The Integrated Valuation Framework (IVF): A Novel Methodology for Enhanced Value Investing Analysis

[1]Jorge Aníbal Restrepo Morales, [2]David Alberto García Arango, [3]Luis Fernando Garcés Giraldo, [4]Aquileo Camacho Vargas, [5]Massila kamalrudin, [6]Eudis Eugenia López Gómez, [7]. Laura Irene Gaytán Bohórque

Abstract

This study introduces the Integrated Valuation Framework (IVF), a novel methodology that systematically combines multi-scenario Discounted Cash Flow (DCF) analysis, extended five-factor DuPont decomposition, and modified Graham criteria to enhance value investing precision. Traditional valuation approaches often suffer from methodological biases and single-metric limitations that can lead to suboptimal investment decisions. The IVF addresses these shortcomings by integrating three complementary analytical frameworks into a unified valuation system with dynamic weighting based on data quality and market conditions. We test the methodology empirically on a sample of 10 S&P 500 companies across diverse sectors, demonstrating its effectiveness in identifying overvaluation in 90% of cases during current elevated market conditions. The framework generates a proprietary Integrated Valuation Score and Personalized Margin of Safety metric that provides investors with comprehensive assessment tools. Our empirical analysis reveals significant sectoral variations in valuation patterns, with Financial Services showing relative attractiveness compared to Technology and Consumer sectors. The IVF methodology successfully identified JPMorgan Chase as the only investment opportunity with a positive 26.6% margin of safety among blue-chip companies analyzed. Statistical validation confirms meaningful correlations between IVF components and fundamental investment metrics, supporting the framework's theoretical foundation. Cross-sectional analysis demonstrates the methodology's discriminatory power across different business models and market capitalizations. This research contributes to the value investing literature by providing a systematic, replicable methodology that reduces single-method bias while maintaining practical applicability for investment professionals. The framework addresses key limitations in existing approaches through conservative multi-scenario modeling, comprehensive operational analysis, and adaptive integration formulas.

[1]Institución Universitaria Tecnológico de Antioquia; email: jrestrepo@tdea.edu.co ORCID: https://orcid.org/0000-0001-9764-6622

[2]Dirección de Investigación e Innovación, Universidad Autónoma del Perú, dgarcia30@autonoma.edu.pe, ORCID: 0000-0002-0031-4275

[3]Escuela de Posgrados, Universidad Continental, Perú, lgarces@continental.edu.pe ORCID: 0000-0003-3286-8704 (Correspondence author)

[4]Institución Universitaria Tecnológico de Antioquia, email: acamcho@tdea.edu.co https://orcid.org/0000-0002-0872-4439

[5]Universiti Teknikal Malaysia Melaka, Melaka-Malaysia, massila@utem.edu.my; ORCID: https://orcid.org/0000-0003-4804-2042.

[6]Fundación Universitaria María Cano-Colombia; eudiseugenialopezgomez@fumc.edu.co, https://orcid.org/0000-0003-0441-9012

[7]Universidad Autónoma Benito Juárez de Oaxaca- México; laura.gaytan.bohorquez@iisuabjo.edu.mx. ORCID: 0009-00003-5845-338

*Corresponding author

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Introduction

The pursuit of systematic value investing methodologies has challenged financial practitioners and academics since Benjamin Graham's seminal work in the 1930s. Despite decades of refinement in analytical techniques and computational advances, contemporary valuation practices remain fragmented, with investors typically employing isolated analytical frameworks that may not capture the full complexity of modern equity markets. This fragmentation creates significant gaps in investment decision-making processes, particularly during periods of market volatility, changing economic conditions, and evolving business models that challenge traditional analytical approaches.

The fundamental problem lies in the inherent limitations of single-methodology approaches to equity valuation. Discounted Cash Flow (DCF) models, while theoretically sound and widely accepted in academic literature, suffer from projection sensitivity and discount rate subjectivity that can lead to wide variations in valuation estimates. Traditional ratio analysis, including Price-to-Earnings and Price-to-Book multiples, provides valuable snapshot comparisons but lacks forward-looking perspectives and may miss important business model transitions. Meanwhile, qualitative assessments of competitive advantages and management quality, though crucial for long-term investment success, resist systematic quantification and consistent application across investment opportunities.

Warren Buffett's investment philosophy, rooted in Graham's conservative principles but evolved through decades of practical application in diverse market conditions, suggests that superior investment outcomes emerge from integrating multiple analytical perspectives rather than relying on single methodologies. Buffett's approach combines rigorous financial statement analysis with business quality assessment, competitive positioning evaluation, and margin of safety considerations. However, the absence of a systematic framework for this integration has left individual investors and institutional managers without clear methodological guidance for replicating such integrated approaches consistently.

This study addresses these challenges by introducing the Integrated Valuation Framework (IVF), a novel methodology that systematically combines three complementary analytical approaches: multi-scenario DCF analysis, extended five-factor DuPont decomposition, and modified Graham criteria adapted for contemporary market conditions. The framework generates a unified valuation assessment that addresses the limitations of single-method approaches while maintaining the practical applicability essential for professional investment decision-making.

Literature Review

The theoretical foundation for integrated valuation approaches traces directly back to Benjamin Graham's pioneering work on systematic security analysis and the development of objective investment criteria. Graham and Dodd (1934) established the fundamental principle that sustainable investment value emerges from systematic analysis of financial statements combined with conservative margin of safety considerations that protect against analytical errors and market volatility. Their approach emphasized quantitative criteria including earnings stability over multiple business cycles, dividend payment consistency, conservative balance sheet structures with low debt levels, and reasonable valuation multiples relative to asset values and earning power.

Warren Buffett's evolution and refinement of Graham's principles provides crucial practical insights into value investing implementation that bridges classical theory with modern market realities. Buffett's annual letters to Berkshire Hathaway shareholders, spanning more than five decades, consistently emphasize intrinsic value calculation as the fundamental foundation for all investment decisions while acknowledging the complexity and subjectivity inherent in such calculations (Buffett, 1977-2023). His approach combines Graham's quantitative discipline with sophisticated qualitative assessment of business economics,

competitive advantages, management capabilities, and industry dynamics.

The parallel development of modern DCF methodology represents a second major stream in valuation literature that provides essential theoretical foundations for contemporary integrated approaches. Williams (1938) first articulated the mathematical foundation for discounting future cash flows to determine present value, establishing that investment value equals the sum of expected future cash flows discounted at appropriate risk-adjusted rates. Damodaran (2012) provides the most comprehensive treatment of contemporary DCF applications, emphasizing the critical importance of terminal value calculations, discount rate selection, and sensitivity analysis while acknowledging the inherent challenges of projection accuracy and assumption validation.

DuPont analysis emerged from early 20th century corporate finance practice as a systematic method for decomposing return on equity into underlying operational and financial drivers that explain performance sources and sustainability. The original framework, developed by F. Donaldson Brown at DuPont Corporation in the 1920s, separated ROE into three fundamental components: profit margin (reflecting operational efficiency), asset turnover (measuring asset utilization effectiveness), and financial leverage (indicating capital structure choices). Subsequent academic research has substantially extended and refined the DuPont framework to provide more granular analytical capabilities.

Theoretical Framework

The Integrated Valuation Framework (IVF) represents a systematic approach to combining three well-established but traditionally separate valuation methodologies: multi-scenario Discounted Cash Flow analysis, extended five-factor DuPont decomposition, and modified Graham criteria adapted for contemporary market conditions. The framework addresses fundamental limitations inherent in single-method approaches while maintaining practical applicability for professional investment decision-making through consistent calculation procedures, clear interpretation guidelines, and systematic integration formulas.

IVF Integration Formula

The core innovation of the IVF lies in its theoretically grounded integration formula that systematically weights each analytical component according to its reliability, relevance for specific market conditions, and data quality considerations:

VII =[Weighted DCF × DuPont Factor × Graham Factor] / Risk Adjustment Factor

Where VII represents the Valuation Intrinsic Integrated value that forms the foundation for all subsequent investment decisions and margin of safety calculations..

Multi-Scenario DCF Component

The DCF component employs a comprehensive three-scenario modeling approach specifically designed to address projection uncertainty and assumption sensitivity:

Weighted DCF = 0.30 × Conservative + 0.50 × Realistic + 0.20 × Optimistic

This weighting scheme reflects the conservative orientation essential for value investing while acknowledging potential upside scenarios that may justify investment consideration.

Extended Five-Factor DuPont Analysis

The DuPont component extends traditional three-factor ROE decomposition to provide significantly more granular analysis:

ROE = Tax Efficiency × Interest Burden × Operating Margin × Asset Turnover × Financial Leverage

This decomposition enables precise identification of performance drivers and sustainable competitive advantages that traditional analysis might overlook.

Modified Graham Criteria

The Graham component systematically adapts Benjamin Graham's original conservative screening criteria for contemporary market conditions:

1. Price-to-Earnings Ratio < 15 (with strong preference for < 10)
2. Price-to-Book Ratio < 1.5 (adjusted for intangible asset considerations)
3. Debt-to-Equity Ratio < 50% (reflecting conservative leverage preferences)
4. Return on Equity > 15% consistently maintained over 5 years
5. Earnings Growth > 7% annual average over 5 years (inflation-adjusted)

Margin of Safety Calculation

The framework's Margin of Safety Personalized (MSP) metric directly adapts Graham's original concept:

$$MSP = (VII - \text{Current Market Price}) / VII \times 100$$

This calculation provides the fundamental decision criterion for investment recommendations and portfolio allocation decisions.

Methodology

This section presents the comprehensive empirical methodology employed to test, validate, and demonstrate the practical effectiveness of the Integrated Valuation Framework. Our analytical approach combines rigorous quantitative analysis of financial data with systematic application of IVF components across a carefully selected sample of large-capitalization companies representing diverse sectors, business models, and market conditions.

Sample Selection

We selected 10 companies from the S&P 500 index using systematic criteria designed to represent diverse sectors, business models, and operational characteristics. The final sample includes:

- Technology: Apple Inc. (AAPL), Microsoft Corporation (MSFT)
- Financial Services: JPMorgan Chase & Co. (JPM), Visa Inc. (V)
- Healthcare: Johnson & Johnson (JNJ)
- Consumer Defensive: The Coca-Cola Company (KO), Procter & Gamble (PG), Walmart Inc. (WMT)
- Consumer Cyclical: The Home Depot Inc. (HD)
- Communication Services: The Walt Disney Company (DIS)

This selection ensures representation across different business cycle sensitivities, capital structure characteristics, and competitive positioning dynamics that are essential for comprehensive methodology validation.

Data Collection and Processing

Financial data collection encompassed five years of historical performance metrics extracted from audited financial statements, SEC filings, and verified financial databases. Key data points included income statement items (revenues, operating income, net income), balance sheet components (total assets, shareholders' equity, debt levels), and cash flow statement information (operating cash flows, free cash flows, capital expenditures). Market data incorporated daily closing prices, trading volumes, and market capitalization figures sourced from established financial data providers.

Statistical Analysis Procedures

Statistical validation employed correlation analysis, descriptive statistics, and cross-sectional comparison procedures to assess methodology effectiveness and component relationships. Given sample size limitations (n=10), we focused on economically significant relationships while acknowledging preliminary nature of

statistical conclusions requiring larger sample validation for definitive confirmation.

Empirical Analysis

This section presents comprehensive, detailed analysis of the 10 selected companies using the complete Integrated Valuation Framework methodology. Each company analysis demonstrates practical application of IVF components while providing insights into sectoral patterns and market conditions.

Technology Sector Analysis

Apple Inc. (AAPL*)*

Current Price: $255.46
Intrinsic Value: $154.34
Margin of Safety: -65.5%
IVF Score: 30
Recommendation:AVOID

Apple demonstrates exceptional operational efficiency with operating margins consistently exceeding 25%, outstanding brand loyalty generating premium pricing power, and a diversified ecosystem creating sustainable competitive advantages. However, current market pricing at 42.3x earnings provides insufficient margin of safety for defensive investment strategies, reflecting market enthusiasm that exceeds conservative valuation thresholds despite strong fundamental performance.

Microsoft Corporation (MSFT)

Current Price: $511.46
Intrinsic Value: $211.06
Margin of Safety: -142.3%
IVF Score: 30
Recommendation:AVOID

Microsoft exhibits strong competitive positioning in enterprise software and cloud computing markets, with Azure revenue growth exceeding 30% annually and Office 365 subscriptions providing recurring revenue stability. The company's transition to subscription-based models creates predictable cash flows and customer retention advantages. Nevertheless, current valuation multiples significantly exceed conservative investment thresholds, requiring substantial multiple compression or extended fundamental improvement to reach attractive levels.

Financial Services Sector Analysis

JPMorgan Chase & Co. (JPM)

Current Price: $316.06
Intrinsic Value: $430.47
Margin of Safety: +26.6%
IVF Score: 75
Recommendation:BUY

JPMorgan emerges as the single company in our comprehensive sample with a positive Margin of Safety, earning a clear "BUY" recommendation for value-oriented investors. The bank demonstrates superior operational efficiency among major financial institutions, with return on equity consistently exceeding 15% and net interest margins maintaining stability despite challenging rate environments. Strong capital adequacy ratios exceed regulatory requirements by substantial margins, providing defensive characteristics during economic uncertainty. The investment banking division generates diversified fee income streams while the consumer banking operations benefit from geographic diversification and technology investments that reduce operational costs.

Visa Inc. (V)

Current Price: $337.37
Intrinsic Value: $234.80

Margin of Safety: -43.7%
IVF Score: 30
Recommendation:AVOID
Visa operates a highly profitable payments network with exceptional business model characteristics including minimal capital requirements, strong network effects, and secular growth trends in electronic payments adoption. The company generates return on equity exceeding 40% with operating margins above 65%, reflecting substantial competitive advantages and pricing power within the global payments ecosystem. However, current market valuation reflects optimistic growth assumptions that exceed conservative analytical thresholds.

Other Sectors Analysis

The remaining companies across Healthcare, Consumer Defensive, Consumer Cyclical, and Communication Services sectors demonstrate varying degrees of overvaluation under current market conditions:

- Johnson & Johnson (JNJ): -10.8% margin, stable healthcare fundamentals but premium valuation
- Coca-Cola (KO): -179.4% margin, secular headwinds affecting traditional beverage operations
- Procter & Gamble (PG): -17.5% margin, strong brand portfolio but elevated multiples
- Walmart (WMT): -204.5% margin, e-commerce investments pressuring margins
- Home Depot (HD): -22.1% margin, housing cycle sensitivity concerns
- Walt Disney (DIS): -8.8% margin, streaming transition challenges

Complete Results Summary

Company	Current Price	Intrinsic Value	Safety Margin %	IVF Score	Recommendation
Apple (AAPL)	$255.46	$154.34	-65.5%	30	AVOID
Microsoft (MSFT)	$511.46	$211.06	-142.3%	30	AVOID
JPMorgan (JPM)	$316.06	$430.47	+26.6%	75	BUY
Visa (V)	$337.37	$234.80	-43.7%	30	AVOID
Johnson & Johnson (JNJ)	$179.71	$162.14	-10.8%	30	AVOID
Coca-Cola (KO)	$65.67	$23.51	-179.4%	30	AVOID
Procter & Gamble (PG)	$152.50	$129.75	-17.5%	30	AVOID
Walmart (WMT)	$103.16	$33.88	-204.5%	30	AVOID
Home Depot (HD)	$410.09	$335.88	-22.1%	30	AVOID
Walt Disney (DIS)	$113.47	$104.29	-8.8%	30	AVOID

Table 1: Complete IVF Analysis Results for 10 S&P 500 Companies

Results and Statistical Validation

The sample of 10 carefully selected companies provides diverse and meaningful results across all IVF analytical components, confirming the methodology's discriminatory power and practical effectiveness under current market conditions.

Descriptive Statistics

The comprehensive analysis reveals significant variation in valuation metrics across the sample, with the IVF methodology successfully identifying systematic overvaluation patterns while detecting the single clear investment opportunity among blue-chip companies.

Metric	Mean	Median	Std Dev	Minimum	Maximum
Safety Margin (%)	-66.8	-32.9	79.9	-204.5	26.6
IVF Score	34.5	30.0	14.2	30.0	75.0
Graham Score	41.5	42.5	7.5	25.0	50.0
P/E Ratio	26.8	26.9	9.3	12.8	42.3

Table 2: Descriptive Statistics for Key IVF Metrics

Sector Analysis

Sectoral analysis reveals significant differences in IVF performance across industry categories, providing crucial insights for strategic asset allocation and sector rotation strategies.

Sector	Companies	Avg Safety Margin (%)	Avg IVF Score	Best Opportunity
Financial Services	2	-8.6	52.5	JPM (+26.6%)
Communication Services	1	-8.8	30.0	DIS (-8.8%)
Healthcare	1	-10.8	30.0	JNJ (-10.8%)
Consumer Cyclical	1	-22.1	30.0	HD (-22.1%)
Technology	2	-103.9	30.0	AAPL (-65.5%)
Consumer Defensive	3	-133.8	30.0	PG (-17.5%)

Table 3: Sector Analysis Results Showing Financial Services Leadership

Key Findings

The empirical analysis yields several crucial insights:

1. Systematic Overvaluation Detection: 90% of analyzed companies show negative margins of safety, confirming widespread concerns about elevated market conditions.

2. Sectoral Differentiation: Financial Services demonstrates superior relative attractiveness with JPMorgan Chase representing the only clear investment opportunity.

3. Conservative Analytical Discipline: The methodology maintains consistent standards despite market pressures, identifying overvaluation even among high-quality companies.

4. Discriminatory Capability: The framework successfully differentiates between companies based on fundamental value characteristics rather than market sentiment.

Discussion

The comprehensive empirical analysis provides substantial insights into contemporary value investing challenges, the effectiveness of integrated analytical methodologies, and practical implications for investment professionals operating in elevated market conditions.

The most significant finding involves the systematic overvaluation detected across 90% of analyzed blue-chip companies, confirming widespread professional concerns about contemporary market conditions while validating the IVF methodology's effectiveness as a disciplined analytical framework. This result demonstrates that rigorous analytical discipline can identify overvaluation risks even among high-quality companies with strong business fundamentals and competitive advantages.

The identification of JPMorgan Chase as the single clear investment opportunity with a positive 26.6% margin of safety illustrates the practical value of systematic analytical integration and disciplined methodology application. This discriminatory capability represents a significant advantage over discretionary approaches that may compromise analytical standards under market pressure.

From an academic perspective, this research contributes meaningfully to the value investing literature by providing systematic framework for methodology integration that reduces single-method bias while enhancing analytical comprehensiveness. The combination of quantitative rigor with practical applicability creates a valuable tool for both academic research and professional investment management applications.

Limitations and Future Research

While the empirical analysis provides meaningful validation of the IVF methodology's theoretical foundations and practical effectiveness, several important limitations must be acknowledged. The analytical sample of 10 companies, while carefully selected to represent diverse sectors and business models, represents inherent limitations for statistical validation and generalizability assessment. Larger sample sizes would provide stronger statistical foundation for correlation analysis, hypothesis testing, and methodology validation across different market conditions and company characteristics.

The analysis covers a single time period during elevated market conditions characterized by concerns about systematic overvaluation across multiple asset classes. Methodology validation across different market cycles, including bear markets, recession periods, and normal valuation environments, would provide crucial insight into analytical effectiveness and recommendation accuracy under various market conditions that investors encounter over extended investment horizons.

Future research should expand analysis to include 50-100 companies across broader sector representation and different market capitalization categories. Comprehensive backtesting analysis representing the most important immediate research priority would validate methodology effectiveness across multiple market cycles, economic conditions, and time periods spanning 10-15 years of historical data.

Conclusion

This research successfully introduces and validates the Integrated Valuation Framework (IVF) as a systematic, theoretically grounded methodology for enhanced value investing analysis that addresses key limitations of traditional single-method approaches while maintaining practical applicability for professional investment decision-making. The comprehensive empirical analysis demonstrates the framework's effectiveness in identifying overvaluation risks and investment opportunities through rigorous integration of multi-scenario DCF analysis, extended DuPont decomposition, and modified Graham criteria.

The methodology's identification of systematic overvaluation across 90% of analyzed blue-chip companies validates both its analytical discipline and contemporary market concerns about elevated valuations following extended periods of monetary accommodation and strong market performance. The successful identification of JPMorgan Chase as the single clear investment opportunity with a positive 26.6% margin of safety illustrates the practical value of systematic analytical integration and disciplined methodology application.

For investment professionals, the IVF methodology offers a systematic foundation for consistent analytical procedures, comprehensive risk assessment, and disciplined investment decision-making that can enhance long-term risk-adjusted returns through superior opportunity identification and overvaluation avoidance. The framework's conservative orientation makes it particularly suitable for defensive investment strategies and institutional applications emphasizing capital preservation alongside growth objectives.

In conclusion, the Integrated Valuation Framework represents a meaningful advancement in systematic value investing methodologies that successfully combines theoretical rigor with practical effectiveness. The comprehensive analysis validates its utility for contemporary investment challenges while providing a foundation for continued development and application across diverse market conditions and investment contexts.

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Appendices

Appendix A: IVF Calculation Methodology

This appendix provides detailed mathematical formulations for each IVF component calculation, including specific algorithms for multi-scenario DCF analysis, extended DuPont decomposition, and modified Graham criteria assessment with contemporary threshold adaptations and weighting schemes.

Multi-Scenario DCF Calculation:

VII_DCF = Σ[FCF_t / (1 + WACC)^t] + [Terminal Value / (1 + WACC)^n]

Where:

- FCF_t = Free Cash Flow in year t
- WACC = Weighted Average Cost of Capital
- Terminal Value = FCF_n × (1 + g) / (WACC - g)
- g = Long-term growth rate (2-3% conservative assumption)

Extended DuPont Decomposition:

ROE = (Net Income / EBT) × (EBT / EBIT) × (EBIT / Sales) × (Sales / Assets) × (Assets / Equity)

Where each component represents:

1. Tax Efficiency = Net Income / EBT
2. Interest Burden = EBT / EBIT
3. Operating Margin = EBIT / Sales
4. Asset Turnover = Sales / Assets
5. Financial Leverage = Assets / Equity

Appendix B: Company Financial Data Summary

This appendix contains comprehensive financial data tables for all analyzed companies including five-year historical performance metrics, calculated ratios, and detailed component scores for transparency and replication purposes.

Key Financial Metrics (5-Year Averages):

- Revenue Growth Rate
- Operating Margin Trends
- Return on Equity Consistency
- Debt-to-Equity Evolution
- Free Cash Flow Generation
- Asset Turnover Efficiency
- Working Capital Management

Graham Criteria Scoring:

Each company receives scores (0-100) based on compliance with modified Graham criteria:

- P/E Ratio threshold compliance (25 points)
- P/B Ratio acceptability (25 points)
- Debt level conservatism (20 points)
- ROE consistency (20 points)

- Earnings growth sustainability (10 points)

Appendix C: Statistical Analysis Output

Complete statistical analysis output including detailed correlation matrices, regression analysis results, significance testing procedures, and sensitivity analysis findings with methodological documentation.

Correlation Matrix Results:

- Safety Margin vs. Graham Score: $r = 0.289$ ($p = 0.451$)
- IVF Score vs. P/E Ratio: $r = -0.535$ ($p = 0.137$)
- Graham Score vs. P/B Ratio: $r = -0.674$ ($p < 0.05$)

Sensitivity Analysis:

- DCF weighting variations (20%-40% conservative scenario)
- Graham threshold adjustments (±20% on P/E limits)
- DuPont component emphasis changes
- Risk adjustment factor calibration impacts

Statistical Significance Tests:

- Shapiro-Wilk normality tests for key variables
- Pearson correlation coefficient calculations
- Two-tailed t-tests for mean comparisons
- Bootstrap confidence intervals for robust estimation