MARKET VALUE AND APPRAISAL VALUE

A Conceptual Proposal to Use Appraisal Value as a Supplementary Basis for Financial Valuation

2010 CAS Annual Meeting

November 10, 2010

Neil Bodoff, FCAS, MAAA

Introduction

- Question:
  - Mark to Market accounting is:
    - The best thing since sliced bread
    - The handiwork of the devil
    - All of the above
    - None of the above

Introduction

- Financial crisis led to scrutiny of Mark to Market accounting
- Differing views
- Strong opinions
- Let's sort out some conceptual clarity
- Then propose a new framework for moving forward

MARK TO MARKET

False Accusations Against Mark to Market

Mark to Market

- Myth #1:
  - Mark to Market violates premise of "going concern"
    - "Thus it appears that Fair value/mark-to-market is liquidation accounting imposed on going concerns."
      - CAS Request for Proposals: Putting Mark to Market on a Going Concern Basis:
      - http://www.casact.org/members/index.cfm?fa=viewArticle&articleID=963

5

Mark to Market

- Myth #2:
  - If "Held to Maturity", then don't use Mark to Market
    - Mark to Market uses sale price
    - We're not going to sell
    - Ergo, wrong to use Mark to Market

6

Mark to Market

- What's wrong with these 2 myths?
  - They overlook a foundational concept:
    - Imputation

7

Mark to Market

- Imputation
  - To impute value = to assign value
  - When using Mark to Market, we're using imputation
    - The firm has no plans to sell assets or liabilities
    - Other firms have been buying and selling
    - We can observe the sale prices of these assets and liabilities
    - Thus we can use the market prices to assign or "impute" value to the firm's assets and liabilities, even though the firm has no plans to sell

8

Mark to Market

- Summary
  - Resist temptation to disqualify Mark to Market for
    - Going concern
    - Held to maturity
  - Some of the accusations against Mark to Market are misguided
- Mark to Market is a valid basis of valuation

9

MARK TO MARKET

Conceptual Foundations of Mark to Market

Conceptual Foundations of Mark to Market

- Why should we use Mark to Market?
- What's so great about Mark to Market anyway?

11

Conceptual Foundations of Mark to Market

- Efficient markets hypothesis
- No arbitrage pricing

12

Efficient Markets Hypothesis

- Efficient Markets Hypothesis
  - All public data is baked into market prices
  - Market price is inherently correct at all times
- Implies: always use market price as exclusive basis for valuation

13

Efficient Markets Hypothesis

- Problem (via Professor Shiller):
  - We know there are bubbles and panics
- Conclusions:
  - Can't say that market price is inherently correct
  - Can't say that market price is exclusive basis of valuation

14

No Arbitrage Pricing

- "No arbitrage" is another reason that market price is important
- If you tried to buy/sell at prices different than market, arbitrageurs would force prices back
- In other words:
  - Can't / don't sell at less than market price
  - Can't / don't buy at more than market price

15

No Arbitrage Pricing

- Doesn't say that market prices are "inherently correct"
- If you're going to sell something, market price is the reality of what you'd get
  - Then market price should be the only basis for valuation
- But what if you're not selling?
  - Concept of imputation means that market price is still valid
  - But not necessarily exclusive basis of valuation

16

BEYOND MARK TO MARKET

Appraisal Value as a Supplementary Bases for Valuation

Market Price

- Market Price
  - Valid? Yes. Perfectly accurate? Not always
  - Drawbacks:
    - Excess volatility relative to new information
    - Bubbles and panics
    - Non-experts can affect market price
    - Not stable, not robust across time
      - Market price reflects current situation
      - Often not good predictor of likely future prices

18

Appraisal Value

- What is Appraisal Value?
  - The value of the estimated sale price
    - From a knowledgeable, non-distressed seller
    - To a knowledgeable, non-euphoric buyer
  - As estimated by independent experts

19

Market Price vs. Appraisal Value

Valuation Basis	Market Price	Appraisal Value
Who	Many buyers and sellers	Handful of individuals
Qualifications	Includes non-experts	Experts only
Data	Can derive from buyers/sellers with opaque information	Requires access to rich underlying data
Transactions	Reflects current environment, even distressed sales	Reflects neutral environment of non-distress, non-euphoria

20

Market Price vs. Appraisal Value

Situation	Which performs better?
Periods of Euphoria and Panic	Appraisal value
Opaque Assets	Appraisal value
Opaque Conglomerates	Appraisal value
Most Other Situations	Market Price

21

Market Price vs. Appraisal Value

- Market price has strengths and weaknesses
- Appraisal value has strengths and weaknesses
- Each method's strengths tend to arise in different situations
- Suggests utility of proposing…

22

Proposal

- Always record both market price and appraisal value:

	Market Price	Appraisal Value		Market Price	Appraisal Value
Assets			Liabilities Equity		

23

Proposal

- Recording both market price and appraisal value would help one analyze:
  - What is the spread between market and appraisal?
  - How does this spread change over time?
  - How does this spread differ by type of asset and liability?

24

BOTH MARKET PRICE AND APPRAISAL VALUE

Application to the 2008-09 Financial Crisis

Application to Financial Crisis

- Regulatory Forbearance
- Mark to Model

26

Regulatory Forbearance

- During crisis, market prices plummeted
  - Lower asset prices → lower recorded capital
  - Leads to concern about required capital
  - Leads to asset sales
  - Causes “price-to-price feedback loop”
- Regulators should have pre-committed to using appraisal value for satisfying required capital
  - Fed “stress tests” = appraisal value

27

Mark to Model

- Firms declared "no active market, no market prices, switching to mark to model".
- Investors extremely suspicious of mark to model
  - Firms abandon market prices when they go down, but not up
  - Company financials have weird mixture, some assets are recorded at market, some at model
  - Using mark to model →less transparency for investors about true market prices.

28

Mark to Model

- In contrast, if firms would always publish both market price and appraisal value, then:
  - There's no self serving "switch" from market to model (appraisal)
  - Publishing appraisal value doesn't obstruct the view of market price
    - Investors less panicked that firm is hiding something
    - All information completely transparent

29

BOTH MARKET PRICE AND APPRAISAL VALUE

Application to Casualty Loss Reserves

Loss Reserves: Appraisal Value

- Do loss reserves satisfy the requirements of appraisal value?
  - Do they measure the value of the estimated sale price between a knowledgeable seller and buyer?
    - No!
      - Buyers and sellers require prices to reflect
        - Time value of money
        - Risk load

31

Loss Reserves: Appraisal Value

- Do loss reserves satisfy the requirements of appraisal value?
  - Do they reflect the value of the estimated sale price…
    - As measured by experts?
      - Yes!
      - Related: should recorded value reflect actuary's estimate or management's estimate?
    - As measured by <u>independent</u> experts?
      - Discuss

32

Loss Reserves: Market Price

- Solvency II capital regime:
  - Use one year downside in <u>market price</u> for required capital
- Market price ≠ appraisal value
- Many actuarial methods for reserve risk use appraisal value rather than market price
  - Appraisal value → requires multiyear runoff
  - One year horizon → requires market price
  - One year + variability of appraisal value = wrong

33

Loss Reserves: Paradigms

Paradigm	Time Horizon	Assumes that After One Year of Downside…	Measures Variability of
Appraisal Value	Multiyear runoff	The firm can rely on preexisting held capital to weather further downside risk	How the market price ought to behave
Market Price	One year	The firm can sell its liabilities or can raise equity capital	How the market price actually (mis)behaves

34

MARKET PRICE AND APPRAISAL VALUE

Conclusions

Conclusions

- Proposal: always record both market price and appraisal value
- Each valuation basis complements the other
  - Don't conflate the two; each must remain internally consistent
- Recording both appraisal and market
  - Would have reduced the panic during the financial crisis
  - Would have identified ex-ante the increased risk of a real estate bubble
  - Would be beneficial for casualty loss reserves

36

Correspondence

Willis Re

neil.bodoff@willis.com

37

Actuarial disclaimer

Willis Re

- This analysis has been prepared by Willis Re on condition that it shall be treated as strictly confidential and shall not be communicated in whole, in part, or in summary to any third party without written consent from Willis Re.
- Willis Re has relied upon data from public and/or other sources when preparing this analysis. No attempt has been made to independently verify the accuracy of this data. Willis Re does not represent or otherwise guarantee the accuracy or completeness of such data nor assume responsibility for the result of any error or omission in the data or other materials gathered from any source in the preparation of this analysis. Willis Re, its parent companies, sister companies, subsidiaries and affiliates (hereinafter "Willis") shall have no liability in connection with any results, including, without limitation, those arising from based upon or in connection with errors, omissions, inaccuracies, or inadequacies associated with the data or arising from, based upon or in connection with any methodologies used or applied by Willis Re in producing this analysis or any results contained herein. Willis expressly disclaims any and all liability arising from, based upon or in connection with this analysis. Willis assumes no duty in contract, tort or otherwise to any party arising from, based upon or in connection with this report, and no party should expect Willis to owe it any such duty.
- There are many uncertainties inherent in this analysis including, but not limited to, issues such as limitations in the available data, reliance on client data and outside data sources, the underlying volatility of loss and other random processes, uncertainties that characterize the application of professional judgment in estimates and assumptions, etc. Ultimate losses, liabilities and claims depend upon future contingent events, including but not limited to unanticipated changes in inflation, laws, and regulations. As a result of these uncertainties, the actual outcomes could vary significantly from Willis Re's estimates in either direction. Willis makes no representation about and does not guarantee the outcome, results, success, or profitability of any insurance or reinsurance program or venture, whether or not the analyses or conclusions contained herein apply to such program or venture.
- Willis does not recommend making decisions based solely on the information contained in this report. Rather, this report should be viewed as a supplement to other information, including specific business practice, claims experience, and financial situation. Independent professional advisors should be consulted with respect to the issues and conclusions presented herein and their possible application. Willis makes no representation or warranty as to the accuracy or completeness of this document and its contents.
- This analysis is not intended to be a complete actuarial communication. A complete communication can be provided upon request. Willis Re actuaries are available to answer questions about this analysis.
- Willis does not provide legal, accounting, or tax advice. This analysis does not constitute, is not intended to provide, and should not be construed as such advice. Qualified advisers should be consulted in these areas.
- Willis makes no representation, does not guarantee and assumes no liability for the accuracy or completeness of, or any results obtained by application of, this Risk Analysis and conclusions provided herein.
- Acceptance of this document shall be deemed agreement to the above.

38