Bank cash flows - a source of new insight?

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Bank cash flows – a source of new insight?

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Abstract

The financial crisis has exposed deep-rooted problems with banks' financial reporting. Long neglected in analyses of bank performance, this article recommends a new focus on bank cash flows. We identify weaknesses and deficiencies in the existing literature on banking performance. Short case studies of Northern Rock and HBOS show that analysis of the cash flow statement can provide fresh insight into a bank's financial health. However, the article also argues that the international accounting standard governing cash flow reporting is poorly suited to the needs of banks. A survey of U.K. and Eurozone banks reveals inconsistencies between banks, a lack of detail, key flows netted off, and poor reconciliation with other financial statements. The article concludes by proposing various changes to improve the quality and utility of bank cash flow reporting.

This paper addresses the deficiency of standard financial reporting in addressing the performance and position of banks. It proposes a new emphasis on cash flow reporting as a way of interrogating and independently appraising the performance and position of banks.

Cash flow statements are less vulnerable to the accrual and remeasurement distortions that can afflict the income statement and balance sheet. Cases such as Enron are a reminder that cash flow analysis may be crucial to revealing a firm's true financial health. In banks, as well as non-financial firms, high reported profits may disguise fundamental cash flow vulnerabilities, particularly in periods of financial distress.

Cash flow management and reporting serves two main purposes. One is stewardship, particularly the adequacy of liquid resources to assure capital adequacy and meet obligations as they become due. The second is validation of the persistence and reliability of earnings measures in evaluating performance.

Arguably, cash flow analysis is even more relevant to analyzing the financial performance of financial institutions. Banks' core business is based on the intermediation of cash flows. And this can leave them highly vulnerable both to deteriorating inflows (bad debts represent cash due but not received) and rapid outflows (deposits withdrawable on demand, the need to refinance large liability positions). Yet banks' cash flow statements were largely neglected before the financial crisis. And little attention has been paid to them in the post-crisis discussions[1].

This paper primarily focuses on the first purpose of cash flow reporting and demonstrates that banks' cash flow statements, when analyzed in conjunction with the other financial statements, can provide valuable insights into their financial health. The paper also outlines and identifies issues concerning the relationship between earnings and cash flows in order to help investors make economic decisions. But the paper also documents significant problems in banks' cash flow reporting, which suffer from inconsistencies between banks, a lack of detail, key flows netted off, and poor reconciliation with the other financial statements. Significant changes are needed to improve its quality and utility. The paper focuses on the disclosure of cash flow movements by banks that report under international accounting standards, notably listed banks in the European Union.

Literature review and institutional background

This section provides a brief review of the theoretical antecedents and relevant empirical evidence on bank reporting, and then provides a brief institutional overview of the current bank reporting environment.

Theoretical antecedents

Much of the literature on banking and liquidity focuses either on macroeconomic analysis or simply ascribes a level of liquidity without recourse to actual analysis of relevant financial statements. The main reason for this lack of focus on bank cash flows is the seemingly relatively greater usefulness of accrual-based accounts, particularly where matching of specific portfolios of assets and liabilities is a well-known risk management technique in banking.

Relevant literature

Recent anecdotal evidence of corporate failure suggests the importance of understanding cash flow statements in revealing the potential for fraudulent activities (i.e., Satyam, Independent Insurance). Others have argued about their relative reliability vis-à-vis profit oriented performance measures in predicting financial distress and bankruptcy of firms specializing in transforming risk [Enron, Hartgraves (2002), Culp (2008)]. However despite the fact that banks have been susceptible both to misleading management practices concerning off-balance sheet exposures, as well as their (mis)management of risk, there is scant literature concerning the relationship between banking activities and cash flows. In this section, we review some of the relevant literature that focuses on this topic.

There is also now quite robust (mostly U.S.-based) evidence, albeit indirectly, on the relative predictive power of cash flows in the generic accounting literature that seeks to examine 'earnings management.' Many of the relevant studies [Dechow (1994)] assert that earnings, by containing accruals, have greater predictive powers than cash flows, which does not contain any matching or permit accruals. This may be particularly important in the banking sector, where the management of bank reserves, and the more recent practice of bank impairment of loan loss reserves, has diminished the seeming relevance of pure cash flow measures which do not take these charges into account.

However, few studies explore these issues specifically for banks. Dhaliwal et al. (1999) find that comprehensive income is more informative than either cash flows or earnings in predicting stock price performance of banks (comprehensive income includes a range of items that are not normally associated with predicted performance, including foreign translation reserve changes, realized gains or losses on investments held for sale, cash flow hedges, and variations in pensions experience from what was assumed)[2].

Another issue concerns the effectiveness of bank disclosures. The recent financial crisis caused many banks to be pressurized into ever greater detailed disclosures concerning their risk management processes, and to consolidate formerly off-balance sheet entities that contained 'bad assets.' However, beyond the response to the obvious shortcomings of Basle II in this area, there has been little, if any, discussion on cash flow statements by regulators (see below). Klumpes and Manson (2008) examine disclosure effectiveness of a range of financial statements for ordinary investors and find that information overload may be an important consideration in ameliorating the ability of investors to discern material information such as cash flows. However, although the topic of disclosure effectiveness has generally been used by industry to limit the amount of disclosures, no study has examined whether such disclosures are 'more effective' in environments where there is a need for management of unexpected changes, such as financial crisis. This is an issue for further research.

Notwithstanding the various measurements, valuation, and disclosure issues that appear to bear on the decision making of investors, there remain unresolved issues for banks. Most importantly, we have found very limited analysis in the existing literature on the relative merits of cash flow statements vis-à-vis income and/or comprehensive earnings statements for making economic decisions. The remainder of the paper seeks to resolve this issue by identifying and then evaluating which form of cash flow is most pertinent for (i) identifying sources of liquidity problems and (ii) helping investors develop more robust predictions about future performance in order to help them develop better decisions.

1 Cash flow reporting does not, for example, currently form part of the IASB's financial crisis related projects. See IASB Work Plan – projected timetable as at 3 June 2009.

2 While there are a range of studies that examine issues such as the relationship between performance and stock prices returns [Beaver et al. (2001)] or their productive efficiency in competitive environments [Casu and Sandra (2008)] none of these studies involve assessing cash flow performance measures.

Institutional background

This section provides a brief outline of the relevant institutional background required to understand the role and importance of cash flow statements in bank reporting practices. Readers who are relatively familiar with the relevant technical issues can skip this section.

Fair value and bank performance

Company accounts are typically based on the legal requirement to produce a balance sheet and income statement, which are fully articulated with each other due to the accounting conventions of matching, accruals, and realization. However, the move to fair value measurement has undermined this articulation by breaking down the traditional historical cost convention and by increasing ambiguity as to the performance implications and interpretation of changes in fair value over time. In particular, banks have exploited the regulatory arbitrage between Basle II and GAAP accounting by misrepresenting how changes in their credit ratings can affect their position and performance. Furthermore, the incurred loss approach to loan impairment provisioning, as well as the recent impact of the financial crisis on exposing the off-balance sheet management of risk-transfer related to bank lending activities, has exposed the importance of aligning management incentives with the need to produce conservative and stable balance sheets for creating and then meeting shareholder expectations concerning bank performance.

Fair value accounting is a major topic in its own right, and has received considerable attention in the wake of the financial crisis. The significant, and sometimes perverse, impact of non-cash fair value adjustments on bank income statements and balance sheets is a major motivation for focusing on actual cash movements. This paper, therefore, includes a brief summary of some of the main issues surrounding fair value[3].

Under fair value, two methodologies are used to value assets and liabilities on banks' balance sheets: loans and advances to, and deposits from banks and customers, and held-to-maturity investments are generally accounted for at amortized cost using the effective interest method less any impairment losses (after initial recognition at fair value plus any directly attributable transaction costs). In contrast, trading securities, financial instruments designated at fair value, and available-for-sale investments and liabilities (including derivatives) are valued at 'fair' value.

Gains and losses on assets and liabilities recorded at fair value are accounted for differently from those recorded at amortized cost: under fair value accounting, unrealized gains are recognized[4]. Under historical cost accounting, only realized gains are recognized. When assets fall in value, those recorded at fair value are written down to their new value. Under historical cost accounting, impaired assets are written down on the balance sheet to their recoverable value. Impairment provisions are made through the income statement. The impairment loss is the difference between the carrying value of the loan and the present value of the estimated future cash flows discounted at the loan's original effective interest rate.

If liabilities, such as debt securities recorded at fair value, show a fall in value, this translates into a gain for the borrowing firm. In contrast, under international accounting standard IAS 39 Financial Instruments, recognition and measurement, the fair value of demand deposits cannot be less than their face value and does not change with changes in interest rates.

This has led to a number of well-documented problems with fair value, such as the difficulties of valuing assets and liabilities in the absence of transparent market prices (assets and liabilities that have to be 'marked-to-model') and the conflict between demand deposits recorded at amortized cost and derivatives used to hedge interest rate exposure recorded at fair value.

The most egregious effect of fair value accounting is the gain that arises from a decline in the fair value of a firm's liabilities. If a firm's traded debt securities fall in value, the fair value of those liabilities as recorded on the balance sheet is adjusted down to the new price. This gives rise to a gain in the firm's income statement (even though accounting is based on the assumption that a firm is a going concern).

This perverse effect has been evident in the wake of the recent financial crisis. The market prices of many banks' traded debt securities have fallen significantly. Yet by marking-to-market the reduced value of their own bonds, some of the world's largest banks have booked significant gains to the income statement[5].

The crucial point for the purpose of this paper is that these revaluations have a significant effect on a bank's income statement even if the gains or losses are not realized, and therefore give rise to no cash movement. The scale of these fair value effects underlines both the impact of non-cash changes on bank financial statements, and the extent to which actual cash movements have been neglected. The irony of banks gaining from falls in the price of their debt securities is that, fundamentally, it is an expression of investor distrust in the ability of banks to meet the cash flow obligations on securities they have issued. This ought to encourage investors to pay greater attention to banks' reporting of their cash flows.

Cash flow reporting (IAS 7)

The problems in bank cash flow reporting (as documented in the following section of the paper) reflects in large part the accounting framework under which banks report. The standard IAS 7, Statement of Cash Flows, governs cash flow reporting for listed companies in the European Union (and other jurisdictions following international standards). The standard was introduced in 1992. It has not been subject to major revision since its introduction. This brief overview outlines its main requirements.

According to the IASC Foundation's Technical Summary of IAS 7: "The objective of this Standard is to require the provision of information about the historical changes in cash and cash equivalents of an entity by means of a statement of cash flows which classifies cash flows during the period from operating, investing, and financing activities." IAS 7 defines cash flows as "inflows and outflows of cash and cash equivalents." According to the standard, cash comprises cash on hand and demand deposits. Cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash

3 See Klumpes et al. (2009) for a review with reference to the insurance sector.

4 Though the recognition of gains and losses varies by the instrument, gains and losses arising from changes in the fair value of investments classified as 'available-for-sale' are recognized directly in equity, until the financial asset is either sold, becomes impaired, or matures, at which time the cumulative gain or loss is recognized in the income statement. In contrast, gains and losses on held for trading financial assets and liabilities, and on financial instruments designated at fair value, are recognized in profit and loss as they arise. Gains and losses arising from changes in the fair value of a derivative are recognized as they arise in profit or loss unless the derivative is the hedging instrument in a qualifying hedge. In a fair value hedge, the gain or loss on the hedging instrument is recognized in profit or loss. In a cash flow hedge, the effective portion of the gain or loss on the hedging instrument is recognized directly in equity. The ineffective portion is recognized in profit or loss. In October 2008, the IASB issued amendments to IAS 39 and IFRS 7 that would permit the reclassification of some financial instruments.

5 See, for example, Jackson, T., 2009, "'Cheeky' banks play game of marking bonds to market," Financial Times, April 26. In June 2009, the International Accounting Standards Board (IASB) published for public comment a discussion paper on the role of credit risk in liability measurement. The IASB acknowledged that: "Recent developments in the financial markets have led to increased concerns about gains that result from changes in the value of an entity's liabilities."

and which are subject to an insignificant risk of changes in value. The cash flow statement captures the inflows and outflows of cash and cash equivalents during the reporting period, which determine the change in the stock of cash and cash equivalents at the start and end of the reporting period.

IAS 7 applies to all enterprises, including banks, insurance companies, and other financial institutions. The rationale for its application to all firms is explained as follows: "Users of an enterprise's financial statements are interested in how the enterprise generates and uses cash and cash equivalents. This is the case regardless of the nature of the enterprise's activities and irrespective of whether cash can be viewed as the product of the enterprise, as may be the case with a financial institution. Enterprises need cash for essentially the same reasons however different their principal revenue-producing activities might be. They need cash to conduct their operations, to pay their obligations, and to provide returns to their investors. Accordingly, this Standard requires all enterprises to present a cash flow statement." [IAS 7, Cash Flow Statements, IASC, Revised 1992, Objective]

However, as shown by the problems documented in the following section of the paper, it is highly questionable whether IAS 7 is suited to the needs of financial firms.

IAS 7 classifies cash flows into operating, investing, and financing activities:

- **Operating** - principal revenue-producing activities of the entity.
- **Investing** - acquisition and disposal of long-term assets and other investments (including subsidiaries).
- **Financing** - activities that result in changes in the size and composition of equity and borrowings.

This classification allows the calculation of free cash flows, a widely used performance measure for non-financial firms. Free cash flows are operating cash flows minus investing cash flows available for distribution to users.

IAS 7 allows two options for the reporting of operating activities:

Direct method - major classes of gross cash receipts and payments are disclosed.
Indirect method - profit and loss adjusted for the effects of non-cash transactions, any deferrals/accruals of operating cash flows, and any income and expense items associated with investing or financing cash flows.

Though the IASB encourages firms to use the direct method, in practice firms (including banks) mainly use the indirect method. As described in the following section of the paper, this has significant implications for the quality and usefulness of banks' cash flow reporting.

One further point to note is that companies reporting under international accounting standards are under no obligation to disclose segmental cash flow data. The core principle of the relevant standard, IFRS 8 Operating Segments[6], is that: "An entity shall disclose information to enable users of its financial statements to evaluate the nature and financial effects of the business activities in which it engages and the economic environments in which it operates."

6 IFRS 8 replaces IAS 14 'Segment Reporting.' Though issued in November 2006, it is effective for annual periods beginning on or after 1 January 2009. Both Barclays and RBS adopted the standard from 2008.

The IFRS requires a firm to report a measure of operating segment profit or loss, and of segment assets. It also requires a measure of segment liabilities and particular income and expense items to be reported if such measures are regularly provided to the chief operating decision maker. And total reportable segment revenues, total profit or loss, total assets, liabilities, and other amounts disclosed for reportable segments have to be reconciled to corresponding amounts in the entity's financial statements. However, there is no requirement to report cash flow items for the operating segments. Again, this has implications for the quality and utility of banks' cash flow reporting.

Current regulatory developments
IAS 7 has not been subjected to fundamental change since its introduction in 1992. However, both the International Accounting Standards Board (IASB) and the U.S. Financial Accounting Standards Board (FASB) are currently reviewing the presentation of financial statements. They issued a Discussion Paper setting out preliminary views in October 2008, and an Exposure Draft is expected in 2010. The objective is a more cohesive financial picture of a firm. The Paper proposes more consistency between the income statement, balance sheet, and cash flow statement in line items, their description, and their order.

Specifically on the statement of cash flows, the Discussion Paper favors use of the direct method for operating cash flows on the grounds that the direct method "is more consistent than an indirect method with the proposed objectives of financial statement presentation."

The presentation model proposed in the Discussion Paper also includes a new schedule (to be included in the notes to financial statements) that reconciles cash flows to comprehensive income. This reconciliation schedule would disaggregate income into its cash, accrual other than remeasurements, and remeasurement components (for example, fair value changes).

Another development of relevance is the IASB's decision to review the management commentary (Operating and financial review or equivalent) that accompanies financial statements. In June 2009, it published for comment a proposed non-mandatory framework to help entities prepare and present a narrative report. According to the IASB, many countries applying IFRSs do not have guidelines that cover how to prepare or present such a commentary. Cash flows are included in the IASB's definition of a management commentary[7]. However, as shown in the following section, large U.K. banks currently pay little, if any, attention to the cash flow statement in their management commentaries.

Survey of bank cash flow reporting

To help analyze banks' cash flow reporting, the authors surveyed recent cash flow financial statement reporting practices of a sample of large U.K.- and Eurozone-based banks[8].

Like non-financial firms, banks follow the IAS 7 classification of their cash flows into operating, investing, and financial cash flows. The analysis focuses on banks' reporting of their operating and investing cash flows. These are the sections of the statement that show the greatest differences when compared with those of non-financial firms.

7 "A narrative report accompanying financial statements prepared in accordance with IFRSs that provides users with historical and prospective commentary on the entity's financial position, financial performance and cash flows, and a basis for understanding management's objectives and its strategies for achieving those objectives." (Management Commentary, IASB Exposure Draft ED/2009/6, June 2009).
8 The U.K.-based banks are: Barclays, Bradford & Bingley, HBOS, HSBC, Lloyds TSB, Northern Rock and RBS. The Eurozone-based banks are: Banco Santander, BBVA, BNP Paribas, Crédit Agricole, Deutsche Bank, ING, UniCredit. The survey covered cash flow reporting in their 2007 and 2008 accounts. A more detailed analysis of the U.K. banks was also undertaken, including segmental reporting and coverage of the cash flow statement in the accompanying annual report.

The analysis also considers the lack of segmental data on cash flows, an omission particularly important for those banks with large insurance operations, and the lack of coverage of the cash flow statement in management commentaries accompanying the financial statements.

Operating cash flows

As a financial firm, the operating section of a bank's cash flow statement is more complex than that of a non-financial firm. A bank's core services – taking in deposits and other funds and using those funds to make loans and investments – are themselves cash flows. These are also captured in the operating segment as operating asset and liability flows. In broad terms, a bank's operating cash flow is made up of two main components: the adjustment of profit (normally profit before tax) for non-cash items, tax paid, etc., and the operating asset and liability flows – the asset-related movements in loans and investments, and liability-related movements in deposits and wholesale funding such as debt securities.

Despite representing their core business flows, banks' reporting of their operating assets and liabilities suffers from at least three major problems, namely that items are reported on a net basis, there is often insufficient breakdown by type of operating asset and liability, and there can be a lack of clarity and transparency in the reporting of certain items, such as example derivatives.

The remainder of this section briefly discusses each of these issues.

Items reported on a net basis

In reporting their operating asset and liability cash flows banks use the provisions under IAS 7 that allow key operating cash flows to be 'netted off'. The 'netting off' effect results from the application of the indirect method under IAS 7. All the U.K. and Eurozone banks surveyed were reporting their operating asset and liability flows on a net basis. By using the indirect method, only the net change in core business flows during the reporting period is available. Gross flows in loans and repayments, deposits and withdrawals, debt issues and redemptions are unavailable, even in the notes to the accounts.

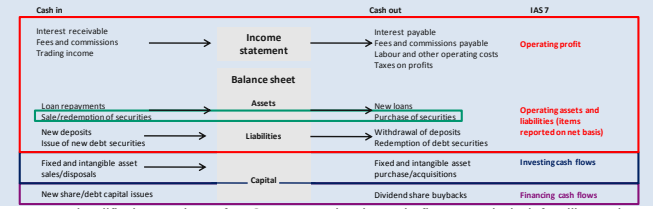
In most cases, the net change can already be calculated or estimated by comparing the value of the item (for example, loans and advances to customers) in the end period balance sheet with its value in the preceding period balance sheet. As a result, the operating asset and liability entries in the cash flow statement often provide little or no additional information.

For example, in 2006, the year before it needed rescuing, Northern Rock reported in its cash flow statement a net outflow (i.e., a net increase) in loans and advances of approximately £17 billion. But this can already be estimated by comparing its end 2006 and end 2005 balance sheets, which show loans and advances (to both customers and to other banks) of just over £92 billion and just over £75 billion respectively. What the cash flow statement does not reveal is the gross flows in loans and repayments that resulted in a net outflow of £17 billion.

The lack of data on gross operating asset and liability flows is particularly significant because these are the cash flows to which, as the financial crisis has underlined, banks are most vulnerable. Bad debts on the asset side manifest themselves as deteriorating inflows (cash due but not received) while funding on the liabilities side carries the risk of rapid outflows (deposits withdrawable on demand, the need to refinance debt securities as they mature).

The volume of gross lending flows is valuable for understanding the maturity of a bank's loan book, and consequently the potential deterioration in credit quality as the book matures. This will not always be evident from bad debt provisions, a lagging indicator given the requirement for specific loss events under IFRS before banks can start to make loan loss provisions[9].

Figure 1 - Mapping IAS 7 on to bank cash flows



Notes: simplified mapping of IAS 7 on to bank cash flows. Included for illustrative purposes only. No allowance for example of the treatment of financial investments included in investing cash flows, debt and hybrid capital, off-balance sheet assets, and liabilities.
Some of the flows related to the purchase, sale, and redemption of securities may be included in the investing cash flow section of a bank's cash flow statement.
Source: Authors' analysis

Returning to the example of Northern Rock, its gross lending outflow in 2006 (which, to be fair, the bank disclosed in its 'Operating & business review' though not the cash flow statement) was £33.0 billion relative to closing loan balances to customers of £86.1 billion. Northern Rock's loan loss provisions were extremely low up to the first half 2007[10], despite the risks of lending so aggressively at the top of the U.K. housing market.

On the liabilities side, gross flows allow the calculation of a bank's rate of liability turnover. This can be an important indicator of the maturity of a bank's borrowing, and therefore its need for cash. For example, a high rate of liability turnover signals use of short-term funding and therefore a need for frequent funding inflows to replace withdrawn deposits and/or maturing debt securities. This may indicate a potential vulnerability to refinancing problems. The inability to refinance liability positions was central to the problems experienced by Northern Rock and HBOS during the financial crisis (see the accompanying case study below for more on Northern Rock's short-term funding exposure). Following the crisis, banks are coming under more pressure from regulators and analysts to extend the maturity of their wholesale funding. This is something a more detailed breakdown of the cash flow statement based on gross flows would help to capture.

Insufficient breakdown by type of operating asset and liability

Beyond the failure to disclose gross movements, there are further problems with how banks report their operating asset and liability flows. The cash flow statements often provide insufficient breakdown by type of operating asset and liability, with key entries either relegated to the notes or not disclosed at all. For example, the Northern Rock cash flow entry for loans and advances cited above covers both its loans to other banks and its loans to customers. Unlike on the balance sheet, there is no breakdown available between the two types of loans, precluding reconciliation between the two financial statements. Yet any analysis may want to distinguish between the two types of loans given the different conclusions to be drawn from, for example, high rates of growth in each.

HBOS's cash flow statement for 2007, the year before it required rescuing, is particularly thin. As with the other banks surveyed, the movements in operating assets and liabilities are recorded on

9 In June 2009, the IASB published a 'request for information' on the feasibility of an expected loss model for the impairment of financial assets.
10 Northern Rock's charge for loan loss impairment was £56.8 million for the first half of 2007 (2006 first half: £44.5 million, 2006 full year: £81.2 million), 0.12% of mean advances to customers (2006 first half: 0.12%). And of the £56.8 million charge, unsecured lending accounted for £55.9 million (98.4%). Yet the full year 2007 impairment charge for loans and advances was £239.7 million.

Figure 2 - HBOS consolidated cash flow statement 2007

	2007 £m	2006 £m
Profit before taxation	5,474	5,706
Adjustments for:		
Impairment losses on loans and advances	2,012	1,742
Depreciation and amortisation	1,402	1,192
Goodwill impairment	5	55
Interest on other borrowed funds	1,229	1,157
Pension charge for defined benefit schemes	146	164
Cash contribution to defined benefit schemes	(295)	(860)
Exchange differences	(769)	3,157
Movement in derivatives held for trading	(1,487)	4,081
Other non-cash items	45	(902)
Net change in operating assets	(78,863)	(61,268)
Net change in operating liabilities	68,470	44,743
Net cash flows from operating activities before tax	(2,631)	(1,033)
Income taxes paid	(895)	(991)
Cash flows from operating activities	(3,526)	(2,024)
Cash flows from investing activities	(289)	(1,643)
Cash flows from financing activities	298	(2,106)
Net decrease in cash and cash equivalents	(3,517)	(5,773)
Opening cash and cash equivalents	8,191	13,964
Closing cash and cash equivalents	4,674	8,191

Analysis of Cash and Cash Equivalents

	2007 £m	2006 £m
Cash and balances at central banks repayable on demand	1,061	663
Loans and advances to banks with an original maturity of less than three months	3,613	7,528
Closing cash and cash equivalents	4,674	8,191

Notes: operating asset and liability entries highlighted by authors.
Breakdown of cash flows from investing and financing activities are available on the following page of HBOS's annual accounts, but no breakdown of the change in operating assets and liabilities.
Source: HBOS 2007 Report & Accounts

a net basis. But perhaps even more surprising is the fact that those core business movements are recorded in single-line entries (totaling £78.9 billion and £68.5 billion respectively). There is no breakdown by type of operating asset or liability, either in the main statement or in the notes to the accounts.

Lack of transparency and clarity

Even when banks do provide some itemization of their operating asset and liability flows, it may lack transparency and clarity. One key finding to have emerged from the current financial crisis has been the scale of assets and liabilities held off-balance sheet by some banks through structured investment vehicles (SIVs) and conduits. In theory, the cash movements into and out of such vehicles ought to be captured in the cash flow statement. However, in practice, it is all but impossible to map how the cash flows through, for example, SIVS and conduits connect to the entries in bank cash flow statements as they are currently structured.

The lack of clarity is also apparent for derivatives reporting. Northern Rock again provides a good example. It used derivative instruments to reduce interest rate risk and currency risk. These included interest rate swaps, interest rate options, forward rate agreements, interest rate and bond futures, currency swaps, and forward foreign exchange contracts.

Northern Rock's cash flow statement contains single line entries for the net movement in derivatives payable and receivable. For example, its cash flow statement for 2006 shows a net decrease in derivatives receivable of almost £580 million and net increase in derivatives payable of over £1.5 billion. But these figures are simply the net change in the value of derivative assets and liabilities on the balance sheet between end of 2005 and end of 2006. There is no explanation about how these map to actual cash movements (such as fees for futures and options, margin calls, etc) related to the use of derivatives.

Investing cash flows

The survey also reveals problems in banks' reporting of investing cash flows. This section briefly outlines the key issues.

The survey found a lack of consistency in the flows captured in the investing section of the cash flow statement. Some banks restrict entries to flows related to the purchase and sale of fixed and intangible assets, the acquisition and disposal of subsidiaries, etc. However, five of the seven U.K. banks surveyed also include

Figure 3 - Northern Rock derivatives reporting (2006)

£ million	Fair value as at end of 2006 (as reported on balance sheet)	Fair value as at end of 2005 (as reported on balance sheet)	Cash flow statement entries for derivatives receivable (decrease) and payable (increase)
Assets	871.3	1,449.8	578.5
Liabilities	(2,392.5)	(846.1)	1,546.4

Notes: contract/notional amount as at end of 2006 = £111.4bn and at end of 2005 = £84.9bn. Covers both derivatives in accounting hedge relationships and those in economic hedge relationships but not in accounting hedge relationships.
Source: Northern Rock 2006 annual report

flows related to the purchase and sale of financial investments in the investing cash flow section of the statement.

Two banks (Barclays, Lloyds TSB) state that the flows are for "available-for-sale" investments[11]. The other banks are not so specific. Some of these flows are enormous, dwarfing flows related to fixed and intangible assets and the acquisition and sale of subsidiaries. With Lloyds TSB for example, outflows related to the purchase of available-for-sale financial assets were £144.7 billion in 2008 while inflows from the sale and maturity of such assets were £110.5 billion. This compared with the £1.4 billion Lloyds spent on the purchase of fixed assets, and £0.6 billion in proceeds from its sale.

The inclusion or exclusion of financial investments in investing cash flow has a significant impact on its overall reported value. Including the flows from available-for-sale financial assets, Lloyds reported an investing cash outflow of £35.1 billion. Excluding the flows from available-for-sale financial assets, the investing cash outflow would have been £0.9 billion. Because they are included in the investing section of the cash flow statement, one benefit is that gross flows are disclosed. If included in the operating section of Lloyds' cash flow statement, it is likely that only a net outflow figure of £34.2 billion for available-for-sale financial assets would have been disclosed.

Other than those banks that state they are "available-for-sale" investments, it is not clear why some banks include flows related to financial investments in the investing section of the cash flow statement, or to which category of financial investments those flows apply.

Figure 4 - Securities-related flows included in investing cash flows

Bank	Flows related to the purchase and sale of financial investments included in 'investing cash flows' (2008 values at end)
Barclays	Purchase of available for sale investments: £57.8bn Proceeds from sale or redemption of available for sale investments: £51.4bn
HSBC	Purchase of financial investments: U.S.$277.0bn Proceeds from the sale and maturity of financial investments: U.S.$223.1bn
Lloyds TSB	Purchase of available-for-sale financial assets: £144.7bn Proceeds from sale and maturity of available-for-sale financial assets: £110.5bn
Northern Rock	Purchase of investment securities: £0.1bn Proceeds from sale and redemption of investment securities: £2.4bn
RBS	Purchase of securities: £55.2bn Sale and maturity of securities: £53.4bn

Notes: purchases represent cash outflows, sales, and maturities represent inflows.
HSBC reports in U.S. dollars.
Flows related to the purchase and sale of financial investments not included in the 'investing cash flow' segment by Bradford & Bingley and HBOS.
Source: 2008 consolidated cash flow statements

11 Description as 'available for sale' investments is assumed to follow the classification of financial assets for valuation and reporting purposes (see note 4).

The lack of consistency in bank reporting of investing cash flows (and by implication operating cash flows) reduces the comparability of bank cash flow statements. Careful analysis and adjustments are needed before investing and operating cash flows can be compared across banks on a like-for-like basis. Entries related to financial investments in the investing section need to be transferred to operating asset and liability flows for like-for-like comparisons with banks that exclude such flows from the investing section.

The current financial crisis has underlined the importance of better disclosure on bank holdings of investment securities. The way in which some banks ran their treasury operations as profit centers rather than simply as sources of liquidity for the core deposit-taking and lending activities has been seen as a contributor to the crisis[12]. Treasury investments in instruments such as asset-backed securities have contributed to the problems experienced by some banks. The restructuring of investment portfolios to provide greater liquidity support is one of the main responses to the crisis. It is, therefore, important that more detailed disclosures be provided in the cash flow statements, and for the data to be more consistently reported.

Segmental reporting of cash flows

The relevant requirements on segmental reporting (as required under IFRS 8) were summarized in the previous section. Firms are under no obligation to provide a cash flow statement or report specific cash flow items for their operating segments.

Looking at the reporting of a sample of the largest U.K. banks for 2008, we found that no bank chose to voluntarily disclose cash flow data in its segmental reporting. The lack of segmental data is most important when a range of financial activities is undertaken within a banking group, with significant cash flow volumes and what may be different cash flow structures across the activities. This is perhaps most evident in a group that combines both banking and insurance activities.

Looking at the five U.K. banking groups covered in Figure 5 Lloyds TSB, HBOS, and RBS all (two allowing for Lloyds' acquisition of HBOS) have significant insurance operations. Insurance activities are also an important component of HSBC's 'Personal financial services' segment. For many banks, insurance-related cash flows will have a significant impact on the overall cash flows of the banking group. The relevant income and cost-related flows – premiums received, claims paid, reinsurance premiums paid – may be disclosed in the consolidated and/or segmental income statement. But in addition, the investment of premiums from both general and life insurance policies and the realization of investments to meet claims and maturing policies are likely to have a significant impact on asset and liability cash flows. These flows will particularly affect the purchase and sale of securities, captured under operating assets and liabilities in the cash flow statement. They may also contribute to any flows from the purchase and sale of financial investments included in the investing cash flow section of the statement (as documented above, HSBC, Lloyds TSB, and RBS included such flows in their 2008 investing cash flow statements).

However, in the absence of segmental cash flow data, it is not possible to analyze with any degree of precision the way in which insurance-related flows (or those of other distinct business segments) affect the overall cash flow of the group.

Figure 5 – U.K. banks - segmental financial reporting (2008)

Bank	Income statement	Balance sheet	Cash flow statement
Barclays	Yes	Totals for assets and liabilities	No
HBOS	Yes	Some items	No
HSBC	Yes	Total assets, some further information available in business review	No
Lloyds TSB	Yes	Totals for assets and liabilities	No
RBS	Yes	Some information available in business review	No

Notes: the table concentrates on segmental disclosure in the notes to the accounts, though there may be additional segmental data disclosed in the management commentary/business review.
The table concentrates on segmental disclosure by division rather than geography.
The balance sheet is the most difficult to summarize given lack of full segmental balance sheets but mixture of items that may be disclosed in the notes to the accounts and/or the management commentary/business review.
Bradford & Bingley and Northern Rock were not included because they are predominantly mortgage banks.
Acquisition of HBOS by Lloyds TSB completed in January 2009.
Source: 2008 reports and accounts

Commentary on the cash flow statement

In addition to the problems with the statement itself, banks' neglect of cash flow reporting is evident from the lack of attention paid to it in the management commentary (operating and financial review or equivalent) that accompanies the financial statements in banks' annual reports. As noted earlier, cash flows are included in the IASB's definition of a management commentary. Yet, of the seven U.K. banks surveyed[13], only one (RBS) included the cash flow statement in its management commentary in the 2008 annual report, and that was a mere three paragraphs long. The lack of commentary on the cash flow statement stands in contrast to the often detailed commentary that banks usually provide about the main income statement and balance sheet items.

Box - HBOS and Northern Rock case studies

This box contains two short case studies of HBOS and Northern Rock respectively. Both banks required rescuing because of problems refinancing wholesale funding commitments. Clearly, the availability of data on gross flows would allow a more sophisticated analysis, however, these case studies show that data from the cash flow statement as currently constructed, when studied in conjunction with data from other financial statements, still sheds light on each bank's financial positions prior to the need for rescue.

The case studies use two indicators to stress test a bank's cash flow, looking at end of period cash holdings relative to total balance sheet, as in the case of HBOS, and lending outflows and short-term liabilities, as used in the case of Northern Rock.

Case study - HBOS

HBOS's last published financial results before its emergency rescue by Lloyds TSB were for the six months to June 2008. A comparison of the bank's cash flow statement and balance sheet reveals that cash and cash equivalents at the end of June 2008 were equivalent to only 1% of its total balance sheet assets. For the six months to June 2008, HBOS reported closing cash and cash equivalents on its cash flow statement of £6.85 billion. Cash and cash equivalents rose from £4.7 billion at the end of 2007. But they still accounted for barely 1% of its total balance sheet, which by the end of June 2008 had reached £681.4 billion. Based

12 See, for example, Kay, J., 2008, "We let down diligent folk at the Halifax," Financial Times, September 23

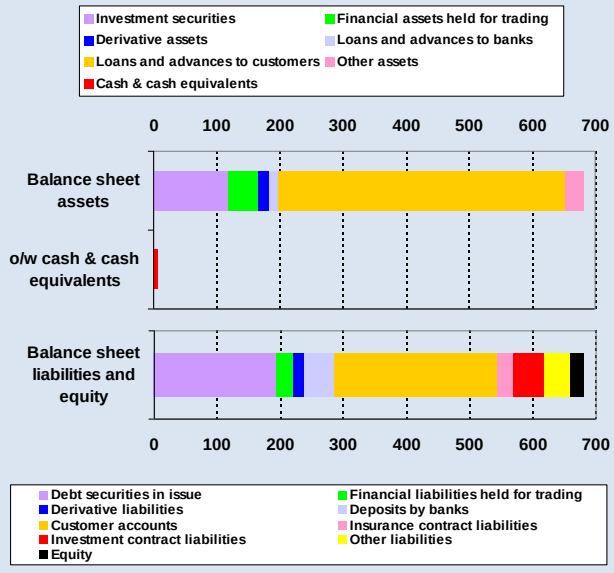
13 Barclays, Bradford & Bingley, HBOS, HSBC, Lloyds TSB, Northern Rock and RBS. Lloyds TSB did not acquire HBOS until January 2009. The banks reported separately for 2008. Standard Chartered excluded given its Asian focus. Abbey excluded given its ownership by Banco Santander.

on a comparison of the large U.K.-based banking groups at the end of 2007[14] HBOS had much the lower ratio of cash and cash equivalents to total balance sheet assets.

And, despite the low level of cash and cash equivalents, HBOS's balance sheet at the end of June 2008 included investment securities of £119.1 billion and financial assets held for trading of £46.0 billion. Yet the structure of its overall investment portfolio seemed ill-equipped to provide the liquidity that the bank required. This lack of cash resources needs to be seen in the context of HBOS's strong reliance on wholesale funding. On the liabilities side of the balance sheet, HBOS had debt securities in issue with a value of £193.5 billion at the end of June 2008, 29% of its total liabilities.

It is also worth noting that the lack of available cash resources was in the context of large movements of cash into and out of the bank. HBOS's balance sheet continued to expand during the first half of 2008. The cash flow statement for the six months to June 2008 reveals net operating asset cash outflows (loans and other investments) of £13.8bn, and net operating liability cash inflows (deposits and other funding) of £12.0bn during first half of the year.

Figure 6 – HBOS - end of June 2008 (£ billion)



Notes: figure for cash and cash equivalents as at June 30, 2008 from consolidated cash flow statement for first half of 2008.
Balance sheet breakdown based on balance sheet as at end of June 2008.
Cash and cash equivalents accounted for 44% of the total value of cash and balances at central banks and loans and advances to banks held by HBOS as at end of June 2008.
Source: HBOS 2008 interim results statement, authors' presentation

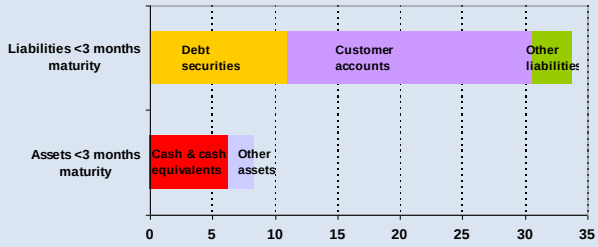
Case study - Northern Rock

Northern Rock's case is less straightforward. Looking at the bank's 2006 cash flow statement, its last full year statement before the Bank of England bail-out, as at end of 2006 cash balances look significantly healthier than those of HBOS. Cash and cash equivalents were equivalent to 6.3% of its closing balance sheet assets for 2006. However, the cash flow statement also reveals substantial net outflows of loans and advances as the bank continued to lend aggressively close to the peak of the U.K. housing market. And it shows this lending was mainly funded by large net inflows from the issue of debt securities. The bank reported a net outflow of loans and advances of £17 billion in 2006, and a net inflow from debt securities in issue of almost £12.5 billion. This continued into the first half of 2007, with a net outflow of loans and advances in the six months to the end of June of approximately £10.9 billion and a net inflow from debt securities in issue of almost £7.1 billion[15].

It was Northern Rock's inability during the second half of 2007 to refinance maturing debt securities that triggered the threat of a run on the bank by retail depositors and the need for emergency Bank of England funding. Debt securities become repayable at maturity. Customer accounts are often contractually repayable on demand or at short notice. In stable trading conditions, contractual maturity does not drive cash flows associated with customer accounts. On-demand or short-term customer account balances generally remain predictable, with some deposits in practice held for long periods and new inflows replacing outflows. However, as the example of Northern Rock illustrated, the fact that customer accounts are often contractually repayable on demand or at short notice does leave banks highly vulnerable to outflows in times of stress[16]. The interaction of the maturity profile of Northern Rock's debt securities and the vulnerability of customer accounts to immediate withdrawal was central to the bank's problems.

Data in the notes to the accounts shows the maturity profile of the bank's assets and liabilities. Crucially, though Northern Rock's closing cash and cash equivalents in 2006 look reasonably healthy at first glance, they were less than 60% of the value of debt securities due for refinancing within three months of year-end[17].

Figure 7 - Northern Rock - end of 2006 (£ billion)



Note: overall figures for assets and liabilities and breakdown of liabilities taken from a table in the notes to the 2006 accounts (Note 37. Financial risk management) analyzing the Group's assets and liabilities into relevant maturity groupings based on the remaining period at balance sheet date to contractual maturity date.
Within the total figure for assets with a maturity of less than three months as at end of 2006 (£8.3 billion), cash and cash equivalents broken out using the closing cash and cash equivalents from the 2006 consolidated cash flow statement (£6.3 billion).
Source: Northern Rock 2006 annual report and accounts, authors' presentation

Comment

These two case studies use data from the cash flow statement (in conjunction with data from other financial statements) to inform the analysis of each bank's financial position ahead of their need for financial support. However, the case studies also underline the need for care in drawing conclusions, and the need for further work on cash flow-based performance analysis.

14 As before, the seven banks are: Barclays, Bradford & Bingley, HBOS, HSBC, Lloyds TSB, Northern Rock and RBS.

15 The data on loans and advances in Northern Rock's cash flow statement is not broken down between loans to customers and loans to banks. However, it is clear that most of the net lending outflow was accounted for by loans and advances to customers.

16 Though the cash flow dynamics of customer accounts repayable on demand or at short notice may be affected by the strengthening of deposit insurance in the wake of the crisis.

17 The breakdown of Northern Rock's assets and liabilities into relevant maturity groupings based on the remaining period at balance sheet date to contractual maturity date is only available in its full year report and accounts. Unfortunately, no such breakdown is included in its interim results statement for the six months to the end of June 2007, the bank's last reported results before the need for emergency Bank of England support. We accept that the ratio of cash and cash equivalents to debt securities with a maturity of three months or less may have been noticeably different at the end of June 2007 compared with the end of December 2006. However, in the absence of published data for end June 2007, we have drawn on the most recent data available ahead of the bank's need for emergency support.

As noted, while HBOS's cash and cash equivalents as a proportion of total balance sheet assets at the end of December 2007 and end of June 2008 appear low, those of Northern Rock at the end of 2006 look much healthier. This suggests a target ratio for cash and cash equivalents relative to total balance sheet assets would be of limited value without adjustment for the composition and maturity profile of a bank's liabilities. A low ratio of cash and cash equivalents relative to total balance sheet assets may signal grounds for concern. However, even when a bank has a higher ratio, there may still be grounds for concern. In the case of Northern Rock, the ratio of cash and cash equivalents to debt securities with a short-term contractual maturity appears a more promising indicator. It may be productive to reflect on whether Northern Rock would have survived the crisis better if its cash and cash equivalents had been significantly higher as a proportion of short-term debt securities. More generally, further work, ideally informed by data on gross flows, is needed to draw firmer conclusions.

Conclusions and recommendations

In the wake of the current financial crisis, it is now clear that a number of major banks had highly vulnerable cash positions. This paper concludes that better reporting and analysis of bank cash flows would have contributed to understanding their solvency and liquidity. However, the preceding analysis has documented that current reporting of cash flows under international accounting standards suffers from a series of flaws. The paper, therefore, concludes with a series of recommendations directed towards standards setters, the banks themselves (and their auditors), and regulators and investors.

Standards setters

Current accounting standards allow banks to present cash flow statements that are not wholly consistent, omit key details, and bear little relation to the underlying economics of the business. To improve bank cash flow reporting, bank standards setters should require the following: use of the direct method. Gross operating asset (new loans and repayments, etc.) and liability (new deposits and withdrawals, etc) flows fully reported. Consistency in the itemization of operating assets and liabilities between banks, as well as consistency in the itemization of cash flow and balance sheet entries to allow reconciliation between the two financial statements. Clear reconciliation of earnings to cash flows, including the treatment of fair value adjustments and derivatives, consistency between banks on the allocation between the operating and investing segments of cash flows related to the purchase, sale, and maturity of financial investments. Disclosure of segmental data relevant to understanding how a bank operating in a number of different segments generates and uses cash and cash equivalents.

The IASB/FASB project on the presentation of financial statements provides an opportunity to implement some of these changes. As noted earlier, the IASB/FASB Discussion Paper favors the use of the direct method for operating cash flows, and a new schedule (to be included in the notes to financial statements) that reconciles cash flows to comprehensive income.

However, the IASB/FASB project covers financial reporting by all firms. In addition, industry-specific guidelines are needed on the presentation of cash flow statements by banks. In particular, a bank cash flows statement needs to distinguish clearly the flows intermediated by the bank from the operating, investing, and financing flows a bank shares with a non-financial firm. Given the scale of a bank's funding, and lending, intermediated flows dominate a bank cash flow statement. These intermediated flows need to be identified and presented in a way that reflects the structure of the banking business.

Banks and their auditors

There has been a clear failure of boards and auditors to use the cash flow statement as a means of communicating with investors and other stakeholders. Banks and their auditors should voluntarily adopt best practice by using the direct method to report operating asset and liability flows, providing additional segmental detail when relevant, and including a thorough review of the cash flow statement in the annual report's management commentary, comparable to that included for the income statement and balance sheet.

The IASB's current consultation on a framework to help entities prepare the management commentary provides a timely opportunity to address the final point. Again however, the project covers the preparation of management commentaries by all firms. Industry-specific guidance may be needed on the analysis of cash flow statements by banks.

Regulators and investors

This latter point highlights the need for further work on a performance framework to analyze and assess bank cash flow numbers, both in relation to stewardship and performance. With little attention paid to the cash flow statement, bank cash flow dynamics remain under-researched among both academics and practitioners.

The HBOS and Northern Rock case studies included in this paper underline the challenge of framing performance measures applicable across banks. Both HBOS and Northern Rock required rescuing because of problems refinancing wholesale funding commitments. Yet, despite the similarities in their financial position, the cash flow indicator that shed light on HBOS's financial position (cash and cash equivalents as a proportion of total balance sheet assets) proved less helpful when assessing Northern Rock.

The current financial crisis has exposed the need for new thinking on bank performance. Ahead of the crisis, banks like HBOS and Northern Rock were reporting apparently robust solvency (capital ratios well above the regulatory minimums) and strong returns (high post-tax returns on equity). These benchmarks proved fundamentally misleading. More robust measures of performance are required.

Those with a strong interest in bank performance need to support research into how cash flow analysis can contribute to the development of more robust measures. In particular, regulators need to support research into its implications for bank liquidity and capital requirements. Investors also need to support research into its implications for the quality and sustainability of earnings and dividends.

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