

Free Cash Flows are defined as cash flows that remain after we subtract from expected revenues any expected operating costs and the capital expenditures necessary to sustain, and hopefully improve, the cash flows. The Free Cash Flows to Equity (FCFE) represent the free cash available to the equity holder of the company and are good measure of the company's capacity to pay dividends and provide capital gains opportunity to its equity investors. Discounted FCFE, which represents the present value of all future flows to equity, is therefore, an appropriate way to value equity of a company which is in its initial life cycle stage, does not trade in public and so far has not paid dividends. However, one needs to contend with two important questions for using the Discounted Cash Flow (DCF) approach to value equity in MFIs.

1. How do I measure the free cash flow for MFIs – what are the peculiarities involved?

Formal MFIs, like other financial services firms, have certain peculiarities, and therefore FCFE calculation has to be more measured and careful.

Regulation

Commercial Financial Institutions are heavily regulated. In general, these regulations take three forms. First, financial services companies are required to maintain capital ratios to ensure that they do not expand beyond their means and put their claimholders or depositors at risk. Second, these companies are required to maintain a minimum level of Net Owned Funds or Net Worth. Third, entry of new firms into the business is often restricted by the regulatory authorities.

From a valuation perspective, assumptions about growth are linked to assumptions about reinvestment. With financial service firms, these assumptions have to be scrutinized to ensure that they pass regulatory constraints, particularly relating to capital adequacy levels.

Reinvestment

If we define reinvestment as necessary for future growth, there are other problems associated with measuring reinvestment with financial service firms. Primarily, – net capital expenditures and working capital, could be considered as reinvestments required for growth. However, measuring either of these items at a financial service firm can be debated.

Unlike manufacturing firms that invest in plant, equipment and other fixed assets, financial service firms invest primarily in intangible assets such as brand name and human capital. Not surprisingly, the statement of cash flows to a bank show little or no capital expenditures and correspondingly low depreciation. Similarly, if we define

working capital as the difference between current assets and current liabilities, a large proportion of a bank's balance sheet would fall into one or the other of these categories. Changes in this number can be both large and volatile and may have no relationship to reinvestment for future growth. For example a bank may accrue a large interest cost on its deposits while the actual payouts on account of withdrawals are much less. The bank's cashflow would in this case, get artificially inflated.

The FCFE projections for MFIs should account for the peculiarities stated above and adequately reflect the free cash available to the equity providers of the MFI.

2. What is the appropriate rate to discount the future FCFE?

The challenge also is to find an appropriate and valid discount rate, that reflects all the risks, for discounting the FCF. The answer may lie in doing a **Monte Carlo Simulation**.

Using Monte Carlo Simulation

Monte Carlo simulation in traditional capital budgeting use repeated random sampling from probability distributions of crucial primary variables underlying cash flows to arrive at output distributions or risk profiles of probable cash flows in the project for a given management strategy. Simulation attempts to imitate a real world decision setting by using a mathematical model (consisting of operating equations or identities) to capture the important functioning characteristics of the project as it evolves through time encountering random events, conditional on management's preset operating strategy.

A Monte Carlo simulation usually follows these steps :
Modeling the project through a set of mathematical equations and identities for all the important primary variables, including a description of interdependencies among different variables and across different time periods.

Specifying probability distributions for each of the crucial variables, either subjectively or from past empirical data.

A random sample is then drawn (using a computer random number generator) from the probability distribution of each of the important primary variables enabling (with the help of the modelling equations and identities) the calculation of net cash flows for each period.

The process is repeated many times, each time storing the resulting cash flow sample observations so that finally a probability distribution for the project's cash flows can be generated (along with its expected value, standard deviation and other statistics).

Thus simulation in capital budgeting is useful in assessing the probability distribution of

cash flows, from which the expected value of cash flows and the appropriate risk adjusted discount rates can be determined and used to derive a single value expected valuation.

Simulating the Free Cash to Equity is an excellent way of determining the risk adjusted discount rate. The FCE distributions returned by the simulation can be used to estimate the annual FCEs at a certain probability value (p-values in statistical jargon). The FCEs at low p-values (such as 1%) can be viewed as Certainty Equivalents of the projected most likely FCEs. Certainty Equivalent (CE) of a cashflow (say C1) is the smallest certain pay-off for which an investor would exchange the risky cashflow (C1). If the value calculated by discounting the CE at risk free/discount rate adjusted for moderate risk is close to the value calculated by discounting the projected most likely FCEs at a certain discount rate (R which reflects investor's return expectations), then, this discount rate is arguably justified for the riskiness built into the most likely FCE projections, and hence, is the appropriate risk adjusted discount rate

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