PRIVATE EQUITY PERFORMANCE IMPROVEMENT GROUP

Risk, Reality and Reward: A Navigation Playbook

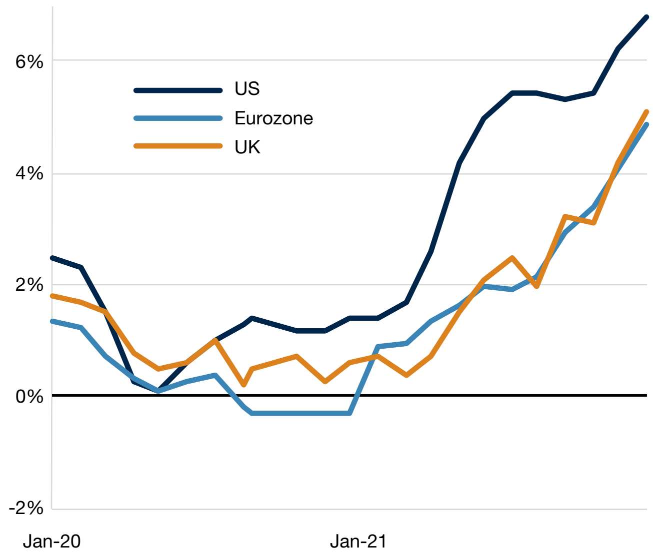
Crisis Act Two: Navigating a Period of Asymmetric Risk

"In economic life and history more generally, just about everything of consequence comes from Black Swans."
– Nassim Taleb

Since the initial shock of the COVID pandemic, often characterized as a Black Swan event, business leaders have been challenged by a relentless series of downstream repercussions and surprising upsets that have made a return to normal seem out of reach. In just the past year we have endured blocked canals in the Middle East, sawmill shortages in North America, 100-year freezes in Texas, overloaded ports, throttled pipelines, labor shortages and skyrocketing transportation and energy commodity prices. These events, in combination, have brought both producer and consumer price indexes to levels not seen in 30 years.

There is a natural human tendency to treat these events as independent occurrences that have predictable linear outcomes. These expected outcomes can then be addressed with management attention, price increases, safety stock, new capacity/debottlenecking and, well, better luck.

Annual Change in Consumer Price Index



Source: Labor Department (U.S.), Office for National Statistics (U.K.), Eurostat (Eurozone)

The inherent risk of this taxonomy has been revealed during this recent procession of Black Swans. What if the events are not independent and random but are linked with compounding and second-order effects? What if consumer demand collapses with higher prices? What if new supply cannot keep up? The Fed and debt markets project receding inflation rates over the next two years. What if they are wrong?

We believe that the risk of persistent inflation has been vastly understated. This paper is the first of a series to present our view on what private equity owners and portfolio company management can, and should, do to prepare.

Why Should PE Investors Be Concerned?

The peak economic impact of COVID on global GDP was estimated at 7.3 percentage points of lost growth by the St. Louis Fed. As the gaps with 2019 closed, public market valuations have been buoyed by the economic resurgence coupled with unprecedented liquidity. Due to the enormous liquidity, there is substantial risk that has not been priced into the market.

Best of times
• Asset values are up, earnings are up
• Public valuation multiples are leading private multiples
• Private equity “dry powder” at all-time highs
• Management teams are busy preparing assets for sale
• Near-zero interest rates encouraging risk-taking
• Deal volumes are up as buyers and sellers rush to close

Worst of times
• Consumer demand is running ahead of trend
• Mix shift toward goods from services exposing transportation and logistical gaps
• Global supply chains have proven inflexible and supply shortfalls driving 9+ percent producer (PPI) inflation
• Spikes in quit rates despite rising wages causing persistent labor shortages

Public market valuations drive private market valuations. Deal multiples are at all-time highs. Debt is cheap and deal flow is exceptional — so what’s the problem?

The challenge is an underlying expectation of near-term reversion to the mean. The impact of COVID has been broad-reaching and pervasive in its societal and economic impacts. This creates a new asymmetric risk for investors in the near term. Valuations and upside are known and limited. The downside risks of escalating prices and central bank action are just now becoming apparent. If this were a play, this point in the crisis would be intermission. Here are some of the continuing uncertainties that play into the environment of enormous risk asymmetry.

Societal/Macro Uncertainties

- Country balance sheets are leveraged to WWII levels and rely on low rates to keep taxes low
- Labor remains in short supply, leading to higher wages and hampers recovery of output
- An asset-driven wealth bubble encouraged skilled workers to leave the workforce in unprecedented numbers
- ESG goals and the general preference for renewable energy constrains supply investment and drives higher “equilibrium” energy prices
- The continuing pandemic and its political/public health repercussions are again hitting demand and supply

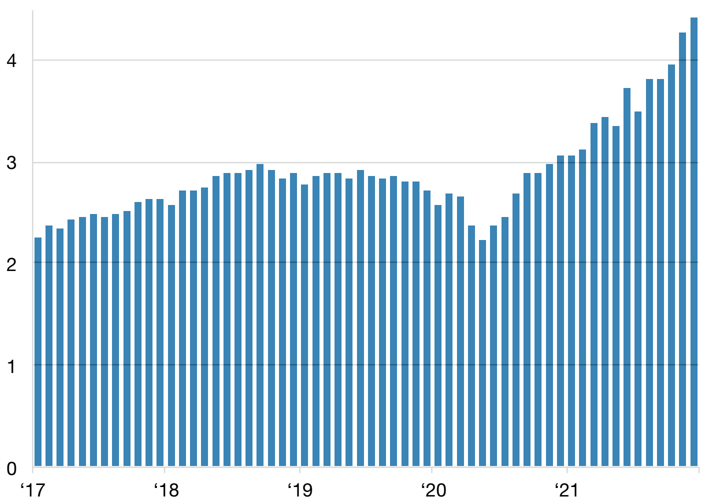
U.S. household savings

Share of population 16 and older working or looking for work

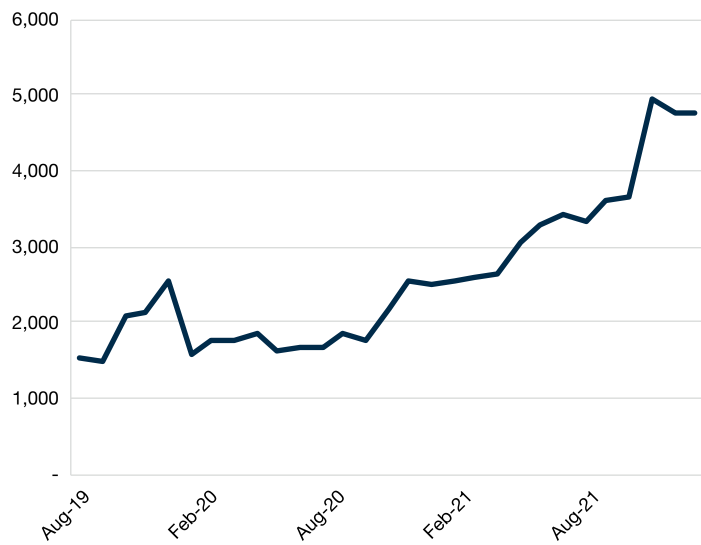
Economic Dislocations

- Fractured global supply chains in China and other Asian countries are blocking critical inputs
- Soaring ocean freight rates have jumped up 400 percent, and crowded ports tie-up ship capacity as floating warehouses
- Energy supply shortages in Asia triggered rationing of electricity in China with rolling blackouts in the 17 provinces that make up 70 percent of its economy
- Natural gas prices spiked to over $50/mmBtu (8x 2018) in Europe due to wind power shortfalls and Russian export limitations settling at over $30/mmBtu (5x 2018) through next winter
- Downstream electricity prices leapt to over €400/MWh (10x 2018), further constraining energy intensive production such as metals and fertilizer

Cass Freight Index measure for domestic U.S. Freight expenditures, monthly

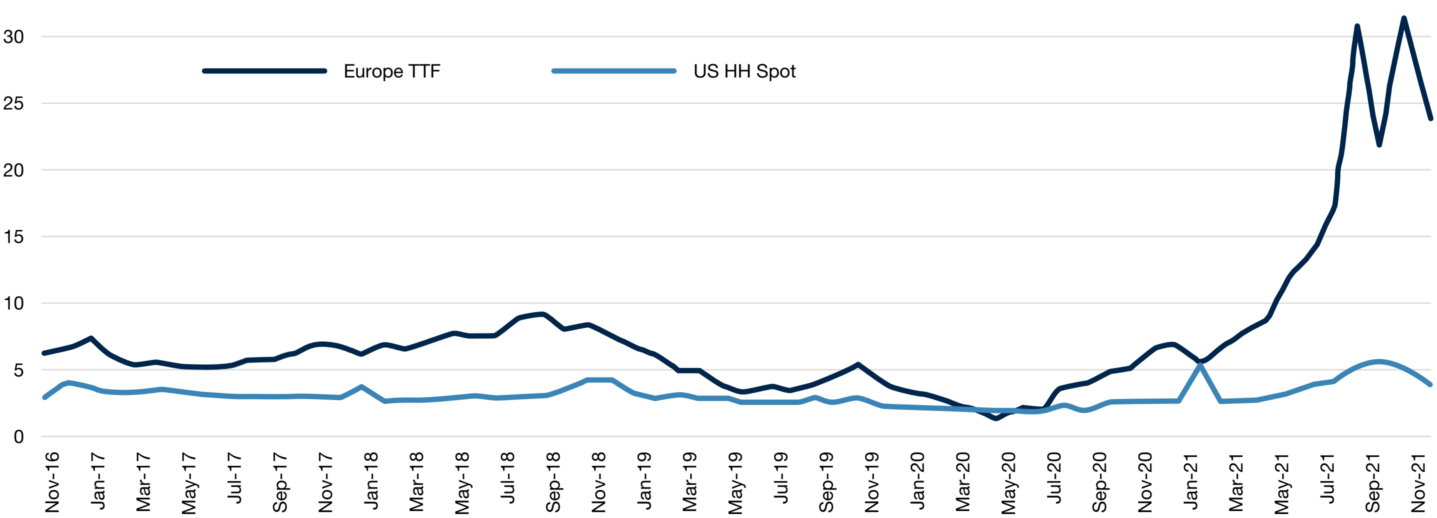


Average price for shipping a 40-foot ocean container from Shanghai to Los Angeles



Source: Cass Information Systems (expenditures, index); Xeneta (average price)

US and Europe Natural Gas Prices
Monthly 11/16 to 12/21, $/MMBTU



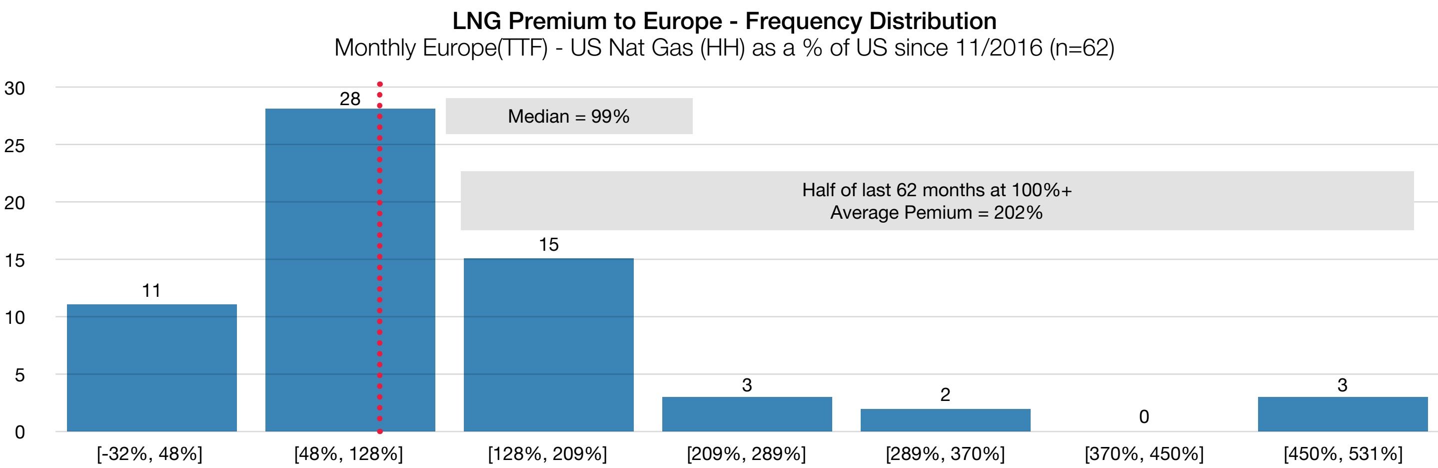
Source: U.S. Energy Information Administration (EIA); Intercontinental Exchange (ICE)

Mechanisms of Persistent Inflation

How will we know that we've transitioned to a sustained period of persistent inflation? The economic approach is to look for a shift in consumer purchasing behavior. Unfortunately, that is a post hoc test — we only get the result after the fact. We see three leading mechanisms that are likely to drive persistent consumer price inflation as they escalate or unwind.

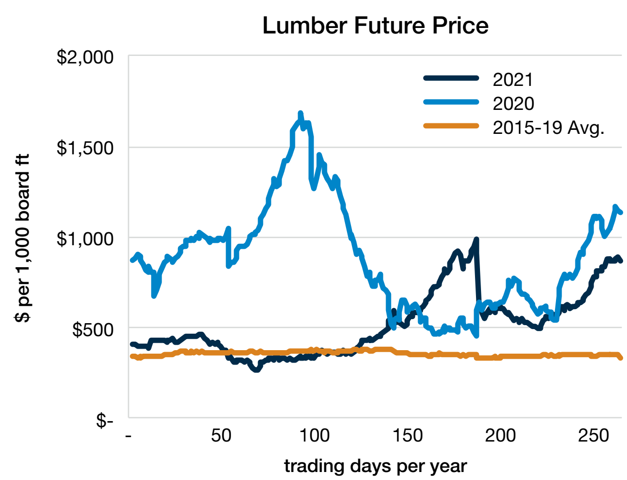
Skew Distribution Risks in Commodity Pricing

A little extra demand creates a disproportionate price impact when supply is short and demand inelastic. Prices jump to seemingly unreasonable heights on the long tail of a skewed price distribution. Most importantly, when these higher prices stick, it signals the need of new capacity, a problem that can take years to resolve.



Widespread Acceptance of Cost Pass-throughs

During the past 30 years of low inflation, producers were challenged when increasing price. They were denied the cover of a general inflation expectation. Often, small cost increases were offset by reductions in other materials or by labor cost deflation earned by outsourcing to low labor cost countries. Recently, producers have been very proactive. Some are seeing record earnings as price actions exceeded realized cost increases. The growing expectation of rising prices enabled this success, and its continuation is an indicator of strong form inflation.



Substitution Linkages

A notable feature of the current dynamic has been the breadth of inflation. It is not a single raw material going up, but all of them. Part of this is the influence of energy commodities as the primary source of basic chemicals and, then, the ubiquity of base chemicals in almost everything in the economy. When prices hit extremes, marginal buyers must look for alternatives or shut down. These secondary effects create regional shortages, increased imports (and added freight), rising processing costs for off-spec inputs, reformulation costs and demand surprises for the "next best" raw materials.

We Believe that Inflation will Be Persistent Over the Coming 24–36 Months. The implications for producers are vast. Demand models stop working as new price sensitivities are revealed. Just-in-time stocking won't keep up. Supply networks must be rebalanced as transportation costs and input costs adjust. Price adjustments become an everyday task. At worst, demand destruction, earning compression and rising interest rates combine to collapse valuation multiples.

What Does This Mean for Private Equity Investors?

A simple P&L will help illustrate what private equity investors face in the coming months with existing portfolio performance, or when evaluating new deal opportunities.

The risks embedded in today's concurrent escalation of material, freight and labor costs can have a devastating impact on tomorrow's profitability. In the example below, the company <u>loses 70 percent of its EBITDA</u> if it fails to put effective countermeasures in place. The adjustments needed are material, too. In this case, the company would have to capture an 18 percent price increase to offset cost pressure. Unfortunately, this is not just a hypothetical analysis and many have seen worse impacts from disruptions in the past year. For example, one recent client had its primary raw material suppliers in Europe shut down in the face climbing natural gas costs. In a leveraged environment, EBITDA losses like these will have devastating impact on liquidity, covenants and even survival as a going concern.

	P&L today		P&L 6/22	
	$100		$100	
Freight charge	$5		$5	Assumed 0 recovery of higher ground transportation
Freight out	$(5)	40%	$(7)	Ground transportation
Net Sales	**$100**		**$98**	
Material	$(30)	10%	$(33)	Raw materials and energy price increases
Manuf OH	$(5)	15%	$(6)	Energy prices
Labor	$(10)	50%	$(15)	Avg rate increase from $15 to $22.5
Freight in	$(5)	120%	$(11)	Land and Sea Container cost
	$50		**$33**	
Sales	$(10)		$(10)	10% of gross sales
G&A	$(15)	5%	$(16)	Regular wage increases
EBITDA	**$25**		**$8**	**-70%**
Required Cost Pass-through			**$18**	**18%**

How Private Equity Investors Can, and Should, De-risk

In a persistent inflationary environment, portfolio company leaders must immediately revamp their management and decision processes to cope with a new and dynamic business environment. They will need to:

- Understand the new level of exposure and upgrade internal capabilities to monitor, hedge and mitigate risks. It's been over 30 years since this was commonplace so experience will be limited.
- Reset their risk mindset from "mitigate volatility" to "manage ongoing escalation"
- Refresh cost and pricing models to quickly translate factor increases to SKU-level cost and margin
- Accelerate the cadence of risk/pricing decisions — from event-driven ad hoc discussions to a regular monthly/quarterly executive-level sales and marketing issue
- Upgrade metrics, analytic tools and communications to cope with a more dynamic environment. Tools should include rolling 13-weeks cash flow outlooks and customer/product-level cost and margin analysis as permanent resources.

Managers also face structural questions on the viability and flexibility of their supply chain and overall operating models. How should input cost changes rebalance the production network? Are there plants with new advantages to exploit? Where do logistics risks and lead times justify near-shore investment?

How to Get Started With the Current Portfolio

Across a private equity portfolio, the first objective is to quickly grasp the overall risk profile and to begin to prioritize the capital needed to support structural supply chain improvements. Key elements include:

1. Immediate systemic risk audits across the portfolio

- Map the risk pathways — upstream to energy and downstream to customers
- Quantify value at risk and probability of EBITDA impacts from rising input and energy costs
- Flag substitution effects that could disrupt supply as prices rise; e.g., The availability of zinc metal in Europe collapsed as natural gas prices spiked, impacting U.S. supply.
- Assess the effectiveness at passing risks through to bellwether customers in key market segments as an indicator of shifting price elasticity
- Evaluate effectiveness of management hedging programs, metrics and control processes

2. Scenario planning and playbook development

- Identify assets and plants that are at risk
- Anticipate ways to adjust production levels in response to volatile demand
- Quantify the value of increasing redundancy and flexibility
- Operational planning to re-optimize under changing cost/demand inputs; e.g., how to reset inventory levels, shipping lead time and service level commitments

3. Process/systems/tools assessment for SIOP and other integrating processes

- Assess the critical planning capabilities and organization integration across demand and supply functions
- Redefine planning/SIOP processes to react quickly to rapidly changing input variables, e.g., demand/channel shifts, cost increases, supply/transportation constraints, etc.
- Reevaluate tools and technology to ensure data transparency is efficient and adequate
- Augment critical operating metrics to actively manage supply chain challenges

It is a challenging dual mandate for your business leaders and operating partners. They must retool decision processes while simultaneously questioning/resetting long-held assumptions about the nature of the risks they might face. Experience is limited. A sustained inflationary environment hasn't been seen for over 30 years.

In the coming months we will publish a series of papers that go into more depth across a full range of functional insights on how we address these issues for private equity-owned businesses. Topic papers will cover:

- **Investing in Commercial Strategy: A Playbook to Weather Inflation** – In this article, we discuss ways to manage inflation and the need to invest in product and pricing strategy, sales structure and processes, as well as tools and metrics to create an effective commercial strategy as your company weathers this continuously changing environment.

- **Cost Structure Agility for Inflationary Times** – With expected sustained inflation it will be essential for companies to develop an agility playbook to navigate through this period of instability and build sustainable EBITDA through both the short-term fixes to current challenges and permanent adjustments in their cost structure.

- **Advanced Manufacturing and Reshoring to Manage Inflation** – The manufacturing industry and associated costs have been impacted greatly as demand and inflation have increased steadily due to the global pandemic. This article addresses how companies should respond to inflation using advanced manufacturing technologies, reshoring, offloading, contract manufacturing and value analysis to improve EBITDA and successfully overcome current and shifting manufacturing challenges.

- **Risk, Reality and Resilience: Supply Chain in the Post-Pandemic Era** – In this article, we look at building supply chain resiliency in a highly volatile/inflationary market. Through defining and assessing critical risk points, critical supply chain input variables, SIOP and current processes, we help companies forecast and react rapidly to the worldwide supply chain challenges and disruptions.

- **Optimizing Finance and Accounting in the Wake of Inflation** – In this article, our CFO Services team will discuss how to assist organizations in improving their finance and accounting functions to positively impact business performance. Due to the rise of inflation and demand for critical finance transformations, a highly integrated approach is essential to ensuring finance planning is closely aligned with operations and performance improvement.

We welcome your feedback and comments and look forward to discussing these issues with you.

Alvarez & Marsal can augment and help lead the efforts of portfolio companies with world-class quantitative analytical skills and pragmatic expertise and understanding of risk assessment, quality of earnings diligence, supply chain and operations improvement for privately held companies. Our Private Equity Performance Improvement professionals use a fact-based and collaborative approach to meet the changing needs of companies and investors. We combine expertise from industry operators and experienced consultants to develop a strategic approach to delivering bottom-line results. Connect with our professionals today to learn how we can help your organization.

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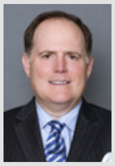

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