IBISWorld Special Client Report: Industry Risks and Inflation
Which Sectors/Industries are Most Vulnerable to Sustained Inflationary Stress?

By Rick Buczynski and Robert Miles*
April 2022

1. Setting the Stage

Over the past year, inflation has reared a potentially hazardous headwind on American businesses and households, as many have been lulled asleep by decades of annual inflation rates below the Federal Reserve's two percent annual target. Some perspective? In contrast, policy concerns during and shortly after the Great Recession involved deflation, a death star phenomenon symptomatic of the 1930s Great Depression.

The Bureau of Labor Statistics recent report was a poignant, painful reminder that inflationary pressures are not abating. The March 2022 consumer price index (CPI) rose 8.5% compared with March 2021 figures, the swiftest advance in more than 40 years. Higher costs of energy, food and rents were the primary culprits.

The index for all items less food and energy—so-called core inflation—was up 6.5% year-on-year. It is this core rate that Federal Reserve policymakers watch intently, as energy and food prices tend to be quite volatile, and therefore, difficult to control.

It would not be surprising if despite ongoing sanctions related to Russia's invasion of Ukraine, the rate of inflation stabilized over the coming months even if oil and gas prices remain high. Remember that inflation is the *increase in prices*, and the concept of "destructive demand" eventually kicks in. To quote Buczynski and Molavi[1], "Higher prices undermine demand in a weakened economy, trimming the sails of hyped-up energy prices. This consequence is amplified as other nonoil commodity prices spiral up, eroding the disposable incomes of households and the profit margins of many businesses."

In short, energy and other commodity prices can remain *high*, but there is usually a ceiling on inflation. Nonetheless, the damage is done, and the timeframe for recovery is extremely uncertain, a fait accompli for businesses and consumers.

A wide range of producer prices, as measured by the producer price index (PPI), have also experienced similar increases, as seen in the charts below. This ranges from total mining (that includes oil/gas), delivery and warehouse, transportation, manufacturing, finally percolating down to wholesale and retail PPIs.

Producer price spikes are often a harbinger to an acceleration in consumer prices. As such, there is little hope that the consumer price inflation will quickly subside.

[Note: As this report goes into final edit, the Commerce Department announced that GDP dropped 1.4 percent over the first three months of 2022. Much of the decline can be attributed to a sharp drop in net exports owing to slumping overseas demand reflecting a weakening global economy, particularly in China and Europe. Inventories dropped off as well following a massive buildup in stocks late last year when businesses were hedging against supply chain disruptions (see section 4c). The news is unlikely to influence the Federal Reserve's inflation-fighting policies (see section 3a) at least in the near-term. Additionally, the first quarter figures do not alter the conclusions of this study or diminish its relevance.]

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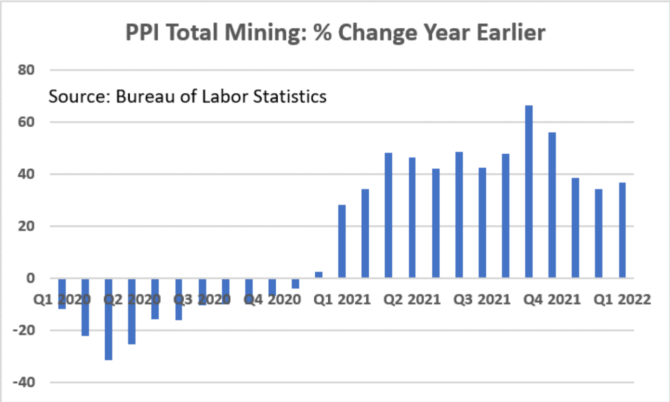
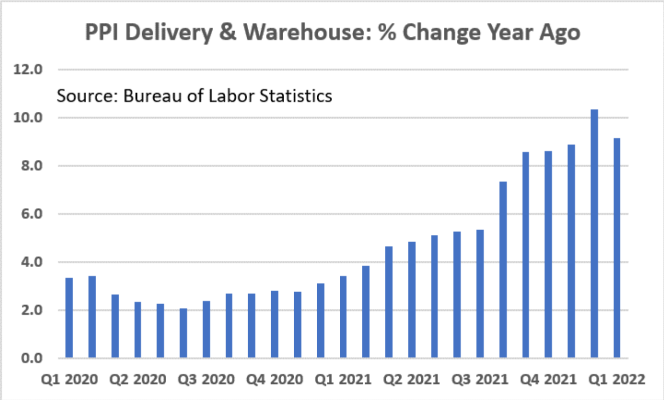
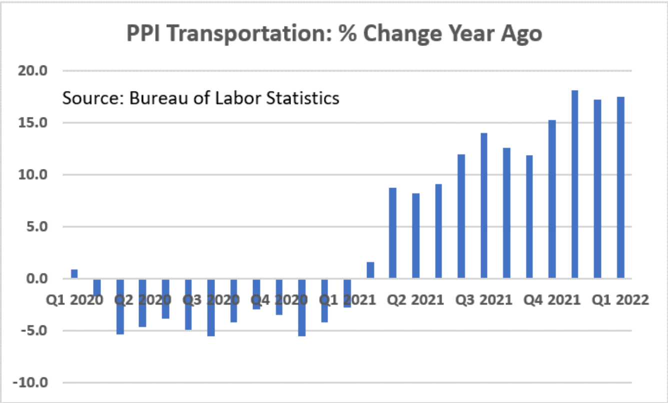
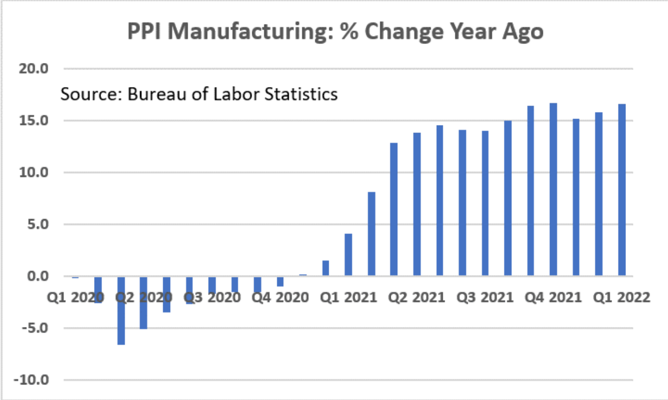
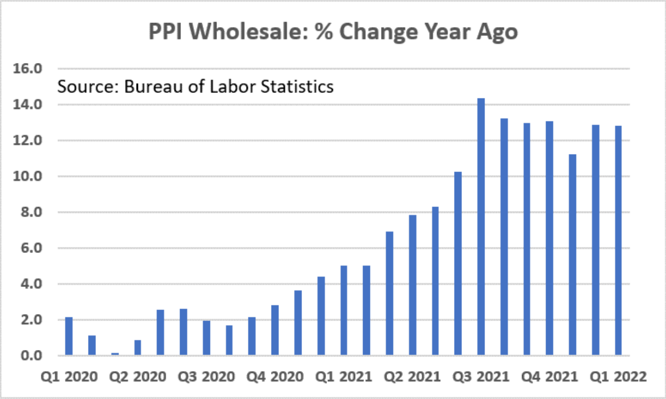
* The authors wish to thank Alexandria Valenti for her help editing and formatting this report.
1. Rick Buczynski and Justin Molavi, "$150 Oil? What Would This Mean for Your Bank?" The RMA Journal July–August 2011

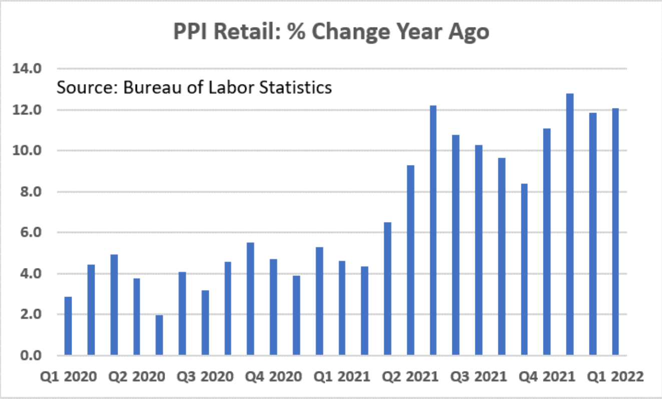

PPI Total Mining: % Change Year Earlier
Source: Bureau of Labor Statistics
80
60
40
20
0
-20
-40
Q1 2020 Q2 2020 Q3 2020 Q4 2020 Q1 2021 Q2 2021 Q3 2021 Q4 2021 Q1 2022


PPI Delivery & Warehouse: % Change Year Ago
Source: Bureau of Labor Statistics
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Q1 2020 Q2 2020 Q3 2020 Q4 2020 Q1 2021 Q2 2021 Q3 2021 Q4 2021 Q1 2022


PPI Transportation: % Change Year Ago
Source: Bureau of Labor Statistics
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
Q1 2020 Q2 2020 Q3 2020 Q4 2020 Q1 2021 Q2 2021 Q3 2021 Q4 2021 Q1 2022


PPI Manufacturing: % Change Year Ago
Source: Bureau of Labor Statistics
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
Q1 2020 Q2 2020 Q3 2020 Q4 2020 Q1 2021 Q2 2021 Q3 2021 Q4 2021 Q1 2022


PPI Wholesale: % Change Year Ago
Source: Bureau of Labor Statistics
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Q1 2020 Q2 2020 Q3 2020 Q4 2020 Q1 2021 Q2 2021 Q3 2021 Q4 2021 Q1 2022

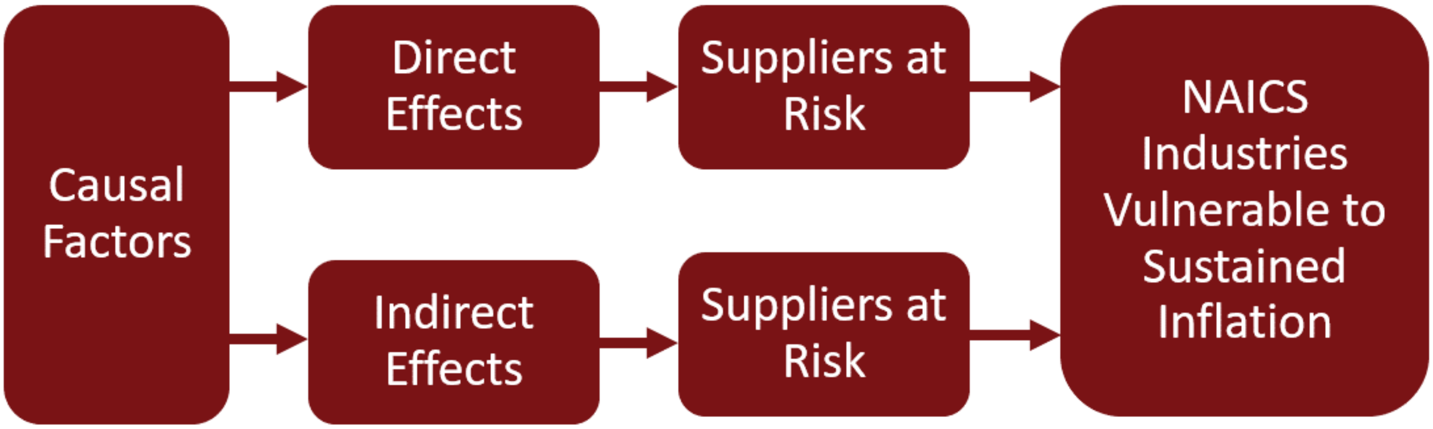

PPI Retail: % Change Year Ago
Source: Bureau of Labor Statistics
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Q1 2020 Q2 2020 Q3 2020 Q4 2020 Q1 2021 Q2 2021 Q3 2021 Q4 2021 Q1 2022

2. Objectives and How to Use this Report

Although most mainstream economists agree on the underlying causes of inflation's pesky surge, there is no clear consensus on which specific factors dominate. We choose not to become an interlocutor in this debate, rather subscribing to the belief that a confluence of forces have been at play. Warning signs have been around even before the COVID-19 pandemic and inflationary forces have lurked for decades, awaiting the opportune moment to ambush the US economy.

The objective of this effort is straightforward. We aim to identify sectors, and whenever possible, specific industries that are most vulnerable to sustained inflation. As risk professionals, our central concern is judging the degree to which a line of business is sensitive to a particular stock. Much of our analysis is qualitative, though we use various metrics to support our conclusions. *As with other recent IBISWorld special reports, readers should consider this study a decision-support guidance applied within the context of a client's priorities, the verticals in which they operate and the geographic footprints where they sell their products/services and purchase factors of production.*

The unique research behind this report is designed sequentially and we have generated multiple tables. Tables are available to premium IBISWorld clients as a workbook that can be used as a plug and play tool, much like our COVID[2], Bottleneck/Supply Chain[3] and American Infrastructure Bill[4] applications. Most of the data used in this report is IBISWorld proprietary. A schematic of the organization of this study follows.



We will refer to this in the analysis that follows. There are essentially three steps involved:

- Step 1: Define/discuss the main causal factors that have contributed to inflation (Section 3).
- Step 2: Identify the sectors/industries that are most affected by inflation's direct effects and the key suppliers of these industries (Section 4).
- Step 3: Identify the sectors/industries that are most affected by inflation's indirect, or secondary, effects and the key suppliers of these industries (Section 5).

There are many footnotes in this report. If a particular topic piques your interest, feel free to investigate references.

2. Rick Buczynski, Kent Kirby, Robert Miles, and Dev Strischek, "Pandemic Economics: What Bankers Need to Do to Beat COVID-19's Shock and Awe Attack," IBISWorld Industry Insider, July 2020
3. Rick Buczynski, Kent Kirby, Robert Miles, and Jocelyn Phillips, "Potential Bottlenecks to Recovery, the Supply Chain Riddle and Credit Risk: What You Should Really Worry About," IBISWorld Report, September 2021
4. Rick Buczynski, Kent Kirby, Robert Miles, Chris Nichols, and Dev Strischek, "War and Pieces: Breaking Down the US Infrastructure Bill during the COVID-19 Pandemic, Economic Uncertainty and the Ukrainian Invasion," IBISWorld Report, March 2022

3. Defining the Primary Causal Factors of Surging Inflation

3a. Fiscal and monetary policies of the recent past: Inflationary indiscretions?

The US government spent trillions of dollars to support the economy[5] once the relentless coronavirus morphed from a scare into an unfathomable reality in early 2020. A host of programs were passed by Congress, assisting households, small businesses and large-industry segments beset by the crisis, being administered by a multitude of government agencies. The US Treasury and the Fed have defined the financial nexus of this emergency initiative.

We will put politics aside, but there is no denying that money was printed, government debt was issued and businesses and households took advantage of these support programs. *More cash, more cash and even more cash injected to an already cash-flooded economy*.

Inflationary? Perhaps.

But think about this: even prior to pandemic-related relief fund initiatives, fiscal policy was aggressive and bipartisan. Federal deficits rose wildly even while the economy was robust. During the initial phase of the Trump administration, both sides of the political aisle were keen to spend. To quote a 2019 article by Buczynski and Strischek[6], "There have been significant shifts in fiscal policy, including bipartisan support for highly stimulative government spending at a time when the economy is growing rapidly, and unemployment is extremely low. This shift, coupled with the 2018 tax cuts, is why the Congressional Budget Office (CBO) estimates that the national debt will more than triple in the next 30 years."

What about monetary policy? At the outset of the Ukraine war in late-February, the Fed was marooned in quandary. Although the conflict would surely exert pressure on oil and other key commodity prices, aggravating an already elevated inflation, countervailing these factors was not within the Fed's purview. Remember the Fed monitors core inflation, which nets out energy and food prices.

How things have changed of late! Now, with core inflation climbing to rates not observed in decades, the Federal Open Market Committee is changing its tune. Following the FOMC meeting mid-March, Fed Chairman Jerome Powell indicated that the central bank "…expects to begin reducing its holdings of Treasury securities and agency debt and agency mortgage-backed securities at a coming meeting…and that the Committee is determined to take the measures necessary to restore price stability."

While the offloading of the Fed's security holdings has been long expected, the abrupt about-face in its inflation fighting stance was not. This clearly has ramifications for stock market performance and the cost of credit.

5. See https://www.usaspending.gov/disaster/covid-19?publicLaw=all
6. Rick Buczynski and Dev Strischek, "Flying Blind into the Next Recession? Part 5," The RMA Journal July/August 2019

Let us put this into context and remind readers of an arcane downside risk that IBISWorld introduced several years ago. Again, from Buczynski and Strischek's July 2019 paper:

> *"U.S. interest rates have been at historically low levels since well before the financial crisis… Low rates preceded former Fed Chair Ben Bernanke and date back well into Alan Greenspan's tenure… The rub? The U.S. economy has been restructured to sustain itself in a world of cheap money. As such, any abrupt change in interest rates, even by a few hundred basis points, would have a significant impact on the economy and the risk profile of every bank. Unfortunately, this low-rate environment has also helped marginal borrowers qualify for credit as a result of their misleadingly low debt-service and interest-coverage ratios. Borrowers operating in industries subject to volatile revenues, such as contractors, are at even more risk."*

Our point is that interest rates have been too low for too long, leading to a pervasive underestimation of the risks associated with interest rate hikes. In fact, often rates have been negative when adjusted for inflation. We submit that monetary policy over the past two-plus decades has set the stage for a surge inflation and opened the door for other interest related risks.

3b. Exposure to inflation-triggering bottlenecks

In his March 21, 2022 speech at the Annual Economic Policy Conference of the National Association for Business Economics, Fed Chair Powell observed:

> *"… forecasters widely underestimated the severity and persistence of supply-side frictions, which, when combined with strong demand, especially for durable goods, produced surprisingly high inflation. The pandemic and the associated shutdown and reopening of the economy caused a serious upheaval in many parts of the economy, snarling supply chains, constraining labor supply, and creating a major boom in demand for goods and a bust in services demand. The combination of the surge in goods demand with supply chain bottlenecks led to sharply rising goods prices."*

We agree, and from our perspective, industries predisposed to bottlenecks are clearly vulnerable to inflation and must be singled out for close examination[7].

For a comprehensive review and analysis of bottlenecks and supply chain disruptions, consult the September 2021 report by Buczynski, Kirby, Miles, and Phillips referenced in footnote 3. This study unveiled a "<u>beware of</u>" list of factors useful to determining industries that are most susceptive to sustained inflation.

- <u>Labor market shortages and talent gaps for skilled, semi-skilled workers</u>: Talent gaps and the lack of investment in worker training by American companies is the core issue, and not one easily resolved by near-term market forces. *This exerts strain on wage inflation in many sectors*.
- <u>Innate supply chain vulnerabilities</u>: Consider: (i) which industries are capital-intensive, (ii) which are experiencing chronic under-capacity, (iii) which cannot easily secure substitute suppliers and (iv) which are entangled in complex supply chains and practicing just-in-time delivery. *Ongoing supply chain disruptions are clearly inflationary*.
- <u>Industries that are dependent on external markets for exports and/or imports</u>: Just another complex link in the supply chain debacle. *Although international transportation costs have receded of late, they have helped fuel inflation*.

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7. Readers may want to check out the New York Fed's Global Supply Chain Pressure Index at: https://libertystreeteconomics.newyorkfed.org/2022/03/global-supply-chain-pressure-index-march-2022-update/

- Businesses that are in the emerging or declining phase of the industry lifecycle: Emerging industries often ride the wave of nirvana promising untested technologies, jumping on a bandwagon loaded with never-seen-before risks. Think of the dotcom boom and bust. *Newbies navigating uncharted waters sink fast when rogue waves strike. And companies in declining industries, such as Circuit City, are defenseless when facing shocks like accelerating inflation*.
- Industries that are notoriously volatile: If there is a "Holy Grail" risk metric, IBISWorld's Industry Early Warning System offers one that is 6-digit NAICS specific. These are unpredictably confusing times, so industries that are intrinsically volatile need to be red flagged. *Commodity-based industries and those related to construction are exceptionally volatile as are industries linked through their supply chains*.
- A potpourri of intertwined key risk indicators related to public policy: We dealt with this in 3a above.
- The ultimate of downside risks (the coronavirus and its variants): The recent reemergence of the pandemic in China is a grim reminder that we have entered the third year of COVID. *For a spot-on summary underlying the metrics of the pandemic see the piece written by Wu*[8].

3c. The Russian invasion of Ukraine: Adding kindling to the inflation fire

Again, we find it fitting to quote from Fed Chair Powell's March 21 speech:

> *"Russia is one of the world's largest producers of commodities, and Ukraine is a key producer of several commodities as well, including wheat and neon, which is used in the production of computer chips. There is no recent experience with significant market disruption across such a broad range of commodities. In addition to the direct effects from higher global oil and commodity prices, the invasion and related events are likely to restrain economic activity abroad and further disrupt supply chains, which would create spillovers to the U.S. economy."*

Putting this into perspective for American companies:

- The direct effects of the conflict on the United States are minimal at this stage, though an all-out war physically entering the European theater would define a disaster scenario. [IBISWorld does not entertain or speculate on such scenarios.]
- Nonetheless, European economies are directly affected. Risk potentially rises for American companies and industries heavily involved in international trade with Europe, including American goods and commodities that are re-exported (some after processing) to Russia prior to the embargo. [Note: roughly 17.0% of US exports are destined for the EU. 18.0% of imports to the United States come from the EU.]
- Multinational companies with heavy exposure in Europe, especially consumers of energy, steel, and other key commodities like nickel, titanium, and palladium also face the prospect of increasing risk.
- Volatility in financial and commodity markets will likely persist, including futures markets.
- Quoting the March 6, 2022 Wall Street Journal: "Escalating conflict between Russia and Ukraine has sent investors dashing to safer assets, propelling the dollar to its highest level since the coronavirus-induced volatility of two years ago." This, in our opinion, will likely have a greater adverse effect on US exports than weaker demand from Europe. Inbound tourism is extremely sensitive to the value of the US dollar.
- Even if the conflict winds down, the damage is done and sanctions are not likely to be lifted swiftly.

8. Katherine J. Wu, "Have We Already Ruined Out Next COVID Summer?" The Atlantic, April 15, 2022

4. Sectors/Industries Most Affected by Inflation’s Direct Impacts and Their Key Suppliers

4a. Inflation erodes the spending power of consumers: At high risk, discretionary spending

As argued by Buczynski and Brown in 2017[9], evidence suggests that industries dependent on discretionary spending are innately vulnerable to economic stress, including economic downturns and inflation. This category of industries is prone to high bankruptcy and loan default rates. Table 1 lists key industries in this group.

In contrast, spending on staples, so-called necessary goods, including products and services that consumers will continue to purchase even as household income sags, are considerably more resilient. During bouts of high inflation, discretionary spending, particularly on luxury goods and services, is sacrificed as consumers struggle to maintain purchases of necessities such as groceries and essential household items.

9. Rick Buczynski and Kenneth Brown, “Flying Blind into the Next Recession? Part 1,” The RMA Journal December 2017 - January 2018

Table 1. Discretionary Spending Can Suffer When Inflation Rises		
Industry 2017 NAICS	IBISWorld Codes	Discretionary Spending Industry Description
441110	44111	New Car Dealers
441210	44121	Recreational Vehicle Dealers
441228	44122a	Motorcycle Dealership and Repair
441222	44122c	Boat Dealership and Repair
442110	44211	Furniture Stores
442210	44221	Floor Covering Stores
442291	44229	Home Furnishings Stores
443141	44311	Consumer Electronics Stores
443142	44312	Computer Stores
446120	44612	Beauty, Cosmetics & Fragrance Stores
448190	44819	Lingerie, Swimwear & Bridal Stores
448310	44831	Jewelry Stores
448150	44833	Handbag, Luggage & Accessory Stores
451110	45111	Sporting Goods Stores
451120	45112	Hobby & Toy Stores
451140	45114	Musical Instrument & Supplies Stores
452210	45211	Department Stores
453110	45311	Florists
453220	45322	Gift Shops & Card Stores
453910	45391	Pet Stores
453920	45392	Art Dealers
453930	45393	Manufactured Home Dealers
453991	45399	Small Specialty Retail Stores
481111	48111a	International Airlines
481111	48111b	Domestic Airlines
481211	48121	Charter Flights
561510	56151	Travel Agencies
561520	56152	Tour Operators
711130	71113	Musical Groups & Artists
711211	71121a	Sports Franchises
711212	71121b	Racing & Individual Sports
711310	71133	Concert & Event Promotion
721110	72111	Hotels & Motels
721120	72112	Casino Hotels
721191	72119	Bed & Breakfast & Hostel Accommodations
722511	72211b	Single Location Full-Service Restaurants
813110	81311	Religious Organizations
813211	81321	Donations, Grants & Endowment
813311	81331	Conservation & Human Rights Organizations
813410	81341	Civic, Social & Youth Organizations

Source: IBISWorld

In this context, also be cautious of businesses that operate in a highly competitive environment, are not "price makers," have low barriers to entry, are living on thin margins and are located next to a suffering "anchor" retailer. The "retail apocalypse" and "Amazon effect" march on, and the pandemic has clearly hastened the structural demise of traditional brick and mortar retail.

Moreover, do not ignore the major suppliers to industries tied to discretionary spending, especially now when supply chain disruptions are so widespread; check out Table 2 for some examples.

Table 2. Discretionary Spending Industries: Pay Attention to Their Key Suppliers

Industry 2017 NAICS	IBISWorld Codes	Discretionary Spending Industry	Key Suppliers 2017 NAICS	Key Suppliers IBIS Codes	Key Supplier Industries
441110	44111	New Car Dealers	336111	33611a	Car & Automobile Mfg
			336112	33611b	SUV & Light Truck Mfg
			423110	42311	Automobile WhSale
442110	44211	Furniture Stores	314110	31411	Carpet Mills
			337121	33712	Household Furniture Mfg
			337211	33721	Office Furniture Mfg
			337910	33791	Mattress Mfg
			423210	42321	Furniture WhSale
442291	44229	Home Furnishings Stores	313210	31310	Textile Mills
			327110	32711	Ceramics Mfg
			327211	32721	Glass Product Mfg
			332215	33221	Hand Tool & Cutlery Mfg
			423220	42322	Home Furnishing WhSale
446120	44612	Beauty, Cosmetics & Fragrance Stores	325611	32561	Soap & Cleaning Compound Mfg
			325620	32562	Cosmetic & Beauty Products Mfg
			424210	42421	Drug, Cosmetic & Toiletry WhSale
448310	44831	Jewelry Stores	212221	21222	Gold & Silver Ore Mining
			327211	32721	Glass Product Mfg
			327991	32799	Mineral Product Mfg
			339910	33991	Jewelry Mfg
			423940	42394	Jewelry & Watch WhSale
448150	44833	Handbag, Luggage & Accessory Stores	316998	31691	Leather Good & Luggage Mfg
			339910	33991	Jewelry Mfg
			424310	42431	Other Apparel WhSale
452210	45211	Department Stores	316210	31621	Shoe & Footwear Mfg
			327110	32711	Ceramics Mfg
			332510	33251	Hardware Mfg
			335210	33521	Vacuum/Fan/Small HHH Appliance Mfg
			335220	33522	Major Household Appliance Mfg
			337121	33712	Household Furniture Mfg
			424320	42432	Men's & Boys' Apparel WhSale
			424330	42433	Women's & Children's Apparel WhSale
			424340	42434	Footwear WhSale
453920	45392	Art Dealers	711410	71141	Celebrity & Sports Agents
			711510	71151	Performers & Creative Artists
			712110	71211	Museums
			712120	71212	Historic Sites
561510	56151	Travel Agencies	481111	48111a	International Airlines
			481111	48111b	Domestic Airlines
			482111	48211	Rail Transportation
			483111	48311	Ocean & Coastal Transportation
			485510	48522	Scheduled and Charter Bus Services
			561520	56152	Tour Operators
			713110	71311	Amusement Parks
			721110	72111	Hotels & Motels
			721120	72112	Casino Hotels
711310	71133	Concert & Event Promotion	531120	53112	Commercial Leasing
			541810	54181	Advertising Agencies
			711130	71113	Musical Groups & Artists
			711510	71151	Performers & Creative Artists
722511	72211b	Single Location Full-Service Restaurants	424420	42442	Frozen Food WhSale
			424430	42443	Dairy WhSale
			424440	42444	Egg & Poultry WhSale
			424460	42446	Fish & Seafood WhSale
			424470	42447	Beef & Pork WhSale
			424480	42448	Fruit & Vegetable WhSale
			424810	42481	Beer WhSale
			424820	42482	Wine & Spirits WhSale

Source: IBISWorld

4b. Businesses with cost structures sensitive to pervasive inflationary pressure

Our research suggests that accelerating inflation is highly correlated with a business's rental, wage and utility costs. *Therefore, businesses overexposed in these areas are most susceptible to inflation's wrath.*

The data used to calculate these costs are metrics derived from the US Economic Census. The final figures are estimated by IBISWorld's team of analysts using definitions in line with Census survey data.

Wages are defined as the gross total wages and salaries of all employees in an industry, excluding non-wage benefits. Rental costs include payments for the use of land, buildings, or office space. These can include mortgage payments, or office or land rent/lease/let expenses. Equipment and machinery rental costs are included in overall rent outlays. Utility costs included all payments for electricity, water and gas, sewage and other utility costs not explicitly included elsewhere. There are some cases where certain utility-type expenses are considered to be direct inputs to production and are not included. All of these metrics are reported as a percent of total revenue within a specific industry.

Let us start with rental expenditures. In Table 3, find industries exhibiting the greatest exposure to rental costs as a percentage of total costs. At first glance, some of these may surprise you.

Table 3. Rental/Commercial Leasing Costs Follow Overall Inflation Trends			
Industry 2017 NAICS	IBISWorld Codes	Highly Exposed to Rental/Leasing Spending Industry Description	Cost Structure Rent % of Total (2021)
512131	51213	Movie Theaters	18.4%
812310	81231	Laundromats	17.4%
111150	11115	Corn Farming	16.1%
111110	11111	Soybean Farming	15.7%
111120	11112	Oilseed Farming	15.2%
812111	81211	Hair & Nail Salons	14.6%
111140	11117	Wheat, Barley & Sorghum Farming	13.9%
713950	71395	Bowling Centers	11.5%
713290	71329	Lotteries & Native American Casinos	11.1%
493130	49313	Farm Product Storage & Warehousing	10.8%
512240	51224	Audio Production Studios	10.3%
111910	11191	Tobacco Growing	10.3%
111920	11192	Cotton Farming	9.7%
448210	44821	Shoe Stores	9.5%
532282	53223	DVD, Game & Video Rental	9.3%
111940	11199	Hay & Crop Farming	9.3%
621320	62132	Optometrists	9.0%
541191	54119	Conveyancing Services	8.9%
621330	62133	Psychologists/Social Workers/Marriage Counselors	8.8%
493190	49319	Specialized Storage & Warehousing	8.8%
621391	62139a	Podiatrists	8.7%
713210	71321	Non-Hotel Casinos	8.7%
111930	11193	Sugarcane Harvesting	8.5%
448120	44812	Women's Clothing Stores	8.5%
541110	54111	Law Firms	8.2%
621310	62131	Chiropractors	8.2%
713110	71311	Amusement Parks	8.2%
621399	62139b	Alternative Healthcare Providers	8.1%
111421	11142	Plant & Flower Growing	8.1%
481111	48111b	Domestic Airlines	7.6%
611710	61171	Testing & Educational Support	7.6%
481111	48111a	International Airlines	7.6%
713920	71392	Ski & Snowboard Resorts	7.5%
713990	71399	Golf Driving Ranges & Family Fun Centers	7.5%
611210	61121	Community Colleges	7.4%
481211	48121	Charter Flights	7.3%
541410	54141	Interior Designers	7.2%
532210	53221	Consumer Electronics & Appliances Rental	7.2%
611410	61144	Business Certification & IT Schools	7.1%
532281	53222	Formal Wear & Costume Rental	7.1%
541830	54183	Media Buying Agencies	7.1%
541870	54187	Print Advertising Distribution	7.1%
111211	11120	Vegetable Farming	7.1%
713930	71393	Marinas	7.0%
448110	44811	Men's Clothing Stores	7.0%
532411	53241	Heavy Equipment Rental	7.0%
611610	61161	Fine Arts Schools	6.9%
713940	71394	Gym, Health & Fitness Clubs	6.9%
811191	81119b	Oil Change Services	6.9%
541860	54186	Direct Mail Advertising	6.9%
517919	51791b	Radar & Satellite Operations	6.9%
448310	44831	Jewelry Stores	6.9%
621340	62134	Physical Therapists	6.8%
493110	49311	Public Storage & Warehousing	6.8%
541890	54189	Promotional Products	6.8%
713910	71391	Golf Courses & Country Clubs	6.7%
611630	61163	Language Instruction	6.7%
111331	11135	Fruit & Nut Farming	6.7%
532120	53212	Truck Rental	6.7%
624210	62421	Community Food Services	6.7%
624230	62423	Natural Disaster & Emergency Relief Services	6.7%
517312	51721	Wireless Telecommunications Carriers	6.7%

Source: US Census

Do not be fooled by the apparent glut in office space as indicated by a jump in recent lease expirations[10], much a consequence of the coronavirus pandemic. Most of the workers in industries listed in Table 3 do not fall in the work-from-home category, thus these employers require space to house employees who serve customers or perform tasks that cannot be done remotely.

A related hazard we alluded to referencing "retail apocalypse" are commercial real estate risks. An excerpt from Buczynski, Kirby and Strischek[11] written in February 2020, even though somewhat bank centric, has relevance to other IBISWorld client verticals:

> "*Reconfiguring existing shopping malls isn't easy. Many are being demolished; others are being reconfigured into medical clinics, video gaming hubs, megachurches, fitness centers, and even homeless shelters. Bankers must evaluate the attributes of a property's ownership and how vulnerable banks are to the potential erosion in their borrowers' collateral capacity, capital, business conditions, and character that determine the borrower's ability and willingness to repay.*"

Turning to business wage bills, we incorporate IBISWorld's Labor Shortage Risk Index as an additional metric. The labor shortage metric finds its genesis in IBISWorld's Bottleneck/Supply Chain report (see footnote 3). In Table 4, we juxtapose the labor risk index with wage costs as a percentage of total business costs. Similar to the methodology used in IBISWorld's monthly updated Industry Risk Early Warning System[12], *Labor Shortage Indexes above 5.7 should be flagged as high-risk alerts.* In a nutshell, the labor-intensive industries delineated in Table 4 that are also challenged by worker shortages are unduly stressed at this time.

10. If you are a lessee, lessor or a bank, consult: Konrad Putzier and Peter Grant, "Record High Office Lease Expirations Pose New Threat to Landlords and Banks," The Wall Street Journal, April 12, 2022, and Lydia O'Neal, "Inflation Pressure Hits New Warehouse Leases," Dec. 6, 2021

11. Rick Buczynski, Kent Kirby, and Dev Strischek, "Before you Wave Goodbye to this Cycle, Look Out for Economic Rogue Waves" The RMA Journal, February 2020

12. IBISWorld's Industry Early Warning System provides several key risk indictors for the 700 NAICS-based industries we cover.

Table 4. Wage Costs and Labor Shortage Risks: Challenges Recently Aggravated

Industry 2017 NAICS	IBISWorld Codes	Highly Exposed to Labor-Related Risks Industry Description	Cost Structure Wages % of Total (2021)	Labor Shortage Risk Index (IBIS)
561330	56133	Professional Employer Organizations	83.5%	4.3
611110	61111a	Public Schools	69.0%	5.1
814110	81411	Maids, Nannies & Gardeners	67.8%	7.8
491110	49111	Postal Service	66.6%	3.2
561320	56132	Office Staffing & Temp Agencies	65.1%	6.9
711211	71121a	Sports Franchises	63.7%	5.7
541713	54171	Scientific Research & Development	60.9%	8.1
541214	54121b	Payroll & Bookkeeping Services	59.0%	5.2
561110	56111	Human Resources/Benefits Admin	58.5%	4.5
621610	62161	Home Care Providers	57.5%	6.7
488111	48811	Airport Operations	57.3%	5.2
561421	56142	Telemarketing & Call Centers	56.7%	5.6
561611	56161	Security Services	56.0%	6.7
511210	51121e	Video Game Software Publishing	54.8%	7.2
623210	62321	Residential Intellectual Disability Facilities	54.2%	5.7
622210	62221	Psychiatric Hospitals	53.9%	6.9
493120	49312	Refrigerated Storage	52.3%	4.3
812199	81219c	Tanning Salons	52.2%	7.6
621112	62111b	Specialist Doctors	51.6%	3.7
624120	62412	Elderly & Disabled Services	51.4%	6.0
512191	51219	Video Postproduction Services	51.3%	4.8
623990	62399	Orphanages & Group Homes	50.9%	5.4
713120	71312	Arcade, Food & Entertainment Complexes	50.8%	7.7
541612	54161b	HR Consulting	50.6%	5.6
561311	56131	Employment & Recruiting Agencies	50.6%	3.1
812111	81211	Hair & Nail Salons	49.3%	7.2
621340	62134	Physical Therapists	49.2%	3.2
621420	62142	Mental Health & Substance Abuse Clinics	49.0%	6.9
541620	54162	Environmental Consulting	48.0%	5.7
624410	62441	Day Care	47.8%	7.5
621910	62191	Ambulance Services	47.3%	6.6
488320	48832	Stevedoring & Marine Cargo Handling	45.9%	7.4
531311	53131	Property Management	45.7%	6.5
561440	56144	Debt Collection Agencies	45.6%	5.0
541611	54161	Management Consulting	45.5%	7.0
485410	48541	Public School Bus Services	45.1%	6.9
561410	56141	Document Preparation Services	45.0%	3.2
812910	81291	Pet Grooming & Boarding	44.9%	3.5
711510	71151	Performers & Creative Artists	44.8%	4.0
623220	62322	Mental Health & Substance Abuse Centers	44.4%	7.0
541370	54137	Surveying & Mapping Services	44.4%	7.4
611110	61111b	Private Schools	43.8%	5.1
561720	56172	Janitorial Services	43.6%	5.0
493110	49311	Public Storage & Warehousing	43.5%	4.2
541820	54182	Public Relations Firms	43.4%	3.3
624310	62431	Job Training & Career Counseling	43.4%	6.3
541420	54142	Industrial Designers	43.3%	4.4
541330	54133	Engineering Services	43.1%	5.5
623110	62311	Nursing Care Facilities	42.8%	5.9
624110	62411	Adoption & Child Welfare Services	42.8%	5.6
611430	61143	Business Coaching	42.6%	4.6
541990	54199	Credit Counselors, Surveyors & Appraisers	41.9%	4.5
111310	11134	Orange & Citrus Groves	41.7%	7.6
485111	48511	Public Transportation	41.7%	4.8
621410	62141	Family Planning & Abortion Clinics	41.5%	7.3
339116	54138	Laboratory Testing Services	41.5%	4.2
621111	62111a	Primary Care Doctors	41.3%	5.1
713910	71391	Golf Courses & Country Clubs	41.1%	5.6
541211	54121c	Accounting Services	40.4%	6.4
511210	51121a	Operating Systems/Productivity Software	40.0%	7.2

Source: US Census

Next, consider Table 5, which lists industries with relatively high proportions of expenditure on utilities. This set of industries are energy-intensive and are likely to succumb to surges in oil and gas prices.

Table 5. Utility Costs: Energy Dependent Industries are Becoming Increasingly Vulnerable

Industry 2017 NAICS	IBISWorld Codes	Highly Exposed to Utility Spending Industry Description	Cost Structure Utility % of Total (2021)
325120	32512	Oxygen & Hydrogen Gas Mfg	19.7%
212210	21221	Iron Ore Mining	19.1%
327410	32741	Lime Mfg	19.0%
112320	11235	Chicken & Turkey Meat Production	18.8%
212111	21211	Coal Mining	16.5%
327310	32731	Cement Mfg	15.5%
111910	11191	Tobacco Growing	13.0%
112120	11212	Dairy Farms	12.3%
111211	11120	Vegetable Farming	12.2%
111920	11192	Cotton Farming	12.0%
111940	11199	Hay & Crop Farming	11.8%
812310	81231	Laundromats	11.2%
111930	11193	Sugarcane Harvesting	10.7%
112910	11291	Beekeeping	10.0%
112920	11292	Horse & Other Equine Production	9.7%
112511	11251	Fish & Seafood Aquaculture	9.3%
111310	11134	Orange & Citrus Groves	8.9%
112210	11221	Hog & Pig Farming	8.8%
212221	21222	Gold & Silver Ore Mining	8.5%
112111	11211	Beef Cattle Production	8.0%
325180	32518	Inorganic Chemical Mfg	7.9%
212230	21223	Copper, Nickel, Lead & Zinc Mining	7.5%
111421	11142	Plant & Flower Growing	7.4%
111120	11112	Oilseed Farming	7.4%
212321	21232	Sand & Gravel Mining	7.2%
322130	32213	Paperboard Mills	7.2%
111110	11111	Soybean Farming	7.2%
322110	32211	Wood Pulp Mills	6.9%
212311	21231	Stone Mining	6.8%
111140	11117	Wheat, Barley & Sorghum Farming	6.8%
212291	21229	Molybdenum & Metal Ore Mining	6.7%
322121	32212	Paper Mills	6.3%
111331	11135	Fruit & Nut Farming	5.9%
327420	32742	Gypsum Product Mfg	5.9%
238910	23891a	Excavation Contractors	5.4%
111150	11115	Corn Farming	5.4%
325110	32511	Petrochemical Mfg	5.4%
238910	23891b	Demolition & Wrecking	5.3%
112310	11231	Chicken Egg Production	4.8%
327211	32721	Glass Product Mfg	4.7%
331110	33111	Iron & Steel Mfg	4.7%
211120	21111	Oil Drilling & Gas Extraction	4.7%
327120	32712	Clay Brick & Product Mfg	4.5%
325130	32513	Dye & Pigment Mfg	4.4%
113310	11331	Logging	4.3%
486910	48691	Refined Petroleum Pipeline Transportation	4.3%
486990	48699	Organic Chemical Pipeline Transportation	4.2%
113110	11311	Timber Services	4.1%
334413	33441a	Semiconductor & Circuit Mfg	4.1%
334413	33441c	Solar Panel Mfg	4.1%
331313	33131	Aluminum Mfg	4.1%
325194	32519	Organic Chemical Mfg	4.1%
331511	33151	Ferrous Metal Foundry Products	4.0%
486110	48611	Oil Pipeline Transportation	4.0%
311314	31131	Sugar Processing	4.0%
713290	71329	Lotteries & Native American Casinos	3.9%
811191	81119b	Oil Change Services	3.8%

Source: US Census

It is well known that many manufacturers are heavily dependent on energy; that is, they are energy-intensive. Energy intensity, measured in BTUs per dollar of revenue, is sourced from the US EIA's Manufacturing Energy Consumption Survey (MECS). The MECS data is based on a sample of 15,000 establishments categorized by NAICS, which captured most of the manufacturing footprint in the United States[13]. This sample captures almost all of the total payroll in the manufacturing sector, according to the EIA. However, the establishment count is well below the aggregate, implying that the sample focuses on larger employers. Nonetheless check out our findings in Table 6, as many of the industries listed are highly concentrated, with production dominated by a handful of large key players.

Table 6. Energy Intensity in Manufacturing: Beware of Outliners

Industry 2017 NAICS	Industry Description	Energy Intensity: BTUs per $ Revenue, 2018
311	Food Mfg	1399
312	Beverage and Tobacco Product Mfg	663
313	Textile Mills	1000
314	Textile Product Mills	2274
315	Apparel Mfg	405
316	Leather and Allied Product Mfg	311
321	Wood Product Mfg	3222
322	Paper Mfg	10139
323	Printing and Related Support Activities	663
324	Petroleum and Coal Products Mfg	5700
325	Chemical Mfg	8567
326	Plastics and Rubber Products Mfg	973
327	Nonmetallic Mineral Product Mfg	6197
331	Primary Metal Mfg	5554
332	Fabricated Metal Product Mfg	690
333	Machinery Mfg	347
334	Computer and Electronic Product Mfg	320
335	Electrical Equipment, Appliance, and Component Mfg	621
336	Transportation Equipment Mfg	336
337	Furniture and Related Product Mfg	432
339	Miscellaneous Mfg	454

Source: EIA/MECS

4c. Businesses that carry large inventories and inflation risks

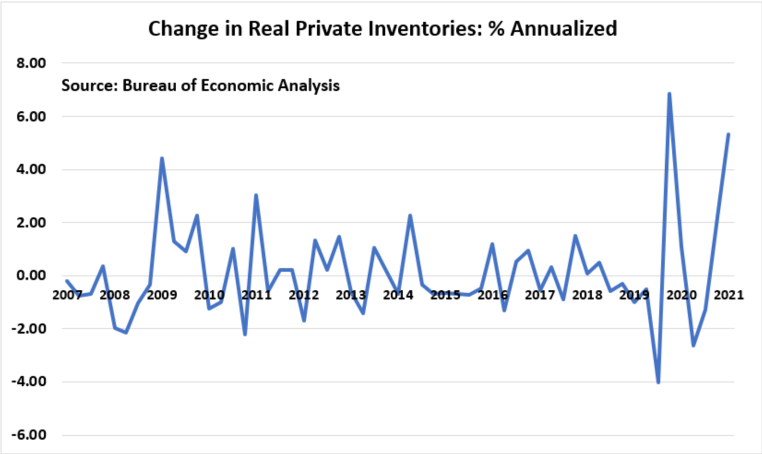
Some might suggest that businesses carrying high inventories are vulnerable to elevated rates of inflation[14], though this can be a perplexing issue.

Inventories can be thought of as an investment, and as noted by Wang, Yiu, and Mak[15], "Inventories are stocks of raw materials, components and finished goods that are stored in warehouses, the instrumentalities of transportation, and retail stores. Raw material inventories are necessary to manufacturers because they create buffers against irregular supplies and demand shifts, guarantying product availability. Yet … stockpiling inventory may result in costs between 20 and 40 percent of annual invested capital. Thus, good inventory control will provide lower costs and promote overall company performance."

13. About the Manufacturing Energy Consumption Survey (MECS), Energy Information Administration (EIA) https://www.eia.gov/consumption/manufacturing/reports.php#:~:text=The%20Manufacturing%20Energy%20Consumption%20Survey,their%20energy%20consumption%20and%20expenditures.
14. Bill Conerly, "The Industries That Will Be Helped—And Hurt—By Inflation," forbes.com, June 29, 2021
15. S.Y. Wang, K.F.C. Yiu, and K.L. Mak, "Optimal Inventory Policy with Fixed and Proportional Transaction Costs Under a Risk Constraint," Mathematical and Computer Modelling, Volume 58, Issues 9–10, November 2013

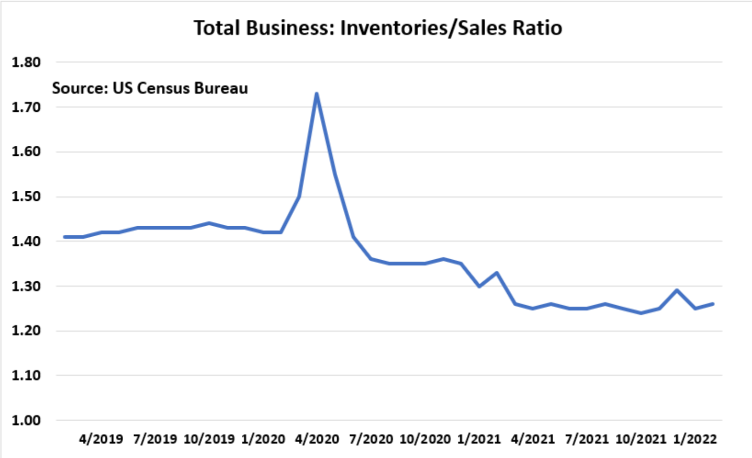
To paraphrase, they add that the foundation of modern inventory theory treats expected costs as an "objective function," and risk analysis and risk control have become increasingly important. Therefore, techniques that consider both risks and returns of holding inventory are crucial. *In this context, the key takeaway is that while there may be several factors that need to be incorporated in a company's "optimal" inventory holding decision, cost expectations, and hence accurate forecasts of inflation, are central to the task*.

This is quite a chore. Why? As you can see in the associated chart, inventories are a very volatile component of real GDP, particularly during turning points in the economy or in times of growing uncertainty. This sounds like where we have been over the past two-plus years!



Massive miscalculations in a company's inventory holdings undermine earnings. If too little finished product is held, potential income is sacrificed. On the other hand, large idle surplus stocks still require short-term financing and earn nothing. The risk of being overstocked is a more serious financial threat than missing the boat by underestimating demand.

As illustrated in the inventory to sales ratio chart, when COVID-19 first hit, demand tanked and the ratio rose dramatically. After pandemic relief checks were cashed and spent, consumer demand rose sharply and spending patterns shifted without warning, once again catching businesses off guard.



Recently, many pundits contest that with the inventory/sales ratio so low compared with pre-pandemic levels, the huge inventory restocking that transpired in the second half of 2021 will persist[16]. Take this with a grain of salt, as consensus economic forecasts are being revised down suggesting a potential retreat in demand.

Our simple conclusion is that rapidly changing expectations of future inflation add another extreme dose of uncertainty. Thus, companies predisposed to carrying large inventories will find it difficult to adjust in today's turbulent climate. This is a significant risk factor that is often overlooked.

Table 7 presents inventory to sales data drawing upon Quarterly Financial Reports produced by the US Census. This survey provides data on US corporations and covers various NAICS sub-sectors. The reporting is restricted to manufacturing businesses with domestic assets at or above $250,000 or assets $50.0 million or over for the remaining NAICS industries covered. As a result, manufacturing data is much more all-encompassing, whereas other industry groups contain mid-to-large businesses. In total, the survey samples an estimated 10,000 companies. Inventories are defined as the book value of all inventories, excluding real estate held for resale, using whatever valuation method the company typically applies. Sales are defined as all sales net of returns, allowances, and taxes, including sales from discontinued operations.

We created an inventory/sales ratio index where 2019 is set as the base year, equal to 1.0. This index was calculated "over-the-cycle" between 2006 and 2021. In any given year, the higher the index in the table, particularly if it exceeds 1.0, the more likely the sub-sector is vulnerable to inflation.

Perhaps the most important metric on the table is the far-right hand column, a Volatility Risk Index, defined as the percent rank ordering of the standard deviation of the inventory/sales ratio index during the 2006 to 2021 period.

The greater this number, the higher the relative variation in inventory holdings historically. This suggests an inability to accurately forecast either end-market demand, or prices. The inference is, especially if a sub-sector resides in the highest volatility quartile, that these businesses are prone to making serious errors in inventory management during periods of heightened inflation and mounting uncertainty. If your organization is investing in, lending to, buying from or selling to companies in this category, risk premiums and/or contingency plans need to be considered.

16. Justin Lahart, "America's Economy: Stocking Up and Looking Up," Wall Street Journal, January 27, 2022

Table 7. Inventory/Sales Ratio Index (2019=100): An Often-Overlooked Metric

Industry 2017 NAICS	Industry Description	Inventory/Sales Index 2006	Inventory/Sales Index 2011	Inventory/Sales Index 2016	Inventory/Sales Index 2021	Volatility Risk Index
21	All Mining	0.81	0.99	1.33	0.84	93.5%
311	Food Mfg	0.85	0.92	0.92	1.04	3.2%
312	Beverage and Tobacco Product Mfg	0.89	0.81	0.94	0.95	29.0%
313, 314	Textile Mills and Textile Product Mills	0.80	0.88	0.91	0.91	58.0%
321	Wood Product Mfg	0.93	1.02	0.87	0.85	41.9%
322	Paper Mfg	0.84	0.88	1.05	0.97	16.1%
323	Printing and Related Support Activities	0.68	0.76	0.75	1.00	74.1%
324	Petroleum and Coal Products Mfg	0.57	0.51	1.18	1.02	100.0%
325	Chemical Mfg	0.76	0.85	0.94	0.93	45.1%
3252	Basic Chemicals, Resins, and Synthetics Mfg	0.78	0.84	0.94	0.75	48.3%
3254	Pharmaceutical and Medicine Mfg	0.73	0.89	0.98	1.02	64.5%
326	Plastics and Rubber Products Mfg	0.91	0.89	0.97	0.98	0.0%
327	Nonmetallic Mineral Product Mfg	0.69	1.02	0.90	0.87	77.4%
331	Primary Metal Mfg	0.72	0.74	0.89	0.89	83.8%
33111	Iron and Steel Mills and Ferroalloy Mfg	0.81	0.79	0.93	0.89	67.7%
3314	Nonferrous Metal (except Aluminum) Mfg	0.62	0.66	0.83	0.86	90.3%
332	Fabricated Metal Product Mfg	0.73	0.80	0.84	0.92	35.4%
333	Machinery Mfg	0.80	0.86	1.03	0.97	38.7%
334	Computer and Electronic Product Mfg	0.97	0.88	1.00	1.01	12.9%
33411	Computer and Peripheral Equipment Mfg	1.08	0.82	0.99	0.79	80.6%
3342	Communications Equipment Mfg	0.95	0.86	0.90	1.23	70.9%
335	Electrical Equipment, Appliance, and Component M	0.81	0.95	0.97	1.08	54.8%
3361, 3363	Motor Vehicles and Parts	0.84	0.85	0.93	1.19	87.0%
3364	Aerospace Product and Parts Mfg	0.60	0.92	1.02	1.23	96.7%
337	Furniture and Related Product Mfg	0.99	1.06	0.88	1.04	32.2%
339	Miscellaneous Mfg	0.91	0.88	0.96	0.95	19.3%
421	Merchant Wholesalers, Durable Goods	0.82	0.84	0.90	0.91	9.6%
422	Merchant Wholesalers, Nondurable Goods	0.84	0.81	0.98	1.03	51.6%
44, 45	All Retail Trade	1.10	0.96	1.01	0.85	22.5%
445	Food and Beverage Stores	1.08	0.95	0.96	0.86	6.4%
448	Clothing and Clothing Accessories Stores	1.13	1.03	1.04	0.88	25.8%

Source: US Censu

5. Identify the Sectors/Industries Most Affected by Inflation's Indirect Affects and Their Key Suppliers

The major indirect, albeit powerful, force is higher interest rates.

In a recent article in the Wall Street Journal[17] Sam Goldfarb writes, "The worst bond rout in decades shows few signs of abating, threatening further pain for both investors and borrowers. Battered by high inflation readings and sharp messages from Federal Reserve officials about the need for interest-rate increases, bond prices have tumbled this year at a pace investors have rarely seen. In the first quarter, the Bloomberg U.S. Government bond index returned minus 5.5%, its worst performance since 1980. This month, it has lost another 2.4 percent. ... A big reason why many investors expect continued high inflation in the near term is that households are flush with cash and eager to spend their money on travel and leisure activities as they begin to worry less about the Covid-19 pandemic. The labor market is also, by some measures, the tightest in decades, giving workers leverage to demand better wages."

The major channel suffusing the effect of rising interest rates is obviously higher costs of credit.

5a. Rising home mortgage rates should take the wind out of a hot housing market

Table 8 enumerates the core industries weakened by rising mortgage rates.

Table 8. 30-Year Home Mortgages: Remember the Great Recession?

Industry 2017 NAICS	IBISWorld Codes	Industry Description
236115	23611a	Home Builders
236117	23611c	Housing Developers
238990	23899b	Swimming Pool Construction
423390	42339	Manufactured Home WhSale
444130	44413	Hardware Stores
484210	48421	Moving Services
522310	52231	Loan Brokers
531190	53119	Land Leasing
541191	54119	Conveyancing Services
541350	54135	Building Inspectors

Source: IBISWorld

Table 9 lists the major upstream suppliers in the housing market food chain.

Not to be forgotten, Table 10 lists construction contractors along with the aforementioned Labor Shortage Index.

17. Sam Goldfarb, "Bond Rout Promises More Pain for Investors," Wall Street Journal, April 18, 2022

Table 9. Mortgage Related Industries: Key Suppliers Hit by a Cooling Housing Market

Industry 2017 NAICS	IBISWorld Codes	Mortgage Related Industries	Key Suppliers 2017 NAICS	Key Suppliers IBIS Codes	Key Supplier Industries
236115	23611a	Home Builders	321113	32111	Sawmills & Wood Production
			327120	32712	Clay Brick & Product Mfg
			327310	32731	Cement Mfg
			327320	32732	Ready-Mix Concrete Mfg
			423310	42331	Lumber WhSale
			423320	42332	Stone, Concrete & Clay WhSale
			423330	42333	Roofing, Siding & Insulation WhSale
236116	23611b	Apartment & Condominium Construction	327320	32732	Ready-Mix Concrete Mfg
			423310	42331	Lumber WhSale
			423320	42332	Stone, Concrete & Clay WhSale
			423330	42333	Roofing, Siding & Insulation WhSale
			423390	42339	Manufactured Home WhSale
			423710	42371	Tool & Hardware WhSale
			423810	42381	Construction & Mining Equipment WhSale
			522190	52219	Industrial Banks
			541310	54131	Architects
236117	23611c	Housing Developers	541310	54131	Architects
			541320	54132	Landscape Design
			541330	54133	Engineering Services
238990	23899b	Swimming Pool Construction	327211	32721	Glass Product Mfg
			327310	32731	Cement Mfg
			327320	32732	Ready-Mix Concrete Mfg
			333914	33391	Pump & Compressor Mfg
			423320	42332	Stone, Concrete & Clay WhSale
444130	44413	Hardware Stores	332510	33251	Hardware Mfg
			423610	42361	Electrical Equipment WhSale
			423710	42371	Tool & Hardware WhSale
			423720	42372	Plumbing & Heating Supplies WhSale
			424950	42495	Paint WhSale
522310	52231	Loan Brokers	522110	52211	Commercial Banking
			522120	52212	Savings Banks & Thrifts
			522190	52219	Industrial Banks
531190	53119	Land Leasing	321991	32199a	Prefabricated Home Mfg
			339950	33995	Billboard & Sign Mfg
			423390	42339	Manufactured Home WhSale
			531311	53131	Property Management
			561611	56161	Security Services

Source: IBISWorld

Table 10. Lest We Forget: Construction Contractors and Potential Worker Shortages			
Industry 2017 NAICS	IBISWorld Codes	Industry Description	Labor Shortage Risk Index
238110	23811	Concrete Contractors	6.9
238120	23812	Steel Framing	6.9
238130	23813	Wood Framing	7.3
238140	23814	Masonry	6.6
238150	23815	Glass & Glazing Contractors	6.8
238160	23816	Roofing Contractors	7.0
238210	23821	Electricians	5.5
238220	23822a	Heating & Air-Conditioning Contractors	5.6
238220	23822b	Plumbers	5.6
238290	23829	Elevator Installation & Service	6.2
238310	23831	Drywall & Insulation Installers	7.4
238320	23832	Painters	5.1
238330	23833	Flooring Installers	7.1
238340	23834	Tile Installers	7.3
238350	23835	Carpenters	7.3
238390	23839	Building Finishing Contractors	7.3
238910	23891a	Excavation Contractors	6.1
238910	23891b	Demolition & Wrecking	6.1
238990	23899a	Paving Contractors	4.0

Source: IBISWorld

5b. Other interest sensitive industries can suffer as well

Table 11 provides a list of additional industries that are likely to be stressed by higher borrowing costs. Table 12 takes into consideration these industries key suppliers.

Table 11. Prime Interest Rate Stressed Industries: Add these to the Mortgage List		
Industry 2017 NAICS	IBISWorld Codes	Industry Description
236118	23611d	Remodeling
321113	32111	Sawmills & Wood Production
332710	33271	Machine Shop Services
333111	33311	Tractors & Agricultural Machinery Mfg
335121	33512	Lighting Fixtures Mfg
336612	33661b	Boat Building
423330	42333	Roofing, Siding & Insulation WhSale
423440	42344	Restaurant & Hotel Equipment WhSale
423730	42373	Heating & Air Conditioning WhSale
423830	42383	Industrial Machinery & Equipment WhSale
423860	42386	Aircraft, Marine & Railroad Transportation Equipment WhSale
511210	51121b	Database, Storage & Backup Software Publishing
511210	51121f	Security Software Publishing
522390	52239	Loan Administration, Check Cashing & Other Services
523920	52392	Portfolio Management
531120	53112	Commercial Leasing
541620	54162	Environmental Consulting

Source: IBISWorld

Table 12. Prime Interest Rate Related Industries: Key Suppliers can be Ravished as Well					
Industry 2017 NAICS	IBISWorld Codes	Prime Rate Related Industries	Key Suppliers 2017 NAICS	Key Suppliers IBIS Codes	Key Supplier Industries
332710	33271	Machine Shop Services	331210	33121	Metal Pipe & Tube Mfg
			331313	33131	Aluminum Mfg
			331420	33142	Copper Rolling, Drawing & Extruding
			331511	33151	Ferrous Metal Foundry Products
			332111	33211	Metal Stamping & Forging
			332721	33272	Screw, Nut & Bolt Mfg
			333511	33351	Metalworking Machinery Mfg
			423710	42371	Tool & Hardware WhSale
333111	33311	Tractors & Agricultural Machinery Mfg	326211	32621	Tire Mfg
			331221	33122	Steel Rolling & Drawing
			332111	33211	Metal Stamping & Forging
			333612	33361a	Engine & Turbine Mfg
522390	52239	Loan Administration/Check Cashing/Oth Services	522210	52221	Credit Card Issuing
			522310	52231	Loan Brokers
531120	53112	Commercial Leasing	531210	53121	Real Estate Sales & Brokerage
			531311	53131	Property Management
			531390	53139	Real Estate Asset Management/Consulting

Source: IBISWorld

A final note revolves around capital spending (CAPEX), which includes items like machinery, industrial infrastructure, software, training, and research and development. CAPEX is exceptionally sensitive to upward pressure on prices and interest rates and general decelerations in economic growth. Hence, in the current climate, the risk profiles of CAPEX-related industries, including businesses that sell products and services to them, is becoming increasingly complex and fragile.

6. Closing Remarks

Inflation has indeed injected a dose of uncertainty into an economic ecosystem already entrapped in a befuddled world. Hopefully, this study will prove beneficial in identifying which sectors and industries are most susceptible to ongoing inflation though both direct and indirect effects. *IBISWorld clients that are wedded to NAICS codes can use the twelve tables we generated in this report to identify priorities as per your relative exposures*.

We conclude with a quote from Mervyn King[18].

> *While much of the rise in inflation may turn out to be 'transitory'—a word that will enter the lexicon of central banking— there is clearly great uncertainty about whether inflation will fall back to below the target or remain above it. My concerns about the inflation outlook stem in part from recent data but even more from the intellectual foundation of central bank policy. Central banks have been caught out by this sudden upturn in inflation. For several years they have been giving "forward guidance" that interest rates will remain close to or below zero for the indefinite future. They have drawn heavily on concepts derived from a family of theoretical models which rely on the assumption that expectations drive inflation, and central banks drive expectations.*

18. Mervyn King, "Monetary Policy in a World of Radical Uncertainty," Institute of International Monetary Research Conference Paper, November, 2021