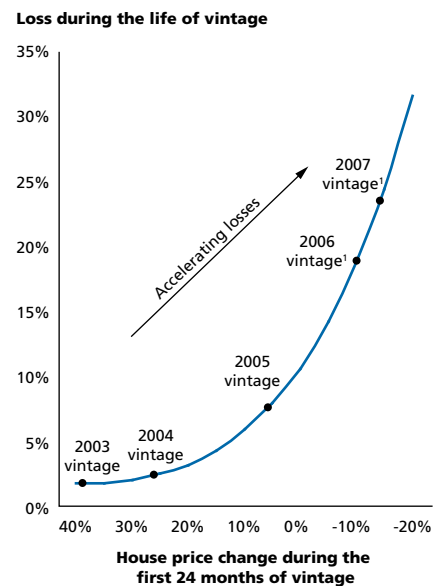
Bottom-up estimates for US sub-prime losses are in the range of US\$200-300 BN, with losses concentrated in mortgages originated since mid 2005 (Figure 1). The difference in performance across vintages is striking, and illustrates the degree to which house prices drive sub-prime default rates.

**Figure 1**

#### Accelerating sub-prime default rates



#### Driven by stalling property values

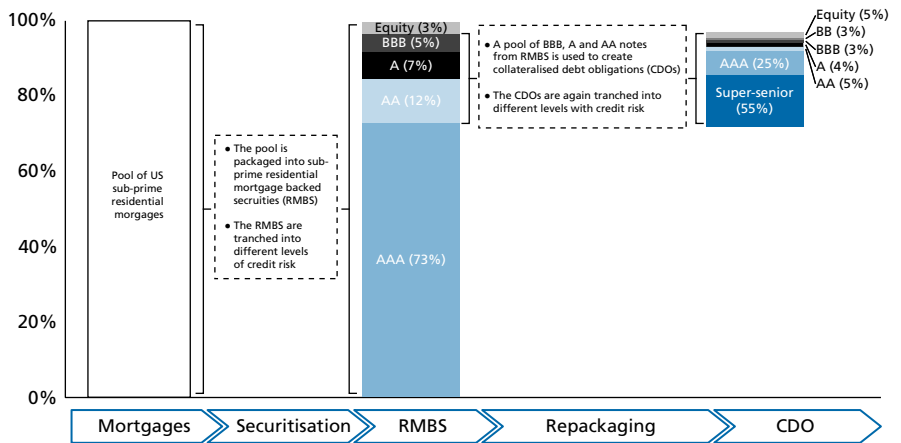


<sup>1</sup> Based on projected house price changes  
Source: Oliver Wyman analysis

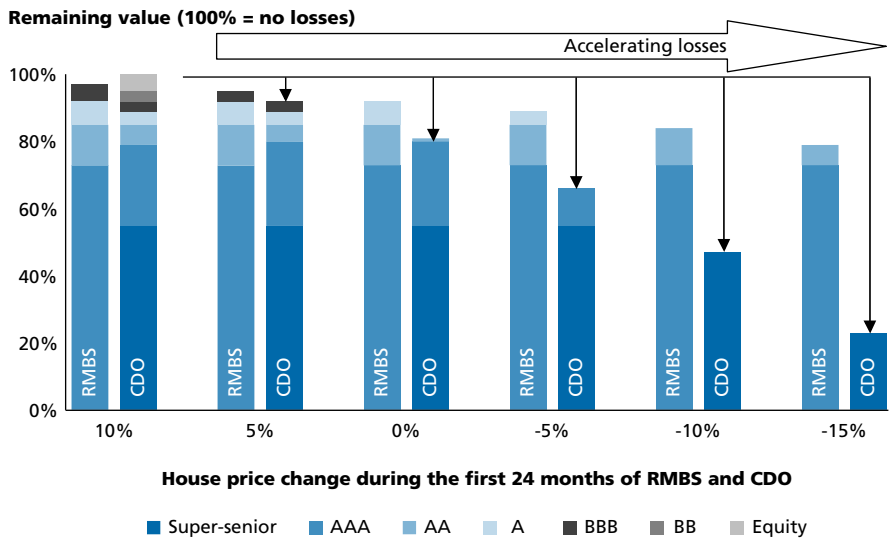
The concern is firstly that the early signals from the US residential market indicate that this cycle could be severe, and secondly that other classes of property are showing signs of strain. To illustrate the

highly geared position investors can hold against property prices we show in Figures 2 and 3 below the performance of an indicative series of mortgage-backed securities under different US house price scenarios.

**Figure 2: Slicing and dicing of mortgage risk**



**Figure 3: Sensitivity of asset class to house price change**



Source: Oliver Wyman analysis

It is striking from this analysis how quickly the value of junior tranches of such a (re)packaged CDO security can change as increased leverage is embedded into the structure, and how initially reasonable diversification assumptions break down in a stress scenario. This highlights the need for substantially more sophisticated analysis and risk management methods than a single 'alphanumeric' rating can provide. It also brings home that under more pessimistic scenarios total sub-prime losses could reach, or exceed, current market-implied losses of over \$400 BN.

## Anticipating the future

So what is the potential for the sub-prime crisis to widen, with transmission into other markets? In previous 'event-driven' crises, such as the Asian banking crisis (1998/9), Russian default (1998) and the DotCom crash (2000), OECD markets recovered quickly without significant spill-over into the 'real' economy. Also, despite its eye-watering headline numbers, the current loss forecasts for sub-prime are still small on a relative basis compared to, say, Japan in the 1990s. Sub-prime in the United States alone is therefore unlikely to lead to long-lasting stress, although it will clearly cause significant short-term earnings pain – as a comparator, pre-tax profit for major US and European banks in 2006 was approximately US\$520 BN, and they are estimated to hold 40-50% of total sub-prime exposure.

The more worrying scenario is that sub-prime does the 'softening up', eroding capital surpluses and market confidence, before other markets start to show signs of stress. It has been commented that in previous crises since the last real recession in the early 1990s events were defined by "the tail wagging the dog", this time however it may be the dog that is back in charge.

Besides inherently unpredictable macro or political events, the most obvious transmission mechanisms are unsecured personal lending, and retail and commercial real estate. Each of these areas is showing signs of stress on both sides of the Atlantic, with recent falls in retail and commercial property values – and associated redemption restrictions on commercial property funds – and rising default rates in some personal loan and credit card portfolios. The impact of the crisis might be further amplified by the weakening of bank capital levels, a tightening of commercial credit, driving a more recessionary environment with higher levels of commercial defaults.

## Bounding scenarios

What then are a range of credible scenarios that should be considered by a European institution in order to provide comfort that losses can be managed? Below we show a set of typical peak-to-trough loss ratios for a set of consumer and corporate asset classes.

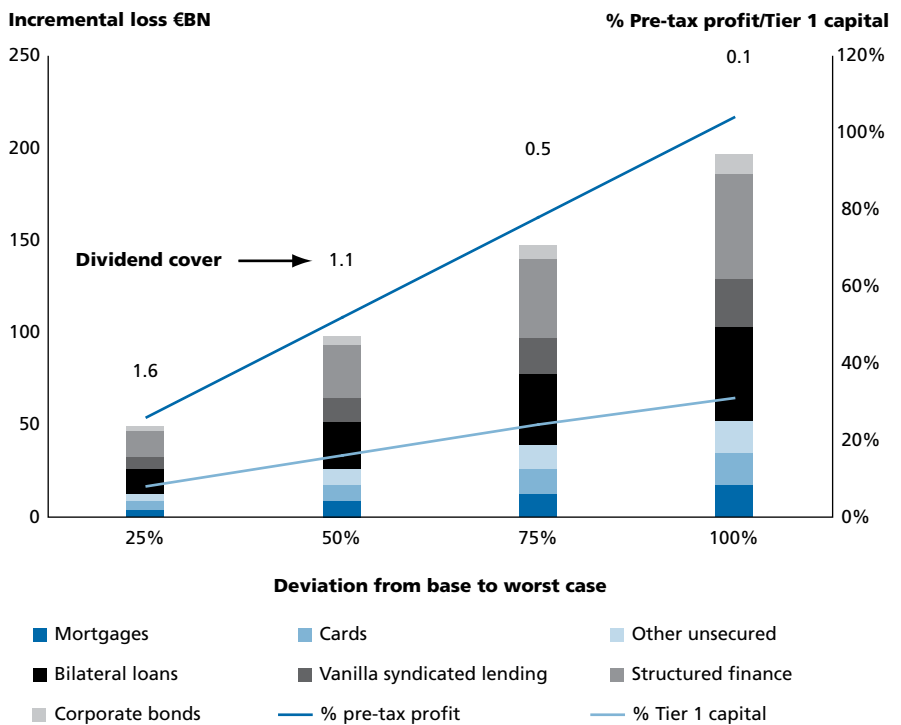
## Typical peak-to-trough European credit losses

Asset class	Credit losses as % exposure	
	Current point in cycle (base case)	Economic trough (worst case)
<b>Consumer lending</b>		
Mortgages	0.05%	0.40%
Cards	3.50%	8.00%
Other unsecured	0.75%	2.25%
<b>Corporate lending</b>		
Bilateral loans	0.25%	1.50%
Vanilla syndicated lending	0.25%	1.50%
Structured finance	0.25%	3.50%
Corporate bonds	0.25%	1.50%

Source: Oliver Wyman analysis

Taking a combination of the above swings, and playing them at varying degrees of severity against the aggregate European banking system allows us to gauge the degree of potential severity in terms of the impact on earnings and capitalisation (Figure 4).

**Figure 4: Peak-to-trough impacts – as % European banking profit and Tier 1 capital**



Source: Oliver Wyman analysis

In aggregate therefore it would take a very significant swing to create systematic solvency problems, but the sensitivity of earnings and dividend cover to less extreme increases in losses can be clearly seen.

## Institution-specific scenarios

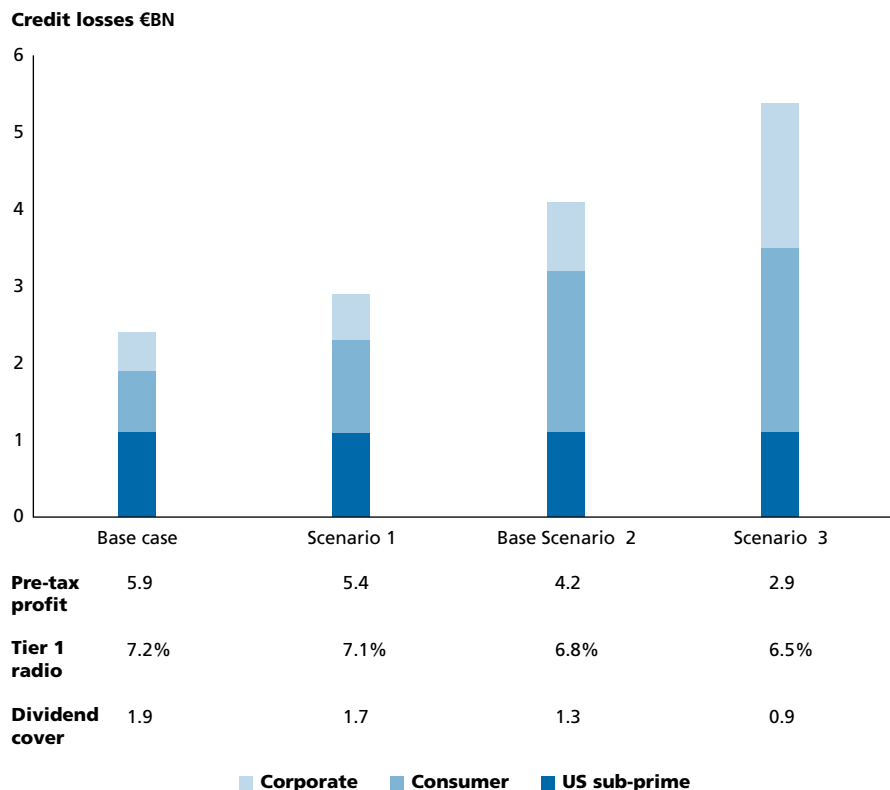
Looking at how combined downside events would affect a typical European bank we consider three scenarios. To demonstrate the potential ‘softening up’ impact from sub-prime exposures these scenarios are applied against a base case which already includes a write-down of €1.1 BN (Figure 5).

### Definition of potential downside scenarios

Scenario	Description	% peak-to-trough change in losses		
		Mortgages	Other consumer	Corporate
1. Housing bubble burst	Rise in prime mortgage losses	75%	0%	5%
2. Personal credit downturn	General worsening of consumer credit including mortgage and unsecured lending	100%	75%	15%
3. Spillover into corporate	Consumer credit downturn spills over to corporate defaults	100%	100%	50%

Source: Oliver Wyman analysis

**Figure 5: Impact of potential downside scenarios on a typical universal bank (including exposure to US sub-prime losses)**



Source: Oliver Wyman analysis

This analysis triangulates with other commentators who forecast significant earnings and balance sheet capacity issues, but do not anticipate anything that materially compromises a well run institution on a 'going concern' basis. As we have seen however investors are currently in a far from forgiving mood, and the leverage effect that accumulating losses have on market capitalisation, cost of funds, and management tenure can be dramatic. Management must therefore ensure that the current business portfolio is consistent with investor's risk appetite, and that they can identify and mitigate 'out-of-bounds' positions should they emerge.

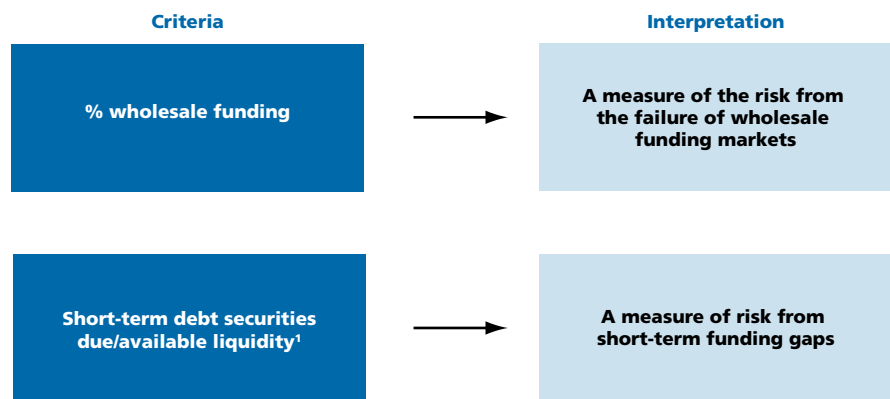
# Liquidity holes

Even when the credit markets stabilise we think that a return to the days of easy access to traditional or more exotic funding is unlikely. We therefore see two questions on liquidity:

- Why did some institutions run into trouble whilst seemingly similar firms have avoided funding problems?
- How do you mobilise to deal with future events?

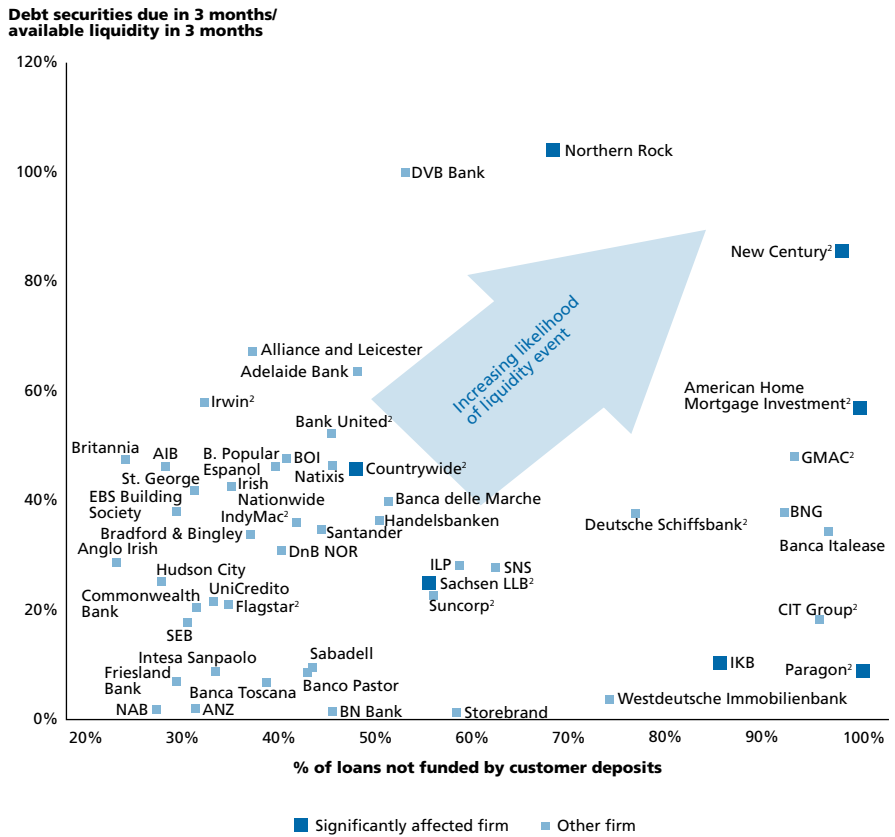
## Why did some institutions run into trouble?

To illustrate different funding strategies we have evaluated institutions based on two criteria as below.



<sup>1</sup> Available liquidity defined as Total Assets with maturity of less than three months – bank deposits due in less than three months – derivatives due in less than three months + investment securities with maturity of more than three months

**Figure 6: Analysis of liquidity risk exposure of commercial banks with relatively low levels of customer deposits<sup>1</sup>**



<sup>1</sup> The available liquidity of banks with a number next to name has been estimated based on assumptions around the maturity profile of assets, and using a maturity period of one year rather than three months due to a lack of publicly available data

<sup>2</sup> The available liquidity of these banks has been estimated based on assumptions of the maturity profile of assets due to a lack of publicly available data

Source: Oliver Wyman analysis

The analysis clearly shows that banks that have encountered difficulties are in the outer “quadrant”, but also that there are a number of other banks and NBFIs with a similar funding profile that have remained sound. We see four root causes at work:

Driver	Observation from banks experiencing difficulty
Illiquid marketable securities cannot be used to meet short term liquidity requirements	Both American Home Corporation and Countrywide relied heavily on selling RMBS to manage a liquidity crunch. Whilst this works under normal market conditions, in the stress conditions these investments proved to be illiquid.
Asset gathering is hard to stop during a liquidity event	‘Turning off the taps’ at the beginning of a crisis may provide sufficient liquidity to ride out the market turbulence, albeit with significant downside to business growth and valuation.
Warehousing increased liquidity exposure in a downturn	Banks that relied on warehousing for short-term financing faced particular problems because a) the warehouse quickly filled up once the securitisation markets closed b) collateralisation requirements increased, reducing the amount of funding available c) banks were forced to find funding for payment defaults (loans that defaulted shortly after origination)
Off balance sheet items have liquidity implications too!	The liquidity implications of back up lines provided to ABCP Conduits (e.g. IKB, Sachsen IB) and SIVs (e.g. Citi, HBOS, HSBC) were not properly considered ex-ante

Considering these factors more broadly, two types of bank failures emerge; those institutions whose business model simply could not withstand the current market conditions (such as American Home Corporation), and larger institutions whose failure was primarily due to shortcomings in risk management and communication.

## How do you mobilise to deal with future events?

Banks need to review four aspects of liquidity management:

- The approaches used to identify and measure liquidity risk
- The tools they use to monitor and manage liquidity risk
- The funding strategy they employ
- Their external communication strategy

### Identification and measurement

Relying on standard liquidity ratios is problematic as they are backward looking, and do not give warnings of potential future funding issues or detailed enough information on the specific drivers of liquidity risk. To properly understand the risk exposure, forward looking scenario analysis of liquidity is required to capture the specific behaviour of both assets and liabilities in stress scenarios, including:

- The impact of asset gathering and redemptions on future liquidity requirements
- The correlation between the mark-to-market value of marketable securities and liquidity positions
- Differentiated modelling of deposits characteristics (i.e. their “stickiness”)
- The impact of off balance sheet items
- The efficacy of contingency plans

### Monitoring and management

Recent events should act as a catalyst to review the way liquidity risk is managed, beginning with a clarification of the institution’s liquidity risk appetite – including the tolerance for the time operations can continue without access to wholesale markets. We believe that this is a Board-level issue, with appropriate monitoring and reporting standards.

High level risk appetite definitions should be translated into a set of more detailed performance criteria to monitor short-term inflows and outflows, together with sets of forward-looking stress scenarios to identify potential future issues.

The bottom-line benefits of such an approach include more active management of liability profile concentrations; a more active and adaptive asset gathering strategy; and ensuring that consumers of net liquidity generate returns commensurate with their balance sheet usage.

### Funding strategy

Most institutions, whether damaged or not by current events, will want to re-evaluate their funding strategies. Key steps will include:

- 'Right sizing' reliance on wholesale credit markets in line with liquidity risk appetite
- Identifying alternative sources of funding (such as bi-lateral arrangements with pension funds, insurers or sovereign funds)
- Reinvigorating deposit gathering strategy
- Drawing on lessons learned from hedge funds in terms of contractual management of liquidity (e.g. through 'put' clauses)

### External communication

Currently, external reporting of liquidity risk is highly varied, with insufficient detail. We expect this to change given greatly increased scrutiny from market participants and regulators. Specifically we expect to see more clarity on the funding strategies employed and risk appetite under a range of liquidity stress scenarios.

We also feel that the example of Northern Rock in the UK should act as a salutary lesson of the importance of external communication during stress events. Banks need to anticipate the conservative reaction layman customers can have to (often over-simplified) media coverage and should prepare an explicit set of tactics for dealing with liquidity related events.

## A plan of action

The way forward should be grounded on an understanding of the past. We think management should first look back at what went wrong, before looking forward at what to do next:

### Lessons from the summer

Priority lessons from the summer that should be digested and acted upon are:

- Even with credit moving to a flow business, risk sits somewhere. Are warehousing limits and hedging strategies inside risk appetite limits?
- Where did reliance on metrics break down? Were we over-reliant on a single measure such as VaR to track risk without sufficient additional challenge through stress testing and hedge verification? Were these measures sufficiently dynamic to manage positions in deteriorating markets? What is our exposure and risk appetite for statistically-driven trading activities?
- Where did reliance on business assumptions break down? Many institutions suffered losses because assumptions on liquidity, correlation or hedging were found wanting, how did we perform and have we sufficiently revised our judgments?
- Where did risk governance and control break down? Were risk groups either too remote from businesses to react quickly enough, or were they perhaps too close to provide suitable review-and-challenge?
- Where did accounting treatments break down? On mark-to-market books did hedges qualify for recognition? In available-for-sale portfolios were suitable assets included, and what degree of additional volatility did this produce? For off-balance-sheet structures were we exposed to overly subjective interpretations?
- Were we sufficiently disciplined in applying stop-loss and funding policies when losses started crystallising? To what degree did this exaggerate losses in underwriting, customer flow and proprietary trading activities? What changes in policies, procedures and underlying metrics are necessary to prevent a repeat of events?

- As has been revealed during previous crises, to what degree were we exposed to basic data and aggregation problems? In the specific case of traded and structured credit what are short-term priorities? How should we adapt future infrastructure investment priorities?

## Adapting to the future

Looking forward we see the key questions for management as:

- Customer B
  - What scope is there to change credit underwriting standards, and what is the impact on losses and revenues?
  - Funding – what are our options if the markets continue in their present ‘shocked’ state?
  - The “return of the living dead” – what is our strategy for dealing with conduits and SIVs to which we have an explicit or implicit funding commitment?
  - Under capital or funding constraints how do we prioritise potential disposal options?
  - Are there any potential legal liabilities around sub-prime origination or repackaging/distribution?
  - Counterparty limits – are previous assumptions still valid under current market conditions?
  - Activist investors – how would we respond to activist pressure triggered by potential market or institution-specific events?

## Conclusion

The events in the sub-prime market over the summer have shown that the performance of banks able to anticipate and position for events is dramatically better than those that wait to react. This is, inevitably, too late.

Looking forward, the impact from the subprime crisis alone will likely be bad, but not catastrophic. However the possible deterioration in a wider set of asset classes and in particular prime real-estate, potentially amplified by a geo-political event or general economic down-turn, has the potential to make the situation much worse. We therefore believe that it is imperative that the leaders of financial institutions get a firm grip on their potential exposures. We see a range of reasonable scenarios in which market conditions turn out to be a correction from which many players emerge without significant damage. But there is now a material risk of further bad news worsening the outlook considerably, and management should have contingency plans for potential downside scenarios. Even if conditions don't materially worsen, it is clear that some firms will thrive, while others will not survive. Prompt action now will give a firm the best chance of being on the right side of this divide.





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