**International Association of Financial Engineers**
**Investor Risk Committee**

# VALUATION CONCEPTS FOR INVESTMENT COMPANIES AND FINANCIAL INSTITUTIONS AND THEIR STAKEHOLDERS



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## *Introduction*

Valuation is a keystone of the asset-and-liability-management business. Across the wide spectrum of financial services activity, there exist many different needs to assign a price or value to a financial instrument, whether individually or as part of a portfolio.

Properly valuing portfolios requires well-designed systems, procedures, policies, and people. Stakeholders should satisfy themselves that the pricing procedures that investment-company and financial-institution managers use conform to the highest standards of correctness, fairness, transparency, and internal consistency. These stakeholders include: investors or their advisers, independent auditors, or valuation consultants; dealers; traders; bankers; regulators; portfolio managers; and others.

As with any financial metric, an asset's valuation,[2] which is an amount at a specific moment in time based on a distinct set of principles, is subject to many assumptions. Accordingly, valuation remains a vast and complex subject that one should understand in its proper context. To help promote a thoughtful discussion around the many issues related to valuations, the Investor Risk Committee of the International Association of Financial Engineers has released this document. This document should be of interest to a wide range of readers, including financial- and investment-industry practitioners, stakeholders, academics, journalists, auditors, and industry observers. The interested industries include government-sponsored enterprises, commercial and investment banks,

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[1] Anyone may copy *Valuation Concepts for Investment Companies and Financial Institutions and their Stakeholders* if the user reproduces it, with proper attribution, in its entirety, and does not sell or otherwise distribute it for profit.

[2] Valuation can mean different things to different people. For example, the U.S. Internal Revenue Service looks to *fair market value,* which is the price at which property could be exchanged between a hypothetical—not actual—buyer and hypothetical seller at the property's highest and best use. In contrast, Generally Accepted Accounting Principles (GAAP) look to *fair value*, an amount at which the investment could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale, which might be the midpoint between the bid and asked prices. Others might consider the value to be, if a long position, the bid price, and, if a short position, the asked price.

broker-dealers, mutual funds, hedge funds, real estate funds, venture capital funds, and other investment funds.

*Background*

The IRC began its work on this document in September 2002. Numerous participants, including individuals from the academic and practitioner communities, have commented on various drafts of the document. These individuals represent a broad and diverse range of experiences in asset management and financial services. Some are asset managers, others are end investors, and several act in both roles. Some participants have experience at funds of funds, in which capacity they work with the pricing procedures of both component funds and their own fund. Yet other participants have experience at hedge funds or mutual funds or as consultants to both investors and managers. The group's collective experience in pricing across multiple individual portfolios, asset classes, and geographic locations is substantial. The challenge of the IRC was to produce a document that reflected a consensus of the IRC while offering meaningful guidance to the financial services community.

Thus, the IAFE is releasing this document as a working draft with the hope of promoting further debate and soliciting further comment. Readers can direct their comments to the IAFE at valuations@iafe.org until February 27, 2004, after which we intend to produce a final version.

*Overview*

The document seeks to address valuation concepts in considerable detail. Its primary approach is to raise various questions related to valuation, which stakeholders can use in a variety of ways that we further discuss within this paper. We have grouped these questions into twelve broad categories. Because of the broad scope of the subject matter, we do not address here a number of important and related topics involving accounting, compliance, regulatory, and risk-management issues. This is because they either have been addressed in other documents, are tangential to correct valuations, or are too vast for us to cover them effectively in this more-narrowly focused document

*Importance of Valuation*

Correct portfolio valuations are critical for a variety of reasons:

• Contributions—Did the investor fairly pay for his or her investment?
• Withdrawals—Did the investor receive the correct amount upon withdrawal?
• Volatility—Valuations can affect the volatility of net asset value. For example, averaging multiple third-party dealer quotes or marking to the midpoint between the bid and asking prices tends to lower the volatility.

• Performance—Valuations affect the rate of return.
• Risk assessment—If a portfolio is not marked in accordance with the appropriate practices and procedures, portfolio managers and risk managers might misjudge the level of risk and take unintended actions.
• Counterparty collateral and netting arrangements—Valuations directly affect current credit exposure.
• Traders' compensation—Does the portfolio value used for determining the trader's compensation differ from that on the financial statements?
• Tax treatment—Certain firms mark to market their portfolios for tax purposes. Are governments collecting the right amount of taxes due to them?
• Operational control—Valuing the portfolio helps detect operational flaws in the firm's administration when the firm compares its self-assessed values to those that the prime brokers and counterparties provide.
• Financial reporting to lenders and regulators—Weaknesses in valuations can impair the correctness of financial statements.
• Capital allocation decisions—Knowing the correct value of the various strategies employed, e.g., convertible-bond arbitrage, plays a role in making further capital allocations.
• Comparability—Stakeholders need to understand the issues involved in comparing the returns and standard deviations of firms that mark to the midpoint with those that mark long positions at the bid and shorts at the asked.

*Interest in Valuations*

The issue of financial asset and liability valuation continues to generate attention among regulators and other government agencies. In its recent report on the hedge fund industry,[3] the U.S. Securities and Exchange Commission raised the possibility of rulemaking to ensure proper valuation of positions in hedge funds that underlie registered funds-of-hedge funds, and encouraged the development of voluntary best practice guidelines for all hedge fund operations; the U.S. Internal Revenue Service is wrestling with the reliability of the valuations of securities and commodity positions held by financial institutions; U.S. banking regulators[4] are looking at similar valuation issues; and, New York's Attorney General, in conjunction with the SEC, is focusing on problems resulting from the stale pricing of mutual funds. While these recent events make the release of the concepts timely, the IRC embarked on this project well before this recent wave of interest.

[3] *Implications of the Growth of Hedge Funds*, Staff Report to the United States Securities and Exchange Commission, September 2003.
[4] http://www.fdic.gov/news/news/financial/2003/fil0384a.html

*One Size Does Not Fit All*

The wide variety of investment strategies, and the inherent variability in pricing any financial instrument, makes it difficult—if not dangerous—to arrive at one-size-fits-all rules for pricing every security, in all investment companies and financial institutions, at all times. Therefore, we propose below a set of valuation concepts that stakeholders should understand. Some concepts may be applicable to certain investment or financial entities but not to others. Moreover, as comprehensive as this list is, we do not intend it to be exhaustive. Therefore, we strongly discourage stakeholders from turning this list into a printed questionnaire for managers, and advise managers to opt not to respond in writing if stakeholders submit these questions on paper. We are concerned that some stakeholders might rely on the procedure of receiving written responses to a questionnaire without really understanding the valuation procedures, which could lead to making inappropriate decisions or avoiding proper actions While reasonable people might disagree about how much transparency should take place when it relates to positions, most will agree that, when practical, there should be full transparency regarding valuation policies, practices, and procedures, as long as the information requested is not proprietary. As we illustrate below, at times, it may be more practical to rely on the independent auditors or other outside independent consultants to review the valuation policies.

We designed the list of concepts to help stakeholders develop their own set of criteria, as part of ongoing discussions about valuation procedures with managers. We also intend it as a basis for managers to perform self-assessments of their own valuation procedures. We set neither an order of priority to the concepts nor a scoring methodology to rank the answers because certain concepts will be more important to some stakeholders than to others.

Because stakeholders should not apply one-size-fits-all standards to valuations, it is critical to understand the policies and procedures behind them. While some might advocate that firms use the most-conservative values, others, like redeeming investors, might object to such an approach. To illustrate, say, an investor has subscribed to a partnership that is developing a golf course and that the golf course has become very successful. While the most readily verifiable approach to valuing the asset would be the lower-of-cost-or-market method and the most objective method would be to use cost, if the firm valued the asset at cost, a redeeming investor would not receive any value for the contribution of risk capital to the venture. In fact, if a prospective investor with a shorter-term investment horizon and for whom liquidity was a concern understood that this asset would be valued at cost, he or she might decline to invest. Therefore, investors, as an example, must understand valuation policies, practices, and procedures in order to assess whether the investment is suitable for them.

Nowhere do we conclude that one method of valuation is better than another. Thus, we have posed the questions in the form of: “Why does the firm think that this approach better reflects fair value?” Besides the "why" questions, we have also included "who," "what," and "when" queries.  Those inquiries are the building blocks to understanding the valuation concepts this paper articulates.

*Question Format*

We felt that the pedagogical approach, namely, addressing these topics in the form of questions, would best help less-experienced investors and managers looking for information about important valuation concepts.  Satisfaction with a firm's valuation procedures is, of course, only one aspect of the due diligence required before making a decision.  Accordingly, stakeholders should not base a decision on these valuation concepts without understanding the underlying strategies of the portfolio; the quality of risk management procedures and staff; the level of internal controls; etc.

*Practical Issues*

It is often impractical for a firm to discuss directly with its numerous stakeholders the many complex issues arising in valuation.[5]  Therefore, independent auditors or other outside independent valuation consultants, who review financial statements, could take into account the concepts raised in this paper.  Indeed, stakeholders often rely on independent audits to ensure the integrity of financial statements and valuations.  In this context, adequate attention by auditors to the concepts we present below plays a central role in supporting confidence in financial information provided by the firm.  In such circumstances, as long as the stakeholders feel comfortable relying on the monitoring by the independent parties, they should not feel obligated to ask the questions.

This document may have other uses as well.  In particular, it should prove useful to directors and trustees of mutual funds, and custodians; and it may be valuable to the U.S. Internal Revenue Service when it reviews taxpayers' valuations, and to government regulators, who, for example, look at systemic risk or seek to protect investors.

To help readers understand a firm's overall control environment, we urge them to inquire about the complete range of a firm's governance and risk process, including the activities of internal audit, risk, compliance, legal, trading, and portfolio management.  The roles of these groups and their interactions are critical to an overall understanding of risk management, internal control, and valuation issues.  We stress that proper valuation includes verification of answers.  Therefore, for example, one should, when practical, look at documentation (e.g., pricing runs; overrides; cases where different prices are used for different matters like valuation, compensation, taxes, etc.).

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[5] For example, if a firm has more than 2 billion shares of stock outstanding, it would be a poor use of the shareholders' resources to have a frank discussion with every shareholder who owns only 100 shares.

Leon M. Metzger managed this project on behalf of the IAFE and was the document's principal editor. Metzger's work, however, merges the ideas from many members and friends of the IAFE who contributed to this list of concepts.[6]

## Terms of Use

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[6] Metzger, a member of the IRC and chair of the Advisory Board of the IAFE, is vice chairman of Paloma Partners Management Company, Greenwich, CT. He participated in this project as an individual; thus, this paper does not necessarily reflect the views of Paloma. Similarly, all contributors acted in their individual capacities and not as representatives of organizations with which they are affiliated.

## FINANCIAL ASSET AND LIABILITY PRICING CONCEPTS[7]

### 1) What controls does the firm use to promote correctness and integrity in the valuation process?

• What are the potential conflicts of interest in marking[8] the financial assets and liabilities? What does the firm consider conflicts of interest in marking the portfolio? What causes these conflicts? What are the key internal controls relating to valuations?

• What controls does the firm have in place to avoid or mitigate potential conflicts of interest relating to valuation?

• Does the firm mark to a proprietary model? If so, why is that better than the alternatives? What are the alternatives? How would the firm know if it presented conflicting values to realized prices? How does the firm address the circumstances of proprietary model prices differing from realized prices when it closes the position? What process does the firm use to seek independent valuations for such trades on a regular basis to compare to internal model results? What are the criteria that go into the proprietary model? How does the fund use *ex-post* information to update the model?

• When the firm uses models for valuation, who independently validates them? How frequently are the validations performed? What assumptions does the firm use? Who develops those assumptions? What is the firm's process to develop them?

• Does the firm value complex or illiquid (i.e., thinly traded) securities (e.g., private placements, real estate, large-block positions) by itself? If so, why is that better than the alternatives? What are the alternatives? What criteria does the firm use to calculate the discount or premium? How would the firm know if its values conflicted with realized prices? How does the firm assure redeeming investors that they received not less than fair value? How does the firm assure subscribing investors that they paid not more than fair value?

• Does the firm allow an investor to time its purchases or redemptions in order to transact at a more or less favorable price? If so, what is the impact on other investors?

• Do the individuals who value the portfolio have a direct or indirect interest, financial or otherwise, in the asset or liabilities that they value?

• Who (e.g., trader, risk manager, controller who does not report to the trader) determines the compensation of those who account for the valuations of the positions?

• How does the firm manage the normal conflicts that arise in performing valuations for investors who subscribe or redeem capital? For example, when investors subscribe and redeem, how do the different investors share the costs, and how does the firm manage redemptions operationally? Does the firm liquidate a pro-rata share of all the holdings; does the firm liquidate a net amount of the buys and sells; or do sellers and purchasers

[7] This document was influenced by an article by J. Christopher Jackson, senior vice president and general counsel, Hansberger Global Investors, Inc., Fort Lauderdale, FL, which the National Society of Compliance Professionals, Inc. published in July/August 2003 *NSCP Currents*. Another document that influenced this paper was a report by Baker Botts, L.L.P., July 22, 2003, http://www.freddiemac.com/news/board_report/.

[8] "Marking" is shorthand for "marking to market," "pricing," or "valuation."

both transact at the net asset value ("NAV") of that day minus some costs? Who pays the transactions costs? Subscribers, redeemers, or both?

• How does the firm resolve the potential conflicts relating to valuation? Who is the final arbiter?

• How does the firm manage any potential conflicts arising from compensation of traders, chief investment officers, or others? If the values used for compensation differ from values used for financial statement reporting, why is the latter a better estimate of fair value?

• Under what conditions does the firm use not the values reported in the financial statements but different values, for other business purposes (e.g., compensation, risk management, regulatory or tax reporting)? Does the firm document this?

• How does the firm manage any differences of opinion on complex valuation issues? Are there any complex valuation issues that the firm currently faces?

• How does the firm manage any conflicts that arise from pricing based upon the most-accessible data (e.g., interpolating from on-the-run swaps, using round-lot quotes)?

• Are any subsidiaries of the firm counterparties to financial contracts that the firm owns and values?

• Does the firm enter into transactions or policies that will allow it to defer or accelerate income or loss, or avoid volatility in financial results?

• Does the firm own any subsidiaries that value financial assets and liabilities differently from the firm or its other affiliates?

• Does the firm enter into transactions that have no substantial business purpose other than to defer an increase or decrease of value in a financial asset or liability?

• Does the firm enter into transactions of which one of the purposes is to defer an increase or decrease of value in a financial asset or liability? If so, what are the other purposes?

• Has the firm erroneously over- or understated valuations? If so, did it restate the financial statements that had the wrong valuation, correct the valuation in the period in which it discovered the mistake, or spread the correction over multiple accounting periods? Under what circumstances and how are the mistakes communicated to the firm's management and its stakeholders?

• To what extent does the firm use valuation reserves when it values financial assets? Under what conditions does it adjust those reserves?

• What makes the firm confident that the compensation it pays to those who value its assets is appropriate for the level of responsibilities that such persons have?

• How does the firm define the term, "non material"?

• What services, if any, do the firm's independent accountants provide besides auditing? How much does the firm pay the independent accountants for the audit and how much for consulting services?

• If the manager runs several funds or separately managed accounts, do the indicated procedures vary, and if so why? Do the same personnel (risk manager, independent auditing staff, etc.) oversee or review each fund's and managed account's valuation procedures? Is the same security marked at the same price from one fund or managed account to another in a fund family? If not, why does that lead to a better estimate of fair value? Does every fund and managed account use the same prime broker?[9]

• How do valuations play a role in the conflict between financial statement reporting and tax accounting?[10]

• How does the firm deal with the conflicts between tax-sensitive investors, who might want to see more-conservative valuations, and tax-insensitive investors, who might want to see less-conservative valuations?

• Do independent parties, if any, which mark the portfolio, share in the performance and management fees earned by the firm?

**2) What checks and balances does the firm use to ensure that it correctly marks the portfolio?**

• Does an independent accountant audit the firm's financial statements?

• Does the firm use independent margining for valuation?[11]

• Is there a set of auditing procedures applied to check the pricing of the portfolio internally? If so, what are the auditing procedures for valuation? What is the skill of the auditors?

• How often does the firm value the portfolio? Does the firm value some financial assets and liabilities more often than others? If so, why?

• How often do auditors—independent as well as internal—verify the pricing of the portfolio? Who audits it independently (e.g., custodian,[12] prime broker, independent certified public accountant, consultant, fund administrator)?

• Does the firm's independent auditor use its own valuation models to verify that those values that the firm self-valued are best estimates of fair value?

• Does the firm have a designated valuation manager who addresses valuation issues? If so, in which department does he or she work and to whom does he or she report?

• To what extent do traders have input in the valuation process (i.e., attributing a value to portfolio positions)? How does the firm verify that trader-valuation input is correct?

• Under what circumstances does the firm permit traders to reserve profits through the marks they provide? How does the firm release those reserves into income?

• How frequently does the firm compare pricing of portfolio positions for which a market price is not available or deemed insufficiently reliable with the prices of actual trades? How different have the former been from actual prices?

• What makes the firm confident that it has obtained the right number of dealer quotes to use for complex, over-the-counter ("OTC")-traded and illiquid securities (e.g., distressed

[9] A prime broker is a broker offering professional services specifically aimed at large institutional customers. Besides all of the standard brokerage services like clearing and guaranteeing trades of its customers, prime brokerage services include financing, assisting with capital introduction services, and seeing to special compliance needs.

[10] Generally, there is an incentive to minimize valuations for tax purposes but maximize them for financial reporting purposes.

[11] The prime broker extends credit ("margins") based upon its own internal calculation of the value of the securities it holds. Does the firm compare its prices to those calculated by the prime broker?

[12] A custodian is a commercial bank or trust company that safeguards securities held by a fund.

securities, collateralized debt obligations (CDOs), private placements, out-of-the-money options) to arrive at its best estimate of fair value? Who selects the dealers? Why does the firm select those dealers?
• Does the firm's prime broker separately mark the portfolio? If so, how do the broker and firm reconcile differences, if any? What is the role of the prime broker? To what extent does the firm rely on the prime broker for valuations? Does the firm input prices to the prime broker or is it a one-way street only?
• Under what circumstances did the firm's auditors most recently propose adjustments to valuations, if any?
• Who determines which brokers to survey?
• How does the firm know if its dealers provide the same quote to everyone?
• If the firm receives multiple quotes, what process does it use to arrive at the valuation?
• Who is responsible for requesting and receiving dealer quotes?
• Does the firm warehouse any of its data?
• Under what conditions will the firm employ a liquidity haircut?
• What types of securities, if any, are never marked to market? What types of securities, if any, are always marked at cost?

**3) Which specific individuals have oversight responsibility for pricing?**

• How long has each person held the position and to whom does he or she report?
• Who ultimately approves the pricing? What experience qualifies him or her for that responsibility?
• What has been the turnover in that position?[13]
• What is the control procedure for back up and oversight of this function?
• What criteria does the firm use to ascertain that valuation personnel are competent in that field?
• To what extent does the firm use automated—rather than manual—processes?

**4) What are the firm's valuation procedures?**

• Are they written or oral? If oral, who is aware of the procedures and how does the firm ascertain that it follows its procedures correctly? If oral, why would the firm not document its procedures?
• Who reviews and adopts the procedures and policies that establish independent asset and liability valuations? Under what circumstances do they change?
• What were the circumstances underlying the last change in procedures? What changes did the firm enact?
• How does the firm deal with new instruments that it needs to price and for which procedures do not exist? What was the most recent example?
• Who initiates changes in procedure? Who has authority to change the procedures?

[13] In some cases, rotating staff may be desirable for control purposes.

• What does the firm do if it becomes impossible to obtain the information it has been using to price positions?
• Are there any instruments that the firm trades for which it lacks valuation procedures? If so, why?
• If the firm cannot readily discover the price of an underlying instrument because of a disruption or *force majeure*, what steps would the firm undertake to value the portfolio? Has this happened?
• Is there a different procedure for a large-block or concentrated position? If so, why is it a better procedure? If not, given potential liquidity concerns, why? What are the circumstances, factors, criteria, and methodology the firm uses?
• What is the firm's rationale for marking at the reference mark (e.g., mid, bid, offer)? Is the reference mark the same for all strategies? If not, is it the same for all securities within a strategy? If the reference mark is not the same always, why does the firm believe that using different reference marks arrives at a better estimate of fair value? Does the firm have a threshold at which it notifies stakeholders of financial assets and liabilities that were not valued at the bid, offer, or mid?
• Does the firm have a threshold at which it investigates off-market transactions? If so, does the firm have a threshold at which it discloses to stakeholders off-market transactions?
• Does the firm have the same procedures for different managers and strategies? If not, why does the firm think that using different procedures leads to a better estimate of fair value?
• How frequently does the firm mark the portfolio? If the firm's procedures are not the same for every marking period, why is that better for the firm's stakeholders?
• Does the firm mark to market repo and resale financing[14] agreements?[15] If so, how does it treat "specials"?[16]
• Who provides the dealer contacts and earmarks the primary pricing source for a given OTC contract?
• How does the firm handle wide discrepancies, when used for comparison, between multiple pricing sources?
• Under what circumstances does the firm deem matrix pricing[17] acceptable? Why does the firm believe that matrix pricing will lead to a better estimate of fair value?
• Under what circumstances does the firm replace pricing sources or dealers for the same security?

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[14] A "repo" is an agreement between a buyer and seller whereby the seller agrees to buy back the asset at a specified time and amount. A "resale" is an agreement between a buyer and seller whereby the buyer agrees to sell back the asset at a specified time and amount. Sometimes the resale is known as a "reverse repo." Essentially, they are financing arrangements because a security is loaned for a short duration. Frequently, the asset is a U.S. Treasury Bill.
[15] This is particularly relevant for levered investment vehicles.
[16] Specials refer to collateral that is hard to find in the repo market. The more difficult it is to obtain collateral, the lower the rate that the party that needs the collateral will be willing to offer the borrower (provider of the collateral).
[17] Matrix pricing is an estimate of a security's value when it is difficult to obtain a quote. Factors considered include interest rates, maturity, and credit rating of comparable securities to obtain the value.

• Does the firm value hedged investments differently from non-hedged investments when the investments are the same? If so, why does the firm believe that this approach leads to a better estimate of fair value? Also, if so, has the firm's valuation policy on this issue remained consistent from period to period?
• What process would a firm, which has two or more identical structured derivatives on the books, one with a stronger counterparty and one with a weaker counterparty, use to decide whether to value the positions the same or differently?
• What process would a firm that has two or more identical positions, one with no or little leverage and the other with more leverage, use to decide whether to value the positions the same or differently?
• How does the firm document external appraisals?
• What internal controls does the firm use to ensure that no single person has sole authority to value the portfolio?
• Which items of income (e.g., interest, dividends) and expense (e.g., commissions, interest) does the firm accrue in the valuations?
• Is each financial asset and liability marked independently or are some pools of assets or liabilities or both marked together?
• Does the firm require any of the risk management, finance, operations, and portfolio management departments to approve the valuations or methods? If so, how do the various departments document their approval?
• Why is the firm confident that its internal control environment prevents mispricing?
• How does the firm monitor current market conditions (e.g., changes in interest rates) that could affect valuations?
• Does the firm rely on forecasts of future events to arrive at values? If so, how?
• To what extent do valuations of collateral play a role in valuations of financial assets and liabilities?
• How does the firm's senior management know that the firm follows its pricing procedures? Does anyone audit the procedures? Who in management approves the procedures?
• Does the company have a fair value pricing policy? If so, under what circumstances can the firm invoke it?
• Are there any differences between GAAP and management accounting?
• Are there any positions for which GAAP provide results inconsistent with the true economics of the trade?
• To the extent that the firm is either a venture capital fund or some other private equity company, does the firm mark to market its investments? If so, what criteria does it use to mark to market (e.g., does it look at changes in operating performance or changing price-earnings ratio in the market, or use the information on movement in similar private equity prices to adjust the portfolio values?)? If it does not mark to market, why not? What method does it employ and why does it think that this method most clearly reflects the correct value?
• To the extent that the firm invests in real estate, does the firm mark to market its investments? If so, what criteria does it use to mark to market (e.g., does it look at discounted cash flows or rely on comparative sales?)? If it does not mark to market, why not? What method does it employ and why does it think that this method most clearly

reflects the correct value? Does it self-value or rely on independent appraisers? How frequently does it value the portfolio?

**5) Does the firm have a valuation committee or designated people who perform the functions of a valuation committee?**

- Is the committee formal or *ad hoc*?
- Does it meet regularly or when needed?
- Who is on the committee? How long has each person served?
- Who appoints the committee? What is and who determines the committee's mandate?
- Who determines the committee's compensation? What makes the firm confident that each committee member's compensation is appropriate for the level of responsibilities?
- Under what circumstances does the committee meet?
- Under what circumstances does the firm replace committee members?
- How does the committee track its decisions?
- To whom does the committee report?
- Under what circumstances can the committee change the recommended price?
- Under what circumstances does the committee compare marks to prices of actual trades? If actual comparisons are available, what do they show?
- Does the committee have any contact with traders? If so, does it interact with them on recommending price changes?
- Does the valuation committee have the final say? If not, who has the final say?
- How often does the valuation committee meet with the risk manager or auditors? If so, what is the nature of their discussions?
- If the firm does not have a formal valuation committee, does the firm designate anyone to handle any of those functions? If so, who?
- Does the firm have an audit committee that interacts with the valuation committee?

**6) Does the firm rely upon pricing services?**

- Are there instances in which the firm believes that it may rely upon only one service? Are there instances in which the firm believes that it needs to rely upon multiple services? If so, what are those instances?
- Who decides which pricing services to use?
- Which pricing services does the firm use?
- How does the firm decide whether to rely upon pricing services, dealer quotes, or internal price estimates? Does the firm maintain an archived database that records the daily source of the price (e.g., pricing service, dealer quote, internal price estimate)?
- What are procedures for pricing services for positions influenced by market-closing times in different geographical areas? Do reported prices of cross-border positions[18] represent values that the firm can realize by simultaneous liquidation of the securities?

[18] Cross-border positions are investments in foreign instruments.

• Does the firm use a second pricing service for verification (e.g., very large positions; times when prices have not moved for a certain period)? What happens when the pricing of the second service differs from that of the first?
• What is the firm's disaster-recovery procedure if its primary pricing service becomes unavailable?
• Does the firm trade securities with forward settlements? If so, how does the firm identify those for appropriate mark-to-market treatment?
• For a given asset, does the firm use the same yield-curve duration from period to period? If not, why does it believe that this achieves a better result?
• How does the firm value positions in a foreign currency to account for the impact of currency fluctuations?

**7) How does the firm identify and monitor events that could have a significant influence on valuation?**

• How does the firm monitor visible events that could affect valuation as they develop (e.g., large intra-day moves, supply-demand imbalances, bubbles)?
• How does the firm react to unexpected shocks as they affect valuation (e.g., Russian default in 1998, Long Term Capital Management near-implosion in 1998, mortgage meltdown in 2003)? Has the firm changed its procedures because of an unexpected shock?
• What is the disaster-recovery plan to ensure timely valuation (e.g., terrorism attacks of September 11, 2001, Canada and U.S. power outage of August 14, 2003)?
• How does the firm deal with sudden gaps between cash and derivatives (e.g., futures, options, swaps) to the degree they influence valuation?

**8) How does the firm address pricing overrides?**

• What constitutes an override? How does the firm define the term, "override"?
• What are the allowable circumstances for an override? Why does the firm believe that using overrides leads to a better estimate of fair value?
• Who approves an override?
• How does the firm document overrides?
• Who tracks the magnitude of overrides?
• Who later checks overrides against the prices received in actual trades?
• What were the circumstances that triggered the firm's last override?
• Does the firm allow any of the risk management, finance, operations, and portfolio management departments to override valuations? If so, how do the various departments document their overrides?

• Does the firm override implied[19] volatility and use its proprietary interpretation of historical volatility or "projected" volatility as an input when the firm concludes that the market is illiquid? If so, has the firm compared the prices at which other parties transacted in such securities to its overridden prices? Moreover, if the firm used historical or projected volatility for some financial assets and liabilities while using implied volatility for others, what factors has the firm used to determine that certain securities are illiquid while others are not? Under what conditions would the firm revert from historical or projected volatility to implied volatility?
• Does the firm override market or dealer quotes if it believes that the prices reflect ones at which the firm could not transact?
• If an investment comes with a lock-up provision,[20] under what conditions does the firm calculate a discount to reflect the illiquidity?
• Does the firm maintain an archive database of override records (e.g., dates, original and revised prices, and person who approved)?

**9) How does the firm measure, correct, eliminate, or detect stale pricing?**

• How does the firm define, "stale pricing"?
• Who is responsible for addressing stale pricing?
• Under what circumstances does the firm address stale pricing?
• How does the fund address pricing of overseas funds where pricing is set at the close earlier in day?
• Under what circumstances will the fund employ a fair-value-pricing concept?
• For instruments that trade in multiple market environments, does the firm use one price across the fund?

**10) For fund-of-funds ("FoF") managers, what procedures ensure that the FoF receives correct pricing from underlying funds?**

• How does the FoF apply these valuation concepts to its reporting to stakeholders?
• Does the FoF apply different valuation concepts to different funds in its portfolio?
• Which valuation concepts does the FoF consider important for itself?
• Which valuation concepts does the FoF consider important for funds in its FoF?[21]
• What procedures does the FoF use to verify the valuations of securities of the underlying funds?

[19] Implied volatility is the measure of volatility that the market is imputing to the security. For example, an option is a function of several variables, one of which is volatility. If one knows the market value of the option and the values of all the inputs except for volatility, an options-pricing model can solve for the implied volatility in that option's price.
[20] Under a lock-up provision, an investor cannot redeem its investment for a stated period.
[21] This question differs from the previous one because, sometimes, FoF managers, besides investing in funds, trade themselves on behalf of the FoF.

• How does the FoF incorporate periodic estimates and final NAVs on underlying funds in calculating the FoF NAV?

• What is the preferred source for these estimates (e.g., underlying fund, fund administrator)? Under what circumstances does the FoF value the underlying funds? Under what circumstances does the FoF discount or mark up the estimate calculated by the underlying fund?

• What is the FoF's policy for handling NAV revisions to underlying funds post-subscriptions or redemptions (i.e., who bears the final cost or benefit?)?[22]

• Under what circumstances can the FoF suspend striking an NAV or exclude certain underlying funds from the NAV estimate?

• What is the FoF's policy and practice for adjusting NAV when an underlying fund changes its NAV after the FOF has struck its NAV?

• How does the FoF verify the underlying pricing methodology?

• How does the FoF determine if the pricing methodology is appropriate for the underlying funds' business model and trading instruments?

## 11) What are some important issues that relate to debt securities?[23]

• Does the firm own debt securities it intends to hold until they mature? If so, how does the firm document its intention and what method does it use to value those securities? Under what circumstances, if any, has the firm changed its intent but did not sell those securities before maturity? Under what circumstances, if any, has the firm changed its intent before maturity and sold those securities upon its change of intent? Under what circumstances, if any, has the firm changed its intent before maturity and sold those securities not immediately upon its change of intent but before they mature? How does it document those changes of intent? If the firm sells some of those securities (but not all), does it change the valuation of the remaining similar securities that it did not sell?

• Does the firm own securities it intends to sell before they mature? If so, how does the firm document its intention and what method does it use to value those securities? Under what circumstances, if any, has the firm changed its intent but sold those securities before maturity? Under what circumstances, if any, has the firm changed its intent and held the securities until they matured? Under what circumstances, if any, has the firm changed its intent and sold those securities not immediately upon its change of intent but before they mature? How does it document those changes of intent?

• How does the firm reflect improvements or deteriorations of credit in the valuations of debt securities?

• How does the firm reflect changes in tax law that could affect the valuations of debt securities?

[22] This matter can become quite convoluted because of varying policies on lock-ups, notices, gates, and the length of time it can take for the firm to confirm NAVs.

[23] Because debt securities held by financial institutions has been a controversial topic, to help educate users of this document, we felt it deserved a special section. We relied upon Statement of Financial Accounting Standards No. 115 to help us prepare this section. http://www.fasb.org/pdf/fas115.pdf

• How does the firm reflect changes in government or industry regulations that could affect the valuations of debt securities?
• What are the factors that the firm uses to value variable-rate-debt securities?
• What are the factors that the firm uses to value callable-debt securities?
• For mortgage-backed securities, how does the firm arrive at a prepayment rate? Does the firm compare its computed prepayment rate to the *ex post* prepayment rate?
• Under what circumstances does the firm value debt securities at cost rather than at fair value? Why does the firm believe that cost reflects a better estimate of value?

**12) How do the auditors and outside administrators determine that a firm's valuation procedures are robust?**

• How does the auditor validate pricing?
• Does the auditor select the sample based on difficulty and focus on the most difficult-to-price transactions or randomly or proportionally select transactions to validate?
• Does the auditor test a) the model? b) the inputs to the model? c) the mapping assumptions? d) the modeling "assumptions or givens"?
• Does the auditor calibrate the model results to actual "markets"?
• Does the auditor test the consistency of marks (i.e., are "bid" sheets used when mid-market prices are specified in the prospectus?)?
• Does the auditor compare prices across funds managed by the same manager? Does the auditor compare prices across all of the funds that it audits?
• Will the firm's auditor or outside administrator accept different values of the same assets or liabilities from different clients? If so, why?
• Does the auditor test correlations between the direction and magnitude of individual transaction values against one another from month to month (relative comparables)?
• Can the auditor independently create the range of models and inputs that reasonable people could apply to a given transaction?
• Does the auditor independently evaluate the assumptions behind any "matrix pricing"?
• Does the auditor accept all sources as long as they the firm specifies them in a policy or does the auditor have policies regarding which sources it will accept for which instruments?
• If the firm uses an outside administrator for valuations, would the firm encourage the administrator to discuss the valuation concepts included in this document? If not, why?
• If the firm uses an outside administrator for valuations, to what extent does the administrator rely on the valuations of the prime brokers?
• If the firm relies upon an administrator, does it review and approve, or set the administrator's policies? Does the administrator use the same methodology for the same instruments across all funds or are they fund specific? Does the administrator compare differences in pricing the same instrument across all of the funds it administers? Does the administrator establish the valuation policy or does each firm set its own?

**About the IAFE**

The IAFE is the not-for-profit, professional society dedicated to fostering the profession of quantitative finance by providing platforms to discuss cutting-edge and pivotal issues in the field. Founded in 1992, the IAFE is composed of individual academics and practitioners from banks, broker dealers, investment funds, pension funds, asset managers, technology firms, regulators, accounting, consulting and law firms, and universities across the globe.

Through frank discussions of current policy issues, hosting programs to educate the financial community and recognizing the outstanding achievements in the field, the IAFE acts as a beacon for the development of quantitative finance. Throughout its history, the IAFE´s pre-eminent leadership has positioned us to respond with savvy to the evolving needs of the financial engineering community. We design the IAFE´s programs - from our area-specific committees to our evening forums to the Financial Engineer of the Year Award - to provide our membership with uniquely valuable activities to enhance their work in the field and opportunities to network and socialize with their colleagues. You can find more information on the IAFE web site: www.iafe.org.

**About the IAFE Investor Risk Committee**

The IAFE launched the Investor Risk Committee in 2000 as an area-specific working group to provide a forum for practitioners and academics in the field of investing to study risk and its surrounding issues. The IRC is composed of individual members: fund managers, institutional investors, and fund of fund managers, as well as regulators, prime brokers, consultants, custodians, software and technology vendors and others who are active in the fund arena.

The previous work of the IRC focused on the right level of disclosure and transparency for funds. Readers can find relevant consensus documents on the IAFE web site. Currently, the IRC is focusing on valuation concepts.

Members of the IRC have the opportunity to participate actively in discussions on valuations, at meetings and via email. We solicit IRC Members for feedback on proposed white papers and related material. The only requirement of membership is the annual payment of IAFE Member dues. Member registration is available online. Please note that membership is limited to individuals only.