



Coronavirus Pandemic and Public Market Volatility

How Should Institutional Investors be Valuing Fund Interests at March 31, 2020?

Agenda

- I. Duff & Phelps Firm Overview
- II. Key Developments
- III. Valuation Examples
- IV. Questions

Appendix

- A. Duff & Phelps Alternative Asset Advisory

Today's Presenters



**David
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Section I

Duff & Phelps Firm Overview

Enhancing Value Across a Range of Expertise

VALUATION ADVISORY

Valuation and consulting for financial reporting, tax, investment and risk management purposes

- Valuation Services
- Alternative Asset Advisory
- Real Estate Advisory
- Tax Services
- Transfer Pricing
- Fixed Asset Management and Insurance Solutions



CORPORATE FINANCE

Objective guidance to management teams and stakeholders throughout restructuring, financing and M&A transactions, including independent fairness and solvency opinions

- M&A Advisory
- Fairness Opinions
- Solvency Opinions
- Transaction Advisory
- ESOP and ERISA Advisory
- Commercially Reasonable Debt Opinions
- Distressed M&A and Special Situations



GOVERNANCE, RISK, INVESTIGATIONS AND DISPUTES

Combined Duff & Phelps and Kroll risk management and mitigation, disputes and other advisory services

- Business Intelligence and Investigations
- Disputes
- Cross-Border Restructuring
- Cyber Risk
- Legal Management Consulting
- Security Risk Management
- Compliance Risk and Diligence
- Compliance and Regulatory Consulting



PRIME CLERK

Provides bankruptcy and class action claims administration through its proprietary software and industry leading management team.

- Chapter 11
- Strategic Communications
- Contract Review
- Corporate Actions
- Class Action



Duff & Phelps Alternative Asset Advisory

*Duff & Phelps assists clients with **design and implementation of best-in-class valuation policies and processes**, including on-going review of valuation procedures and conclusions to ensure best practices.*

Market Leader

- » Our client base consists of **400 alternative asset** fund managers and investors in the **U.S. and globally**
- » We perform in-depth valuation analyses of all asset types for clients across the spectrum of banks, hedge funds and private equity firms globally:
 - **70% of the top 25** largest Hedge Funds
 - **70% of the top 25** largest Private Equity Funds
 - **50% of the top 25** largest publicly traded Hedge Fund platforms (business development companies or “BDCs”)
 - Our client base includes **20 BDCs**
 - **Private debt funds** and **mid-market private equity funds** are the fastest growing segment of our client base
- » We review or value over **10,000 investment positions** on a quarterly basis, including derivatives and structured products
- » We have **17 full-time Managing Directors** and draw from D&P’s pool of over 1,000 valuation professionals with wide ranging sector and asset class expertise across the spectrum

Thought Leader

- » We are at the forefront of the industry’s leading committees on valuation processes, guidelines, and regulations:
 - **IPEV** – Board Member
 - **ILPA** – Special Advisor
 - **AICPA PE/VC Valuation Guide Task Force** – Member
 - **FASB Valuation Resource Group** – Member
 - **Managed Funds Association** – Sustaining Member
- » Leadership on drafting IPEV and PEIGG private equity valuation guidelines
- » Development of Duff & Phelps Created Value Attribution Framework.

Duff & Phelps’ Portfolio Valuation practice enables alternative investment managers to enhance their valuation process with the independence and objectivity that investors require.

Operational Due Diligence Services

Practice Group

- The Operational Risk Due Diligence team is comprised of highly credentialed individuals with global experience. Our firm offers access to a wide variety of experts including former auditors, forensic specialists, valuation experts, compliance and cyber security professionals, and due diligence specialists.
- Investors require due diligence personnel with deep industry experience. It takes time to accumulate the body of knowledge that comes with the completion of hundreds of due diligence reviews.
- The team leverages the expertise of our asset specialists when encountering different strategies and product offerings. No other provider offers experts in so many critical disciplines all under one firm umbrella.

Relevant Experience

- Experience analyzing in excess of 1,000 hedge fund, private equity funds, private equity real estate, RIAs, non-traded REITs, oil and gas interests, business development companies, cryptocurrency funds, and funds of hedge funds.
- Expertise with wide range of strategies, jurisdictions and sizes.
- Provide an independent assessment in a customizable reporting format in a timeframe that meets your needs
- Robust and efficient monitoring on an ad hoc and predetermined basis

Duff & Phelps Secondary Market Advisory

Duff & Phelps Secondary Market Advisory Group specializes in advising limited partner clients on liquidity solutions for alternative investments.

As a result of the Coronavirus (COVID-19) pandemic and the devastating impact it is having on financial markets globally, it is to be expected that **some limited partners will face liquidity issues in their alternative investment portfolios.**

Liquidity related issues limited partners may face include;

- Default on Capital Calls
- Need to Obtain Relief from Future Unfunded Liabilities
- Liquidity Needs to Meet Obligations
- Manage the Denominator Effect in the Portfolio

Professional Affiliations

Duff & Phelps Managing Directors provide input to regulators and standard-setters, and actively contribute to the development of valuation industry best practices.



International
Accounting Standards
Board



Appraisal
Institute™
*Professionals Providing
Real Estate Solutions*



The
Appraisal
Foundation



iapp



IPEV

International Private Equity
and Venture Capital
Valuation Guidelines

AIMA



Section II

Background

Fair Value Definition Has Aligned

Fair Value is defined by:

- FASB ASC Topic 820
- IFRS 13, and
- GASB (US Government Accounting Standards Board) Statement 72

as:

- » ***... the price that would be received TO SELL an asset or paid to transfer a liability in an ORDERLY transaction between market participants at the measurement date.***
(emphasis added)

Key Considerations:

- Unit of Account
- Calibration
- Market Participant Assumptions
- Orderly transaction (Active Market)
- How does Value Accrete?
- Application of Judgement

Limited Partnership Interest Fair Value Measurement

For Limited Partnership (LP) Interests, Fair Value can be measured in multiple ways (note: an actively traded LP Interest would be valued at the actively traded price)

- Market Approach: Observable secondary market pricing for the same LP interest if deemed an orderly transaction; or expected sales price if held for sale.
- Income Approach: Discounting all expected cash flows at an appropriate discount rate
- Using reported Net Asset Value (NAV) [so called practical expedient] if the following conditions are met:
 - The fund meets the definition of an investment company.
 - Net Asset Value (NAV) is qualified as being Fair Value based
 - NAV is as of the same date as the investor's measurement date (e.g., no reporting lag).
 - Adjusted NAV can be used if reported NAV is not Fair value based and/or NAV is not as of the same measurement date.
 - NAV is not required to be adjusted if the fair value difference resulting from the reporting time lag is not significant.

Practical Approach to Estimating the Fair Value of LP interests

In most cases, where a fund interest is not actively traded and is not held for sale, using NAV or Adjusted NAV is the most practical approach to measuring the Fair Value of an LP Interest.

Steps required to use NAV are as follows:

- Qualify NAV:
 - Obtain Investment Manager’s Valuation Policy and review it to determine if, when followed, the underlying investments would be reported at Fair Value (see following slide)
 - Review financial statements, Quarterly reports, annual meeting information, etc. for evidence that the fund is following its stated procedures (i.e. reporting Fair Value)
 - Interview Manager regarding the valuation process, data collection and information management, documentation / reporting, and any special situations (earn-outs, derivative agreements, liabilities, etc.)
- Bring NAV *In-Phase*
 - Obtain last reported NAV; adjust to be Fair Value based, if required
 - Adjust for cash flows: New Investments, Distributions; Gains, etc.
 - Adjust for changes in the value of investments, if significant
- AICPA TIS 2220 and the new AICPA PE/VC Valuation guide provide additional guidance on qualifying NAV and bring NAV in phase.

Why is March 31, 2020 different than most quarter ends?

- Government public health actions are significantly disrupting the economy
- Public Markets are Volatile—At March 31, 2020
 - S&P 500 YTD down 20.0%
 - Russel 2000 YTD down 31.2%
 - Nasdaq down 13.7%
- Potential for recession is growing—significant new unemployment claims
 - As such, the valuing of underlying investments which are reflected in reported Net Asset Values by fund managers may be significantly different than the last reported values (as of September 30 or December 31, 2019).
 - Further, updating due diligence may be necessary to reflect new business risks associated with “working from home” and other factors

Valuation Considerations resulting from the Covid-19 Pandemic

--Considerations for Direct & Co-Investments

- Liquidity
 - Any Debt? Potential for Covenant Breach?
 - Cash runway?
 - Can the company survive – potential for bankruptcy
- Enterprise Value
 - Revenue / EBITDA (Timing and amount)
 - » Impact on customer demand—customer financial health?
 - » Customer's customers financial health
 - Supply Chain
 - » Timing, availability and cost of goods
 - » Supplier financial health
 - Operations
 - » Employee availability
 - » Employee productivity
 - » Ability to work remotely and maintain appropriate cybersecurity
- Estimated performance impact 2020: Q1 estimated; Q2+ projected
- Future Cash flow projections need to be updated to consider short-term, medium-term and long-term expected impacts--Consideration of the impact of a potential recession

Macro Considerations by Fund Type

- Global Private Equity – Mega Fund
- Mid Market Private Equity / Late Stage Growth
- Early Stage / Venture Capital
- Real Estate
- Energy
- Credit/Debt
- Infrastructure

Updated Due Diligence Valuation Concerns

- Managers that are unable to accurately price the fund's portfolio may suspend NAVs
- Managers with small pockets of illiquid securities prior to the COVID pandemic may see the illiquids grow as redemptions and the market reduce the proportion of liquid securities. Some managers may gate the fund or suspend redemptions
- March month end is a common tradeable NAV. How can redeeming investors and subscribing investors get confidence that the NAV is accurate? We may see an increase in NAV related litigation if investors feel the NAV process was inaccurate
- Does your organization have a copy of the fund's valuation policy?
- Did the valuation process change? Did the manager follow their stated valuation process?
- Does the process consider price challenges and disputed broker quotes?
- Was there an increase in manager marked positions?
- Capturing fund ITRs and analyzing changes will be incredibly important

Updated Due Diligence Concerns

- Many managers have experienced significant drawdowns. How is the manager handling any breaches of the ISDA ATEs?
- Have any counterparties pulled back from the fund? Has the fund faced any counterparty-forced trading regarding leverage, Repo, risk?
- How has the manager held up during the mandatory stay at home order? Is the BCP working? Is the manager still in a reduced activity environment or are they working effectively?
- Kroll has noted a significant increase in phishing and hacking attempts aimed at work-from-home employees. Are the manager's cybersecurity protocols effective?
- How are cash controls being conducted?
- We expect a tick up in fraud/malfeasance and litigation in the months to come

Key steps in using NAV to estimate the fair value of a fund interest

Qualifying NAV for use as an estimate of Fair Value

- Using the GP-reported NAV as a practical expedient to establish the Fair Value of a fund investment is more cost effective than using a market approach or income approach to estimate the Fair Value of each fund. However, NAV cannot be blindly accepted. The LP must:
 - Review of GP Policies and Procedures and interview the manager regarding their valuation process to ensure it is consistent with ASC Topic 820
 - Review financial statements and other LP communications to determine whether the GP is actually applying the procedures stated in their policy when reporting NAV
 - As required, assess individual portfolio company investment valuations to ensure they are consistent with ASC Topic 820

Adjusting NAV to represent of Fair Value

- In the event that the GP-reported NAV of certain investments does not represent Fair Value, work with the underlying fund management to adjust NAV to be Fair Value based.

Bring NAV “In-Phase” at the Measurement Date

- Beginning with a Fair Value-based NAV, the following steps may be necessary to bring NAV “in-phase”:
 - Adjust for cash flows: New Investments, Distributions; Gains/Losses, etc.
 - Adjust underlying actively traded investments to the measurement date closing price
 - Adjust for changes in the fair value of other investments, if significant

Qualifying NAV for use as an estimate of Fair Value

- Is Fair Value determined consistent with the principles of FASB *Accounting Standards Codification* (“ASC”) Topic No. 820, Fair Value (“ASC 820”)?

According to ASC 820 (and GASB), a reporting entity is permitted, as a practical expedient, to estimate the Fair Value of a fund investment using the NAV per share if the NAV is calculated consistent with ASC Topic No. 946, Financial Services – Investment Companies (“ASC 946”) as of the reporting entity’s measurement date.

- Is the NAV reported by the GP derived from the Fair Value of underlying investments?
- Does the GP have a clearly defined valuation policy and, more importantly, observable procedures that follow the policy?
- In assessing the GP’s valuation policies and procedures, the following should be considered:
 - GP Valuation Policy
 - i. The timing of the valuation of each fund’s underlying investments;
 - ii. The valuation methods considered in establishing the Fair Value of the fund’s investments;
 - iii. The valuation standard utilized by the GP;
 - iv. How well the valuation policy defines the roles and process;
 - v. Whether standard valuation models are used to obtain Fair Value; and
 - vi. Whether there have been any changes to the GP’s valuation policy and procedures

Qualifying NAV for use as an estimate of Fair Value (cont'd)

- Investment Valuation Considerations
 - i. Demonstration of application of valuation policies;
 - ii. How the values of the underlying fund investments change over time;
 - iii. Frequency of valuations; and
 - iv. Bias towards holding investments at cost over a prolonged period of time.
- Additional considerations
 - i. The use of independent third-party valuation experts to augment and validate the investee fund's procedures for estimating Fair Value
 - ii. The portion of the underlying securities held by the investee fund that are traded on active markets
 - iii. The professional reputation and standing of the investee fund's auditor
 - iv. Qualifications, if any, of the auditor's report on the investee fund's financial statements
 - v. Whether there is a history of significant adjustments to the NAV reported by the investee fund manager as a result of the annual financial statement audit or otherwise
 - vi. Findings in the investee fund's advisor or administrator's Statements on Standards for Attestation Engagements No. 16, Reporting on Controls at a Service Organization report, if any.
 - vii. Appropriate adjustments are made for fees, carried interests and clawbacks
- Valuation Adjustments
 - i. Application of adjustments to account for illiquidity of underlying investments
 - ii. NAV is net of fees and carried interest
- Update assessment of GP's valuation policy and procedures periodically as required

Procedures to Adjust Non-Fair Value NAV

In the event that there are funds with GP-reported NAVs that are determined not to be consistent with ASC 946 and ASC 820, it would be necessary to determine the Fair Value of the underlying investments or work with the GP's management to obtain a Fair Value-based NAV.

To determine a range of Fair Value for the underlying investments in the subject fund's portfolio, the following procedures would be undertaken:

- Select appropriate valuation approach(es) considering the nature of the investment being valued and the availability of relevant data;
- Determine appropriate and supportable inputs and assumptions in view of the requirement under ASC 820 to use "market-participant" assumptions that are as objective as possible;
- Determine and document a reconciliation of approaches where more than one approach has been employed; and
- Consider other facts and data considered pertinent in estimating a range of Fair Values for the respective Investment

GPs should be calling their LPs and letting them know where they expect March 31, 2020 fair value-based NAV to land!

Bring NAV In-Phase

Once NAV or adjusted NAV is deemed to be based on Fair Value compliant values of underlying investments, perform an analysis to determine what adjustments (if any) would be necessary to bring the latest NAVs reported by the GPs in-phase with the measurement date.

Bringing the NAV into phase predominantly involves the following two steps:

- 1. Adjusting the last reported NAV (or adjusted NAV) for actual cash flows that occurred during intervening period**
 - a) Review the capital calls, realized gains (losses), income, and return of capital that occurred during the period between the date of the latest NAV and the measurement date. The resulting cash flow would be used to adjust the NAV.
- 2. Adjusting the NAV for changes in market conditions between the date of the reported NAV and the measurement date**
 - a) Construct an appropriate index of publicly traded instruments correlating with the expected value movement of the specific fund position (and/or the underlying investments weighted by their respective reported NAV). Once the movement in the appropriate index is derived, it would be applied to determine if an adjustment to NAV as determined in step 1, above, is required if the change in value is deemed significant. If significant, expand c & d below and potentially undertake procedures from Task 2 as previously discussed.
 - b) The resulting NAV adjusted for the period cash flows would be the starting point for the estimation of Fair Value as of the measurement date.
 - c) Pricing changes for any publicly traded securities would be adjusted to reflect pricing as of the measurement date.
 - d) In addition, extra-ordinary market events or news regarding a portfolio company would warrant a focused review of their potential influence of the Fair Value of specific underlying investments and the resultant impact on NAV.

Benchmark Indices

To determine if there have been significant market movements, estimate the predicted Fair Value change of the subject fund's underlying portfolio of investments based upon the change in a unique benchmark index or portfolio of indices constructed for each fund.

- In constructing a benchmark index for the subject fund, consider the following factors:
 - Industry sectors and strategy of the subject fund;
 - Industry sector exposure (percentage of the subject fund); and
 - Historical pricing patterns and correlation to the constructed indices (backtesting).
- To the extent possible, rely on the industry-based indices as tracked by Standard & Poor's. For the purposes the analysis, rely upon each index's total return, which includes not only the change in the index, but also the receipt and reinvestment of any dividends received during the period reviewed.

Section III

Valuation Examples

As an LP, what are my options?

- **To determine the Fair Value of fund investments, LPs may:**
 - Contact the General Partner directly
 - Adjust the last reported NAV to account for cash inflows and outflows
 - Apply the impact of market movements to cash adjusted NAV
 - Independently determine the value of the fund's investments
- **What factors should be considered when cash adjusting NAV?**
 - Add:
 - » capital calls or additional commitments
 - Subtract:
 - » Cash distributions
 - » Returns of capital
 - » Distributions of stock
 - Any changes that would impact the fund's NAV should be factored into the adjustment of NAV to bring it "in-phase" with the measurement date

Determining the Impact of Market Changes on the NAV

When bringing NAV “in-phase”, in addition to considering the impact of cash changes, the LP should also consider the impact the impact of market changes

- Changes in the value of any publicly traded securities in the portfolio
- Using a proxy to estimate the impact of the market on the value of the fund’s illiquid investments
 - Benchmark index
 - » Dow Jones Average, NASDAQ, S&P, Russell 2000, etc
 - Synthetic index
 - » Based upon the composition of the fund’s portfolio
 - » Index created based on weighted contribution of industries in the fund’s portfolio

Any proxy used should be adjusted as volatility of fund investments does not typically mirror that of the markets

Case Study – Private Equity Fund

- Private Equity Fund managed by well-known GP
 - \$795.0 million AUM
 - Diversified portfolio with equity investments in ten companies
 - GP has a robust valuation policy and reports investments at Fair Value
 - GP provides investors with audited financial statements each quarter
 - LP's interest was valued at \$10.5 million as of December 31, 2019

Given market volatility, the GP's financial statements are delayed, but the LP must meet its own filing requirements and must bring the NAV in-phase for the current quarter.

What are the steps required to bring the NAV in-phase?

Step One: Cash Adjust Last Reported NAV

NAV as of 12/31/19	\$10,500,000
Plus: Capital Contributions in Q1	\$2,500,000
Minus: Distributions Paid in Q1	\$650,000
Cash Adjusted NAV as of 3/31/20	\$12,350,000

Step One accounts for cash flows that occurred during the first quarter, but how does the LP factor in the impact of market movements?

Step Two: Construct Synthetic Index

Investment	Industry	Investment Amount	Portfolio Weighting
Software Co. A	Software & Services	\$150.0MM	19.0%
Healthcare Co. A	Healthcare Equipment & Services	120.0MM	15.2%
Software Co. B	Software & Services	95.0MM	12.0%
Healthcare Co. B	Healthcare Equipment & Services	95.0MM	12.0%
Software Co. C	Software & Services	75.0MM	9.5%
Internet Co. A	Internet Software & Services	70.0MM	8.9%
Financial Co. A	Financials	63.0MM	8.0%
Healthcare Co. D	Healthcare Equipment & Services	41.0MM	5.2%
Consumer Co. A	Consumer Discretionary	40.0MM	5.1%
Software Co. D	Software & Services	40.0MM	5.1%
		\$789.0MM	100.0%

Step 2 (continued): Estimate Weighted Return

Industry	Index	Portfolio Weighting	Total Return
Consumer Discretionary	S&P 500 Consumer Discretionary	5.1%	-16.25%
Financials	S&P 500 Financials	8.0%	-13.41%
Healthcare Equipment & Services	S&P 400 Health Care Equipment & Services	32.3%	-19.02%
Internet Software & Services	S&P 500 Internet Software & Services	8.9%	0.00%
Software & Services	S&P 600 Software & Services	45.7%	-16.56%
Portfolio Weighted Return			-15.62%

Return from synthetic index should be adjusted to account for volatility in GPs marks for its investments.

Step Three: Bring NAV In-phase with Measurement Date

NAV as of 12/31/19	\$10,500,000
Plus: Capital Contributions in Q1	\$2,500,000
Minus: Distributions Paid in Q1	\$650,000
Cash Adjusted NAV as of 3/31/20	\$12,350,000
Adjusted Return from Synthetic Index (1)	- 9.7%
Implied Growth of NAV	(\$1,198,000)
Implied NAV as of 3/31/20 (2)	\$11,152,000

Notes:

(1) Return from synthetic return adjusted based on fund's historical returns relative to the index.

(2) This example assumes the portfolio has no publicly traded securities. If there were public securities in the portfolio, they would be adjusted to their closing price as of March 31, 2020

Audience Questions

Resources:

- [IPEV Valuation Guidelines and IPEV Board Special Guidance](#)
- AICPA Article: [Investment Companies: Measuring Fair Value in Times of Significant Uncertainty](#)
- AICPA Accounting and Valuation Guide: *Valuation of Portfolio Company Investments of Venture Capital and Private Equity Funds and Other Investment Companies*
- Duff & Phelps
 - Replay of March 18 and March 31, 2020 webcasts on estimating Fair Value.
 - [Frequently Asked Questions: Measuring the Fair Value of Private Debt and Equity Investments in Times of Significant Uncertainty](#)
 - Your Duff & Phelps service team

Most Difficult March 31, 2020 Valuation Questions

- How do I assess what is known and knowable?
- How long will the economic “shut down” last?
- When will the economy return to normal? Or will there be a new normal?
- How long should we plan for reduced cash flows? 3 months, 6 months, 9 months, longer?
- Does a portfolio company have sufficient liquidity to weather the storm?
- How should government fiscal stimulus be factored in?
- How should market participant perspectives be determined when market participants are seemingly not entering into orderly transactions at this moment in time?

Final Comments

Resources:

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Appendix A

Duff & Phelps Alternative Asset Advisory

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David Larsen is a managing director in the Seattle office of Duff & Phelps and part of the Alternative Asset Advisory service line. He has more than 35 years of transaction and accounting experience. He specializes in fair value accounting issues, and specifically in valuation, accounting, and regulatory issues faced by Alternative Asset managers and investors.

David advises leading Private Equity Managers and Institutional Investors and has advised numerous strategic and private equity acquirers in all areas of mergers, acquisitions, joint ventures, divestitures and valuation related matters. He provides valuation policy and process assistance to a number of the world's largest institutional limited partner investors and some of the world's largest alternative Investment managers. David is a member of the International Valuation Standards Council Standards Review Board, an advisor to and has served as Vice Chair of the International Private Equity and Venture Capital Valuations Board (IPEV), which in 2018 released updated International Private Equity Valuation Guidelines and serves as a member of the American Institute of Certified Public Accountants (AICPA) PE/VC Practice Guide Task Force. David has served as a special advisor to the Institutional Limited Partners Association; board member, project manager and technical advisor to the Private Equity Industry Guidelines Group and was instrumental in developing and drafting the Private Equity Industry Guidelines Group's Valuation and Reporting Guidelines; member of the Financial Accounting Standards Board's Valuation Resource Group responsible for providing the Board with input on potential clarifying guidance on issues relating to the application of the principles of FASB ASC Topic 820 (formerly SFAS No. 157), *Fair Value Measurements* and a member of the AICPA Net Asset Value Task Force.

Prior to joining Duff & Phelps, David was a Partner in KPMG LLP's Transaction Services practice, where he was the segment leader of KPMG's U.S. Institutional Investor practice. He served 13 years in KPMG's Seattle, Düsseldorf and Prague audit practices prior to moving full time to advisory work.

David received his M.S. in accounting from Brigham Young University's Marriott School, his B.S. in accounting from Brigham Young University. He is a certified public accountant licensed in California and Washington. David is also a member of the AICPA and the California and Washington Society of Certified Public Accountants and is a FINRA Series 7, 24 and 63 registered representative.

Steven Nebb

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Steven Nebb is a managing director in the San Francisco office and part of the Valuation Advisory Services business unit. He is the client relationship champion for the Company's Portfolio Valuation practice in Asia and Western North America, and is the firm's product leader for the valuation of Venture Capital and early-stage investments.

Steve has over 18 years of experience performing numerous valuations and financial analyses for a variety of purposes, including financial reporting, tax, fairness opinions and transaction advisory, litigation and strategic planning. Steve's engagement highlights include equity, illiquid debt, and complex derivative valuations throughout the alternative asset investor industry including venture capital, hedge funds, business development corporations and private equity funds covering high-tech; biotech and healthcare; consumer durables, consumables and brand conglomerate; and, engineering, consulting and defense contracting industries. Prior to joining Duff & Phelps, Steve performed valuation and financial advisory engagements for over eight years with the Valuation Services Practice of PricewaterhouseCoopers LLP (PwC) and Standard & Poor's Corporate Value Consulting Group (CVC). Prior to that, Steve's experience includes analyzing aerospace and defense contractor operational capabilities, financial performance and contract satisfaction. Steve provided consultation to the Department of Defense, Department of State and the Federal Aviation Administration, regarding contractual issues and contract negotiations. Steve received his B.S. in finance from George Mason University. He is also a CFA Charterholder and a member of The CFA Institute, the Security Analysts of San Francisco and the Licensing Executives Society, San Francisco Chapter.

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John Ward is a managing director in the New York office and is a member of the Alternative Advisory Group and the Portfolio Valuation practice. He has more than 30 years of financial and investment management experience.

John specializes in the valuation of operational risks for hedge funds, private equity funds, cryptocurrency funds, real estate funds, and fund of funds. He has performed operational risk assessments on some of the largest and most complex hedge funds, private equity funds, digital asset, real estate funds, and industry counterparties and service providers. John has extensive experience in a wide variety of investment strategies, and in both large institutional investment advisors and emerging managers.

John also works with endowments, foundations, pensions, sovereign wealth funds, and family offices to develop best practices in investment due diligence, and support their efforts to implement institutional best practices throughout their organizations.

Prior to joining Duff & Phelps, John was a managing director and Head of Operational Due Diligence for Gottex Fund Management and its predecessor firm EIM Investment Management where he was a member of the Global Investment, Risk, and Counterparty Credit Committees. Previously he was chief operating officer and executive director of Nomura Funds Research & Technologies America, Inc., the alternative asset investment management affiliate of Nomura Securities.

John started his career with Shearson Lehman Brothers working in a wide variety of operations departments, as well as the financial consulting division where he worked on the divestiture of Lehman Brothers and later the merger of Smith Barney and Shearson's operations and financial controls departments. He later joined W.P. Stewart & Co. Inc. as head of trading, and principal of their broker dealer.

John received his BSBA in Finance and Marketing from the University of Florida. He is also a Certified Due Diligence Analyst

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Sumner Estes is a Director in the San Francisco office and member of the Alternative Asset Advisory business unit. He serves as the project lead for numerous Portfolio Valuation clients, including pension plans, large global private equity, venture capital, and business development corporations.

Sumner has over 20 years of experience performing valuation and financial analyses for a variety of purposes, including financial and tax reporting, intangible assets, fairness opinions, equity allocations, financings, mergers and acquisitions, strategic planning, and litigation. Sumner has conducted over 600 separate engagements valuing equity interests, illiquid debt, and complex derivatives for a variety of clients including corporations, pension funds, venture capital firms, hedge funds, business development corporations and private equity funds covering the computer hardware and software, internet software and services, semiconductors, consumer products, life sciences, manufacturing, engineering, and real estate industries. Sumner's current and past clients have ranged in size from Fortune 500 companies to early stage venture capital companies.

As part of Duff & Phelps' Portfolio Valuation practice, Sumner has worked with large pensions, global private equity, venture capital, and business development corporations to review clients' internal valuation analyses for reasonableness and perform valuations of portfolio company investments as part of the fair value reporting process for fund investors. Sumner also has worked with limited partners of alternative investment funds to provide valuation assistance with respect to the holdings in their investment portfolios. Sumner has assisted these limited partners with the estimation of the fair value of their direct and fund investments, evaluation of manager valuation policies and procedures, and review of manager-provided performance and valuation documentation.

Prior to joining Duff & Phelps, Sumner performed valuation and financial advisory engagements for three years with Alvarez & Marsal involving financial and tax reporting and portfolio valuation. Sumner also performed valuation engagements for over eight years with Houlihan Valuation Advisors for financial reporting and estate and gift tax purposes.

Sumner received his MBA with an emphasis in Finance and B.S. in Business Management, with an emphasis in International Business from the University of San Francisco. He is an Accredited Senior Appraiser of the American Society of Appraisers and is a member of the Fair Value Forum. Sumner holds the Series 7 and Series 63 certifications and is registered with FINRA as a General Securities Representative.

Duff & Phelps Alternative Asset Advisory

Duff & Phelps is a market leader in providing investors and managers with valuation services related to alternative investments, specifically securities and positions for which there are **no "active market" quotations**.

Key Highlights

- » Duff & Phelps' client base consists of **400 alternative asset** fund managers and investors in the **U.S. and globally**
- » We perform in-depth valuation analyses of all asset types for clients across the spectrum of banks, hedge funds and private equity firms globally:
 - **70% of the top 25** largest Hedge Funds
 - **70% of the top 25** largest Private Equity Funds
 - **50% of the top 25** largest publicly traded Hedge Fund platforms (business development companies or "BDCs")
 - **80% of the top 30** Limited Partners listed by PEI
 - Our client base includes **18 BDCs** (17 public, 1 private)
 - **Venture capital, Private debt and mid-market private equity funds** are the fastest growing segment of our client base
- » We review or value over **10,000 investment positions** on a quarterly basis, including derivatives and structured products
- » We have **17 full-time Managing Directors** and draw from D&P's pool of over 1,000 valuation professionals with wide ranging sector and asset class expertise across the spectrum

What we do

- » Duff & Phelps provides an objective and independent third party perspective on all classes of illiquid securities assisting alternative investment managers in the U.S. and globally
- » Duff & Phelps assists clients with design and implementation of best in class valuation policies and procedures including drafting and ongoing review of valuation processes and procedures to ensure best practice
- » Our services sought by our clients for several mission critical applications include:
 - Financial and management reporting
 - Transaction support
 - Audit and stakeholder requirements

Duff & Phelps' Alternative Asset Advisory practice enables alternative investment managers to enhance their valuation process with the independence and objectivity that investors require.

Alternative Asset Advisory - Practice Overview

Creating enhanced transparency in the Alternative Asset Investment Space

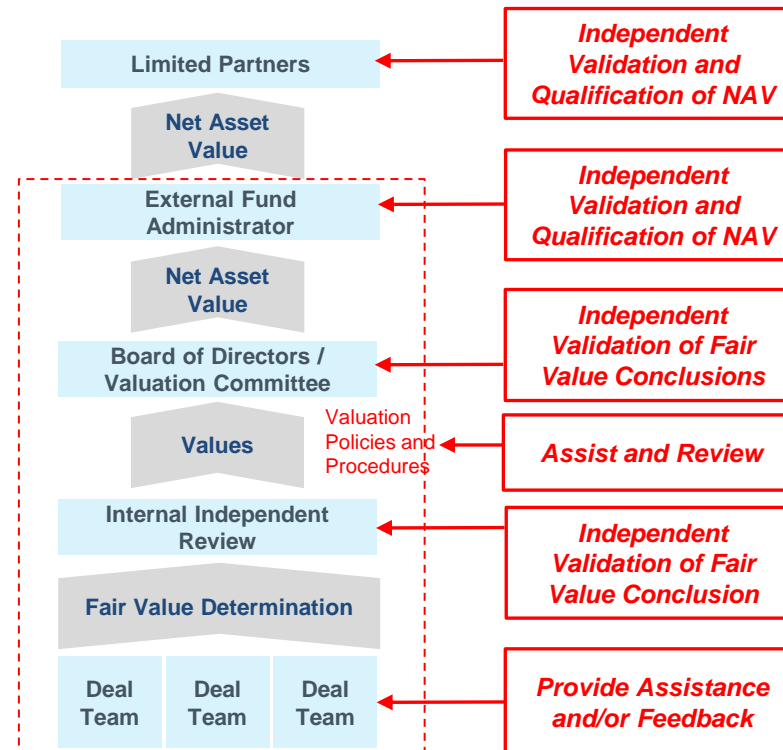
Who We Are

Duff & Phelps is a global industry leader in the alternative asset investment space, with expertise in all classes of illiquid securities and clients across North America, Europe, the Middle East, and Asia

How and Where We Can Help

Duff & Phelps provides an independent and objective view on valuation that enhances our clients' financial reporting process and internal control environment

Typical Engagements



Unparalleled Industry Thought Leadership

Creating enhanced transparency in the Alternative Asset Investment Space

Industry Thought Leadership

- » Service on FASB's Valuation Resource Group
- » Participation in the U.S. Securities and Exchange Commission's mark-to-market roundtable in November 2008
- » Membership on the American Institute of Certified Public Accountants' Alternative Investments Net Asset Value Task Force
- » Leadership in drafting the Private Equity Industry Guidelines Group's (PEIGG) U.S. Private Equity Valuation Guidelines
- » Membership on the International Private Equity and Venture Capital Valuations Board, focused on providing global guidelines for valuing private equity. Duff & Phelps co-drafted the IPEV Valuation Guidelines
- » Active member of Alternative Investment Management Association (AIMA)
- » Special advisor to the Institutional Limited Partners Association
- » Quoted by media outlets including Wall Street Journal, Financial Times, New York Times, CFO Magazine, CNBC, Fox Business News, Private Equity International, and Hedge Funds Review on issues impacting alternative investments valuation.

Benefits of Duff & Phelps Alternative Asset Advisory

- » Duff & Phelps review provides an independent and objective view on valuation that enhances our Client's valuation and financial reporting process
- » We ensure that our Clients' valuations methodology is compliant with current guidance and financial reporting requirements
- » We ensure that our Clients' methodology and approach is aligned with industry best practise using our experience and insight
- » Our involvement provides additional assurance to investors as to robustness of valuation process
- » We provide support for finance teams challenging and supporting deal team values
- » Our discussions with LPs indicate an increased focus on importance of timely, accurate reporting
- » At our Clients' request, and with a signed third party release letter, we communicate with LPs directly
- » Duff & Phelps review valuations prepared to ensure:
 - Objective and independent valuation conclusions
 - Compliance with guidelines and regulations
 - Consistent and robust approach with work-paper support

Our Areas of Expertise Span the Full Spectrum of Illiquid Assets and Securities

We are a recognized market leader, providing valuation services to the alternative investment management community. We currently review thousands of positions across a broad range of industries and clients.

Alternative Assets	Corporate Securities	Structured Products	Contractual Agreements	Options & Other Derivatives
<ul style="list-style-type: none"> » Private/Direct Loans » Real Estate » Private Equity and Venture Capital (Direct) » Private Equity and Venture Capital (Co-invest) » Hedge Fund and Private Equity General Partnerships (GPs) » Hedge Fund and Private Equity Limited Partnership Interests (LPs) » In-Kind Distributions » Other Illiquid investments » Non-performing loans (NPLs) 	<ul style="list-style-type: none"> » Convertible debt » Callable debt » Private Secured and Unsecured Loans » Distressed Debt » Other Debt Instruments » Preferred and Non-Public stock » PIPEs » Illiquid Common Equity » Employee stock options (FAS 123/IFRS2) and Restricted Stock » Warrants » Securities with embedded derivatives » Allocation of value among various claim holders » Common stock of highly leveraged companies » Contingent stock 	<ul style="list-style-type: none"> » Residential whole loans, MSR and Residential Mortgage Backed Securities (RMBS): Subprime, Alt-A, Option ARMs, RPL, NPL, SFR, fix and flip » Asset-Back Securities and Structured Notes » Commercial Real Estate (CRE) Loans, CMBS, CRE CDOs and CRE CLOs » Marketplace lending/P2P loans and securities » Various types of CDOs including ABS CDO, CBO, CLO, CDO², Synthetic CDOs, Reg-Cap transactions, and Trust Preferreds. » Collateralized Fund Obligations (CFOs) – Hedge Fund and Private Equity Interests 	<ul style="list-style-type: none"> » Executive compensation plans » Contracts with contingent payments » Employee stock options (FAS 123/IFRS2) » Management Incentive plans associated with portfolio companies (FAS123R/IFRS2) 	<ul style="list-style-type: none"> » Futures & Forwards » Swaps - Interest Rate, Variance, Dividend, Energy and Volatility Swaps » Options - Equity, Interest Rate, Currency, Commodity & Energy Options » Credit Default Swaps and other credit derivatives » Warrants (Debt) » Other OTC derivatives » Catastrophe bonds

Sector Expertise

We have over a decade of experience in the portfolio valuation and alternative investments space, as well as experts covering all major asset classes, including Real Estate, Structured Products, Technology, Industrial Products, and Healthcare:

Experience	18 full time Managing Directors to ensure timely, intelligent responses to your issues and questions that bring you unparalleled market intelligence and insights.
Breadth	The broadest exposure to deal sizes ranging from lower middle market to the largest syndicated deals. Approximately 10,000 valuations of private investments were performed in 2018. These engagements involved billions of dollars in positions across all industries in both domestic and international geographies.
Capacity	Industry leading ability to leverage our 1,300+ valuation professionals with deep industry and product experience. Over 200 professionals regularly work on alternative asset advisory engagements.
Resources	As a large firm, we invest in leading technology to leverage investment data and bring market leading experience and insights to our clients.
Product Knowledge	Expertise with the most complex debt, equity, real estate and derivative investments in companies across the business lifecycle.
Thought Leadership	Our professionals are actively involved in shaping both the US and international landscape on Fair Value reporting issues, including co-authoring the current PEIGG and IPEV Fair Value guidelines.

Our experience with complex portfolios has given us unparalleled insight in valuing a broad range of alternative investments. As the largest valuation firm in the alternative asset space, we have valued a diverse array of investment classes, enabling us to approach our clients' valuation needs with confidence. This exposure puts us at the forefront of industry trends and valuation methodologies.

Secondary Market Advisory Overview

Duff & Phelps Secondary Market Advisory (D&P SMA) specializes in serving as the trusted advisor providing secondary market liquidity solutions to investors in illiquid alternative assets. We advise all categories of sellers and their advisors, connecting them to a broad universe of secondary market buyers.

Sellers

- » Pension funds
- » Foundations
- » Endowments
- » Asset managers
- » Insurance companies
- » Family offices
- » Banks
- » Sovereign funds
- » Corporations
- » High-net-worth individuals

Advisors

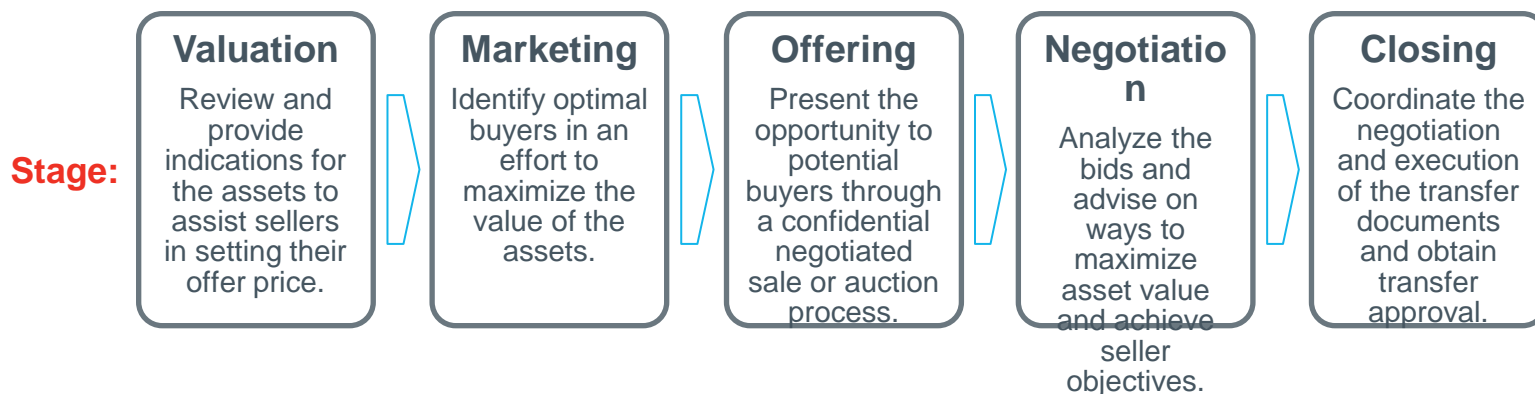
- » Fund administrators
- » Investment managers
- » Private wealth managers
- » General partners
- » Consultants

Buyers

- » Institutional secondary firms
- » Private equity funds-of-funds
- » Pension funds
- » Sovereign funds
- » Family offices
- » Endowments
- » Foundations
- » Asset managers
- » Insurance companies

D&P SMA works closely with sellers and their advisors to customize a secondary transfer process designed to achieve their objectives and maximize the value of the assets.

Secondary Offering Process



Secondary Market Solutions

Duff & Phelps' Secondary Market Advisory practice advises general partners, limited partners and shareholders, creating customized liquidity solutions that enable them to address their alternative investment challenges. Because of the breadth of Duff & Phelps' advisory experience and services, D&P SMA is capable of equipping its clients with the tools needed to better evaluate their alternative investment portfolios and secondary market opportunities.

General Partners — Limited Partners — Shareholders

Alternative Investment Challenges

- » Handle the increasing frequency of limited partner transfer requests
- » Address aging tail-end funds
- » Extend the lives of funds to maximize portfolio value
- » Generate distributions for limited partners

- » Rebalance portfolios
- » Monitor portfolio holdings
- » Meet liquidity needs
- » Comply with regulations
- » Address aging tail-end funds

- » Meet liquidity needs
- » Establish end of investment time horizon
- » Divest assets that are no longer strategic
- » Manage in-kind distributions of private company shares

Secondary Market Advisory Solutions

Collaborate with general partners to...

- » Create custom liquidity programs to manage the sale process for selling limited partners
- » Sell older vintage tail-end funds to make final distributions to limited partners
- » Sell a single asset, or strip of assets, to create interim portfolio liquidity
- » Restructure funds to bring in new capital and provide limited partners with an exit opportunity

Conduct secondary sales of LP interests to...

- » Meet investment allocations
- » Reduce portfolio monitoring by exiting non-core general partner relationships
- » Dispose of older vintage tail-end funds
- » Generate needed liquidity in a portfolio
- » Comply with regulatory changes
- » Reduce exposure to unfunded commitments

Conduct secondary sales of private company shares to...

- » Obtain liquidity prior to a company achieving an exit event
- » Divest assets in order to reallocate capital when companies are no longer strategic
- » Liquidate private company shares after receiving an in-kind distribution from a fund

Selected 2018 - 2019 Transaction Experience

Duff & Phelps is a leader in providing advisory services that solve clients' most difficult alternative investment challenges and has a proven track record of delivering liquidity solutions tailored to each client's needs. In 2019, D&P SMA advised clients on transacted assets valued at over \$1 billion.

Advisory Services

Coordinated the sale of a LP interest in a premier recent-vintage U.S. buyout fund.

\$151 million
U.S. Buyout Fund

Advisory Services

Arranged the sale of a diversified portfolio of interests in highly regarded private equity funds.

\$224 million
Private Equity Fund Portfolio

Advisory Services

Completed the sale of a portfolio of U.S. buyout fund interests.

\$184 million
U.S. Buyout Fund Portfolio

Advisory Services

Completed the sale of a cornerstone LP's interest in a fund-of-hedge funds.

\$38 million
Fund-of-Hedge Funds

Advisory Services

Arranged the recapitalization of Asian Healthcare Fund by Capital Dynamics.

\$40 million
Indian Growth Equity Fund

Advisory Services

Arranged the sale of a portfolio of mid-market buyout fund interests for a large insurance company.

\$33 million
Mid-Market Buyout Fund Portfolio

Advisory Services

Completed the sale of a portfolio of fund interests managed by a premier private equity real estate manager.

\$203 million
Real Estate Fund Portfolio

Advisory Services

Completed the sale of a portfolio of hedge fund interests.

\$40 million
Hedge Fund Portfolio

Advisory Services

Coordinated a GP-led tender offer to investors in a private fund-of-funds product for a global bank.

\$250 million
Private Fund-of-Funds Product



For more information about our global locations and services, please visit:
www.duffandphelps.com

About Duff & Phelps

Duff & Phelps is the global advisor that protects, restores and maximizes value for clients in the areas of valuation, corporate finance, disputes and investigations, cyber security, claims administration and regulatory issues. We work with clients across diverse sectors on matters of good governance and transparency. With Kroll, the leading global provider of risk solutions, and Prime Clerk, the leader in complex business services and claims administration, our firm has nearly 4,000 professionals in 25 countries around the world. For more information, visit

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