Banks, Knowledge and Crisis - a case of knowledge and learning failure

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Abstract

Regulators such as Turner (2009) have identified excessive securitization, high leverage, extensive market trading and a bonus culture, as being major factors in bringing about the bank centred financial crisis of 2007-9. The core idea of this paper is, however, that a lack of banking knowledge and history amongst bank board directors, top management and regulators was also deeply implicated in the crisis and addressing this knowledge gap and its causes will be part of the solution to the crisis. The knowledge problems concerned banks' understanding of their organisation, intermediation and risk management in an active market setting and during rapid change. Though much was known before the crisis, the *failing* banks ignored or were unaware of this knowledge and also experienced acute difficulties with learning the new knowledge needed to address the new problems thrown-up by the financial crisis. The paper develops a framework for understanding the role and application of knowledge in banking and suggests how banks can institutionalise learning and actively create new knowledge through time to improve bank organisation, intermediation, and risk management. This knowledge forms the core of a bank's sustainable competitive advantage (SCA) and it is argued that the institutionalisation of banking knowledge ought to constitute an important element of any sustainable solution to the problems currently being experienced by the banking sector. By ensuring greater bank learning, knowledge creation, and knowledge use, governments and regulators could help reduce individual bank risk and the likelihood of future crisis.

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Introduction

Turner (2009) summarised the reasons that led to the bank centred financial crisis in 2007-2009, as including, massive growth in securitised credit, securities trading, leverage and excessive dependence on short-term capital market funding. It seems that both the ratings agencies and the "sophisticated" mathematical risk management models seriously under-estimated the risks associated with such a strategy and the "bonus culture" and high leverage greatly encouraged excessive risk taking by rewarding apparent success (luck) but not penalizing failure. However, the core idea of this paper is that knowledge and lack of it was also deeply implicated in the crisis and in many of the above problems, and hence addressing these issues will be part of the solution.

In **section 1** it is demonstrated that much was known long before the crisis about how effective bank intermediation and risk management worked, about problems with these mechanisms and of previous crises in banking markets. Application of this knowledge alone in the failing banks would have significantly reduced the chances of bank failure. **Section 2** explores how evidence to the UK Treasury select committee in 2009 and other sources revealed that much of the available prior knowledge was ignored or its relevance not understood at the top of the *failing* banks during the 2001-07 period. Unsurprisingly, relative to the more knowledgeable and cautious banks, their resulting high-risk business models proved to be appreciably more vulnerable during the 2008-09 crisis.

Section 3 develops a more general theoretical approach to understanding how banks can formally create and manage knowledge in a dynamic process through time to improve intermediation and reduce vulnerability. This conceptual frame is based, in part, on *existing* developments in universal banking (UB) practice (see Holland, 2009), and in part, on developments in the literature concerning knowledge as the 'learning organisation', knowledge management, 'intellectual capital', and theory concerning knowledge based competitive advantage. Working examples of these theoretical ideas are also discussed as they are connected to each other and to conventional ideas of bank intermediation and risk management functions. **Section 4** summarises the paper and, using the conceptual frame developed in section 3, argues that, to minimise the chances of future crises, governments and banking regulators ought to focus on improving learning, knowledge creation, and knowledge use in banking.

1. Intermediation and Risk Management Knowledge prior to the 2007 financial crisis

Much was known long **before** the crisis regarding how bank intermediation and risk management worked and about problems with these mechanisms. There was considerable knowledge about the risk spreading and sharing capabilities of wholesale markets, and general principles of market efficiency. Much was known about the causes and anatomy of previous crises in banking markets (Kindleberger, 1996), about the 'freezing' of interbank markets and about previous problems of 'toxic' loans. Application of this prior knowledge would have reduced the chances of bank failure during the 2007-09 crisis.

Knowledge of specialist forms of bank intermediation and of risk management has long been available in the literature (Lewis & Davis 1987, Buckle & Thompson, 2004). Retail banks intermediaries spread their deposit withdrawal risk and loan risks across liability and asset portfolios, and employed cash reserves and 'adequate' equity capital to absorb these residual risks. Wholesale banks spread withdrawal risk and bad debt risk by sharing large risks in the inter-bank and syndicated loan markets and by transferring this risk to many banks in these markets. Investment banks were security based banks that helped companies to design security issues, underwrite the risks of the issues, and find purchasers of the equity and bonds.

The three models of specialist banks embodied their own well established intermediation mechanisms and methods of risk management. 'Commercial' banks were combinations of retail and wholesale banks. These three forms began to be integrated as 'Universal' banks (UB) from the 1980s onwards. The bank changes were driven by financial market, regulatory and product changes as well as by previous banking crises such as the 3rd world debt problems. These boosted direct market transacting, threatened conventional commercial banking, and created new opportunities for investment banking (Lewis and Davis 1987, p380). Holland (2009) reveals empirical patterns during 1980-2000 in UB organising, the search for knowledge advantage, and major problems in UB development. This research and subsequent problems provided a historic grounding for this paper. In the period 2000 to 2006, five large US investment banks became 'universal' by being involved in on-balance sheet activities, holding securitized assets financed by interbank deposits. Large UK, US and EU banks such as Citigroup, Bank of America, Royal Bank, UBS and other banks, with large international commercial banking operations intensified their international investment banking operations. This development was much encouraged by the effective removal of the Glass-Steagall Act in the US in 1999 when the Gramm-Leach-Bliley act was passed. During

the 2007-09 crisis the UB developed further with Bear Stearns bought by JP Morgan, Merrill Lynch bought by Bank of America, and parts of Lehmans sold to Barclays. The remaining US investment banks, such as Morgan Stanley and Goldman Sachs became bank holding companies and regulated as other large US commercial banks.

Long before the 2007-09 crisis serious problems with the UB model and its implementation were, however, apparent. Major joint problems of expansion and integration (Holland, 2009) arose in the late 1980s for UK and US banks in their UB development. Conflicts of interest arose with clients when corporate managers or their shareholders felt that confidential private information was being misused. There were problems managing information flows within the combined bank, and of developing of technology and information systems, to identify group risks and profitability of integrated lines of business and customers. Financial market problems included, oversupply in some functions notably equity areas, and poor group control over the combined investment and commercial bank, especially with the risk taking culture of investment banking arms. In the period 2000-07 as increasingly complex and innovative securities were being traded, transactions became difficult for all but the specialists ('rocket scientists') to understand. This problem combined with the organisational change involved in combining investment and commercial bank functions made it difficult for the combined bank group and their managers to closely monitor what bank traders, fund managers, and corporate finance advisers were doing or to measure the exposure and risk they created. Not all UBs made mistakes but enough problems emerged to make it clear that in the 25 year period before the 2007-09 crisis there was a live experiment as bankers tried to find an effective organisational solution to these problems. Thus major knowledge and understanding limitations existed when developing the UB model. Banks argued however that their problems of survival would have been acute if they had not responded to changes in financial markets and in other non bank financial institutions.

In terms of markets, there was considerable public knowledge about the many previous crises in banking in London and elsewhere (Kindleberger, 1996). During 1973-74, in the inter bank markets for banks deposits, the markets froze for a period in the ‘secondary’ bank crisis. Reid (1982) blamed the crisis on the housing bubble, deregulation, oil prices hikes and the market culture of the London banking institutions from the late 1960s. The latter made market speculation and crashes almost inevitable. During the syndicated loan markets crisis (1982 to 1990) international banks faced many problems with their (‘toxic’) syndicated loans. Lewis and Davies (1987, p357) argued that both asset and liability sides of bank balance sheet

shared the same source of (oil price) risk. In addition, the nature of the lending contract whereby interest rate risks were increasingly passed onto borrowers increased the banks exposure to default risk as borrower's cash flow and ability to repay fell sharply. More broadly, Kindleberger, (1996) has argued that throughout the past 200 or so years, banking crises have been both endemic and remarkably similar in terms of causes and sequencing. Typically, a crisis is preceded by an extended period of high optimism and rising asset prices and an excessive use of leverage which produces overpriced and volatile asset prices; then unforeseen events, combined with the 'fragility' of the banking system, precipitate the bursting of the bubble, the consequent panic, rush for liquidity and credit squeeze.

2. Problems of knowledge for banks and bankers during 2007-09 crisis

Evidence to the UK Treasury select committee in 2009 revealed that much of the available prior knowledge on organisation, intermediation, markets and risk was ignored in the *failing* banks during the 2001-07 period. Boards and top management did not learn the lessons of prior bank problems (Holland, 2009) and crises (Kindleberger, 1996). Board directors and top management in the failing banks did not understand that their rapid growth models, their emphasis on a sales and trading culture, and growth based incentive and pay schemes, all led to the development of a very risky UB organisation operating with very risky new products in new untested variants of interbank markets. These banks did not appear to understand that knowledge about intermediation and risk at the level of employee, middle management, top management and the board, was deficient, and this contributed to the failure of their intermediation activities, whether informational or financial, or specialised or universal. The *failing* banks did not understand how retail, wholesale and investment forms of banks worked together or created new risks for each other in a UB. They did not understand that the high level of risk taken in wholesale and investment banks areas also threatened equity capital shared with retail banks. Bank board directors and top management in *failing* banks prioritised their general knowledge of business strategy over knowledge of organisation, risk, intermediation and special function in banking. They appeared to pay at best 'lip service' to prior knowledge of risk management as they exclusively pursued growth, profits and bonuses. Similar problems of misplaced emphasis on mathematical knowledge and idealised theories of markets were to be observed at middle management and operational levels (during bank lending, valuation processes, market trading etc). This was also a failure of top management and their understanding of their business strategies. This was true of those commercial banks that went into investment banking operations, and those investment banks that developed on-

balance sheet assets and liabilities. As the case studies of non-failing banks indicate however none of this was inevitable as these banks adopted far more cautious and knowledge-based alternative business strategies.

2.1 Bank Board, Top Management

Alistair Darling, the UK Chancellor, argued that the crisis had revealed that bank regulation overall had to be *".. more intrusive and needs to ask harder questions".* The real problems were in boardrooms. *"Too many people did not understand the risks to which they were being exposed," …"You've got to make sure you've got the right people there to make the right judgments."…."I strongly believe that the process of learning lessons has to start in the boardroom. Bank boards must have the right people, skills and experience to manage themselves effectively… their focus must be long-term wealth creation, not short-term profits."* (BBC, Today programme, 17th June 2009) .

In terms of the *failing* banks, the treasury select committee (January to March 2009) identified major knowledge problems at the board level, especially in relation to non-Executive Directors. Key members of these boards and some top management lacked significant prior banking experience or professional banking qualifications. Board members were frequently very experienced in non bank business domains but did not use that knowledge to good effect or adequately monitor bank top management. Typically, board members tended to apply their general knowledge of strategy formulation and implementation in non bank businesses to banks.

Wheeler (2009) and Clarke (2009) argued that the chairman and NEDs failed in respect of their monitoring role of Northern Rock. This paper argues that this was also a problem of knowledge and of misunderstanding concerning the intermediation model adopted and their idea of how markets behaved. They did not seem to understand the risks involved when long term retail property loans were financed by short term inter bank deposits. They did not appear to realise that their low 3rd tier status meant they lost liquidity first in a freeze. The knowledge problem was repeated across RBS and HBOS in 2007-08 as stock markets queried the level of risk on their balance sheets (intermediation) and in their inter bank market positions. In both cases, top management and the board appeared unaware of how extensive risk taking in one or two forms of intermediation threatened their much safer form of intermediation and the equity shared between these different forms of banking. In RBS this

involved major risk taking in joint investment bank and wholesale bank activities which threatened a very successful and safe retail bank. In HBOS this involved major risk taking in joint corporate and wholesale bank activities threatening very successful and safe retail and mortgage banks. These senior bankers appeared to be unaware that even top tier banks could lose their inter bank reputations, positions, capital and liquidity when faced with major problems of confidence.

The Treasury Select Committee report on the banking crisis (May 1st, 2009, p40) noted that bankers in key banks (and regulators) did not understand how market behaviour hid risk and in some cases exacerbated it:

'We note that risk and complexity within the banking sector has increased dramatically over the last twenty years. The widespread—but at sometimes misguided—belief that risk was being dispersed and 'managed' led many banks to increase the complexity of their operations and their overall risk exposure. This was manifestly a false premise. Indeed one of the factors that is key to understanding the banking crisis is that some forms of securitisation, far from mitigating risk, actually obscured it.'

This knowledge problem was largely responsible for the freezing-up of inter bank markets for deposits, securitised credit and credit default swaps. This perhaps reflected a larger problem with UK boards whereby senior executives and NEDs formed a closed, elite network which inhibited board reflection on issues of social concern, of public confidence and on protecting the reputation of the banks with the wider public (Wheeler 2009, Clarke 2009). These authors also pointed to the need to diversify board composition with members outside this elite network. As well as reducing the risks associated with groupthink and an excessively narrow knowledge base, greater diversity of boards would be likely to raise the status of 'basic' retail banking and its role in the community.

2.2 Hindsight post crisis

Problems of knowledge and understanding with bank products

The following extract from the Treasury Select Committee report (2009, p39, May 1st) provides an excellent summary of the main problems of knowledge and lack of understanding by board members and top management of the complex derivative products increasingly being created and traded by bank employees: *Mr Moulton concluded that this lack of information and complexity meant "in the case of some of these assets the products are simply incapable of being analysed by the vast majority of people out there." …..Sir Fred*

Goodwin told us that securitised products "were knowingly being originated by professionals and sold on to professional investors and rated by their agents. The content was known"….But other witnesses, such as Dr Danielsson, maintained that the bank bosses did not have a firm grasp of what their employees were doing: 'the individual making things complicated is not at the top of the bank, [he] is in the middle of the bank. This is the 'quant guy' [quantitative trader], the 35-year-old, whatever he is; he creates instruments. His boss has no understanding of what he has is doing, the regulator has no understanding of what he is doing. All they know is that he is making money from some black box.'

Problems of knowledge and understanding with bank models

These problems of knowledge and understanding concerning the UB model created conditions whereby many of the problems of the previous 25 years or so were crystallised, intensified and implicated in the crisis of 2007-2009. The problems meant (as in the past) parts of the *failing* banks could engage in very risky activities, without the rest of the bank being aware of these risks. The Treasury Select Committee report on the banking crisis (May 1st, 2009, p40) discovered that board members in the *failing banks* were highly incentivised to focus on 'growth' per se. This created a sales rather than a risk management culture and this permeated down the bank hierarchy. Specialist bank traders in investment or wholesale banking and specialist lenders in corporate banking did not have to understand wider bank principles of intermediation and risk management, to perform their tasks. Controls existed in terms of caps on transaction and risk levels. However, in the *failing* banks these employees operated in cultures of growth and subjected to strong incentives to boost profits. A sales culture dominated rather than a risk management culture at this operational level. Despite this, the 2007-09 crisis did not reveal many cases of individual rogue traders as in previous individual bank failures. This crisis was more of a systemic problem of many whole bank subsidiaries overtrading (betting whole bank) in markets. This operational culture was driven from above via strategies focusing on growth and profits which demonstrated little understanding of the risks involved to individual banks and the overall banking system.

Bankers in the *failing* banks did not seem to understand that their rapid growth models, with their emphasis on sales, trading and incentive pay schemes, all led to the development of a very risky variant of the UB model which operated with very risky new products in new untested variants of inter-bank markets. Investment banks over invested in bought securities (ABS, CDS etc) and funded these new assets in inter bank deposit markets. Commercial banks did much the same with their existing wholesale banking and investment banking

operations. Bankers in the *failing* banks did not appreciate how retail, wholesale and investment forms of banks together created new risks for each component of the organisation. They appeared to pay only 'lip service' to prior knowledge of internal risk management as they exclusively pursued growth, profits and bonuses. Thus, the weaknesses in both business and product valuation models played a significant role in contributing to weaknesses in markets. Other banks had been much more cautious as they moved out their traditional commercial bank or investment bank models towards the UB model. Their slower rate of growth and adaptation to new areas meant that their learning was at a higher rate than the environmental change (in banking, in inter-bank markets, in bank products). Their learning was more closely focussed on core areas of bank organisation, intermediation and risk management and as a result their bank models were more robust during the 2008-09 crisis than those of the *failing* banks.

Problems of knowledge and understanding in markets

By early 2007, some international bankers appeared to have had a major memory or understanding lapse concerning market problems. They ignored prior knowledge of previous crises in banking markets (Kindleberger,1996) whereby weaknesses in lending and a heavy reliance on markets for liquidity interacted with market problems of confidence to trigger a financial crisis. Even though asset based securities and credit default swaps had been believed to be diversified across different banks, countries, and economies, the crisis in 2007-09 revealed that both sides of the balance sheet remained fully exposed to the same source of risk – primarily the US property market. Both asset and liability sides of bank balance sheets also faced common risks based on structural problems in the inter bank chains or networks trading in the complex new securities. The principal-agent model was severely weakened as high information asymmetries and conflicts of interest between members of these networks (bank issuers, bank advisors and rating agencies) compromised valuation standards in security issues. Indeed, limited understanding of the complex products, poor monitoring on the chain, and a combination of blind faith buttressed by overly optimistic quality ratings, meant that risk was not understood or monitored and end purchasers were sold very risky low quality assets masquerading as high quality and low risk.

An important feature of the 2007-09 crisis was its global nature, and this constrained and limited the effectiveness of individual country responses. European central banks and the Bank of England had to act within EU regulations and could not, as in previous crises, act quickly in private. A key factor this time was the 24 hour 'gaze' and connectivity of the

global media and financial markets which ensured that as historic problems were repeated they were no longer allowed to remain private. Bankers and regulators had far less time to respond to events and those without an understanding of previous crises and of UB problems were even less prepared to deal with the 2007-09 crisis than previous crises.

2.3 Banking vulnerabilities revealed by the Crisis

As the crisis broke, knowledge problems and historic UB problems combined. *In part* they all contributed to new financial intermediation problems of assets deteriorating rapidly in quality under stress, of fragile and disappearing liquidity, and of low (inadequate) levels of equity capital. The pre-existing knowledge problems also contributed to new information intermediation problems that severely injured investment bank reputations for strict (security) valuation standards, for close monitoring of the sale of securities, and for working in the interests of ultimate investors.

The Lehmans failure on September 16th 2008 immediately struck at existing weaknesses in intermediation processes in key banks, in their market positions, and in market risk spreading capabilities. Isolated pockets of weakness were connected, creating systemic fault-lines that seriously impacted all banks and markets. Bank and market weaknesses interacted to produce a major negative spiral of declining confidence that led to inter bank market freezes, further bank failures, and bailouts. These interactions and the prior problems all intensified and led to the full blown financial crisis in October 2008. As confidence in the financial system and its regulators collapsed, a credit freeze began, consumer confidence fell, real business transactions declined and a major recession hit the world economy in 2009.

The Lehmans failure corresponded to Weick's (1988) idea of a 'cosmology episode', which arises when individuals, teams, organisations, and markets suddenly feel that the universe is no longer a rational, orderly system. What made the failure of Lehman so disturbing and shocking was that key players in *failing* banks suffered both from this catastrophic event and, simultaneously lost the means to recover from it. As Coutu (2003) remarked. 'A person feels like he has never been here before, has no idea of where he is, and has no idea who can help him. An inevitable state of panic ensues, and the individual becomes more and more anxious until he finds it almost impossible to make sense of what is happening to him'. Banks with more conservative transaction policies and clearer understanding of bank intermediation and risk appeared to have had lower exposure to and were less vulnerable to such a 'cosmology episode'. They were better prepared to act during the crisis and were not transfixed and made

immobile by it. They had learnt enough to avoid the major risks, but were also in a position to profit from the *failing* banks by purchasing bank functions or whole banks to further develop their own UB model.

The 2009 events follow closely Kindleberger's (1996) model of the causes and sequence of many past financial crises. A boom, initially triggered by innovation and/or irrational speculation which, with the aid of high leverage, raises asset prices until they are significantly overpriced, certainly captures the main elements of the property asset bubble from 2004 to 2007. The revelation in 2007 that US property values were rapidly declining had such a massive negative impact on the securities based on US mortgages, that many securities could not be valued by large international banks. This coupled with the Bear Stern and Lehman failures in 2008, combined with the fragility of the banking system, led to the final, crisis and panic, stages; the bursting of the bubble, the rush for liquidity, and the subsequent credit squeeze.

3. Developing a conceptual frame for knowledge creation and use in banks.

In this section a more general theoretical approach to understanding the role of learning, knowledge creation and use in banking is developed. This conceptual frame is based, in part, on *existing* developments in UB practice (Holland, 2009), and in part, on developments in the literature concerning the 'learning organisation', knowledge management, 'intellectual capital', and knowledge based competitive advantage. Working examples of these theoretical ideas are discussed as they are connected to each other and to conventional ideas of bank intermediation and risk management functions.

There is much evidence for active learning by banks. Retail banks were the outcome of much learning (through crisis, failure, error, fraud etc) over at least 300 years. Banks have not historically been good at learning and at exploiting prior lessons during periods of stability. Much learning has arisen during bank crises and subsequent regulation based on best practice. Harris (2002) provides evidence that learning from past mistakes, or even building upon past successes, continues to be the exception rather than the rule. The wholesale bank was developed, mainly in London, since the late 1940s and drew from existing practices in New York and London (Lewis and Davies, Ch4, 1987). UB development during 1980-2006 was a live social and economic experiment as bankers tried to find an effective organisational solution to UB problems. Evolutionary processes such as competition and crises have also

been at work (Nelson and Winter, 1982) and have combined with bank learning and strategic choices in driving bank change.

It appears that UB problems of expansion, integration, and reorganising around markets were too difficult to solve via *a priori* reasoning before the event (Holland, 2009). Banks had to learn about these problems and their solutions via direct actions and transactions and via a strategy of active bank development. Learning arose via an iterative feedback process during active internal change and external transacting and associated errors, failures and successes, rather than through a rational ordered decision process. The events of 2007-09 suggest that processes of learning and knowledge use now have to become formal, explicit, and benchmarked against best practice. A small number of banks have gone public on their knowledge management and 'learning' organisation approaches. Holland (2009) also points out that despite many UB problems of development and learning over 1980-2006 in *individual* banks, some patterns of organised learning can be discerned across a *wider set of* case UBs. Such evidence provides practical support for a more detailed analysis of the idea of the bank as a 'learning' organisation, and of the role of knowledge in bank intermediation, risk management and hence bank competitive advantage. These insights are then used to focus the discussion regarding how banks can formally learn and actively create knowledge in a dynamic process through time.

3.1 Case examples of Banks as 'Learning organisations' and knowledge management

Banks such as HSBC provided a knowledge based response to the 2007-09 financial crisis and proved more robust than *failing* banks. The survival of banks such as HSBC, can be attributed in part to their more cautious approaches to the development of the UB. It can also be explained by their explicit policies to develop knowledge and to implement it at all levels in the bank businesses. Scandinavian banks such as Swedbank have also implemented similar policies to develop and implement knowledge and the Swedbank case provides further insights here.

Staffan Ivarsson (2003), deputy director of Swedbank human resources, has provided many insights into banks as 'learning organisations'.

'A central management enabler for Swedbank is its "Tool of the Future," a sophisticated economic model based on human capital, market capital and profitability, backed up by years

of data collected and regularly analyzed, profiling its people, leadership, customers and business processes.

The management model …is based on the following three corner-stones:

• The traditional aspects of profitability, i.e. volume, revenue, etc.

• Human Capital, i.e. organisation and employees.

• Market Capital, centring on customers and customer loyalty.

…Swedbank developed its Tool of the Future in 1992 …..They started with the fundamental belief that the skills, motivation and satisfaction of their employees would be instrumental drivers of value for customers, which would in turn drive overall performance for the bank and especially profitability. First developing measures and then linking those through an economic model—human capital, market capital and profitability—became the Tool of the Future. ……The process began with surveys in every branch and among all employees, measuring such things as leadership, "businessmanship," competence, internal support, etc. In parallel, Swedbank surveyed its customers on various dimensions measuring satisfaction and value. Both sets of measures were then matched with profitability and other financial measures, such as growth, profit per customer, revenue versus cost ratios, etc. The process yielded insight-producing distributions among all branches based on correlations between human capital resources and market capital, shining light on the performance of individual branches as well as on groups of banks that served particular markets. ….The key is understanding the economics of the human capital and human interactions and how those can be changed for the better." ……But Ivarsson, also noted, '….I have doubts that IC will ever become a separate balance sheet item. The reason is that companies are extremely different. Therefore, separate tools would be needed to measure each company's IC. It is difficult to devise a common formula to cover both banks and the manufacturing industry. I thus believe that each company – the few companies that actually do report on Human Capital – will continue to present their Human Capital reporting in their own way …..As Swedbank continues to build its database, its analyses and understanding of the dynamic interplay between human capital, customers and profitability only becomes more sophisticated and useful..' …Finally, the whole effort required a comprehensive learning management platform that could support a systematic and holistic approach toward learning and competency management, while reducing risks of increased costs generated by the need to train more people and deliver more training days.'

Bontis (1996) refers to a firm's knowledge management activities as acquiring, storing, disseminating and retrieval of intellectual resources throughout the organisation. This is

illustrated by the HSBC case. Ellis (2003) reported on HSBC's successes and problems with knowledge management (KM) and learning.

'Knowledge-acquisition projects (Kaps) continue to be used to effectively download experience and wisdom from 'old heads' before they leave the business, into an accessible database format so that our organisational memory remains current and fresh. …I believe that the success of Kaps is down to one thing: the desire that people – particularly, it would appear, wise old hands – have to tell their story. In an organisation as vast as HSBC, the very act of asking a senior person to 'download' the nuggets of learning they have picked up during their often outstanding careers makes them feel valued. And if that were not enough, it might actually help those left in the organisation to learn faster….On a negative side, the unit was unable to translate the sparkling array of KM tools and techniques into sufficiently well-understood concepts that the conservative (although some might say overtly cynical) culture of a traditional organisation could grasp. In particular, efforts to instil a need for intellectual-capital measurement and reporting fell on deaf ears, with most executives believing they had enough to measure already.... the pressure felt in most commercial organisations to deliver or achieve beneficial results this quarter, not in three years' time, is a real impediment to large-scale KM projects where the gestation time can typically be three to five years. '

3.2 Dynamic creation of bank knowledge and capabilities

Revans(1998) proposed a model of how learning should occur in organisations. He argued that learning should be greater than or equal to the rate of change in the environment. If not, then the firm would be unable to achieve a sustainable competitive advantage. This idea is clearly relevant to the core learning errors made by *failing* banks during the 2007-09 crisis and to bank specific mistakes in previous periods. The development of intellectual capital in these banks did not keep up with the expansion of financial capital and associated risks. In addition, the historic problems and the crisis both made it clear that the **focus** of environment and bank learning was critical. Too much emphasis on learning about product growth and complexity and too little emphasis on learning about intermediation and risk consequences constituted a major failure in learning. Some *failing* banks (eg Bank of America) had sophisticated learning and knowledge management capabilities. However during the crisis they suffered from problems of misplaced focus of knowledge and from poor top management leadership concerning learning, knowledge management and knowledge use.

Since Revans (1998) there have been further contributions to the idea of the 'Learning organisation' by Easterby-Smith et al (2000), and Morgan (1997) which provide clearer theoretical guidance for bankers and regulators. Case banks in Holland (2009) had **patterns of organised learning**. They had internal organisation features suggesting they were 'learning organisations' as discussed in Pedler et al (1997). The banks 'looked in' and learnt ***about internal organisational order*** in the form of internal bank functions and processes and ***new combined*** intermediation processes. New order consisted of integrated corporate and consumer banking functions within the international bank. They looked in and learnt about bank M&A teams, corporate finance advice teams, finance raising teams and other functions, and how they worked together to produce joint products. The case companies also 'looked out' (Pedler et al, 1997). and learnt **about external order** in networks, 'tiers', relationships, transaction channels and processes in inter-bank, security, and derivative markets. The banks 'looked out' and sought to understand the corporate bank markets for corporate advice to clients, for M&A, for equity and bonds financing. They learnt how to reorganize their new internal functions around financial and corporate/consumer markets to create a market driven and responsive organization. They learnt how to create adaptive networks and channels for transacting with other banks and customers. They 'looked out' and learnt about the larger City of London institutional setting in which these networks, channels and processes existed.

The banks also learnt <u>within</u> this internal and external order. They learnt **how to act** in **decision processes** in these ordered and comprehensible contexts. They learnt about new composite bank products, how to produce and price them, how to spread and share risk across different forms of bank risk management processes and intermediation (on and off balance sheet). They used external networks and relationship in markets to learn, how to transact in markets, and how to spread and share transaction risk across different markets. They used these to learn and create information and knowledge advantages concerning the corporate/consumer market and financial/inter-bank markets. Learning also involved developing the new banking skills required in individuals and teams operating within the new expanded internal functions, external networks and markets, and the skills to integrate these functions and activities.

In Morgan's (1997, p90) terms, the employees, top management and boards of the UB **learnt about their uncertain environment** made up of markets for deposits, loans, payments services, securities and derivatives. They scanned this environment to anticipate change, and to detect significant variations. They purposefully learnt about how the bank interacted with

this uncertain banking environment and how their actions (funding, lending, risk management, etc) changed external conditions. They developed an ability to question this environment and to change their norms and assumptions. They learnt that they had to maintain a continuous purposeful interactive process with, and set of actions in, this environment. These were designed to alter an influential part of the environment in a desired direction. Uzzi et al (2003), investigated learning in (bank lending and debt) markets between banks and firms. Bank-firm relationships formed networks and these shaped knowledge transfer and learning processes by creating the opportunities for knowledge trade and reducing the learning risks. In Morgan's terms (p90, 1997) the UBs learnt that they had to develop well informed and flexible response mechanisms within the organisation to achieve their aims concerning the banking environment. They allowed an appropriate strategic direction and pattern of organisation for bank strategic decisions making, for back office functions, for customer facing technology and intangibles, and for bank operational decisions to emerge. Similar learning and well informed response mechanisms arose at the boundary and outside the bank to achieve their aims. Such bank learning and strategic choices combined with evolutionary and competitive processes (Nelson and Winter, 1982) in driving bank change.

In achieving these learning aims banks 'learnt how to learn' and thus avoided getting trapped in simple environmental response systems based on defensive organisational routines. In Teece et al (1997) terms they had developed **'dynamic capabilities'** as competitive advantages to deal with rapid and unexpected change or as *"the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments"* (Teece et al., 1997: 516). In contrast to these patterns, there were many examples of mistakes and errors in individual bank learning and knowledge use. Learning in individual banks was not as systematic as the above multi case patterns suggested and arose via an iterative feedback process during errors, failures and successes.

3.3 The nature of bank knowledge and its role in intermediation

The learning process played a critical role in developing new bank knowledge or 'intellectual capital' (IC). This existed formally in the case banks' training manuals and information systems and informally in the experience and cognitive skills of bankers and external parties. This knowledge was constantly refreshed by new experiences and information on clients and their industries and by active financial market trading.

Literature on intellectual capital categorises the major types of knowledge used within the firm and its markets. The three major elements of IC: human capital, structural capital and relational capital (Meritum model (2001, p. 63) allow a holistic view of a company's value-creating resources to be constructed. In banking, human capital was interpreted as knowledge employed during funding, lending, risk management decisions and in wider intermediation processes. Structural capital was internal context knowledge, and relational capital was external context knowledge both influencing decision processes. Prior knowledge of how intermediation worked, how risk should be managed, and how markets worked and failed, was incorporated in IC, with this being matched to previous crises and previous variations in the economic cycle.

"*Human capital includes the knowledge, skills, experiences and ability of people." Meritum model* (2001, p. 63). The UB contained much in the way of human capital used in decision and intermediation processes. Human capital (HC) was present and employed within both internal processes/decisions and in market processes/decisions and hence in intermediation. "*Structural capital .. comprises the organizational routines, procedures, systems, cultures,databases, etc.* " Meritum model (2001, p. 63). Holland (2009) illustrates how the UB also contained much structural knowledge (SC) of internal and market structures/processes/decisions. Knowledge built into these mechanisms and structures help bank employees perform their decision tasks and make use of their own human capital in the pursuit of bank performance. *"Relational capital …comprises that part of Human and Structural Capital involved with the companies relations with stakeholders (investors ,creditors, customers, suppliers, etc.) plus the perceptions that they hold about the company"* Meritum model (2001, p. 63): The UB contained much Relational and market capital (RC), in the form of close corporate relations and reputation.

Banks learnt that intellectual capital had a direct impact on decision processes and on wider intermediation processes. High quality bank IC was used to interpret new information and events as they arose as well as providing the context within which to assess the significance and meaning of externally supplied information. This reduced the transaction costs (search, monitor, verify, evaluate) of various banking transactions with customers, when banks were intermediating between these customers and transactions on both asset and liability sides of the balance sheet. Knowledge as HC, SC and RC was the means to exploit new synergies such as a joint client base and stronger capital backing across a larger number of syndicated

loans, asset based securities and other financial assets. A combination of investment and commercial bank client knowledge bases and relations was used to make broader use of tiers and reputation when transacting in inter bank markets. This also increased opportunities for diversification and for arbitrage, matching, and for mismatching. The use of broader corporate and inter-bank relations and their associated knowledge attributes were expected to stabilise expected income and to narrow the variance of income, via economies of scale and scope, by making it easier to forecast transaction flow. The joint exploitation of enhanced market tiers, and company relations was also expected to improve intermediation and to stabilize supply and demand and profit margins all across market cycles. In contrast to the above expectations, major systematic risks arose in the investment and wholesale banking arms of *failing* UBs. Extreme mismatching and intensive arbitrage activities, pushed intermediation to its limits and destroyed much of the expected transaction cost reduction and diversification benefits in the UB.

3.4 Resource based view – a theoretical view of the role of knowledge in bank advantage

The above analysis makes it clear that bank knowledge and learning are at the heart of effective bank intermediation and of a sustainable competitive advantage (SCA). Fahy (2000) used the resource based view of the firm (RBV) to discuss the nature of resources required to create a SCA. He proposed that resources are comprised of three groups, namely tangible assets, intangible assets and capabilities. These groups have "differing characteristics of value, barriers to duplication and appropriability for the firm" (Clulow *et al.*, 2003, p.222).

In the RBV, well established tangibles and tangible processes in banking such as buildings, trading floors, branches, ATMs, data bases, and intermediation processes were easily duplicated. Intermediation processes, as core tangible risk and return generation 'machines' available to all banks, would not normally be considered sources of competitive advantage. Intellectual property, brand, and networks are examples of intangible assets which are held by many firms (Fahy, 2000; Clulow *et al.*, 2003; Hall, 1993). In the case of banks, the RBV would expect that intangibles and their impact on tangibles (especially intermediation) would be the primary source of sustainable competitive advantage and success in banking. These could include, inter alia, lending skills, debtor management skills, routines for risk management, and security issue and placing skills and routines. Reputation and brand names are key intangibles for banks in that they may promote loyalty and help firms to attract customers from competitors (Clulow *et al.*, 2003). Intangibles include bank-bank relations,

bank-company relations, bank-consumer relations, and knowledge of customer behaviour within the context of relations. Such knowledge intensive intangibles and resources can create barriers to duplication as they are imitable, immobile and have no substitute (Clulow *et al.*, 2003) and contribute to confidence upon which banking success and failure depends

The RBV theory also predicts failure and high vulnerability to financial crisis. The bank that does not have key resources such as tangibles, intangibles and capabilities, faces major competitive disadvantages and is vulnerable to failure. The bank that does not have key resources with characteristics such as value, inimitability, appropriability, and barriers to duplication, is also vulnerable to failure. This was borne out during the 2007-09 crisis, whereby some *failing* banks undermined tangible intermediation processes as they sought competitive advantage through innovation in new products and inter bank trading, and new ways of manipulating their core intermediation models. Before the crisis broke, this created a highly exposed bank, with major weakness in its financial intermediation processes. The same factors were at play in creating weakness in information intermediation as *failing* banks over exploited their reputations for strict valuation, for close monitoring of securities, and for working in the interests of ultimate investors.

Top management weaknesses in the *failing banks* were important in undermining bank SCA and increasing relative vulnerability to crisis. Top management weakened other key resources such as risk management skills at middle management and operational levels by downplaying relevant knowledge. They appeared not to have had an explicit strategy to develop human capital, structural capital and relational capital at all levels in the bank or how to use it to improve risk control and intermediation. They downplayed ideas of adequate equity, and of sufficient cash. They sought to gain the maximum benefits of leverage ignoring the impact on bank functions and risk exposure. Senior bankers in the failing banks were seemingly beguiled by mathematical models that purported to value the complex securitised assets they were creating and trading. They were also seduced by theories of external risk spreading and diversification in markets and by theories of market efficiency, ideas actively propagated at middle management and operational levels to the detriment of 'basics' in risk management. These created a competitive disadvantage relative to those banks that had been more cautious in pursuing their development of the UB model. The *failing* bankers pushed conventional ideas of intermediation to their effective working limits and thereby undermined these core tangible processes. They also undermined key associated intangibles, especially knowledge and its role in understanding and exploiting intermediation processes, markets, and

transactions. Thus problems with top management were at the heart of the *failing* banks problems.

4. Conclusions

The core idea of this paper is that knowledge and lack of it amongst key players (board and top management) at the top of *failing* banks was deeply implicated in the 2007-09 crisis and addressing these issues needs be part of the solution to this crisis. The *failing* banks neither applied existing knowledge nor created new knowledge to deal adequately with the new issues that arose in relation to their new business models. The paper has explored how these problems can be resolved in part by an active approach to learning and knowledge creation in banks. This is guided by a new conceptual frame based, in part, on *existing* developments in universal banking (UB) practice (Holland, 2009), and in part, on developments in the theoretical literature. Working examples of these theoretical ideas are discussed as they are connected to each other and conventional ideas of bank intermediation and risk management.

Knowledge alone will not solve the problems outlined. The active involvement of bank top management and the board and the exercise of their **power** on these knowledge matters is vital. Given the history of bank learning, incentives to learn and to implement knowledge effectively are only likely to arise at the top of banks with clear regulation and tough sanctions. It is difficult to conceive of how such learning, knowledge and regulation can control or change human nature, especially greed. However, they can play a role in limiting these problems by ensuring that Board and top management know and are formally responsible for dealing with the issues.

The conceptual framework provides bankers and regulators with a coherent means to think about policy. This paper argues that banks must prioritise knowledge of bank intermediation and risk management over knowledge of growth and strategy. Improved accountability for bank boards and top management has to be based on higher levels of their knowledge and competence. Improved delivery of core bank functions of raising finance, and management of risk has to be based on higher levels of bank wide knowledge. The writing of 'living wills' for banks has to be based on clearly understood models of banks. Control over the bonus culture has to involve the recognition that bank wide knowledge attributes are central to overall bank performance and it is not just based on 'scarce' individuals who demand extreme pay and bonuses (Myners, 2009). Problems of optimism and excess opportunism, have to be

controlled by relating this behaviour to higher understanding of core bank functions and objectives. Extensive market trading and securitization has to be controlled through risk management knowledge, skills and actions. High leverage has to be challenged by higher status of (knowledge of) intermediation models.

An immediate and practical solution to the problems faced by bankers and other key players in the system would for governments and regulators to use the above analysis and framework to change the way they think about bank regulation. Instead of just focussing on conventional regulation issues concerning bank structure and legal form, prudential bank management, bank conduct with customers, bank risk management, or bank systemic risks, they should also turn their attention to bank learning and knowledge use. Practical action arising from the 2007-09 crisis may necessitate governments to legislate for demonstrated competence and understanding throughout the bank hierarchy, though especially at the board and top management levels, and in their ability to monitor knowledge use at middle management and operational levels. The regulator could make formal and explicit statements regarding core intermediation and risk management models and skills and competences required at various bank hierarchy levels to ensure these ideas were implemented. These could cover specialist and combined banks and make explicit the role of learning and knowledge based intangibles in boosting the effectiveness of intermediation and risk management.

This proposal makes it clear that it is not the form of bank *alone* that is essential to effective and safe banks. Bringing forward new Glass Steagall Acts to reform the bank types allowed is not necessarily the dominant issue especially if the knowledge problems of combined intermediation and risk management can be solved through learning. The use of knowledge on how to organise and integrate specialist banks and intermediation, and how to avoid risk contagion across a bank is essential. Banks with a variety of structural combinations, must have the ability to learn and create new knowledge such that whatever form the bank takes it can adapt and respond to rapid change and crisis. This knowledge would provide the basis to licence banks (and bankers), with the possibility of licence withdrawal the sanction for inadequate provision. Board agendas would include formal requirements to assess risk and risk management knowledge according to regulator standards, and board would be responsible for risks taken.

Quinn (2009) argued that existing law on fiduciary duty of directors could be the basis to require board members to demonstrate their knowledge of how banks are organised, how they

work as intermediaries, of risk management, and of the nature of key financial products. The same legal duty could be the basis for directors to oversee 'good practice' in bank learning, knowledge creation and in training standards. Corporate governance guidance could be the means to raise the knowledge of bank boards to ensure that they ask the same questions of top management and other key decision makers in middle management. Similar comments could be made about auditors, credit rating agencies, and regulators.

Akerlof and Schiller (2009), argued that there are limits to knowledge in a world of 'animal spirits' where individual and group psychological states and fashion in markets vary through time. Bank boards and top management can also be captured by these events. If, as Akerlof and Schiller (2009) suggest, new ideas and new psychological states spread like a new virus contagion or pandemic in a population without immunity, then this paper argues that part of the solution must lie with 'immunization' through prior knowledge and continuous learning. The transmission of stories through such contagion must be tested by deeper and more widely diffused knowledge at the point of story transfer. 'Immunization' through learning and knowledge use must take effect at top management, middle management, and operational levels in banks. Incentives to ignore knowledge and prior lessons, and encourage volatile inter bank market conditions, must also be removed by reforming bonus systems.

The solution must also lie with active learning through change to create a more informed, knowledgeable, robust, responsive banking and market **system**. Managing 'animal spirits' also requires governments, regulators, bankers, shareholders, and auditors to actively learn and become continuously informed by robust, knowledge based models of banks, products. and markets. Regulatory intervention must lie in insisting that all the key players improve, agree, and act on this knowledge. If regulators can observe bank learning then it would create a unique knowledge base essential for fulfilling their role. Regulator learning possibilities here were revealed by the FSA during the production of the Turner report (2009) and by Bank of England scenario building and stress testing of bank models in 2004-09. Such processes and outcomes have to be made public if banks and regulators are to make a robust response to future problems and crises. Such learning arose during the fundamental debate in 2007-09 when the nature of finance capitalism was being challenged. This may lead to more systematic changes in structures, and processes in banks, markets and regulation. It may lead to further advances whereby a wider range of social sciences, especially the human and psychology centred sciences and theories of learning and knowledge, becoming more central to conventional knowledge of banks and their roles in markets.

References

Note; FFR09 = The Future of Financial Regulation Conference, 30-31st March 2009, University of Glasgow, School of Law, Iain MacNeil, University of Glasgow, Justin O'Brien, CAPPE.

Akerlof G, Schiller R J (2009),Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism', Princeton

Bontis, N. (1996). "There"s a price on your head: Managing intellectual capital strategically", *Business Quarterly*, Vol. 60, No. 4

Buckle, M. and Thompson, J. (2004) *The UK financial system: Theory and practice*. 4th ed. Manchester, Manchester University Press.

Clulow, V., Gerstman, J. and Barry, C. (2003) "The resource-based view and sustainable competitive advantage", *Journal of European Industrial Training*, Vol. 27, pp. 220-232.

Clarke B, UCD, FFR09 session on 'Corporate Governance'.

Coutu D,I, (2003), 'Sense and reliability: a conversation with celebrated psychologist Karl e. Weick', Harvard Business Review, April 2003

Easterby-Smith, M., Crossan, M & Nicolini, D (2000) Organizational learning: debates past, present and future', *Journal of Management Studies*, 37(5), 783-796.

Ellis, S, INSIDE KNOWLEDGE - posted 16 Dec 2003 in Volume 7 Issue 4

Fahy, J. (2000) "The resource-based view of the firm: some stumbling-blocks on the road to competitive advantage", *Journal of European Industrial Training*, Vol. 24, No. 2, pp. 94-104.

Holland, J (2010), 'The development of the universal corporate bank 1980-2010', Working paper, Department of Accounting & Finance, Glasgow University

Ivarsson S (2003), Swedbank: Banking on Human Capital Economics- Nov 2003 http://www.clomedia.com/content/templates/clo_inpractice.asp?articleid=299&zoneid=88

Kindleberger (1996) C P , ‘Manias, Panics, and Crashes A History of Financial Crises’, John Wiley & Sons, New York, 3rd ed.

Lewis M, Davis K, 'Domestic & International banking', Philip Allan, 1987

Morgan G (1997), Chapter 4 `Learning and Self-Organization: Organizations as Brains’ in Morgan G, (1997), ‘Images of organization’, Sage, Thousand Oaks, California,

Myners P (2009), UK Financial Services Secretary, HM Treasury, ‘Developing a new financial architecture: lessons learned from the crisis’, Speech at FT Global Finance Forum, 18 September

Nelson RR & Winter S G, (1982) An evolutionary theory of economic change, The Belknap Press of Harvard University Press

Memorandum by the IMA to the Treasury Select Committee inquiry into the banking crisis, January 2009

Quinn B, FFR09 session on ‘Capital Adequacy and Banking Regulation’,

Reid. M (1982), The Secondary Banking Crisis, 1973–75: Its Causes and Course. Macmillan, London

Revans R, (1998), ‘The ABC of action learning’, Lemos & Crane, London

Teece, D. J., Pisano, G. & Schuen, A. (1997). “Dynamic capabilities and strategic management”, Strategic Management Journal, Vol. 18, No. 7.

Turner A, Chairman, FSA, speech for, The Economist's Inaugural City Lecture, LSE, 21st January 2009

Treasury Select Committee, 2nd report -1 May 2009- Banking Crisis: dealing with the failure of the UK banks.

Uzzi B, Lancaster R. (2003), *'Relational embeddedness and learning: The case of bank loan managers and their clients'* Management Science, Vol 49, No 4, April 2003, pp 383-399

Wheeler S, Queens Belfast, FFR09 session on 'Corporate Governance'.

Weick, K. (1988), "Enacted sense-making in crisis situations", *Journal of Management Studies*, Vol. 25 No.4, pp.305-17.