

## **Tier-1 MFIs' Financial Performance: Cash-Flow Statement Analysis Version 2.0**

**Gautier Dumont and Mathias Schmit**

Current literature generally uses balance sheets and income statements to assess the financial performance of microfinance institutions. To assess MFIs' financial strength or vulnerability, we analysed the cash flow statements of the 30 largest MFIs that presented audited reports between 2006 and 2010. We found that all of the sample MFIs had cumulative negative free cash flow over the period and positive cash flow from operations. We propose a classification of MFIs based on their investment and financing policies to assess the liquidity risk posed to themselves and their depositors. The results obtained from using cash flow analysis to assess financial performance can differ substantially from those found in the literature.

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JEL Classifications: G21, G35, O16.

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# Tier-1 MFIs' Financial Performance: Cash-Flow Statement Analysis

## Version 2.0

by

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## **Abstract**

Current literature generally uses balance sheets and income statements to assess the financial performance of microfinance institutions. To assess MFIs' financial strength or vulnerability, we analysed the cash flow statements of the 30 largest MFIs that presented audited reports between 2006 and 2010. We found that all of the sample MFIs had cumulative negative free cash flow over the period and positive cash flow from operations. We propose a classification of MFIs based on their investment and financing policies to assess the liquidity risk posed to themselves and their depositors. The results obtained from using cash flow analysis to assess financial performance can differ substantially from those found in the literature.

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## **1. Introduction**

Liquidity has been a major concern for investors and governments over the past five years due to the financial crisis, and cash movements have been scrutinised in greater detail. Although research has never focused on the generation and use of cash flows by MFIs, traditional accounting ratios based on income statements, such as ROE, ROA, OSS and profit margin, have been widely used to assess MFIs' financial performance.

However, income statements do not indicate the amount of cash an MFI has earned, as they include non-cash entries (e.g. depreciation and provisions) and do not record some expenditure such as fixed assets or loan disbursements. The cash earned by an institution can be ascertained by examining all the information provided in the cash flow statement. This is the most important piece of information for managers, shareholders and debt holders who are assessing and valuing an MFI's performance.

To the best of our knowledge, this paper is the first to analyse the cash flow of the 30 largest MFIs that presented audited cash flow statements through the Microfinance Information Exchange between 2006 and 2010. We analyse the extent to which particular cash-generation patterns affect MFIs' financial vulnerability.

Firstly, we review current literature on the use of cash flow information by financial institutions and the assessment of financial performance in microfinance. Secondly, we discuss the methodology used to analyse MFIs' cash flow statements in accordance with the International Accounting Standard 7 (IAS 7) on the Statement of

Cash Flows. We then present our sample group and data, which were collected from the Microfinance Information Exchange and companies' annual reports. The analysis is divided into several parts: MFIs' dividend policy, investment policy and funding policy. Finally, we provide a classification of MFIs into different liquidity-risk profiles based on the financial vulnerability they pose to themselves and their depositors.

## **2. Literature overview**

### ***2.1. Using cash flow data to assess financial institutions' performance***

Beaver (1966) was among the first to take cash flow information into account when assessing a company's financial performance and situation. Other authors, such as Altman (1968), Deakin (1972), Blum (1974) and Norton & Smith (1979), have also demonstrated the significance of using cash flow indicators alongside traditional accounting ratios to forecast bankruptcy. Nevertheless, these studies were limited by the old accounting laws which did not require institutions to provide a cash flow statement in their annual report. However, authors such as Zavgren (1983), Jones (1987), Neill et al. (1991) and Watson (1996) express reservations about the relevance of cash flow analysis compared to traditional financial ratios.

Largey & Stickney (1980) used operations, investment and financing cash flows to analyse the W.T. Grant Company's bankruptcy and determine the significance of cash flow analyses, particularly cash flow from operations. A similar approach was used and confirmed by Lee (1982) shortly afterwards, whilst Casey & Bartczak (1984)

went a little further by stating that operational cash flows gave better results than traditional ratios.

Carslaw & Mills (1991) suggested using ratios based on cash flow statements to assess a company's financial strength and profitability. The ratios used compare the dividend cash payment to cash flow from operations, the quality of sales and incomes, and capital expenditures. In 2010, following the financial crisis, the ECB released a paper criticising the use of accounting ratios, particularly ROE, when analysing banking performance.

However, anyone analysing a cash flow statement for a financial institution encounters other issues related to the classification of cash items among operational, investment and financial cash flows. Klumpes et al. (2009) pointed out the lack of harmonisation between financial institutions in the implementation of International Accounting Standard 7 (IAS 7) on the Statement of Cash Flows.

## ***2.2. Measuring performance in microfinance***

MFIs' financial performance has been widely empirically studied.

For instance, following the suggestion of a trade-off between outreach and sustainability made by Rhyne (1998) and Morduch (2000) (later to become known as mission drift), many authors choose to use MFIs' profit to test for the existence of a trade-off and its consequences, along with other indicators for assessing social performance. For instance, Cull et al. (2007) analysed MFIs' profitability and depth of outreach to the poor, using the financial self-sufficiency ratio, operational self-

sufficiency ratio and return on assets adjusted to assess profitability. The relationship between profitability and the average loan size was not relevant and could not confirm the mission drift. Mersland & Strøm (2010) also used profitability and found the opposite, namely that there is a correlation between the average loan size and the average profit. However, they also showed that there had not been a significant increase in the average loan size in the industry for eleven years, as the mission drift would suggest. In their article, the average profit (net annual profit/number of credit clients) was used to measure financial performance. More recently, Hudon, Perilleux, & Bloy (2012) used the surplus notion to assess its distribution among stakeholders, using new information to analyse the mission drift.

Financial performance must also be assessed to show how profitability is affected when MFI governance focuses on different areas. Mersland & Strøm (2009) found no difference between non-profit and for-profit organisations in terms of financial performance and outreach. The ratios chosen to determine financial performance in their study were return on assets, the operating self-sufficiency ratio, portfolio yield and operational costs. Schreiner (1969) used the return on equity to assess whether subsidies have a positive or negative impact on MFIs' financial performance. Bogan et al. (2012) later used the operational self-sufficiency ratio in an article demonstrating how the capital structure of MFIs could affect financial sustainability and efficiency.

In their book, Ledgerwood & White (2006) used the return on equity and return on assets to define MFI profitability. Sinha (2007) used the self-sufficiency ratio to study the efficiency of Indian MFIs. Profitability is one of the eight elements used to determine the Microfinance Information Exchange, Inc.'s annual ranking of the

leading MFIs in Latin America. Return on assets and return on equity are used to assess performance. Unfortunately, the ranking does not take account of the ability to generate cash flows or dependence on external funds (in comparison to operational cash flows). In 2010, the MIX published a benchmark for the microfinance industry that presented the averages and medians of several MFI ratios taken from its database. The four ratios labelled as financial performance ratios were return on assets, return on equity, operational self-sufficiency and financial self-sufficiency. None of the ratios and indicators referred to cash flow.

This concise literature review has shown us that the indicators used to assess MFIs' performance vary widely from study to study but none of them use cash flow-based measures. Our paper intends to address this shortcoming for the first time.

### **3. Methodology**

In order to look at the way MFIs generate cash flows, we first have to set up cash flow statements in a standardised way. Accordingly, we classify the different cash flow items in a consistent manner, as described in the following section. We then explain the methodology used to assess the origin of cash generation, i.e. from operating, investment or financing activities, and then from which of these dividends are paid.

#### *3.1. Reclassification methodology*

There is a particularly noticeable lack of consistency in the classification of financial institutions' cash flows under IAS 7, especially regarding the classification of investment cash flows as described by Klumpes, Welch and Reibel (2009) or



Mechelli (2009). A survey of financial reporting by Italian banks further shows that *'[...] in applying IAS 7 there are several points as to which entities can make different choices in reporting cash flows. These alternatives could stem either from options provided by IAS 7 or from the absence of a regulation concerning a specific issue that permits entities to choose among different solutions, none of which are expressly stated by IAS 7. When issuing cash flow statements, choices made about these points could create a high degree of heterogeneity that – as we previously said – could reduce comparability across entities' cash flow statements.'*

Furthermore, PricewaterhouseCoopers (2009)<sup>3</sup> and KPMG (2011)<sup>4</sup> each presented an illustrative set of consolidated cash flow statements, prepared in accordance with International Financial Reporting Standards (IFRS), for fictional banking entities. They illustrate the heterogeneity in flow classifications when applied to financial institutions. For example, PWC records changes in investment securities in its operating cash flows, whereas KPMG does this in its investing cash flows<sup>5</sup>. Debt securities are another example: PWC records them as operating cash flows whilst KPMG records them as financing cash flows<sup>6</sup>.

Therefore, in order to construct a comparable data set of cross-sectional data, we need to classify said data appropriately according to the generic categories found in MFIs' cash flow statements, using additional information provided in the annual reports. This breakdown is necessary to be able to reclassify some items in accordance with IAS 7.

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3 PricewaterhouseCoopers (2009), "Illustrative IFRS consolidated financial statements: Banks".

4 KPMG (2011), "IFRS: Illustrative financial statements: Banks".

5 PricewaterhouseCoopers (2009), pp. 14-15 and KPMG (2011), pp. 17-19.

6 *Ibidem*

### 1. *Operating cash flows*

IAS 7 states that ‘*cash flows from operating activities are primarily derived from the principal revenue-producing activities of the entity. Therefore, they generally result from the transactions and other events that enter into the determination of profit or loss*’. For example, cash receipts from the sale of goods and the provision of services are included in operating cash flows.

Two further important items that can be found in MFIs’ cash flow statements are the change in *other current assets* and *other current liabilities*. Many different accounts can be found in these sections. The main accounts for *other current assets* are advances, prepayments, accounts receivable, deferred tax assets, prepaid expenses and accrued interest receivable. Those for *other current liabilities* mainly comprise interest payable, bills and accounts payable, and deferred tax liabilities. Although the content of these items varies from MFI to MFI, we classify them as cash flow from operating activities, since they correct non-cash movements that occurred through the institution’s operations and are not made from an investment or financial perspective.

### 2. *Investment cash flows*

According to IAS 7, ‘*[investing] cash flows represent the extent to which expenditures have been made for resources intended to generate future income and cash flows*’<sup>7</sup>. Therefore, fixed assets as well as changes in financial instruments, loans and held-to-maturity investments are classified as *investing activities* of financial

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<sup>7</sup> European Commission (version dated 24 March 2010), “International Accounting Standard 7: Statement of cash flows”, p. 3.

institutions. Both loan and financial investments meet the definition of investing cash flows under IAS 7: a loan (i.e. the expenditure) is granted with the intent to generate future interest income (i.e. future income and cash flows), the latter being recorded as an operating cash flow.

Changes in held-to-maturity investments have been similarly reclassified, since they have also been contracted with the aim of generating future income and should therefore be considered as an investing cash flow.

### *3. Financing cash flows*

As required by IAS 7, a separate disclosure of cash flows arising from financing activities should be set up because this helps in predicting claims on future cash flows by providers of capital to the entity. IASB gives examples of cash flows arising from financing activities, including cash proceeds from issuing debentures, loans, notes, bonds, mortgages and other short or long-term borrowings, and cash repayments of amounts borrowed. In this respect, changes in bank borrowings and deposits should be included in the financing cash flow.

In addition, IAS 7 states in relation to financial cash flow: *'The separate disclosure of cash flows arising from financing activities is important because it is useful in predicting claims on future cash flows by providers of capital to the entity'*.

Depositors should be able to get their cash back, thus creating cash outflow for the MFI. Collecting deposits is currently a financing activity for many MFIs and is the primary source of financing for some.

### 3.2. *Assessing dividend, investment and funding policies*

#### *Dividend policy*

A traditional way to analyse a company's dividend policy is to look at its dividend pay-out ratio, which is the dividend paid divided by the company's profit for a given period. Profit may be subject to deferred payments, meaning that profit is possible even with a negative cash flow. To give us a more pertinent ratio, we defined the dividend cash-out ratio as the dividend paid over the operating cash flow. We then observed which part of the operational cash flow remained within the MFI and could support the investment and loan cash outflow made during the period.

#### *Investment policy*

We needed to understand the relationship between investment cash flow and operational cash flow. All companies need to make investments to be able to generate future cash flow through their operations. We used the following fundamental cash flow statement breakdown (note that the financial cash flow does not include dividend payment, as it is considered separately).

$$CF_{Op} + CF_{Inv} + CF_{Fin} = \Delta \text{Cash} + \text{div} \quad (1)$$

Where for a given period:

$\Delta \text{Cash}$  = change in cash and cash equivalents

$CF_{Op}$  = operating cash flows

$CF_{Fin}$  = investment cash flows

$CF_{Inv}$  = financing cash flows

Div = dividends paid

We then divided it by the cash flow from operations to create standardised ratios between MFIs that are free of currency interference. Hence:

$$1 = -\frac{CF_{Inv}}{CF_{Op}} + \frac{div}{CF_{Op}} - \frac{CF_{Fin}}{CF_{Op}} + \frac{\Delta Cash}{CF_{Op}} \quad (2)$$

Thus, the amount of cash flow from investments needed to generate one unit of currency of operational cash flow is the ratio of  $CF_{Inv}$  over  $CF_{Op}$ . If this is below -1, it means that the free cash flow (sum of operating and investing cash flows) is negative and that the company requires additional external cash from its financing activities. However, having negative investment cash flow does not imply that the MFI grants more loans to its customers. The proportion of new loans granted to investing cash flow has to be investigated. If an MFI chose to invest in other activities instead of lending to its customers, it may limit its outreach as it could potentially reach more customers with the same amount of funds.

### *Funding policy*

We also needed to know what proportion of the cash required for investments, which in the case of MFIs are mainly loans, is provided by operational and financing cash flow. Therefore, we first subtracted the dividend paid from the positive operational

cash flow. The remaining part of the operational cash flow can be used for investing activities. The financial cash flow was then used for the part of the investment cash outflow that cannot be financed through operating cash flow and for the change in cash and cash equivalents over a given period. We then calculated the proportion for one unit of capital expenditure or CAPEX (which is equivalent to  $-CF_{Inv}$ ) coming from operations (generated internally) and from financing cash flow (generated externally). Starting with equation (1), we obtained:

$$\frac{CF_{Op} - \text{div}}{CAPEX} + \frac{CF_{Fin}}{CAPEX} = 1 + \frac{D \text{ Cash}}{CAPEX} \quad (3)$$

If we set  $CF_{Fin} = CF_{Fin \text{ to CAPEX}} + CF_{Fin \text{ to D Cash}}$ , we get:

$$\frac{CF_{Op} - \text{div}}{CAPEX} + \frac{CF_{Fin \text{ to CAPEX}}}{CAPEX} + \frac{CF_{Fin \text{ to D Cash}}}{CAPEX} = 1 + \frac{D \text{ Cash}}{CAPEX} \quad (4)$$



$$= 1$$

Finally, we checked that  $CF_{Fin \text{ to D Cash}} = D \text{ Cash}$ .

Cash flow from financing activities can come from various sources, such as new capital issues, debt issuance and deposits collection. To distinguish how the MFIs generate their external financial cash flow, we also analysed the distribution per unit of CAPEX.

#### **4. Data**

Cash flow statements, income statements and balance sheets were collected from the audited annual reports of the 30 largest MFIs in terms of active borrowers that voluntarily publish their accounts publicly on MixMarket.com. The number of active borrowers is an easily comparable and objective criterion for assessing an institution's microcredit activity. Another ranking may be based on the total assets or portfolio size of institutions from different countries if these amounts are expressed in terms of purchasing power parity. However, by choosing the number of active borrowers to determine our sample, we avoided possible interference from the exchange rate and the purchasing power parity index. It also enabled us to focus on activity and outreach rather than on accounting amounts.

As noted by Cull et al. (2009) and Bogan et al. (2012), MixMarket provides high-quality data but is not representative of the whole industry. Particularly regrettable is the absence of the Vietnam Bank for Social Policies and the Association of Asian Confederation of Credit Unions in Thailand, which served 8,166,287 and 7,660,720 customers respectively in 2010, according to the Microcredit Summit (2010). The following table shows the MFIs included in the sample; their annual reports were collected from 2006 to 2010. The MFIs in the sample served over 50 million customers.

**Table 1: Sample MFIs**

MFI	Type	Country	Year of foundation	Active borrowers	Total assets in USD	Available reports
<b>Grameen Bank</b>	Bank	Bangladesh	1983	8,340,623	1,698,487,761	2006-2010
<b>SKS</b>	NBFI	India	1997	6,242,266	952,929,294	2006-2010
<b>BRAC</b>	NGO	Bangladesh	1972	5,452,195	1,004,781,306	2006-2010
<b>ASA</b>	NGO	Bangladesh	1978	4,467,497	699,305,587	2006-2010
<b>Spandana</b>	NBFI	India	1998	4,188,655	698,807,350	2006-2010
<b>Bandhan</b>	NBFI	India	2001	3,254,913	614,408,607	2006-2010
<b>SHARE</b>	NBFI	India	1992	2,840,122	553,165,144	2006-2010
<b>Capitec Bank</b>	Bank	South Africa	2001	2,829,000	2,074,643,247	2006-2010
<b>Compartamos Banco</b>	Bank	Mexico	1990	1,961,995	910,940,032	2006-2010
<b>BASIX</b>	NBFI	India	1996	1,526,150	352,404,225	2006-2010
<b>Financiera Independencia</b>	NBFI	Mexico	1993	1,399,978	703,342,463	2006-2010
<b>AML</b>	NBFI	India	2002	1,341,524	321,858,864	2006-2010
<b>Equitas</b>	NBFI	India	2007	1,303,339	216,301,099	2007-2010
<b>Ujjivan</b>	NBFI	India	2004	847,671	159,013,480	2006-2010
<b>BURO Bangladesh</b>	NGO	Bangladesh	1990	821,826	89,477,973	2006-2010
<b>ACSI</b>	NBFI	Ethiopia	1995	659,635	185,115,431*	2006-2009
<b>Crediscotia</b>	NBFI	Peru	1994	628,814	936,726,690	2006-2010
<b>BCSC</b>	Bank	Columbia	1991	619,119	4,187,549,869	2007-2010
<b>CARD NGO</b>	NGO	Philippines	1986	606,488	87,873,452	2006-2010
<b>Equity Bank</b>	Bank	Kenya	1984	524,902	1,659,107,807	2006-2010
<b>Cashpor MC</b>	NGO	India	1997	431,463	63,839,729	2008-2010
<b>KWFT</b>	NBFI	Kenya	1982	413,040	234,924,337	2007-2010
<b>MiBanco</b>	Bank	Peru	1992	401,988	1,568,838,434	2006-2010
<b>BISWA</b>	NGO	India	1995	384,242	77,373,370	2006-2009
<b>FMM Popayán</b>	NGO	Columbia	1989	352,592	287,404,734	2006-2010
<b>Bancamía</b>	Bank	Columbia	2008	341,100	376,295,561	2008-2010
<b>NRSP</b>	NGO	Pakistan	1991	326,143	100,128,733	2006-2010
<b>Khushhali Bank</b>	Bank	Pakistan	2000	325,523	84,563,930	2006-2010
<b>ESAF</b>	NGO	India	1992	322,590	51,656,663	2008-2010
<b>GFSP</b>	NBFI	India	1999	321,161	65,038,363	2006-2010

\* ACSI assets in 2009

## 5. Results

### 5.1. Differences in cash flow statements between MFIs

The cash flow statements of the 30 sample MFIs over the period 2006-2010 differ significantly from one MFI to another. Indeed, the classification of many items, such as loans, deposits, dividends received and financial products, vary widely between MFIs. Table 3 shows the different accounting methods for microfinance loans and client deposits applied by the 30 sample MFIs. Microfinance loans are usually the



largest asset accounts, and deposits can be very large for MFIs that allow them. Twenty-two of our sample MFIs include loans and client deposits (or just loans for non-deposit institutions) in their operational cash flow, whereas only three institutions follow the classification described in the methodology.

**Table 2: MFIs' current accounting methods**

<b>MFIs' CF accounting methods for loans and deposits</b>	<b>MFIs</b>
Loans in CF <sub>Op</sub> and no deposit:	11
Loans in CF <sub>Inv</sub> and no deposit:	<b>1</b>
Loans and deposits in CF <sub>Op</sub> :	11
Loans in CF <sub>Op</sub> and deposits in CF <sub>Fin</sub> :	3
Loans in CF <sub>Inv</sub> and deposits in CF <sub>Fin</sub> :	<b>2</b>
Loans in CF <sub>Fin</sub> and deposits in CF <sub>Fin</sub> :	2

The current disparity in cash flow classification is probably due to the different accounting practices of the countries where the sample MFIs are located. When analysing an MFI's cash flow, which can be very valuable in understanding its development, investors should go further and take a closer look at which accounts make up the operational, investing and financial cash flow. As regards deposits, for example, most of the sample MFIs (11 out of 18 MFIs taking deposits) consider the movement of their customers' deposits to be an operational cash flow that is not important from a financial analysis point of view. Indeed, changes in deposits are not in line with the informative function of operating cash flows, as defined by IAS 7: *'The amount of cash flows arising from operating activities is a key indicator of the extent to which the operations of the entity have generated sufficient cash flows to*

repay loans, maintain the operating capability of the entity, pay dividends and make new investments without recourse to external sources of financing<sup>8</sup>.

**Table 3: CF<sub>Op</sub> as shown by MFIs and recalculated (2006-2010)**

	2006	2007	2008	2009	2010	TOTAL
Positive reported CF <sub>Op</sub>	12	9	13	12	12	<b>10</b>
Positive rebuilt CF <sub>Op</sub>	18	24	24	28	25	<b>29</b>
<i>Observations</i>	24	27	30	30	28	30

**Table 4: Free cash flow as shown by MFIs and recalculated (2006-2010)**

	2006	2007	2008	2009	2010	TOTAL
Positive reported FCF	7	4	11	10	8	<b>5</b>
Positive rebuilt FCF	2	1	5	3	3	<b>0</b>
<i>Observations</i>	24	27	30	30	28	30

Tables 3 and 4 show the difference between what MFIs present in their cash flow statement and what was obtained using the reclassification method we have described.

Table 3 demonstrates that less than half of the sample MFIs report positive operational cash flow every year, whereas our reclassification of cash flow shows it is actually positive in most cases. The total operational cash flow for the period was positive for all but one of the sample MFIs. This means that MFIs are able to generate positive cash flows thanks to their investments.

Table 4 shows that the total recalculated free cash flows were negative for all of the sample MFIs, although five (Compartamos Banco, Crediscotia, MiBanco, Grameen Bank and CAPITEC) reported positive free cash flow in their cash flow statement. Negative free cash flows mean that MFIs do not generate enough cash flow from

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<sup>8</sup> European Commission (version as of 24 March 2010), "International Accounting Standard 7: Statement of cash flows", p. 2.

the use of their resources for distribution among all securities holders and depositors. Indeed, the investments in fixed assets and loans disbursements (CAPEX) are higher than the operating cash flows.

## 5.2. Cash flow analysis of MFIs

In this section we discuss our results regarding (i) operating performance and dividend policy, (ii) investment policy and (iii) funding policy, as well as the risk assessment for MFIs and their depositors.

### *MFI dividend policy*

Out of the 30 sample MFIs, 13 paid dividends at least once between 2006 and 2010. We used the total amount of MFI dividend and operational cash flow between 2006 and 2010.

**Table 5: Dividend pay-out and cash-out ratios (2006-2010)**

	<b>Years of dividend payment</b>	<b>Div / NI</b>	<b>Div / CF<sub>Op</sub></b>	<b>CF<sub>Op</sub> available for CAPEX</b>
<b>AML</b>	2006, 2007, 2008, 2009, 2010	6.4%	13.0%	87.0%
<b>BASIX</b>	2007, 2008, 2009, 2010	12.4%	3.4%	96.6%
<b>BCSC</b>	2007, 2008, 2010	39.0%	11.6%	88.4%
<b>CAPITEC</b>	2006, 2007, 2008, 2009, 2010	33.2%	17.4%	82.6%
<b>Compartamos</b>	2006, 2008, 2009, 2010	17.4%	14.3%	85.7%
<b>Crediscotia</b>	2006	26.4%	2.2%	97.8%
<b>Equity bank</b>	2006, 2007, 2008, 2009, 2010	19.1%	16.1%	83.9%
<b>Financiera Ind.</b>	2006, 2007, 2008, 2010	69.3%	30.5%	69.5%
<b>Grameen</b>	2009, 2010	7.4%	5.3%	94.7%
<b>MiBanco</b>	2006, 2007, 2008, 2009, 2010	37.9%	12.9%	87.1%
<b>SHARE</b>	2006, 2010	1.7%	1.0%	99.0%
<b>Spandana</b>	2006	0.0%	0.01%	100.0%
<b>Ujjivan</b>	2010	5.1%	3.1%	96.9%
<b>Average</b>		21.2%	10.1%	89.9%
<b>Median</b>		17.4%	11.6%	88.4%

Analysing the dividends paid by these MFIs over the period in question shows that the average dividend pay-out ratio is 21.2 per cent. For our sample, this ratio is half the average dividend cash-out ratio (10.1 per cent). This means that, on average, almost 90 per cent of the cash flow generated is kept within the for-profit MFI to foster its development and finance the loans disbursed during that period. From 2006 to 2010, these MFIs did not always pay dividends every year (e.g. Spandana and Crediscotia only paid dividends in 2006). Positive net incomes and positive operating cash flows should be a requirement if an MFI wishes to distribute dividends among its shareholders. The positive ratios in the table show that both profits and operating cash flow were positive over the five-year period.

#### *MFI investment policy*

The next table shows the cash movements of the sample MFIs when one unit of currency of operational cash flow is generated for every sample MFI as described in the methodology with equation (2).

**Table 6: MFI cash flow movement for one unit of local CF<sub>Op</sub> currency**

MFI	MFIs cash flow				
	CF <sub>op</sub>	CF <sub>inv</sub>	CF <sub>fin</sub>	Dividend	Cash difference
ACSI	1.00	-3.53	3.59		1.06
AML	1.00	-21.27	22.03	0.13	1.63
ASA	1.00	-1.37	0.68		0.31
Bancamia	-1.00	-17559.85	17501.87		-58.97
Bandhan	1.00	-5.28	6.61		2.33
BASIX	1.00	-6.30	6.27	0.03	0.94
BCSC	1.00	-2.58	1.90	0.12	0.20
BISWA	1.00	-6.41	5.41		0.00
BRAC	1.00	-2.37	1.49		0.13
Buro Bangladesh	1.00	-7.56	6.80		0.24
CAPITEC	1.00	-3.46	3.29	0.17	0.65
CARD NGO	1.00	-2.97	2.21		0.25
CASHPOR MC	1.00	-2.83	5.11		3.27
Compartamos	1.00	-1.22	0.45	0.14	0.09
Crediscotia	1.00	-1.96	1.13	0.02	0.15
Equitas	1.00	-3.35	3.13		0.79
Equity bank	1.00	-5.31	4.78	0.16	0.31
ESAF	1.00	-38.38	40.51		3.12

<b>Financiera Ind.</b>	1.00	-1.53	0.94	0.31	0.11
<b>FMM Popayan</b>	1.00	-2.01	1.06		0.05
<b>GFSPL</b>	1.00	-17.62	19.79		3.17
<b>Grameen</b>	1.00	-14.18	13.30	0.15	0.06
<b>Khushhali</b>	1.00	-3.94	1.00		-1.94
<b>KWFT</b>	1.00	-3.95	4.78		1.83
<b>MiBanco</b>	1.00	-3.15	2.79	0.13	0.50
<b>NRSP</b>	1.00	-1.96	1.44		0.48
<b>SHARE</b>	1.00	-6.87	6.51	0.01	0.63
<b>SKS</b>	1.00	-4.56	4.00		0.44
<b>Spandana</b>	1.00	-3.70	2.90	0.00	0.20
<b>Ujjivan</b>	1.00	-23.90	25.99	0.03	3.05

As shown by the table, all of the MFIs except one (Bancamia) had positive total operational cash flows, which is the first step towards self-sustainability. However, the investment cash flow is below -1 for every MFI in the sample. This means that to generate one unit of cash from their operations, all of the MFIs invested more than one unit of local currency. In the case of 17 MFIs (not including Bancamia), cash invested is five times greater than cash collected through operations. This is equivalent to having negative free cash flow, implying that MFIs are then dependent on external financing.

Required financial cash flows vary widely between MFIs but are always positive. Consequently, some MFIs may be highly dependent on external financing, meaning that they face major liquidity risks. The cash difference is also positive for almost all the MFIs in our sample. However, this is not due to positive free cash flow but to the excess of financial cash flow over the free cash flow.

Table 7 shows the proportion of investment cash flow used to increase the loan portfolio over the 2006-2010 period. If the investment cash flow is smaller (owing to

divestment, for instance) than the cash used for new loans, we will consider that the new loans represent 100 per cent of the investment cash flow<sup>9</sup>.

**Table 7: New loans over investment cash flow 2006-2010**

Bandhan	100%	Compartamos	93%
Ujjivan	100%	KWFT	92%
AML	100%	Equitas	91%
CASHPOR MC	100%	Buro Bangladesh	90%
GFSPL	100%	CAPITEC	86%
Spandana	99%	NRSP	84%
ACSI	99%	CARD NGO	82%
Crediscotia	98%	ASA	81%
Bancamia	97%	Financiera Ind.	81%
SHARE	97%	BRAC	71%
FMM Popayan	96%	BISWA	71%
ESAF	96%	Khushhali	65%
MiBanco	95%	Equity bank	61%
SKS	94%	BCSC	59%
BASIX	94%	Grameen	51%

The results show that more than half of the investing cash flow was used for the loan portfolio, as might be expected, and six MFIs used less than 75 per cent. However, the Grameen Bank used just 51 per cent of the invested cash to grant loans to customers, surprisingly ranking last in the list of 30 sample MFIs. The Grameen Bank invested most of the remaining 49 per cent in regular commercial banks in Bangladesh.

#### *MFI funding policy*

The next table shows that only five MFIs (Compartamos Banco, Crediscotia, ASA, FMM Popayan and NRSP) have at least 50 per cent of the cash flow needed for CAPEX coming from operations; 11 MFIs have between 25 per cent and 50 per cent; and 14 have below 25 per cent. On average for the 30 sample MFIs, outflow to

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<sup>9</sup> Therefore 100 per cent is the maximum value.

finance investment activities is 25 per cent covered by operational cash flow. The need for external financing is essential for all of the MFIs in our sample.

Financial cash flow is also divided between its three sources.

**Table 8: Cash movement for one unit of CAPEX**

MFI	CAPEX	Cash flow from operations per unit of CAPEX			Cash flow from financial activities per unit of CAPEX				
		CF op	CF op to div	CF op to CF inv	CF fin to CF inv	Capital issue	Long-term debt	Deposits	Cash difference
ACSI	1.00	0.28		0.28	0.72	0.10	0.31	0.61	0.30
AML	1.00	0.05	0.01	0.04	0.96	0.08	0.95		0.08
ASA	1.00	0.73		0.73	0.27		0.18	0.32	0.23
Bancamia	1.00	0.00		0.00	1.00	0.25	0.70	0.05	0.00
Bandhan	1.00	0.19		0.19	0.81	0.04	1.00	0.21	0.44
BASIX	1.00	0.16	0.01	0.15	0.85	0.10	0.87	0.02	0.15
BCSC	1.00	0.39	0.04	0.34	0.66		0.06	0.67	0.08
BISWA	1.00	0.16		0.16	0.84	0.00	0.84	0.0002	0.00
BRAC	1.00	0.42		0.42	0.58		0.37	0.26	0.05
Buro Bangladesh	1.00	0.13		0.13	0.87		0.62	0.28	0.03
CAPITEC	1.00	0.29	0.05	0.24	0.76	0.13		0.82	0.19
CARD NGO	1.00	0.34		0.34	0.66		0.49	0.26	0.08
CASHPOR MC	1.00	0.35		0.35	0.65		1.80		1.16
Compartamos	1.00	0.82	0.12	0.70	0.30		0.37		0.07
Crediscotia	1.00	0.51	0.01	0.50	0.50	0.04	0.35	0.18	0.07
Equitas	1.00	0.30		0.30	0.70	0.28	0.66		0.23
Equity bank	1.00	0.19	0.03	0.16	0.84	0.09	0.06	0.74	0.06
ESAF	1.00	0.03		0.03	0.97	0.36	0.70		0.08
Financiera Ind.	1.00	0.66	0.20	0.46	0.54	0.18	0.44		0.07
FMM Popayan	1.00	0.50		0.50	0.50		0.53		0.02
GFSPL	1.00	0.06		0.06	0.94	0.14	0.98		0.18
Grameen	1.00	0.07	0.01	0.06	0.94	-0.011	0.00	0.95	0.00
Khushhali	1.00	0.25		0.25	0.75	0.11	-0.15	0.29	-0.49
KWFT	1.00	0.25		0.25	0.75		0.77	0.44	0.46
MiBanco	1.00	0.32	0.04	0.28	0.72		0.18	0.71	0.16
NRSP	1.00	0.51		0.51	0.49		0.74		0.25
SHARE	1.00	0.15	0.0014	0.14	0.86	0.04	0.91		0.09
SKS	1.00	0.22		0.22	0.78	0.35	0.52		0.10
Spandana	1.00	0.27	0.00003	0.27	0.73	0.05	0.73		0.05
Ujjivan	1.00	0.04	0.001	0.04	0.96	0.16	0.76	0.17	0.13

Examining the different sources of financial cash flow confirms that issuing new shares is a minor source of cash and is not the main generator of cash flow for any of the sample MFIs. The issue of share capital represents more than 25 per cent of the total financial cash flow collected between 2006 and 2010 for only six MFIs (Khushhali, SKS, Financiera Independencia, Equitas, Bancamia and ESAF). Long-term debts were the main provider of cash for 22 MFIs and deposits were the main source of external cash between 2006 and 2010 for eight MFIs (ASA, CAPITEC, Equity Bank, Grameen Bank, Khushhali, ACSI, MiBanco and BCSC).

## *Financial vulnerability of MFIs and their depositors*

In order to assess the MFIs' financial vulnerability, we estimated the liquidity risk for them and their depositors based on two indicators: (1) the ratio of capital expenditure over cash flow from operations and (2) the proportion of financial cash flow from new deposits. We considered three intervals for both indicators and we then divided the MFIs subject to liquidity risk into nine categories.

Regarding the first indicator, we identified MFIs with a ratio of capital expenditure over cash flow from operations of less than two, meaning that over half of the cash needed for investment comes from operations; those with a ratio between two and five; and those with a ratio above five, meaning that they are heavily dependent on external sources of cash.

For the second indicator, we also distinguished three groups of MFIs, namely those that do not take deposits, those for whom deposits generate less than 50 per cent of their financial cash flow, and those for whom deposits generate more than 50 per cent of their financial cash flow. A 3x3 matrix was then created.

**Table 9: 3x3 risk matrix**

		Deposits / Financial CF		
		Low 0%	Medium < 50%	High > 50%
CAPEX / CF <sub>op</sub>	High > 5	ESAF, AML, GFSPL, SHARE, BISWA	Ujjivan, BASIX, Bandhan, Buro Bangladesh	Grameen, Equity Bank, Bancamia
	Medium 2 - 5	SKS, Spandana, Equitas, CASHPOR MC, FMM Popayan	KWFT, CARD NGO, BRAC	Khushhali, ACSI, CAPITEC, MiBanco, BCSC
	Low < 2	NRSP, Financiera Ind., Compartamos	Crediscotia	ASA

The nine groups displayed by the matrix can be divided into three categories:



- (i) The MFIs in the red boxes face a major liquidity risk as they have an aggressive investment policy that requires a large amount of external cash, as the operational cash flow represents less than 50 per cent of the cash needed and a significant part of the financial cash flow comes from deposits. The investments made are sizeable in proportion to the cash flow from operations and rely on deposits from customers, which increases the MFIs' leverage and the risk faced by depositors. The Grameen Bank is among these MFIs.
- (ii) Conversely, the green boxes contain the MFIs that display a healthier cash situation than the others. They have a reasonable level of leverage to finance the surplus of investment cash flow over operational cash flow. Compartamos Banco and SKS fall into this category.
- (iii) The orange boxes contain MFIs that either score poorly in one of the two ratios and well in the other or have an intermediate value for both of them. Such MFIs must carefully monitor their investment and funding policy since they could easily fall into the red-box category, entailing increased risks.

Finally, by way of illustration, Table 10 details two MFIs (Compartamos Banco and the Grameen Bank) that are in completely different positions in terms of liquidity and thus financial vulnerability. From 2006 to 2010, Compartamos generated MXN 7,293 million of operating cash flow and used MXN 8,902 million for investing cash flow; indeed, most of the cash needed for investments came from its operations. In contrast, the Grameen Bank would need

14.18 times its operating cash flow (BDT 5,510 million) to cover the cash used for investing activities (BDT 78,147 million). The required extra cash provided by the financial cash flow is generated by financial debts at Compartamos, whereas at Grameen Bank it comes almost entirely from deposits. Consequently, we believe that Compartamos faces a much lower liquidity risk than the Grameen Bank, especially as the latter is also predominantly financed using money from depositors.

**Table 10: Total cash flow of Compartamos Banco and Grameen Bank from 2006 to 2010**

	<b>Compartamos Banco</b>	<b>Grameen Bank</b>
<b>As shown in annual reports</b>	<i>In millions of Mexican pesos</i>	<i>In millions of takas</i>
Operating cash flow	2,526	40,531
Investment cash flow	-486	-38,626
Financial cash flow (including dividend payment)	-1,377	-1,573
<b>After the reclassification of cash movement</b>		
Operating cash flow	7,293	5,510
Investment cash flow	-8,902	-78,147
Financial cash flow (including dividend payment)	2,272	72,969
<b>Net cash difference</b>	663	331
<b>Dividend paid</b>	1,042	291
<b>Variation in deposits</b>	0	74,542
<b>Variation of Deposits / Financial Cash flow</b>	<b>0%</b>	<b>101.8%</b>
<b>CAPEX / Operating cash flow</b>	<b>1.22</b>	<b>14.18</b>

## 6. Conclusion

Liquidity has always been an important concern in microfinance. Indeed, the CGAP Microfinance Banana Skin of 2012 presents liquidity risk as the number one concern of MFIs in Asia. The cash flow situation of an MFI must therefore be understandable to any investor and lender.

Nevertheless, no study to date has focused on a cash flow statement analysis that provides a clear view of the flow of cash within an institution. Accounting

measurements of financial performance have been used in microfinance studies for a number of years but are not sufficient to assess the financial health of an institution. Against this backdrop, the understanding and comparability of MFI cash flow statements are the primary objectives of this work.

Using our IAS 7-compliant methodology, we found that almost all of the MFIs in our sample had cumulative positive operational cash flows, which is an encouraging sign for the microfinance industry. This shows that profit can be associated with the generation of cash, which is not always the case with EU banks, for instance (see Schmit and Denuit (2013)). When MFIs pay dividends, they are small in comparison with the operational cash flow.

However, the total free cash flow was always negative for the whole period considered. Therefore, MFIs are always dependent on external financial cash flow.

Our results are also somewhat different from the widely acknowledged view. For example, institutions like Compartamos are able to finance the majority of their growth using cash generated by their daily business, while some institutions like Grameen Bank potentially put their poor depositors at risk. Indeed, Grameen's growth loan portfolio is almost entirely financed by depositors (and thus not through funds generated by the core business).

The aim of our subsequent research is to combine the analysis of cash flow statements advocated in this paper with double bottom line performance, thereby enlarging the

scope of the research while supplementing the study with a consideration of the mission drift debate.

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