Post-crisis bank liquidity risk management disclosure

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Abstract

Purpose – This work seeks to investigate post-crisis measures banks have adopted in a bid to manage liquidity risk. It is based on the fact that, the financial liquidity market was greatly affected during the recent economic turmoil and financial meltdown. During the crisis, liquidity risk management disclosure was crucial for confidence building in depositors and shareholders.

Design/methodology/approach – The study investigates if Basel II pillar 3 disclosures on liquidity risk management are applied by 20 of top 33 world banks. Bank selection is based on information availability, geographic balance and possibility of understanding the language in which information is provided. This information is searched from the World Wide Web, with a minimum of one hour allocated to 'content search', and indefinite time for 'content analyses'. Such content scrutiny is guided by 16 disclosure principles classified in four main categories.

Findings – Only 25% of sampled banks provide publicly accessible liquidity risk management information, a clear indication that, in the post-crisis era, many top ranking banks do not still take Basel disclosure norms seriously, especially the February 2008 pre-crisis warning by the Basel Committee on Banking Supervision.

Implications/limitations – Bank stakeholders should easily have access to information on liquidity risk management. Banks falling-short of making such information available might not inspire confidence in customers and shareholders in event of financial panic and turmoil. Like in the run-up to the previous financial crisis, if banks are not compelled to explicitly and expressly disclose what measures they adopt in a bid to guarantee stakeholder liquidity, the onset of any financial shake-up would only precipitate a meltdown. The main limitation of this study is the use of the World Wide Web as the only source of information available to bank stakeholders.

Originality/value – The contribution of this paper to literature can be viewed from the role it plays in investigating post-crisis measures banks have adopted in a bid to inform stakeholders on their management of liquidity risk.

Keywords: Post-crisis, liquidity risk management, banks.

Paper type: Qualitative finance research paper.

JEL Classification: D80, E50, G00, G18.

1. Introduction

Liquidity Risk Management (LRM) has become increasingly vital in the banking industry, especially with the recent financial meltdown and economic down-turn. During

the crisis, increasing credit concerns and feeble market liquidity animated a cycle of deteriorating asset market values and deleveraging. Authorities around the world sort for a solution as inter-bank lending came to a halt, credit risk and capital flight became common-place, and banks were on their knees in search of liquidity. Many financial institutions were bailed-out or restructured. The inability of a bank to meet up with its financial obligation/liability is a premise on which crisis may result. This issue may be due to deterioration in asset quality or general loss of confidence in the financial institution due to circumstances more or less related to the bank in question. It therefore becomes imperial for banks to develop policies and standards that best measure and manage their liquidity positions on an on-going basis. More so, it is also necessary to project funding liquidity issues that could crop-up during a crisis event (stress testing and scenario analyses). In this paper we attempt to piece together standard practices of bank LRM, while keeping a close on 'Basel II pillar 3' disclosure criteria. The reason we look up to Basel principles is, in February 2008, the Basel Committee on Banking Supervision published 'Liquidity Risk Management and Supervisory Challenges'[1] which somewhat predicted the financial crisis. The report emphasized that banks had failed to take account of a number of fundamental principles of LRM. It further stressed many financial institutions did not conduct stress tests and scenario analyses because they did not consider severe and prolonged liquidity disruptions as very likely. The ensuing financial meltdown justified and gave much credit to this report. It is therefore our goal to investigate what post-crisis disclosure measures have been taken into account by top world banks. Findings shall be relevant to bank stakeholders as well as policy makers.

2. Literature review

2.1 Literature on liquidity risk management

Measuring and managing liquidity go hand-in-glove. A good liquidity monitoring and measurement policy determines more or less management decisions on bank liquidity positions on an on-going basis, especially in periods of adverse scenarios like financial

[1]The report emphasized that banks did not have an adequate framework that ideally accounted for the liquidity risk presented by individual products and business lines. Most banks did not take into consideration the amount of liquidity, crucial for contingency obligations.

crisis. A very recent example of bank periodical liquidity management could be borrowed from Merrouche and Schanz (2010).Their study which focuses on the U.K payment system suggests that, early in the day, when settlement banks are not sure that their counter-parties to whom they make payments would pay-back, they stop doing so. In this wise, healthy banks remain unaffected by disruptions caused by operation outage, thus preventing affected banks acting as liquidity sinks. Generally, a bank with operational outage receives money both from the central banks and other banks but is unable to make payments due to more or less, information and/or technology issues which could pose a systematic risk if not sufficiently monitored at the beginning of the day.

Concerning the use of market positions, Dinger (2009) completely tests a hypothesis resulting from the works of Demirgüc-Kunt et al. (1998) and, Detregiache and Gupta (2004). The thesis supported by these authors suggests foreign banks have a stabilizing impact because they have access to diversified international sources of liquidity. Dinger on his part presents evidence to justify the significant difference in behavior between transitional and local banks. He asserts, during stable periods transnational banks hold less liquid reserves than local banks and during crisis, hold more liquid reserves. Dinger (2009) further presents evidence to show how transnational banks smooth the local money market volatility in small emerging economies and also help in integration of interbank markets. Much earlier, Qian et al. (2004) had looked into the problem from the perspective of a financial system design. In comparing banks in a dynamic economy, they found-out both the banking system and the market could provide partial liquidity insurance to investors. Evidence suggested a full-participation market with intergenerational trading could provide more liquidity and insurance through wealth transfer across generations.

With regard to contingency planning, Ratnovski (2009) recently stressed the need for a good lender of last resort policy which should incorporate bank capital information and reduce distorting rents. This sub-optimal liquidity solution could be very costly in terms of rents if a proper assessment of assets is not taking into account. Therefore, in compliance with this last resort lender requirement, he recommends much focus on ex-post positive capitalization than ex-ante liquidity. To put this perspective clear, banks with positive liquidity ex-ante of crisis that the central bank supports may not necessarily

have positive net worth ex-post, making sub-optimal liquidity solutions based on ex-ante liquidity positions unsustainable ex-post. It is therefore in the banks interest to insure this policy is not conditioned on liquidity but on ascertained net worth, since quantitative liquidity requirement is very expensive.

Looking at the weight of country specific effects on LRM disclosure, Vento and La Ganga (2009) point out, disparity in regulatory and supervisory regimes across countries could significantly affect bank LRM and supervision. Our work will also seek to investigate if banks established in certain countries have a specific disclosure pattern. Concerning cultural specific effects, it is worthwhile laying some emphasis on Islamic banks. Most recently, Ismal (2010) in an empirical survey on the Indonesian Islamic banking industry indentifies rational depositors' sensitivity to interest rate return and higher portions of short-term deposits (one month) as the main sources of liquidity problems. Meanwhile liquidity instruments which help in attenuating these liquidity issues include (in decreasing order): borrowing from the Islamic money market, borrowing from parent company, withdrawing private placements from other banks, use of bank capital to cover demanded liquidity, selling of Islamic securities in secondary market, asking for depositors to wait for extra days and use of intra day emergency liquidity facility.

2.2 *Literature on bank information disclosure*

From a financial intermediary view-point, Chen and Hassan (2006) demonstrate that, if banking transparency is improved by increasing the precision of public signals[2], this may increase the likelihood of a contagious bank-run. Beside this inauspicious account of transparency, it is worthwhile disclosing other definitions for improvement in transparency exist. For instance, if transparency is defined as the way the banking system ameliorates the manner in which depositors know whether problems of failed banks are systematic or idiosyncratic in nature, then improvement of transparency from this angle should instead dwarf a contagious run. The skepticism of Chen and Hassan (2006) on transparency related to the improvement of public signals is shared by some authors. For instance Cordella and Yeyati (1998) posits that, full transparency of bank risks, could

[2] For example, when banks invest at time '0', public signals about the projects are revealed at time '1'. However, the time interval between investment and public knowledge could still be sub-divided.

lead to bank failure via increasing interest on deposits that could accrue from riskier positions. The effect of this disclosure risk is further emphasized by Admati and Pfleiderer (2000) who access that, when firms are positively correlated, disclosing information on one could affect others, especially if the revealed information can trigger a contagious run. A study which somewhat antagonizes this thesis is that of Demirgüç-Kunt et al. (2008). They find out, banks in countries which better comply with Basel Core Principles related to information provision; receive more favorable Moody financial strength ratings.

Regarding what type of information our research might be concerned with, Boot and Thakor (2001), in asking the kind of information firms should voluntarily disclose, consider three types of disclosures: (1) information that complements that available only to informed investors; (2) information that complements that available to all investors; (3) a substitute to information that informed investors would have obtained themselves. From the perspective of this study, our search for information from the World Wide Web falls within the first and second categories. The third information category is ruled-out because "inside information can hardly be obtained from a public source". Therefore, the present work will aim to: (1) verify if banks have adopted more appealing post-crisis disclosure principles on LRM (Basel Committee on Banking Supervision, February 2008); (2) investigate if country regulatory and supervisory regimes, play a role in determining disclosure patterns (Vento and La Ganga, 2009); and finally (3) determine summarily whether such explicit disclosure is relevant for stakeholder confidence (as opposed to Chen and Hassan, 2006).

3. Methods

3.1 Content search

By 'content', we refer to information on LRM. As shown on table I, the 20 selected banks are among the top 33 in terms of asset value according to a recent classification[3]. Chosen banks are selected such that, their headquarters are in countries which are members of the Basel Committee. We rely principally on the World Wide Web for information because: firstly, it is the most widely accessible source of information to

[3] Rankings as of 11 August 2010. From Bankers Almanac.

present and potential stakeholders (clients and shareholders); and secondly, most banks have an international character, which makes the web and particularly their websites the turning point of any information about them. We sacrifice at least one hour in search for LRM information. This is on account of the fact that, we hypothetically assume, on average a present or prospective stakeholder should spend such amount of time perusing for such information. On the World Wide Web and corresponding websites, we use searching sentences like: "liquidity risk management", "cash risk management", "liquidity management", "cash management", "liquidity risk", "Basel II pillar 3 disclosure", "Basel II", "pillar disclosure"…..etc. Targeted content from annual reports is post-2008, implying we focus on analyzing annual reports of financial institutions that were published after the start of the recent financial crisis.

3.2 Content analysis

This is a form of qualitative analysis that deals specifically with documents and texts. Interpreting and understanding 'disclosures' we find falls within this framework. We endeavor to verify how information found reflects underlying disclosure principles below. LRM disclosures according to Basel II, pillar 3, should include: risk identification and assessment; risk management and mitigation; and risk monitoring and reporting. Therefore, we focus on the following when perusing and analyzing a particular content:

-development of a structure for managing liquidity(strategic risk management, tactical risk management, adequacy of information system, managing structure of liquidity strategy, role of directors and day-to-day liquidity risk management);

-measurement and management of net funding requirements (establishment of a measuring and monitoring process, use of "what if" scenarios, and review of liquidity management assumptions);

-management of market access and contingency planning (managing market access, contingency planning, and stress testing and scenario analysis are necessary) and

-last but not the least criterion, the role of internal control, supervisors and public disclosure in improving liquidity management;

Table I. Presentation of selected banks

Banks	World Rankings°	Assets (million US$)	Capital (million US$)
1) BNP Paribas S.A(France)	1st	2,952,221	35,955.52
2)Royal Bank of Scotland(United Kingdom)	2nd	2,739,361	23,623.45
3)Credit Agricole(France)	3rd	2,234,350	40,648.49
4)Barclays Bank Plc(United Kingdom)	4th	2,226,593	4,606.81
5)Deutsche Bank(Germany)	5th	2,153,033	2,279.77
6)Lloyds Banking Group plc(United Kingdom)	6th	1,658,736	16,909.41
7)JP Morgan Chase and Co.(USA)	7th	1,627,684	1,785.00
8)Banco Santander S.A(Spain)	8th	1,593,298	5,902.44
9)The Bank of Tokyo-Mitsubishi(Japan)	9th	1,494,350	12,000.15
10)Société Générale(France)	10th	1,468,725	1,327.12
11)Bank of America-Merrill Lynch(USA)	11th	1,468,725	1,327.12
12)ING(Netherlands)	12th	1,441,673	731.50
13)UBS(Switzerland)	15th	1,296,709	344.36
14)Bank of China(China)	16th	1,281,409	37,181.63
15)The Sumitomo Bank(Japan)	20th	1,162,096	6,670.54
16)Citibank(USA)	21st	1,161,361	751.00
17)Bank of Scotland plc (United Kingdom)	23rd	1,067,890	9,441.30
18)Credit Suisse(Switzerland)	25th	997,705	45.46
19)Banca Intesa(Italy)	26th	896,476	9,525.11
20)ABN Ambro Holding NV(Netherlands)	33rd	673,379	2,657.10

Notes:°Rankings as of 11th of August 2010. Figures are consolidated and date on 31/12/2009. All countries above are member of the Basel Committee. U.S.A: United States of America. Source (Bankers Almanac).

Table II. Banks and Liquidity Risk Management Disclosure (LRMD)

Implicit or No LRMD	Explicit LRMD
BNP Paribas S.A(France)	Deutsche Bank(Germany)
Royal Bank of Scotland(United Kingdom)	UBS(Switzerland)
Credit Agricole(France)	Barclays Bank Plc(United Kingdom)
JP Morgan Chase and Co.(USA)	Lloyds Banking Group plc(United Kingdom)
Banco Santander S.A(Spain)	ING(Netherlands)
The Bank of Tokyo-Mitsubishi(Japan)	
Société Générale(France)	
Bank of America-Merrill Lynch(USA)	
Bank of China(China)	
The Sumitomo Bank(Japan)	
Citibank(USA)	
Bank of Scotland plc(United Kingdom)	
Credit Suisse(Switzerland)	
Banca Intesa(Italy)	
ABN Ambro Holding NV(Netherlands)	

Notes: U.S.A: United States of America. Source (author's synthesis)

4. Case Studies

Various case studies are analyzed based on whether bank websites and the World Wide Web provide explicit information on LRM. As summarized on table II, while fifteen banks do not have accessible information, five do. Banks with implicit LRM information mostly provide details on what they could do to help clients manage their liquidity. Their information is meant to inform clients on how well their deposits could be managed profitably than, on what measures they would take to ensure depositors are refunded upon demand (prevention of liquidity risk). They use terms like :"we offer services to help you: consolidate your balances, understand your daily cash position, address short and long term research objectives, self direct or automate your investments…etc"(Bank of America-Merrill Lynch, for example). Analyzed disclosures are synthesized on tables III, IV, V, and VI below.

Table III. Developing a structure for managing liquidity

Liquidity Management Principle(s)	Deutsche Bank	UBS	Barclays Bank plc	Lloyds Banking Group plc	ING
Day-to-day liquidity management strategy	"Our liquidity risk management approach starts at the intraday level (operational liquidity) managing the daily payments queue, forecasting cash flows and factoring in our access to Central Banks".	"UBS continuously tracks its liquidity position and asset and liability profile over time" "In response to the market dislocation discussed above, UBS increased both its modeling and monitoring frequency".	"The Group policy is that each operation must ensure that it has access to sufficient intraday liquidity to meet any obligations it may have to clearing and settlement systems".	"Daily monitoring and control processes are in place to address both statutory and prudential liquidity requirements."	"ALCO Bank has delegated day-to-day liquidity management to Financial Markets Amsterdam, which is responsible for managing the overall liquidity risk position of ING Bank…" "Within Financial Markets the focus is mainly on the daily and intraday cash and collateral positions and it is policy to sufficiently stagger day-to-day funding requirements";
Role of directors	"The underlying policy, including the bank's risk tolerance, is reviewed and approved regularly by the Management Board. The policy defines the liquidity risk limits which are applied to the Group".	n.s.a	n.s.a	"Routine reporting is in place to senior management and through the Group's committee structure"	n.s.a
Management structure for liquidity strategy	-Short term liquidity -Unsecured funding -Asset liquidity -Stress testing and Scenario analysis	n.s.a	"Barclays Treasury operates a centralized governance and control process that covers all of the Group's liquidity risk Management activities".	-the group asset and liability committee -the senior asset and liability committee	-structural liquidity risk -tactical liquidity risk -contingent liquidity risk
Adequate Information system.	"Our cash flow based reporting system provides daily liquidity risk information to global and regional management".	n.s.a	n.s.a	n.s.a	n.s.a
Tactical risk management	"It then covers tactical liquidity risk management dealing with the access to secured and unsecured funding sources".	n.s.a	"Execution of the Group's liquidity risk management strategy is carried out at country level within agreed policies, controls and limits, with the Country Treasurer providing reports directly to Barclays Treasury to evidence conformance with the agreed risk profile"	n.s.a	"From a tactical, short-term perspective the liquidity risk resulting from the short term cash and collateral positions is managed".
Strategic risk management	"Finally, the strategic perspective comprises the maturity profile of all assets and liabilities (Funding Matrix) on our balance sheet and our issuance strategy".	n.s.a	"The objective of the Group's liquidity risk management strategy is to ensure that the funding profile of individual businesses and the Group as a whole is appropriate to underlying market conditions and the profile of our business in each given country."	n.s.a	n.s.a

Notes: n.s.a: not specifically applicable. Source (author's synthesis)

Table IV. Measuring and monitoring net funding requirements.

Liquidity Management Principle(s)	Deutsche Bank	UBS	Barclays Bank Plc	Lloyds Banking Group plc	ING
Establishment of measuring and monitoring process	"Our reporting system tracks cash flows on a daily basis over an 18-month horizon. This system allows management to assess our short-term liquidity position in each location, region and globally on a by-currency, by-product and by-division basis. The system captures all of our cash flows from transactions on our balance sheet, as well as liquidity risks resulting from off-balance sheet transactions".	n.s.a	"The need to monitor, manage and control intraday liquidity in real time is recognized by the Group as a critical process: any failure to meet specific intraday commitments would have significant consequences, such as a visible market disruption".	"Liquidity is actively monitored at business unit and Group level at an appropriate frequency. Routine reporting is in place to senior management and through the Group's committee structure, in particular the group asset and liability committee and the senior asset and liability committee which meet monthly".	**"**For the measurement and monitoring of the actual liquidity position the focus is on the daily cash and collateral position".
Use of "what if" scenarios.	"In addition, we keep a dedicated strategic liquidity reserve containing highly liquid and central bank eligible securities in major currencies around the world to support our liquidity profile in case of potential deteriorating market conditions".	n.s.a	"These stress scenarios include Barclays-specific scenarios such as an unexpected rating downgrade and operational problems, and external scenarios such as Emerging Market crises, payment system disruption and macro-economic shocks".	"Firstly, the Group stress tests its potential cash flow mismatch position under various scenarios on an ongoing basis".	"For this purpose ING Bank's weekly and monthly liquidity positions are stress tested under a scenario that is a mix between a market event and an ING specific event".
Review of liquidity management assumptions.	"As of year-end 2009 we have implemented a new reporting system which focuses on contractual cash flows from wholesale funding sources on a daily basis over a 12-month horizon".	n.s.a	n.s.a	"The scenarios and the assumptions are reviewed at least annually to gain assurance they continue to be relevant to the nature of the business".	n.s.a

Notes: n.s.a: not specifically applicable. Source (author's synthesis)

Table V. Managing market access and contingency planning

Liquidity Management Principle(s)	Deutsche Bank	UBS	Barclays Bank Plc	Lloyds Banking Group plc	ING
Managing market access	"Unsecured funding is measured on a regional basis by currency and aggregated to a global utilization report. The management board approves limits to protect our access to unsecured funding at attractive levels"……."Liquidity outflow limits (Maximum Cash Outflow Limits), which have been set to limit cumulative global and local cash outflows, are monitored on a daily basis to safeguard our access to liquidity".	n.s.a	"The Group maintains a portfolio of highly marketable assets including UK, US and Euro-area government bonds that can be sold or funded on a secured basis as protection against any unforeseen interruption to cash flow." "Additionally, unsecured funding is managed within specific term limits. The term of unsecured liabilities has been extended, with average life improving by four months from eight months at the end of December 2007 to 12 months at the end of December 2008".	n.s.a	"Holding a broad portfolio of highly marketable assets that can be used to obtain secured funding". "Maintaining an adequate structural liquidity gap taking into account the asset mix and both the secured and unsecured funding possibilities of ING Bank".
Contingency planning	"The strategic liquidity reserve amounts to EUR 54.9 billion as of December 31, 2009. This reserve is held in addition to the bank's cash balance and the collateral the bank needs to support its clearing activities in euro, U.S. dollars and other currencies which are held in separate portfolios around the globe".	"Combined with the broad diversity of its funding sources, its contingency planning processes and its global scope, these additional measures have proven extremely helpful in enabling UBS to maintain a balanced asset / liability profile, in spite of this period of unprecedented market dislocation".	"The output informs both the liquidity mismatch limits and the Group's contingency funding plan. This is maintained by Treasury and is aligned with the Group and country business resumption plans to encompass decision-making authorities, internal and external communication and, in the event of a systems failure, the restoration of liquidity management and payment systems".	"the Group has a contingency funding plan embedded within the Group Liquidity Policy which has been designed to identify emerging liquidity concerns at an early stage, so that mitigating actions can be taken to avoid a more serious crisis developing".	"Contingency liquidity risk relates to the organization and planning for liquidity management in times of stress. Within ING a specific crisis team is responsible for the liquidity management in times of crisis".
Stress testing	"Stress testing is fully integrated in our liquidity risk management framework. We track contractual cash flows per currency and product over an eight-week horizon (which we consider the most critical time span in a liquidity crisis) and apply the relevant stress case to all potential risk drivers from on balance sheet and off balance sheet products. Beyond the eight week time horizon we analyze on a quarterly basis the impact of a change of business model out to 12	"This involves monitoring its contractual and behavioral maturity profiles, projecting and modeling its liquidity exposures under various stress scenarios and monitoring its secured funding capacity."	"Stress testing is undertaken to assess and plan for the impact of various scenarios which may put the Group's liquidity at risk." "Treasury develops and monitors a range of stress tests on the Group's projected cash flows. These stress scenarios include Barclays-specific	"the Group stress tests its potential cash flow mismatch position under various scenarios on an ongoing basis." "Behavioral adjustments are developed, evaluating how the cash flow position might change under each stress scenario to derive a stressed cash flow position. Scenarios cover both Lloyds Banking	"For stress testing purposes the liquidity risk positions are calculated in line with the regulatory reporting requirements for liquidity risk of the Dutch Central Bank".

	months. The liquidity stress testing provides the basis for the bank's contingency funding plans which are approved by the Management Board. Our stress testing analysis assesses our ability to generate sufficient liquidity under critical conditions and has been a valuable input when defining our target liquidity risk position. The analysis is performed monthly".		scenarios such as an unexpected rating downgrade and operational problems, and external scenarios such as Emerging Market crises, payment system disruption and macro-economic shocks. The output informs both the liquidity mismatch limits and the Group's contingency funding plan."	Group name specific and systemic difficulties".	
Scenario analysis	"As of year-end 2009 we also have introduced a scenario which combines a systemic market shock with a multi notch rating downgrade. Under each of these scenarios we assume that all maturing loans to customers will need to be rolled over and require funding whereas rollover of liabilities will be partially impaired resulting in a funding gap. We then model the steps we would take to counterbalance the resulting net shortfall in funding. Countermeasures would include the bank's long cash balance and unencumbered asset inventory as well as our Strategic Liquidity Reserve"….. "The scenarios have been based on historic events, such as the 1987 stock market crash, the 1990 U.S. liquidity crunch and the September 2001 terrorist attacks, liquidity crisis case studies and hypothetical events. Also incorporated are new liquidity risk drivers revealed by the latest financial markets crisis: prolonged term money-market freeze, collateral repudiation, limited fungibility of currencies, stranded syndications, systemic knock-on effects and further liquidity risk drivers such as intraday liquidity risk".	"This involves monitoring its contractual and behavioral maturity profiles, projecting and modeling its liquidity exposures under various stress scenarios and monitoring its secured funding capacity".			"For this purpose ING Bank's weekly and monthly liquidity positions are stress tested under a scenario that is a mix between a market event and an ING specific event."

Notes: n.s.a: not specifically applicable. Source (author's synthesis)

Table VI. Role of internal control, supervisors and public disclosure, in improving liquidity risk management.

Liquidity Management Principle(s)	Deutsche Bank	UBS	Barclays Bank Plc	Lloyds Banking Group plc	ING
Internal control	"As of year-end 2009 we have implemented a new reporting system which focuses on contractual cash flows from wholesale funding sources on a daily basis over a 12-month horizon. The system captures all cash flows from unsecured as well as from secured funding transactions. Wholesale funding limits, which are calibrated against our stress testing results and approved by the Management Board; describe our maximum tolerance for liquidity risk. These limits apply to the cumulative global cash outflows and are monitored on a daily basis".	n.s.a	n.s.a	"Liquidity is actively monitored at business unit and Group level at an appropriate frequency. Routine reporting is in place to senior management and through the Group's committee structure, in particular the group asset and liability committee and the senior asset and liability committee which meet monthly".	n.s.a
Role of supervisors	Management directors are mentioned three times in a supervising role. No intermediate supervisors are disclosed.	n.s.a	n.s.a	"Routine reporting is in place to senior management and through the Group's committee structure, in particular the group asset and liability committee and the senior asset and liability committee which meet monthly. In a stress situation the level of monitoring and reporting is increased commensurate with the nature of the stress event".	n.s.a
Public disclosure	World Wide Web	World Wide Web	World Wide Web	World Wide Web	World Wide Web

Notes: n.s.a: not specifically applicable. Source (author's synthesis

5. Discussion of Results

Much discussion on analyzed content of disclosures would be monotonous, as it would simply be literally recycling what is already much explicit and self explanatory on synthetic tables (III, IV, V and VI). For instance with respect to table III (developing a structure for managing liquidity), Deutsche Bank appears to provide the most exhaustive information. On a positive note, all five banks take very seriously, an intra-day LRM strategy. But for Deutsche Bank, the presence of an adequate information system is seldom elucidated. Regarding net funding requirements, only UBS is on the sideline as compared to other banks. However this difference is not any relevant when it comes to 'market access and contingency planning', which is taking seriously by all banks. Only Deutsche Bank and Lloyds Banking Group plc account for the 'role of internal control, supervisors and public disclosure, in improving liquidity management'.

6. Conclusion

Our attempt to probe into post-crisis liquidity risk management disclosure following pre-crisis shortcomings emphasized by the Basel committee on banking supervision have yielded results, not unexpected. The low rate of bank disclosure confirms a study by Chen and Hassan(2006) which shows that, banks do not take seriously improvements in transparency of the banking system because, it could breed chances of a contagious bank run. Our results also comply with Cordella and Yeyati (1998) in the perspective that, full disclosure of bank risks could lead to bank failure through increasing interest rate. A further emphasis on the relevance of results with respect to literature could be appreciated from Adamti and Pfleiderer (2000) who had earlier shown that, disclosure of negative information could engender a contagious run and systematic collapse, especially when correlation between elements of the banking sector is highly positive. In validating the hypotheses we brought forward at the onset of this work, we can conclude: (1) with respect to the World Wide Web, banks have not adopted more appealing post-crisis disclosure principles; (2) country regulatory systems don't affect disclosure patterns ;(3) disclosure doesn't seem to be any relevant in

determining the content of stakeholder confidence since banks do not still consider severe and prolonged liquidity disruptions as very likely.

As a policy implication, like in the run-up to the previous financial crisis, if banks are not compelled to explicitly and expressly disclose what measures they adopt in a bid to guarantee stakeholder liquidity, the onset of any financial turmoil would only precipitate a meltdown.

References

Admati, A.R. & Pfleiderer, P. (2000), "Forcing firms to talk: financial disclosure regulation and externalities", *The Review of Financial Studies*, Vol. 13, pp. 479–519.

Basel Committee, (1992), "A framework for measuring and managing liquidity", September.

Basel Committee on Banking Supervision, (2008), "Liquidity risk: Management and Supervisory Challenges", *Bank for International Settlements*, February.

Boot, A.W.A. & Thakor, A.V. (2001), "The many faces of information disclosure", *The Review of Financial Studies*, Vol. 14, No.4, pp.1021–1057.

Chen, Y. & Hasan, I. (2006), "The transparency of the banking system and the efficiency of information-based bank run", *Journal of Financial Intermediation*, Vol.15, pp. 307–331.

Cordella, T. & Yeyati, E.L. (1998), "Public disclosure and bank failures", *IMF Staff Papers*, Vol. 45, pp.110–131.

Demirgüc-Kunt, A. & Detregiache, E. (1998), "The determinants of banking crisis in developing and developed countries", *IMF Staff Papers*, Vol. 45 No.1.

Demirgüc-Kunt, A. Detregiache, E. & Tressel, T. (2008), "Banking on principles: Compliance with Basel Core Principles and bank soundness", *Journal of Financial Intermediation*, Vol.17, pp. 511–542.

Detregiache, E. & Gupta, P. (2004), "Foreign banks in emerging market crisis: evidence from Malaysia", *IMF Working Paper*, 04/129.

Dinger, V. (2009), "Do foreign-owned banks affect banking system liquidity risk?" *Journal of Comparative Economics*", Vol.37, pp.647-657.

Ismal, R. (2010), "How do Islamic banks manage liquidity risks? An empirical survey on the Indonesian Islamic Banking Industry", *Kyoto Bulletin of Islamic Area Studies*, Vol. 3 No.2, pp.54-81, March.

Merrouche, O. & Schanz, J. (2010), "Banks' intraday liquidity management during operational outages: theory and evidence from the UK payment system", *Journal of Banking and Finance*, Vol.34, pp. 314-323.

Mitusch, K. & Nautz, D. (2001), "Interest rate management and liquidity risk management and the European money supply process", *Journal of Banking and Finance*, Vol. 25, pp. 2089-2101.

Qian, Y., John, K. & John, T. A. (2004), "Financial system design and liquidity provision by banks and markets in a dynamic economy", *Journal of International Money and Finance*, Vol. 23, pp.385-403.

Ratnovski, L. (2009), "Bank liquidity regulation and the lender of last resort", *Journal of Financial Intermediation*", Vol.18, pp.541-558.

Vento, G. A. & La Ganga, P. (2009), "Bank liquidity risk management and supervision: which lessons from recent market turmoil?" *Journal of Money, Investment and Banking*, ISSN 1450-288X Issue 10.