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ASSET VALUATION DURING CRISES: SPECIFIC CONSIDERATIONS UNDER INFLATION AND UNCERTAINTY

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Abstract. This article examines the specific challenges of asset valuation during economic crises, focusing on the effects of inflation and uncertainty. It discusses how changes in purchasing power, market liquidity, expected cash flows, and required returns influence valuation outcomes. Through a comparative analytical approach, the article considers the applicability and limitations of income, market, and cost approaches under unstable economic conditions. Particular attention is given to maintaining consistency between nominal cash flows and nominal discount rates, or real cash flows and real discount rates, to avoid distortions in estimated asset values. The discussion also addresses the limitations of historical information and market comparables when prices and economic expectations change rapidly. The article emphasizes the use of sensitivity analysis, scenario analysis, and transparent assumptions to assess valuation uncertainty. It proposes an integrated approach that combines appropriate valuation methods with explicit consideration of inflation, asset-specific risks, and market conditions.

Keywords: asset valuation, economic crisis, inflation, uncertainty, discounted cash flow, discount rate, market liquidity, valuation approaches, sensitivity analysis, scenario analysis, nominal and real cash flows.

Introduction

Asset valuation provides a basis for investment decisions, financial reporting, lending, and business transactions. Its purpose is to estimate asset value under a defined set of assumptions and market conditions at a specified date. During economic crises, this task becomes more challenging because changes in demand, financing conditions, operating costs, and market liquidity can undermine the reliability of historical information. Inflation and uncertainty further complicate valuation by affecting both expected economic benefits and the rates used to discount those benefits.

Inflation influences asset values through several channels. Rising prices can increase replacement costs and nominal revenues, while simultaneously raising operating expenses and working capital requirements. The overall effect depends on an asset's characteristics and the ability of its owner to pass higher costs on to customers. Consequently, inflation does not necessarily increase asset value, even when nominal prices or revenues rise. A business with limited pricing power may experience declining margins, whereas an asset capable of generating inflation-linked income may respond differently.

An essential issue in inflation-sensitive valuation is consistency between cash flows and discount rates. Nominal cash flows incorporate expected price changes and should be discounted using a nominal rate, while cash flows expressed in constant purchasing-power terms require a real rate. Mixing these bases can distort estimated value. Moreover, applying a single inflation assumption to every cash flow component may conceal differences between selling prices, wages,

input costs, and capital expenditure. Valuation therefore requires attention to how inflation affects individual revenue and cost drivers.

Uncertainty creates an additional challenge because the future performance of an asset may differ substantially from the conditions observed before a crisis. Changes in customer behavior, supply availability, financing access, and recovery prospects can alter expected cash flows. Market evidence may also become difficult to interpret when transactions are infrequent or reflect unusual motivations. An observed transaction price may require careful examination before it is used as a comparable, particularly when the transaction involves financial distress or circumstances that differ from those of the asset being valued.

These conditions affect the application of the income, market, and cost approaches. The income approach depends on forecasts that may become less reliable as uncertainty increases. The market approach requires comparable transactions and adjustments that reflect current conditions. The cost approach must account for changes in replacement expenditure as well as physical deterioration and functional or economic obsolescence. Each approach provides a different perspective, and the suitability of a method depends on the asset, the valuation purpose, and the quality of available evidence.

Risk assessment also requires care. Adverse conditions may be reflected in projected cash flows, scenario probabilities, or discount rates. Applying overlapping adjustments without a clear rationale can count the same risk more than once and produce an unjustifiably low estimate. Conversely, relying on optimistic forecasts and insufficient risk adjustments can overstate value. Transparent assumptions and a consistent analytical framework are therefore central to credible valuation during crises.

Sensitivity and scenario analysis can help address these difficulties by showing how estimated value changes when key assumptions vary. Sensitivity analysis identifies influential inputs, while scenario analysis examines coherent combinations of economic and asset-specific conditions. These tools support the interpretation of a valuation estimate and make its dependence on uncertain assumptions more explicit.

This article aims to examine the specific features of asset valuation during economic crises, with particular emphasis on inflation and uncertainty. It considers their effects on cash flow forecasting, discount rate selection, market comparability, and replacement costs. The discussion seeks to develop a consistent framework for selecting valuation approaches, interpreting results, and communicating the assumptions that underpin asset value estimates.

Literature Review

The literature on asset valuation during economic crises connects three principal issues: the treatment of inflation, the effects of uncertainty on economic activity, and the interpretation of market evidence. These perspectives help explain why valuation under unstable conditions requires consistent assumptions and careful assessment of the information available at the valuation date.

Damodaran's valuation framework emphasizes consistency between projected cash flows and discount rates. His discussion of inflation demonstrates that nominal cash flows should be discounted using nominal rates, while real cash flows require real rates. When applied consistently, the two approaches produce equivalent values under the same underlying assumptions. Mismatching them can substantially distort the estimate. This framework provides an essential methodological basis for evaluating assets when inflation affects expected revenues, expenses, and required returns.

The empirical literature also examines the relationship between inflation and investment returns. Fama and Schwert (1977), in Asset Returns and Inflation, provide a foundational

investigation of this relationship. Their work is relevant to distinguishing changes in nominal asset performance from changes in purchasing power. However, historical evidence from a particular market and period should not be treated as a universal prediction of how every asset will perform during an inflationary crisis.

Research on uncertainty offers a complementary perspective. Bloom (2009) examines uncertainty shocks associated with major economic and political events, while his later review considers how uncertainty varies over the business cycle and interacts with recessions. For asset valuation, this literature suggests that crisis conditions should be examined through their implications for economic activity and future performance, rather than represented solely by a higher discount rate. This is a valuation implication drawn from the uncertainty literature, rather than a direct asset-pricing result of those studies.

Bloom, Bond, and Van Reenen's research on uncertainty and investment dynamics further highlights the interaction between uncertainty and firms' investment responses. Their analysis indicates that firms may respond less strongly to policy stimuli during periods of high uncertainty. This finding is relevant to valuation forecasts because assumptions about investment, expansion, and recovery may require reassessment during a crisis. Nevertheless, the implications depend on the characteristics of the business and the economic conditions being considered.

The financial reporting framework adds an important distinction concerning the basis of value. IFRS 13 defines fair value by reference to an orderly transaction between market participants at the measurement date under current market conditions. Consequently, fair value measurement requires attention to current market assumptions and the circumstances surrounding observed transactions. In crisis conditions, this framework supports examining whether transaction evidence reflects an orderly exchange before using it in valuation. Fair value for financial reporting should also be distinguished from other valuation bases used for different purposes.

Taken together, the reviewed literature supports an integrated approach to crisis-period valuation. Inflation requires consistent treatment of monetary assumptions; uncertainty requires reassessment of expected performance; and market evidence requires interpretation within the relevant valuation basis. The present article brings these perspectives together to examine the applicability of income, market, and cost approaches and the role of sensitivity and scenario analysis in communicating valuation uncertainty.

Research Methodology

This study adopts a qualitative comparative approach based on academic literature and valuation guidance. The income, market, and cost approaches are examined to identify how inflation and uncertainty affect cash flow forecasts, discount rates, comparable transactions, and replacement costs.

An illustrative numerical example is used to assess changes in estimated asset value under alternative inflation, operating performance, and required-return assumptions. Nominal cash flows are matched with nominal discount rates to maintain consistency. Sensitivity analysis examines individual assumptions, while scenario analysis considers coherent combinations of economic conditions. The study relies on secondary sources and hypothetical data; it does not estimate the value of an actual asset.

Results and Discussion

The analysis indicates that inflation and uncertainty affect asset valuation through different but interconnected channels. Inflation changes the monetary expression of future cash flows and required returns, while crisis conditions may also reduce operating performance and increase

investment risk. Distinguishing these effects is necessary to avoid interpreting rising nominal income as evidence of increasing economic value.

A hypothetical income-generating asset is used to illustrate these relationships. The asset provides five years of net cash inflows, with no residual value after the fifth year. Its baseline annual net cash inflow is USD 100,000 in valuation-date purchasing power, and the real required return is 8%. Nominal cash flows are adjusted for assumed annual inflation and discounted using a corresponding nominal required return. All cash flows occur at year-end. The calculations represent an illustrative income value rather than the assessed market value of an actual asset.

Table 1.

Inflation and estimated asset value under full inflation adjustment

Annual inflation	Real required return	Consistent nominal required return	First-year nominal net inflow, USD	Estimated value, USD
5%	8%	13.40%	105,000	399,271.00
10%	8%	18.80%	110,000	399,271.00
15%	8%	24.20%	115,000	399,271.00

Source: Author's calculations using hypothetical data. Net inflows are assumed to increase fully with inflation, while real operating performance and the real required return remain unchanged.

The results show that higher inflation does not change estimated value when its effects are incorporated consistently into both cash flows and discount rates and all real assumptions remain constant. Although nominal receipts increase, their purchasing-power equivalent remains unchanged. This result is specific to the assumptions of full inflation adjustment and constant real performance; it does not imply that inflation is economically neutral for every asset.

In practice, a business may be unable to increase selling prices as quickly as wages, materials, and other expenses rise. Such differences can reduce real net cash inflows. Crisis conditions may also increase the required real return as investors reassess risk. Table 2 illustrates these additional effects through three scenarios.

Table 2.

Illustrative asset values under alternative economic scenarios

Assumption or result	Baseline	Moderate stress	Severe stress
Annual inflation	5%	10%	15%
Annual net inflow in constant purchasing-power terms, USD	100,000	90,000	75,000
Real required return	8%	10%	14%
Consistent nominal required return	13.40%	21.00%	31.10%
Estimated asset value, USD	399,271.00	341,170.81	257,481.07
Decline relative to baseline	—	14.55%	35.51%

Source: Author's calculations. Stress scenarios assume lower real operating inflows and higher required real returns alongside inflation. These assumptions are illustrative, not empirically estimated.

Under moderate stress, estimated value falls to USD 341,170.81. Under severe stress, it declines to USD 257,481.07. These decreases result from the combined assumptions of weaker real cash flows and higher real required returns. They cannot be attributed to inflation alone. The comparison demonstrates why crisis valuation should examine operating performance and financing conditions separately from changes in the general price level.

Sensitivity analysis further isolates the effects of cash flow expectations and required returns. Inflation is held at 10%, and nominal inputs remain consistent with the corresponding real assumptions.

Table 3.

Sensitivity of estimated asset value, USD

Annual real net inflow	Real required return: 6%	Real required return: 8%	Real required return: 10%
USD 90,000	379,112.74	359,343.90	341,170.81
USD 100,000	421,236.38	399,271.00	379,078.68
USD 110,000	463,360.02	439,198.10	416,986.54

Source: Author's calculations using hypothetical data.

At an unchanged real required return of 8%, a 10% reduction in annual real net inflows reduces value by 10%. Holding annual real inflows at USD 100,000, an increase in the real required return from 8% to 10% lowers estimated value from USD 399,271.00 to USD 379,078.68. These results identify the assumptions driving valuation changes without assigning probabilities to the scenarios. The values therefore form a sensitivity range, rather than a statistical confidence interval.

The numerical findings also have implications for the selection of valuation approaches. The income approach makes the effects of changing cash flows and required returns explicit, but depends heavily on forecast quality. The market approach provides transaction-based evidence, although comparable prices require adjustments for timing, asset characteristics, and transaction circumstances. The cost approach can capture increases in replacement expenditure, but higher replacement cost does not independently establish greater income-generating capacity.

Table 4.

Valuation approaches under inflation and uncertainty

Approach	Principal issue during a crisis	Analytical response
Income approach	Uncertain cash flows and required returns	Maintain nominal–real consistency and test alternative assumptions
Market approach	Limited comparables and rapidly changing conditions	Examine transaction dates, comparability, and circumstances
Cost approach	Rising replacement costs and possible economic obsolescence	Assess replacement expenditure together with utility and obsolescence

Source: Author's analytical synthesis.

Overall, the analysis shows that credible crisis-period valuation requires a clear distinction between nominal growth and real economic performance. The hypothetical example demonstrates that consistent inflation adjustment preserves value when real conditions are unchanged, while weaker operating cash flows and higher required returns reduce it. Valuers should therefore explain

the drivers of each adjustment, avoid counting the same risk twice, and communicate how alternative assumptions affect the final estimate.

Conclusion and Recommendations

The study concludes that asset valuation during economic crises requires consistent treatment of inflation, operating performance, and investment risk. Inflation increases nominal cash flows and replacement costs, but these changes do not necessarily indicate greater real economic value. The effect on an asset depends on its income-generating capacity, pricing flexibility, cost structure, and exposure to changing market conditions.

The hypothetical analysis demonstrates that estimated value remains unchanged when cash flows fully adjust to inflation and the real required return remains constant. However, when real operating inflows decline and required real returns increase, estimated value decreases. Relative to the baseline value of USD 399,271.00, the moderate and severe stress scenarios produce declines of 14.55% and 35.51%, respectively. These results illustrate the combined effects of the assumed operating and risk changes rather than the independent effect of inflation.

The findings support using valuation approaches according to the asset's characteristics, the valuation purpose, and the quality of available evidence. Sensitivity and scenario analysis improve transparency by showing how estimates respond to alternative assumptions. Since the numerical example uses hypothetical data, its results should be interpreted as methodological illustrations rather than empirical estimates of crisis-related asset losses.

The following recommendations are proposed:

1. **Maintain nominal–real consistency.** Match nominal cash flows with nominal discount rates and real cash flows with real rates throughout the valuation.
2. **Assess inflation at the operating level.** Examine changes in selling prices, input costs, wages, capital expenditure, and working capital separately, reflecting the asset owner's ability to pass cost increases on to customers.
3. **Avoid overlapping risk adjustments.** Explain how risks are incorporated into cash flows, scenario probabilities, and discount rates to prevent counting the same risk more than once.
4. **Reassess market comparables.** Examine transaction dates, asset characteristics, and transaction circumstances before applying observed prices or valuation multiples.
5. **Account for economic obsolescence.** Under the cost approach, consider whether rising replacement expenditure is supported by the asset's utility and expected economic benefits.
6. **Communicate valuation uncertainty clearly.** Present the principal assumptions, sensitivity results, and relevant scenarios, distinguishing illustrative ranges from statistical confidence intervals.

Future research should apply this framework to actual assets across different sectors and compare valuation estimates with subsequent operating performance and transaction evidence.

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