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Marking to Market for Financial Institutions: A Common Sense Resolution

By

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- One currently vexing question is whether, in valuing assets and liabilities on financial institutions' balance sheets, market prices provide the best available estimate of value or if, in times of crisis, using market prices could lead to serious distortions.
- In most circumstances, market prices reflect future earning power and should be used; at other times, such as in financial crises when liquidity is scarce and price information is sparse, market imperfections imply that they should not.
- In crises when liquidity constraints affect market prices, model-based and historic cost valuations may provide helpful information. The rest of the time, and in particular when asset prices are low because expectations of future cash flows have fallen, mark-to-market accounting should be used instead.

Debate has intensified in recent years on the advantages and disadvantages of moving towards a full mark-to-market accounting system for banks and insurance companies. The debate has been heated by moves by the International Accounting Standards Board (IASB) and the US Financial Accounting Standards Board to harmonize accounting standards across countries. Proponents contend that mark-to-market accounting has the advantage of reflecting the relevant value of financial institution balance sheets, allowing regulators, investors and other users of accounting information to better assess their risk profile. Opponents counter that mark-to-market accounting leads to excessive and artificial volatility, especially when regulatory standards such as bank capital ratios are tied to reported accounting numbers. If so, the reported liquidity and solvency of financial institutions could be driven by temporary fluctuations that did not reflect the fundamental value of assets and liabilities.

Which side is right? It depends on the state of financial markets. If financial markets operated perfectly, fair value, or more specifically mark-to-market accounting, would indeed be best: market prices would accurately reflect fundamental value, which is equal to the discounted present value of a stream of future earnings.[1] If the

An earlier version of this paper (Allen and Carletti, 2008b) formed part of the Banque de France's October 2008 Financial Stability Review. The authors thank readers of previous drafts, while absolving them of responsibility for remaining errors.

1 Discounted present value applies a discount rate, based on the cost of capital, to expected future cash flows to express them in terms of current prices.

market value of an institution's assets falls below the market value of its liabilities in this sense, it will not be able to meet all of its obligations. mark-to-market accounting would indicate this shortfall to regulators, investors, depositors and other interested parties, and they could take action accordingly.

Many people have argued that financial markets are effectively perfect and complete. However, in times of crisis it appears they are not.

Allen and Carletti (2008a) analyses the effects of using mark-to-market accounting when financial markets are imperfect. In times of financial crisis, the interaction of institutions and markets can lead to situations where asset prices in markets do not reflect the discounted value of future cash flows accruing to the assets. Rather, asset prices reflect the amount of cash or liquidity available to buyers in the market. If mark-to-market accounting is used, then the volatility of asset prices directly affects the value of banks' assets used for regulatory purposes. This could lead to contagion and force banks into insolvency even though, assuming that liquidity issues are transient, they would be fully able to cover their commitments if they were allowed to continue to operate until the assets matured. In contrast, with historic cost accounting, which generally prices assets at their acquisition cost, this problem does not compromise the solvency of banks: using historical cost accounting for regulatory purposes could prevent crises that would occur under mark-to-market accounting.

That mark-to-market accounting could be distortionary and generate "artificial" contagion is due to imperfections in the supply of liquidity. In a world of perfect and complete markets, risk management ensures that a bank or intermediary has the correct amount of liquidity in every situation. With perfect and complete markets it is possible to use a full set of derivatives and other securities (or equivalently dynamic trading strategies) to ensure liquidity is available when it is needed.

In contrast, when markets are imperfect because they are incomplete, institutions sell assets when they need liquidity. Asset prices are then determined by the total available liquidity, or in other words by the "cash in the market." It is necessary that some financial institutions hold liquidity and stand ready to buy assets when they are sold. But then they are not compensated for the cost of providing liquidity in every situation, as they would be with complete markets.[2]

For low asset prices to occur when there is a shortage of liquidity does not require there to be informational problems. However, informational problems, such as we have seen recently, can exacerbate price declines. If buying institutions, in addition to bearing the opportunity cost of holding liquidity, need to expend significant resources to evaluate the assets they are purchasing, equilibrium prices will be even lower. Then prices must be low enough to cover the cost of due diligence. This is particularly important for securitizations of subprime mortgages and is consistent with the large fall in their prices in the current crisis.

There are advantages and disadvantages of mark-to-market accounting versus historic cost accounting: neither system is perfect, and each works in some circumstances but not others (see Box 1). What is crucial is that users of accounting information, such as regulators and investors, have information that allows them to understand what is happening and how this should affect their actions. mark-to-market values are useful and should certainly be disclosed. However, there needs to

2 Providers of liquidity have the alternative of investing in high return, but less liquid assets, whose returns accrue over the long term. However, there is an opportunity cost to holding liquidity, because it has a lower return than long assets; for financial institutions to be willing to supply liquidity, they must be able to profit. If nobody held liquidity then when banks and intermediaries sold long-term assets to acquire liquidity their price would collapse to zero. This would provide an incentive for some institutions to hold liquidity since they can acquire assets very cheaply in these situations. In equilibrium, prices will be bid up to the level where the profit in these situations where banks and intermediaries sell is sufficient to compensate the providers of liquidity for all the other situations where they do not use the liquidity and simply bear the opportunity cost of holding it. In other words, asset prices are low in the situations where there is an aggregate shortage of liquidity and some banks and intermediaries need liquidity (Allen and Gale, 2007).

Box 1: When Market Prices Depart from Fundamentals, and When They Do Not

The recent crisis, which started at the end of July 2007, provides an illustration of imperfect markets where some asset prices do not reflect fundamentals. For instance, some banks have written down the AAA-rated super senior tranches of collateralized debt obligations by 30 percent or more because of a fall in their market prices (Tett 2008). If this change in price was due to deterioration in fundamentals then it would be necessary to believe that the ultimate percentage loss would be 38 percent. This would be justified, if, for example, three-quarters of households with subprime securitized mortgages defaulted and price declines continued so that the loss given default ratio was 50 percent. This seems, however, implausible given that no AAA-rated tranches of subprime-mortgage-backed securities (MBS) had defaulted at that time and, as the Bank of England also estimated, there should not be a future default even with a continued decline in US house prices (Giles and Tett, 2008). This suggests that factors other than future discounted cash flows have driven prices.

A good example where historic cost accounting failed, where mark-to-market would probably not have, is the 1980s' Savings and Loan Crisis in the United States. Then, the fall in the prices of the assets was due to a collapse in oil prices (fundamentals), and the expected future cash flows from many properties in Texas and other oil producing states fell drastically. Historic cost accounting allowed banks to hide the extent of their problems for a significant period of time. Mark-to-market accounting would have led to a much quicker recognition and resolution of the problem, because it would have reflected the fundamental decline in the present value of future cash flows available to service the loans.

be additional information to allow users to identify the extent to which falls in asset prices are due to market conditions, such high demand for liquidity, and the extent to which they are due to changes in discounted expected future cash flows.

What information that is easily available can be used for this purpose? The IASB promulgates the International Financial Reporting Standards that apply to companies in the European Union/European Economic Area, among other countries, and in Canada from 2011 on. The approach for determining the fair values of financial instruments as outlined in IAS 39 and the United States' FAS 157 are similar to each other and to current Canadian accounting principles.

However, FAS 157 is more specific (International Monetary Fund 2008, chapter 2, Annex 2.1). It specifies three levels:

1. Level-one valuations, which are to be used if available, are determined from observable prices in liquid markets.
2. Level-two valuations are based on market inputs such as quoted prices for similar items in active markets, quoted prices for identical or similar items in inactive markets, and other inputs that are observable or derived from or corroborated by observable market data, such as interest rates and yield curves, volatilities, prepayment speeds and default rates. These are to be used if level one valuations are not available.
3. Finally, level-three valuations, which are to be used when level-one and level-two valuations are not available, are based on managers estimates of unobservable inputs, usually discounted expected future cash flows, and require disclosure of assumptions. For example, estimating fair value for mortgage-backed securities would require assumptions concerning default rates and loss ratios, which would determine the expected values of future cash flows accruing to the security holders.

These valuation methods should give very similar results most of the time. In such cases there is no point in disclosing anything other than level-one valuations based on observable prices in liquid markets as is currently done.

In times of crisis, however, the three methods can give very different values. An alternative would be to also report level-three valuations if they differ significantly from level-one (or level-two) valuations. A threshold for triggering the reporting of both could be a difference of 5 percent, for example. In such circumstances, it may also be helpful to report historic cost values, because these do not require extensive assumptions.

Reporting multiple values would alert regulators, investors and other users to the fact that they need to investigate more carefully whether the institutions are insolvent and unable to meet their future obligations. If they are otherwise solvent, regulators should typically exercise forbearance, in that they should allow banks to not fully write down the value of their assets according to market conditions, avoid artificial volatility and its consequent solvency impairment when regulatory ratios are tied to reported accounting numbers. This would help avoid the procyclicality problem fair value accounting may otherwise cause, as there would be no need for banks to raise further capital.

Conclusion

Mark-to-market works well and reflects the true underlying situation most of the time. However, in crisis times when there is a shortage of liquidity, mark-to-market values do not reflect future earning power and cannot be used to assess the solvency of financial institutions. In such cases, historic cost accounting can provide a better indication of true value. However, historic cost accounting has the drawback that it misses declines in value that are caused by deterioration of discounted expected cash flows, as the proponents of mark-to-market accounting suggest.

Our solution to this problem is to adapt mark-to-market accounting using easily available information. When model-based valuations based on plausible assumptions differ significantly from market-based valuations, both types of valuation together with traditional historic cost valuations should be provided. This will signal to the users of information that extra caution is warranted. While not perfect, this system will be an improvement over the current one.

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