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CREDIT CRUNCH:

Have the rules of Financial Management been broken?

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Abstract

With the questions being asked about the sustainability of banking in the UK and the after effects of exposure to toxic assets in the US the effects of global liquidity and profitability of UK banks is considered. The big question is how has this affected shareholder value, measured by the share price, for investors in the UK banks. Secondly, as UK banks' have faltered, is worth considering whether pricing efficiency of the true economic value of bank shares has been under mind by recent events such as the practice known as short selling. The debate looks at an abstract of what savers and borrowers look for in a scenario without banks. If we then revert back to basics to understand that banks act as brokers and create the ability to lend money many times over, through a number of transactions, whilst maintaining liquidity and confidence. This relies on the money being re-deposited within the banking system such that where 8% liquidity is required then this is equal to $100/0.08$ i.e. £1,250 can be lent through a number of transaction. This lending and re-depositing within the UK banking system worked with a zero funding gap up until 2001 but since then the international scale of banking meant that the Bank of England reported that for 2007 there was a net deficit of £625billion between the amount of actual savings and borrowers (Source BBC website - Robert Preston 2nd October 2008). The debate is whether this deficit in the UK is now a surplus in another country overseas or is it a case that the UK Banks have allowed their liquidity to fall by underwriting unprofitable lending. To understand this we have to explore the securitisation process and in turn how this can expand a banks' balance sheet but has also been used to ease liquidity on a global scale, with consequences that are now only becoming understood.

Keywords: Credit Crunch, Liquidity and Profitability, Securitisation, Efficient Market Hypothesis:

CREDIT CRUNCH: Have the rules of Financial Management been broken?

Introduction

August 9th, 2007 is generally regarded as the day the Credit Crunch officially begun, with what started as a US problem boiling over in to other markets. August the 9th was the day that the European Central Bank was first forced to inject billions of Euros in to the money markets and the French Investment Bank, BNP Paribas, had to suspend three of its funds exposed to sub-prime mortgages. (Budworth, The Times, 2008)

History

That said the route of the crunch goes back even further with Boakes (2008, p135) quoting that after the aftermath of 9/11 the US Federal Reserve embarked on a series of interest rate cuts that eventually brought rates down to 1% in June 2004. With interest rates so low, the US economy was fuelled and not surprisingly an ever increasing number of people found the attraction of cheap money to get on the housing ladder when house prices were rising. With a booming economy some of the US banks were even able to lend to low income earners who had previously not had the surplus income for loan and interest repayments. These loans were seen as more risky and became the “sub prime market”. Banks entered in to the phase of lending, when interest rates were low, to parties that were going to be stretched as interest rates rose. Banks were taking advantage of the fact that they could lend £100 several times over and only have to retain a low level of liquidity to meet customer demand at the tills.

This is probably the fundamental of banking. Banks collect money from savers, which in turn is lent to borrowers. The people they lend it to then spend the money which in turn is re-deposited within the banking system by

the person who has sold goods or services. Providing the bank retains sufficient liquidity to meet day to day requests for cash withdrawals it is able to re-cycle the money many times. For example a UK Bank may talk of maintaining Tier 1 Capital Ratio of 8% and if this was the percentage of funds they had to retain, then mathematically they could lend £1,250 ($100/0.08$) over a number of transactions; twelve and a half times the original amount and retain 8% of the money then re-deposited in each transaction.

Liquidity

If we start with an abstract model and assume no banks then Arnold (2005, p35) would provide a scenario based on the following:

Savers

High Interest Rate sought
Security of deposit
High Liquidity
Small Amounts

Borrowers

Low Interest rate sought
High Risk
Long Term
Large Amounts

Banks and other financial institutions essentially act as brokers between the savers and Borrowers. Savers need of a competitive rate, whilst providing safety for the deposit and the portfolio logic then allows depositors to withdraw as they wish and the bank to pool a number of small deposits (in proportion to say an individuals annual income). The latter applies with businesses as generally speaking a business with large amounts of cash, in theory, would return this to shareholders rather than just accepting interest from a bank deposit account. This assumes they have no other projects to invest in and forms a part of Dividend Policy and the “Residual” approach (Arnold, 2005 p1027). Borrowers on the other hand are considered high risk to banks or lenders. The loan is for a large amount against actual income and the term with individuals could be twenty years plus for their largest

purchase (a mortgage for a house). This would last through may be one, two, three or even more economic downturns during that period. Even a business is usually looking for five to seven years for most loans with short loans often being determined because of a shortage of assets to lend against (cash flow lending) and arguably more riskier when there is an economic downturn.

Banks in the UK, between them, managed the gap between borrowers and savers up until the millennium. In deed the BBC website (Robert Preston 2nd October 2008) states that even in to 2001 the funding gap was zero. More recently, however, Bank of England figures show that at the end of last year, there was a £625bn gap between the money lent by our banks and what they took in from conventional deposits or customer retail deposits.

	<u>Year</u>	
<u>Savers</u>	2000 was =	<u>Borrowers</u>
	2007 < £625billion	

It meant more than one bank was reliant on the inter-bank market as a source of liquidity for funding which in turn relied on confidence within the market. In London banks would lend at the London Inter Bank offered rate to meet daily liquidity shortfalls. Most banks survive with a level of demand in this market as not all can fund their mortgage business from customer retail deposits. The Telegraph reported on the 17th August 2007 that funding from the wholesale market accounting for 43% of HBOS's total funding, 42% for Bradford and Bingley, 28% Lloyds TSB, 17% RBS, 10% Barclays whilst only HSBC more than covered its mortgages with customer deposits. The missing name, Northern Rock was most exposed at a staggering 73%. The wholesale market works well during confident times but even then inter bank lending is monitored not just by the regulators, Bank of England and Financial Services Authority, but individual banks. Northern Rocks had taken an aggressive stance on new lending during the early part of 2007, taking market share from the likes of HBOS. No doubt their wholesale reliance had

increased. If the funding gap had been totally contained within the UK market then the Bank of England and its regulators could have ensured a bank bailout whilst maintaining a zero funding gap. So the question is how could the banks have created this £625billion deficit?

Was it Pyramid selling?

What the big banks also had in their favour is they had within their group the ability to finance around the clock through international subsidiaries around the world. For example, HBOS in the UK could tap in to Bank of Scotland USA at 2pm in the afternoon to support UK liquidity, whilst Bank of Scotland US could then use Bank West in Perth Australia, later in its day. Barclays, RBS, Lloyds TSB, HSBC all had the same ability. In turn banks within their international time zones would trade assets and inter-bank funding in effect creating what had become international liquidity; funding around the globe. The real question that seemed to be lost within this maze was whose assets or paper was each bank “actually” holding because these had passed through more than one level of trading. Did the regulators and/or the governments understand how this was working and to be honest did the chief executives and bank chairperson fully understand this. This article is not the first to question whether this creation of international liquidity was not “pyramid selling”, which is something only the most unscrupulous investment institutions would perhaps undertake. “Trading schemes become illegitimate and illegal if, while purporting to offer business opportunities, the sole purpose of the scheme is to make money by recruiting other participants, rather than trading in goods or services. This form of bogus scheme is sometimes referred to as "pyramid selling" (Department for Business and Regulatory Reform, 2008). In effect we had money around the international money markets, which can lead to one of two arguments.

Firstly, if we stop the world at one moment in time then we should still have a scenario, world-wide when Savers = Borrowers. The difference in

the UK is offset by a surplus elsewhere in the world. This assumes that international banks have maintained their liquidity, for example within the 8% rule mentioned above. Could purchases from the Far East, China say, have meant we have seen this outflow from UK banks and it has not returned to the UK banking system? In which case is it not these banks that need to restore the worldwide banking system to equilibrium?

The second scenario is if the banks have lent beyond the liquidity ratio. Perhaps with the complexity of trying to manage their liquidity within 8%, they have been perplexed by the international requirements and either deliberately or in error have miscalculated their liquidity position as a global entity. Perhaps with the way money has been transferred from one subsidiary to the other, at the end of each day, this could be seen as a reasonable argument. It also provides an argument that it was Pyramid selling in that local liquidity was maintained by passing the problem on to the next time zone.

Profitability

Unfortunately the Federal Reserve eventually had to tighten its monetary policy with interest rates rising, unemployment, which caused a number of sub prime borrowers to default and the first ripple of the sub prime crisis had commenced. The first major ripple was in the summer of 2007. US investment Bank Bear Stearns was forced to admit it had \$1.6billion of losses in its hedge funds, built up from the sub prime markets. It is perhaps surprising that the name Bear Stearns remained in the market until May 2008 when JP Morgan Chase finally agreed a purchase of the investment bank for \$2.2billion or \$10 per share. This was some way below the \$150 per share less than twelve months previously.

If the UK started as a liquidity issue between banks then it is reasonable to say the start of the whole international financing issue identified with Bear

Stearns was, in the first instance, profitability. To understand this we need to gain an insight as to how banks have collected mortgages together and sold these to third parties, thus removing the requirement to hold expensive capital on their balance sheet. Essentially this is Mortgage Backed Securities or Collateralised Debt Obligations (“CDO’s”), a collection of assets against a debt obligation. With banks or building societies they were able to bunch large volumes of mortgages together, obtain a rating, often triple A (AAA) and sell these to hedge funds or the likes. Very often this was good business for the banks as historically it removed liabilities from the balance sheet, provided a small turn and they retained the customer relationship. What was often not known was that the rating (AAA) was linked to the investments retaining a “good” book scenario; that is the mortgages had minimal arrears within them. To achieve this, the selling banks had to switch bad loans with good loans, and/or enter into credit swap derivatives to protect the good loan status. This left the banks with the bad loan risk, despite having sold on the loans, and this affects the banks profitability. This is essentially what Bear Stearns had to cover within its hedge funds. It was nothing to do with liquidity and the bank running out of cash but it was the start to the next part of the process.

With one major US Investment Bank having declared its position rumours commenced as to whom else may have a shaky portfolio? The situation is even more exacerbated because these CDO’s can be traded and consequently you may never be sure which bank has underwritten the rating of the loans. Back to the Pyramid. As well as the primary collateralisation of mortgages, these instruments often became the assets used by banks to fund short term liquidity. The repurchase or “Repo” market was perhaps little known until the credit crunch but it provided a financial system for banks to sell assets and then buy them back in say 14 days time. As the Credit crunch started to take hold such instruments became unacceptable or traders became wary, essentially trying to spot the next Bear Stearns. Rates increased and this only went further to exacerbate the liquidity issue. With the liquidity cost so high it was now exceeding the money being made

from the assets - essentially the bankers' nightmare of lending long and borrowing short where short term rates were higher than long term rates. This reverts back to the savers versus borrowers' conundrum.

What happened in the UK?

For the UK, all seemed okay until say Barclays US on a particular day could not fund Barclays UK. This is a guess but it was reported during August 2007 that Barclays had to go cap in hand to the Bank of England for overnight funding of some £314million (BBC news 23rd August 2007). Essentially the international markets had caught up but what again it showed was that it was not always clear how a UK bank was funded. What it also did for the likes of Northern Rock was turn off their usual supply for wholesale funding. Banks suddenly became more careful as to who they were lending to on a daily basis as the fear of being left as the bank funding the problem became a real threat.

The Effectuated Banks

Northern Rock's issue first and foremost was liquidity although hindsight would suggest it was overtrading. It also came to light, later in proceedings, that it had collateralised debt obligations and consequently the ones left on its balance sheet were indeed the shaky loans described. Granite being one vehicle that was mentioned in the press (Webster & Others, The Times 21/02/08) as being such a fund that had been sold nearly half of Northern Rock's mortgage book, some £47billion. To compound matters it was unable to parcel and sell £5billion of loans in September 2007 (Inman; 2008). It was now unable to finance new loans to generate new income and at the same time its life lines of liquidity had been seriously cut or become limited. Confidence in the Northern Rock name had been shattered and the BBC's Business Editor, Robert Preston, jumped on the

case in September 2007. This media hype was probably the cause of creating widespread queuing at Northern Rock branches as customer sought to withdraw funds in what was the first run on a UK bank for nearly a century. It was also the first bank to have a run using internet with-drawls and just went to show how quick money can be moved with the click of a mouse. Shares less than 12months before were £12 and the Bank had proposed an interim dividend, which has never been paid. When shares were suspended the price was 90p but the likelihood following nationalisation is the 180,000 shareholders will get nothing as the tax payer has to make good some of the loans previously sold.

The above provides the problem that arose but it is fair to say that each of the major UK banks have had differing problems. If we start with HSBC, they have managed to maintain a strong market capitalisation compared to other banks around £100million (£91.84billion as at 31st October 2008 - Source www.ft.com companies research 1/11/08). They have had sub prime losses but in relation to their size and worldwide presence, nothing that could not be absorbed. You can probably assume that HSBC will always have a problem somewhere around the world because of its geographical coverage but overall it appears to be able to ride the market. It is hardly surprising that it has a Beta (measure of market risk) of 1.01 when you would say that market risk is 1.00 (Source www.ft.com, companies research 1/11/08). Their presence in the Far East has perhaps meant they have been able to manage their global liquidity far better than those UK banks with weaker representation in that area and indeed have moved capital to the UK to support the UK balance sheet.

Barclays did have to revert to Middle East Government wealth funds to underwrite its rights issue during the summer of 2008 but this with access to further investors may well mean that with HSBC, Barclays is the only other major UK bank avoiding a Government bailout. Again they are using the Middle East contacts to increase capital to satisfy the UK regulators that they can meet the capital requirements but this appears to be at a price

higher than that offered in the government bailout (Laurance B, Daily Mail 1st November 2008). The price being paid looks to be the amount that management are willing to concede in order to retain independence without UK Government interference.

RBS had been one of the UK bank sectors star performers having absorbed NatWest and acquired Charter One and Citizen Financial in the US. With such a US presence it was hardly surprising it had sub prime losses (£5.9billion of credit write-downs announced in the 2008 interim results attributing to a £691million loss for the six months - RBS Group 2008 Interim Results). Furthermore it had made a £0.9billion (5%) investment in Bank of China in 2005, which may have been in attempt to seek liquidity from this part of the world (RBS website, Investor Relations, 2005). In addition to this it teamed up with Fortis and Santander to carve-up ABN Amro with RBS looking to retain the wholesale parts of ABN/Amro and the Asian and US operations (RBS website, Investor Relations, 2007). In hindsight this has since proved to be an expensive acquisition with management having to go cap in hand to its investors for a £12billion Rights Issue to boost its Capital Ratios. The only positive about this strategy was it was the first UK bank to do so enabled a 95% take-up. (RBS website, Investor Relations, 2008) With the latest round of Government talks suggesting RBS becoming 60% nationalised, as part of the Government bailout, participants in the Right Issue will have good reason to feel management's aggressive stance on acquisitions has resulted in the downfall of RBS. RBS has arguably been a victim of the credit crunch but capital and liquidity was spent on acquisitions and in particular the last acquisition of Fortis, was at a time when markets were already falling and perhaps managements' attention could have been better focused on other issues. It is hardly surprising that management heads have rolled.

HBOS, as mentioned above, was known to be heavily reliant upon the wholesale market (nearly 50%). In terms of the UK it is the largest mortgage lender and has the largest customer deposits, both in value and number of

savers. It really does form part of the savers versus borrowers equation mentioned above. The amalgamation of Bank of Scotland and Halifax reinforced this position for not just England and Wales but also Scotland. As an institution it also has the largest by number of individual shareholders, a legacy from the conversion of Halifax from building society to public company. In terms of share price the bank has suffered from a high of just over £11 to trading below £1. It also had to go cap in hand for a £4billion Rights Issue to protect its Capital Ratios but amid rumours in the market was taken up by few (8.3% - Source, Croft, 2008, www.ft.com) leaving the underwriters with the balance. The issue was two share for every five held at £2.75 with the price set at over a 40% discount, when the share price was £5. All Rights Issues are at a discount and in normal terms 40% would have been more than sufficient for this purpose. The criticism being levelled towards HBOS management is the funding gap scenario was evident over a number of years and lending was allowed to grow at a rate higher than the collection of new retail deposits both for mortgages and corporate lending. (The Times 31st October 2008). Whilst it would appear easy to criticise management for allowing this it would also seem that the regulators have not been quick to notice any flaws within this strategy/policy.

Lloyds TSB survived any early calls to visit its investors for a Rights Issue and so its management has retained some credibility through the credit crunch. From this it has been given competition dispensation to takeover HBOS but with or without this will still have to take advantage of the more recent Government assistance scheme for UK banks. It appears the proposed combined entity of LloydsTSB/HBOS will have a 45% shareholder in the form of the Government. One argument here is why does the merger need to happen given both banks will need government support? The new bank will have market dominance in terms of mortgages, savers and current accounts that would not normally be allowed under competition rules. As Government assistance is required, can the banks not remain separate? The only visible counter argument here is the need to find experienced management deemed fit to run both banks, based on past practice.

Equity Markets

The rights issues and the role of hedge funds within share buying and selling has been a focus during the credit crunch period. It has re-ignited the debate as to market efficiency and whether the markets have been responsible for the fall in confidence within the banking sector and the almost collapse of the financial or banking markets.

In terms of financial management, an efficient capital market, “security prices rationally reflect available information” (Arnold 2005 p684 or McLaney 2006 p182). In terms of mechanism and in particular pricing, once information becomes available it is reflected within the share price. A share price has to be governed by future expected earnings such that market price per share (MPS) is equal to the quantity of earnings (Q_e) divided by expected cost of equity (K_e) or expected return on equity (again K_e). The formula is therefore;

$$MPS = Q_e / K_e$$

What it does not mean is that share prices always show “true economic value” because at any one time shares would deviate in a “random” manner. Again in theory these deviations would mean there are shares under valued as well as over valued and because of the randomness no one investor can through skill, out perform the market over a long period of time. That is not to say you will not find an investor or two that have out performed the market as under the rules of probability there is always likely to be one or two. What we are talking about here is pricing efficiency and in particular what is referred to as Efficient Market Hypothesis (Arnold 2005 p686, Watson & Head 2004 p34). What we can also look at is what Fama in 1970 produced in terms of grading three levels of efficiency (Arnold 2005 p691).

The weakest form of efficiency means share prices reflect all information contained in past share price information. This needless to say does not predict future events but could we argue that during the credit crunch traders have merely followed the share price rather than perhaps other information that was available. There is nothing to prove this but with electronic trading buying or selling can be implemented against certain prices being hit.

Secondly we have the semi-strong form of efficiency where prices fully reflect all the relevant and publicly available information. This includes past share information but also announcements on rights issues, dividends, bad debts and the likes. The argument here is that share prices absorbed this information as soon as it is released and as such there is no point an investor analysing such information. A counter argument here is perhaps the length of time needed to complete a Rights Issue did give time for further analysis and this certainly did HBOS no favours because it could only watch as its share price fell below the Rights Issue price. Whilst RBS did complete its Rights Issue successfully it too came close to having a share price below its Right Issue price.

Finally there is the strong form of efficiency, which would suggest all information, whether private or public is reflected in the share price. The focus here originally was to focus on the likes of insider trading (e.g. by directors with privileged information) and try to say at this higher level the normal investor should be protected from insiders making abnormal profits.

The only way to enforce the higher level is to provide a highly regulated environment. At some stage the costs far outweighs the benefit and so in reality, the UK had a market that works somewhere between the semi strong to strong form of efficiency. There is also the argument that even the most stringent regulation will have a hole somewhere, which someone will find to manipulate. This was emphasised in the credit crunch round and by a factor known as “short selling”. This is said to have been the decisive

factor that caused HBOS Rights Issue to have such a high failure rate in terms of take up by investors. Short selling is where hedge funds sell shares they do not own in anticipation of the price falling. The use of derivatives (options) can assist here as it allows large volumes to be bought and sold without the shares actually being taken in to ownership - so called naked short selling. In theory it is possible to buy and sell more share than have actually been issued by the company. These large volumes of trading then affect supply and demand, which in turn undermine the whole assumptions behind efficient markets. An efficient market trades on the assumption of a perfect market. As such supply and demand should not affect the true economic value of a share price in the long term. Short selling by the hedge funds caused a downward spiral momentum, which moved the share price away from any random deviations (the trend) from what was the true economic value.

Indeed during the HBOS Rights Issue process, the share price fell so dramatically on one day that it brought a statement not only from the Company but also the Bank of England to bring back confidence (Warner J, The independent 12th June 2008) albeit it could now be argued this was only temporarily. It nevertheless has brought a Government reaction in outlawing short selling for the foreseeable future and not just in the UK but also the US authorities have also acted to protect their own institutions (Sage, Timesonline 20/09/08). The damage may well have already been done and in terms of theory it does no more than confirm that one of the failings within the credit crunch is that at best we only have Semi-Strong Efficiency within the capital markets. There always seems to be someone that has the ability to make a profit at the expense of others, in this case the “normal investor”.

There is a counter argument against Efficient Market Hypothesis (“EMH”) and these rely on “behavioural” judgements and knowledge of the markets. EMH relies on three key assumptions and the behavioural judgements attack these assumptions. Firstly, investors are rational and value securities

rationality. So for example green preferences should not make an impact. Perhaps not an issue for credit crunch. Secondly where investors are not rational, the trades are random and are cancelled out by other irrational or random transactions. In terms of the credit crunch it could be described that the random nature of the hedge fund transactions were all betting one way and the irrational trades were not counter balanced. The size of these transactions also attacks the third assumption and that is the majority of investors if irrational should push the share price away from its true economic value (or efficient level). For EMH it is argued arbitrage would come in to play from other investors who could take advantage of say a fall in share price to buy a bargain where the price was undervalued against future expected earnings. This did not happen so perhaps the argument for EMH does not work.

So have the rules of Financial Management been broken?

Financial Management is about enhancing shareholder value or MPS (market price per share). For this to be reflected fairly for normal investors we need some form of efficient markets. The share price is reflected by earnings and this comes from two routes, operating cash flow and cost of capital (Pike and Neale, 2006, chapter 1). A constituent of capital is bank debt and for this to be available at a reasonable cost there is a need for a confident banking system. In today's world that is on a global or international scale.

In terms of the principles of banking then one way or another it looks like the banks' have created credit beyond the level of comfort. If the savers and borrowers equilibrium of liquidity is still within the world market then the imbalance is not feeding back to certain countries, such as the UK. Alternatively banks have lent beyond the comfort of their liquidity requirements by creating derivatives within a form of Pyramid. Regardless

the banking scene has changed and perhaps there are more changes to follow.

In terms of market efficiency during this period, short selling has shown that at best we may have a semi strong form of efficiency. This time it was short selling that showed despite the best attempts to regulate against any such events that a strong form of efficiency is difficult if not impossible to achieve. Alternatively the defence for having efficient market hypothesis is flawed when you have such “irrational” investors behaving in quantities that can not be eliminated through arbitrage or the system for Rights Issues is of a period that allows investors to continually analyse old information.

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