

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

Neil M. Bodoff, FCAS, MAAA

Abstract: This paper argues that no single valuation basis is completely reliable: neither market price nor other alternatives can accurately measure value. Therefore, this paper proposes that a preferable solution is to simultaneously record two bases of valuation: market price and appraisal value. Thus by expanding the dimensionality of financial reporting, one can provide a broader, richer, and more accurate measurement of value.

Keywords: Valuation; market price; appraisal value; financial reporting.

1. INTRODUCTION

One of the central questions of finance is how one should measure, quantify, and record in financial statements the uncertain values of assets and liabilities. This paper describes a conceptual proposal that addresses some of the issues that arise in this debate.

2. BACKGROUND

One of the overarching trends during recent decades has been the ascendancy of the financial economics or “market price” method for valuation. According to this approach, the only true value of an asset or liability is the value that arises in the open market when buyers and sellers agree on price. As a result, there has been a significant shift away from previous methods of valuation towards the use of market price. The financial crisis of 2008, however, has highlighted the need to reevaluate this framework.

We first explore the conceptual bases for using market price and examine their implications; then we propose an alternative valuation methodology to complement market price.

3. MARKET PRICE

3.1 Market Price Valuation Rooted in the Efficient Markets Hypothesis

The market price approach rests partly on the foundation of the “efficient markets hypothesis,” which states that all known information has been incorporated or “priced into” the market price; thus, the market becomes some form of supremely intelligent force that always reflects the “true

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

price” at any moment. According to this theory, one should always value assets and liabilities at market price; whether one is seeking to actually sell an asset in the market or not is irrelevant, because the cogency of the argument derives from the inherent correctness and exclusive accuracy of the market price. Thus according to this theory, market price would be not only a *valid* basis for valuation but also an *exclusive* basis for valuation.

Although the efficient markets hypothesis has a noble pedigree, reality has stubbornly refused to conform to its predictions. One known problem is that market prices show an inordinate amount of volatility relative to new information. If the market price truly reflected the inherently correct value at any single point in time, it would be unlikely that the market price would greatly change from moment to moment in the absence of new real information; yet such pronounced volatility is a known trait of market prices. Another known problem is the formation of bubbles, manias, and panics. All of these phenomena are temporary situations in which the market price distorts information and unhinges itself from the underlying economic value, with painful consequences when the market price corrects.

Therefore, in this paper, we shall reject the idea that the market price at every moment in time reflects some form of true or inherently correct price. Therefore, this conclusion suggests that market price cannot make a claim on being an *exclusive* basis for valuation.

3.2 Market Price Valuation Rooted in No Arbitrage Pricing

The use of market price, however, does not derive solely from the efficient markets hypothesis. In fact, a very different conceptual framework also demands the use of market price: “no arbitrage pricing.” No arbitrage pricing, however, does not necessarily ascribe perfect knowledge to the market; the market price is not an inherently correct or normative price. Rather, no arbitrage pricing requires that one use market price simply because market price reflects reality: this is the price at which one can (and should and must) sell or “realize the value of” an asset. No arbitrage pricing simply acknowledges that the dollar amount that one can actually obtain is rooted in the current market price; not only is market price a *valid* basis for valuation, it ought to be the *exclusive* basis for valuation.

According to this logic, however, the cogency of this argument seems to derive from the presupposition that one seeks to immediately sell or realize the value of something; but what if one were able and willing to hold an asset and not sell at the current market price? Would this behavior blunt the logic and dilute the applicability of using market price as the exclusive basis for valuation?

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

Or, even further, would market price, rooted in no arbitrage pricing theory, be disqualified as a basis for valuation?

This situation in which a firm does not intend to sell its assets is highly relevant because the premise of GAAP accounting is that the firm is a “going concern” and not in liquidation. Indeed, the apparent disconnect between the premise of “no arbitrage market pricing” and “going concern” is so striking that one might be tempted to argue that market pricing is inconsistent with the premise of going concern. This argument, however, is specious. Market price, rooted in no arbitrage pricing is, in fact, consistent with going concern via the concept of *imputation*.

3.2.1 Imputation

To impute value to an item is to assign value to it, often by comparing the item with something else that is similar with known value. The more precise the comparison, the more compelling the imputation of value will be.

The underlying premise of market price valuation via the theory of no arbitrage pricing derives from *imputation*. The idea is that if Firm A holds an asset that is exactly similar to Firm B, and Firm B has just sold the asset for Market Price \$X, then it is reasonable to assign this market price to the asset that Firm A is holding.

For example, if Firm A holds equity shares in IBM, and Firm B has recently sold shares of IBM for a certain market price, then it would be reasonable to note that (1) Firm A’s shares of IBM are essentially identical to Firm B’s shares, so the two are quite comparable; and (2) therefore we can take the value that Firm B received for its shares of IBM and *impute* that value to the shares that Firm A holds, *even though Firm A is a going concern and has no intention of selling its shares*.

Therefore, when one advocates for using market price as a basis of valuation, this basis derives from the conceptual framework of imputation. One is not saying that the firm whose assets and liabilities are being valued somehow intends to actually sell them; rather, one is saying that a firm that specifically does not intend to sell its assets (going concern) can nevertheless *assign* value to its assets and liabilities based on market price, rooted in the intersection of the concepts of (1) no arbitrage pricing and (2) imputation.¹

¹ One often hears the argument that a firm that intends to hold its assets and liabilities “to maturity” should be exempted from market price valuation. However, the concept of “imputation” shows that this argument is flawed; market price is indeed valid even for an item that is “held-to-maturity.”

Therefore, the presumption of going concern does not disqualify using market price as a basis of valuation; market price, via no arbitrage pricing, remains a *valid* basis of valuation. But because the firm does not intend to actually sell its assets and liabilities, one cannot say that market price, via no arbitrage pricing, ought to be the *exclusive* basis of valuation.

3.3 Traits of Market Price

As we have noted, in some situations using market price is compelling, whereas in other situations using market price seems less compelling. This duality arises because the market price has traits that make it very useful but simultaneously has characteristics that make it subject to biases and distortions.

One trait of market price is that it usually arises from the interactions of many buyers and sellers. This trait can be positive, because information is often diffuse; price thus reflects the aggregation of information from many sources. This same trait, however, can also be a weakness; the large number of participants in the market may allow non-expert actors to influence the market price, which can lead to positive and negative bubbles.

A second trait of market price is that it reflects the immediate behavior of participants in the market but is not necessarily stable or robust across time. For example, the market price may reflect the behavior of actors known as distressed sellers, who are forced by external circumstances to sell, resulting in an unusually low current market price. But once the force of distressed selling ebbs from the market, the market price may rebound significantly; thus the current market price may reflect a distorted view of likely future prices. The current price, reflecting the exigencies of the moment, may serve as a poor guide to likely prices in the very near future.

4. APPRAISAL VALUE

4.1 Appraisal Value as an Alternative to Market Price

The known weaknesses of market price demonstrate why market price is not sufficient to serve as the sole basis of valuation. Moreover, the specific drawbacks of market price point towards a potential remedy: to supplement the valuation of any asset or liability by looking not only at the market price but also at the “appraisal value.” What is the appraisal value? We define appraisal value as the value, as estimated by independent experts, of the sale price from a knowledgeable, non-distressed seller to a knowledgeable, non-euphoric buyer. We underscore the importance of

“independent” and “experts.”

4.2 Traits of Appraisal Value

Appraisal value is the polar opposite of market price. Whereas market price derives from the interactions of many diffuse players, appraisal value derives from only a handful of individuals. Whereas market price might reflect the views of many non-experts who are not fully informed of all the underlying details of an asset or liability, appraisal value must be calculated only by experts with sufficient access to data and sufficient time to painstakingly inspect all the underlying details of the situation. Whereas market price reflects distressed sales and all other exigencies of the moment, appraisal value seeks to understand price based on a “stable environment” free of dislocation from positive or negative bubbles.

Based on this discussion, we conclude that many traditional valuation methods share a common conceptual basis rooted in appraisal value. Some examples are the valuation of real estate; appraisals of fine art, wine, antiques, and collectibles; independent research analysts’ estimates of equity prices; and actuarial valuations of insurance liabilities.

Because several traits of appraisal value are the inverse of market value, it is logical that the situations in which market value performs poorly are exactly the situations in which appraisal value performs well, and vice versa. Some situations that would likely accentuate the utility of an appraisal value methodology would be:

1. Valuations during periods of market euphoria (bubbles) and periods of market depression (panics).
2. Valuations of complex assets and liabilities whose workings are opaque to the market.
3. Valuations of opaque conglomerate firms with many subsidiaries.

5. PROPOSAL

Market price is an important indicator for valuation purposes, but it is not perfect; there are times when market value provides an inaccurate and distorted view of value. Appraisal value also is an important and legitimate approach to valuation, but it too is imperfect; there are times when appraisal value provides an inaccurate picture of value. Moreover, the availability of two different valuation bases could create an irresistible temptation to adopt one basis during good times and then

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

to switch the valuation method when conditions deteriorate.

We therefore propose that financial valuation should always present both bases for valuation: the market price and the appraisal value.

Exhibit 1: Sample Conceptual Balance Sheet

	Market Price	Appraisal Value		Market Price	Appraisal Value
Assets			Liabilities		
			Equity		

This proposal implies that there would be no single number for “the value” of anything; rather, all assets and liabilities have various facets of value and therefore manifest at all times both a market price and an appraisal value. Of course, for many assets and liabilities during many time periods, the market price and the appraisal value ought to be similar. But the gap between market price and appraisal value could be significant and telling during certain time periods for certain types of assets and liabilities. Recording both the market price and the appraisal value would facilitate:

1. Investigating the absolute magnitude of the difference between market price and appraisal value.
2. Analyzing how the spread between market price and appraisal value expands or contracts over time.
3. Measuring how the spread between market price and appraisal value compares and contrasts across various types of assets and liabilities.

When consistently recording both market price and appraisal value, one needs to make only a single yet critical choice: which basis of valuation to embrace for decision-making purposes. This choice could depend on several factors, ranging from the condition of the market, to the type of

asset, to the job description of the particular person making the decision. Some possible choices are:

1. Regulators might embrace market value until there is a “very large” gap between market price and appraisal value; market price significantly exceeding appraisal could signal a higher probability of a bubble, and appraisal value significantly exceeding market price could signal a higher probability of a distressed market. This framework could, for example, assist regulators to achieve the goal of countercyclical capital requirements.
2. Market participants such as investors and traders might focus exclusively on market price, whereas regulators might use appraisal value when deciding upon regulatory action.
3. Regulators might choose to embrace market price for certain assets such as equities while simultaneously choosing appraisal value for other more opaque, complex, and illiquid assets and liabilities.

While there are numerous possible approaches, they would all benefit from the information supplied by a multifaceted valuation framework that records both market price and appraisal value.

5.1 Application to the 2008 Financial Crisis

5.1.1 Regulatory Forbearance

The financial crisis of 2008 exposed some of the weaknesses of mark-to-market valuation, especially with respect to triggering regulatory intervention; it also showed the possible utility of basing regulatory action upon valuations derived from appraisal value rather than market price. One aspect of this crisis occurred when distressed selling drove down the market price; valuations based on market price then transmitted these asset price declines to other non-selling institutions that held similar assets; this deterioration in recorded asset valuations reduced the recorded value of equity, which then triggered the regulatory response that these institutions had insufficient equity capital, leading to further distressed selling of assets, leading to further depressing the market price of assets, thus completing an endless loop. Had regulators evaluated the capital adequacy of firms by focusing to a greater degree on appraisal value, firms would not have been required to sell assets into a distressed market. In fact, this is (eventually) what regulators implicitly did: the Federal Reserve decided that capital adequacy would be calculated (albeit in a controlled, uniformly applied “stress test”) based on the appraisal value of complex, opaque assets and liabilities. Had the regulatory apparatus pre-committed before the crisis to using appraisal value as its basis of valuation of assets, liabilities, and capital adequacy, some aspects of the panic could have been averted.

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

We also note that different groups could simultaneously take different approaches to valuation: market traders could use their own views of the value of the firm, while regulators could give less weight to distressed market prices and more weight to appraisal value when deciding if regulatory intervention was needed. Therefore presenting both market price and appraisal value would allow valuation to serve multiple audiences, without the informational needs of one group interfering with the informational needs of another.

5.1.2 Mark-to-Model

One of the features of the financial crisis was the phenomenon of “mark-to-model.” In this situation, various assets had previously been valued based upon market information; when markets imploded and there were no market clearing transactions, firms resorted to valuation models to place a value on these assets. Mark-to-model was the flashpoint for quite a bit of controversy: is it an appropriate valuation method or not?

The proposal to simultaneously display both appraisal value and also market price would have significantly reduced two of the problematic aspects of mark-to-model:

1. First, one of the serious problems of mark-to-model is the inherent conflating of market price and appraisal value; having previously committed to using market price, switching to appraisal value is a complete paradigm shift in the underlying valuation framework. To have these values commingled in one single column of valuation numbers is inconsistent, confusing, and confidence-destroying. In contrast, had valuation always been presented on both bases of appraisal value and market price, this problem would have been ameliorated. Information in the mark-to-model appraisal value would not have been presented as a form of market price but rather would remain in its own separate column, clearly marked as appraisal value, not market price.
2. Second, switching from mark-to-market to mark-to-model makes a sloppy intellectual assertion: that when there previously had been a market price that has now evaporated, this is not informationally significant! True, there is no market now; had there never been a market for this asset or liability, then the nonexistence now would be inconsequential. Yet when a market for an asset had previously existed and now the market has seized up so that a market price no longer exists, this is very relevant because it signifies the likely deterioration in the value of the asset. In such a situation, to not disclose this massive dislocation of market prices is to ignore significant information. In contrast, had valuation

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

always been presented on both bases of appraisal value and market price, this problem would have been lessened. Mark-to-model would not have supplanted and obscured market price information but rather would have been presented alongside it, and significantly depressed market price information could have been communicated unfettered to investors. Then both investors and regulators could evaluate the relevant quality, reliability, meaning, and importance of the two valuation measures. Instead, we experienced months and years of firms recording values that no one had faith in (“mark-to-myth”), destroying confidence and paralyzing market participants.

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

Exhibit 2: Current Framework vs. Proposed Framework

Current Framework: Normal Environment

	Value		Value
Assets	110 (mark-to-market)	Liabilities	90 (mark-to-market)
		Equity	20 (mark-to-market)

Current Framework: Crisis Environment

	Value		Value
Assets	95 (mark-to-model)	Liabilities	90 (mark-to-model)
		Equity	5 (mark-to-model)

Proposed Framework: Normal Environment

	Market Price	Appraisal Value		Market Price	Appraisal Value
Assets	110	100	Liabilities	90	90
			Equity	20	10

Proposed Framework: Crisis Environment

	Market Price	Appraisal Value		Market Price	Appraisal Value
Assets	80	95	Liabilities	90	90
			Equity	-10	5

6. CHALLENGES TO IMPLEMENTATION; DANGERS

The goal of this paper is to introduce the conceptual proposal that valuation should display more than one value: an appraisal value and a market price. Yet one cannot ignore some practical challenges that could arise when implementing such a proposal. Some challenges to implementation could include:

1. Expertise and Independence: we defined appraisal value as a value determined by “experts” who are “independent.” In order to qualify as independent, the appraisers ought to not be employees of the firm whose assets and liabilities are being appraised; they would need to be employees of a third-party valuation firm. Who should qualify as an expert? Does the firm being appraised retain the right to hire and choose the particular appraisal firm? If so, does the hiring process itself subvert independence? While all of these questions are germane, they are not qualitatively more difficult than similar questions that have arisen in other similar contexts (e.g., hiring public auditing firms, etc.).
2. The “Prisoners’ Dilemma,” Disagreement, and Coordination: should all expert appraisers be allowed to use their own unique methodology for determining the appraisal value? Would such a situation lead to a downward spiral in which appraisers compete to win business by promising the most favorable appraisal? To what extent should regulators serve a “coordinating” function, in the sense that they impose some constraints on some valuation choices and thus save the individual appraisers from destructive competition? For example, it might be undesirable to have a particular company’s commercial real estate assets appraised by a valuation firm using a 10% default rate assumption while another company’s assets are appraised by a different valuation firm using a 20% default rate assumption. Like the Fed’s “stress tests,” there might be sound logic for coordinating certain uniform assumptions across all firms approved for performing appraisals.
3. Disclosure of Methodology: because appraisal value is so highly dependent upon the valuation assumptions of the appraiser, the firm reporting its assets and liabilities would have to meticulously document and describe the underlying appraisal methodology in order to satisfy its investors. How would this be done? In what level of detail? While these are important questions, they are not radically different than the current issues that arise when a firm uses mark-to-model methodology and discloses the underlying model assumptions.

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

4. The Illusion of Adjacent Expertise: in the financial crisis, we observed problems with rating agency evaluation of structured financial products such as CDOs. These financial instruments, in fact, were materially different from the vanilla securities that the rating agencies had a long, successful track record of evaluating. The expertise the ratings agencies had was in evaluating corporate debt, which was an adjacent market to structured products such as CDOs. The ratings agencies' expertise in one market, it turned out, did not mean they were experts in an adjacent market, yet the adjacent expertise served to facilitate this illusion.
5. Appraisal Value is No Panacea: if firms were to record both the market price and also the appraisal value, this would help reduce the frequency and severity of financial crises, but it would certainly not reduce them to zero. After all, appraisers can also fall victim to positive and negative euphoria and thus fail to produce reasonably accurate estimates.

The proposal is not riskless; it also introduces new dangers. One significant danger is that appraisal value could be used to subvert the discipline that mark-to-market valuation imposes; appraisers might use unrealistically rosy assumptions to prop up certain institutions favored by politicians, regulators, or particular interest groups.

7. APPLICATION TO PROPERTY-CASUALTY INSURANCE

The discussion thus far of market price and appraisal value has related generally to the financial industry. What ramifications does it have when applied specifically to the property-casualty insurance industry?

7.1 Loss Reserves: Appraisal Value

One of the most important financial items to quantify in the property-casualty insurance industry is the liability for loss reserves. Historically, this liability has not been estimated using market price; the lack of an actively traded market of insurance liabilities has been a critical impediment to using market price. Rather, loss reserves have been estimated via an actuarial appraisal of the liability value. Does current practice indicate that actuarial appraisals are in line with appropriate standards for appraisal valuation? Our discussion defines appraisal value as a sale price between a knowledgeable, non-euphoric buyer and seller. Almost certainly, knowledgeable buyers and sellers require a sale price to include (1) the time value of money and (2) a margin for risk; therefore, because actuarial

appraisals and current USA accounting methods for loss reserves do not provide for these two elements, it would seem that current practice does not comport well with the framework of appraisal value as defined in this paper.

7.2 Loss Reserves: Market Price

In recent years, the Solvency II required capital framework has promoted the use of market of values for assets, liabilities, and equity capital. Under this rule, the loss reserves' contribution to the firm's risk and capital corresponds to the one year downside move in the market value of the loss reserves. Naturally this framework raises the question of how to measure the "one-year downside move in the market value of loss reserves" when there is generally no active market for loss reserves. The lack of clearly observable market prices for loss reserves has created a need for actuarial models of the "market price of loss reserves." How should we evaluate the appropriateness of these actuarial models in light of the proposal to record valuation on both an "appraisal value" basis as well as a "market price" basis? Before addressing this question, we ought to inspect the interrelated issue of time horizon. Given that loss reserves correspond to liabilities that will be paid over multiple future years, on what basis does Solvency II allow downside risk and capital to be defined on a one-year basis?

7.2.1 Excursus on Solvency II "One Year Horizon" for Long Tail Loss Reserves

At first blush, one might object to the apparent mismatch between the multi-year time frame of loss reserves liabilities and the one-year time frame for required capital. In fact, one might strongly prefer to calibrate required capital based on the multi-year downside move in loss reserve liabilities across the entire multi-year period needed to pay all the claims and extinguish the risk. How then can one justify using a one-year capital time when liabilities and risk continue for multiple future periods?

The only logic that can justify the one-year horizon is as follows. At the beginning of year one, the firm holds sufficient capital to withstand even a significant one-year downside move in its loss reserves liabilities; at the end of the year, the firm can sell its loss reserves in the open market or, equivalently, raise equity capital in the open market. This logic, while sound, shows that the "mismatch" between multi-year loss reserves and single year required capital is justifiable only under the assumption that after one year the firm can actually sell liabilities in a real-world transaction or attract an infusion of equity capital in a real-world transaction. Therefore, any model of the one-year move in the market value of reserves ought to measure the one year move in the actual market price

required to sell liabilities or attract an equity capital infusion. Yet as discussed earlier, we know that actual prices in the real-world market are subject to animal spirits that can lead to distortions such as overreactions and panic, as well as extreme suspicion rooted in asymmetric information. For actively traded financial instruments, such behaviors of the market can be somewhat quantified by measuring statistical volatility of observed market prices. For non-actively traded instruments such as insurance liabilities, such behavior is more difficult to measure. Any model that does not incorporate such behavior of real world market prices will understate volatility.

7.2.2 Evaluating Current Actuarial Models of Loss Reserve Risk for Solvency II

Many actuarial models of loss reserve risk are rooted in measuring the statistical behavior of the underlying claim payments; they do not measure the statistical variability of a market measure. Such a perspective would be wholly reasonable within a framework that calibrated required capital based on a multi-year or “runoff” view that matched the time horizon of the liabilities. Yet for a single year view of capital, one must estimate the one-year variability of the market price, including all the passions, overreactions, herd mentality, and distortions that the market price exhibits. This means that current actuarial models of reserve risk are more accurately classified as models of the variability of “appraisal value”; yet what the actuarial community requires for calibrating required capital for Solvency II is a model of the variability of the “market price” of loss reserves. Such a model of market price would likely calculate a much larger one-year variability than current appraisal value models, suggesting a risk that current Solvency II required capital for loss reserves is too low.

Exhibit 3: Categories of Actuarial Models of Loss Reserve Risk

Category #	Category Name	Time Horizon	Assumes that After One Year of Downside...	Measures Variability of
1	Appraisal Value	Multi-year runoff	The firm can rely on preexisting held capital to weather further downside risk	How the market price <i>ought to</i> behave
2	Market Price	One year	The firm can sell its liabilities or can raise equity capital	How the market price <i>actually</i> (mis)behaves

8. CONCLUSION

In this paper we argue that there is no such thing as “the value” of anything; rather, there are various metrics that describe different perspectives of value. We propose that one should always measure and record two key perspectives of valuation: market price and appraisal value. Both market price and appraisal value are imperfect measures of value with known weaknesses, but each has significant strengths that complement each other when used in concert.

One essential requirement of appraisal value is that it should be calculated by “experts” who have the knowledge, time, and access to data in order to delve into the underlying details of the valuation. A second key requirement is that the appraisal value should be calculated by experts who are “independent” of all parties who have vested interests in the appraisal.

Consistently disclosing the complementary perspectives of market price and appraisal value will provide a broader perspective on valuation and will thereby help firms, investors, regulators, and

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

taxpayers all achieve better outcomes.

7. REFERENCES

- [1] International Actuarial Association, “Comprehensive Actuarial Risk Evaluation (CARE),” 2010, http://www.actuaries.org/CTTEES_FINRISKS/Documents/CARE_EN.pdf.
- [2] SEC, “Report and Recommendations Pursuant to Section 133 of the Emergency Economic Stabilization Act of 2008: Study on Mark-To-Market Accounting,” 2008, <http://www.sec.gov/news/studies/2008/marktomarket123008.pdf>.
- [3] Shiller, Robert J., *Irrational Exuberance*, Second Edition, (New York: Crown Publishing Group, 2005).

Biography of the Author

Neil M. Bodoff can be contacted at neil.bodoff@willis.com and neil_bodoff@yahoo.com