Producer prices reverse course in 2008

After surging in 2007 and the first 7 months of 2008, prices for energy goods plummeted during the final 5 months of the year; similarly, inflation in food prices slowed significantly in 2008, following a steep runup in 2007 and early-to-mid 2008

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In a turnaround, the Producer Price Index (PPI) for finished goods fell 0.9 percent in 2008 after having risen 6.2 percent in 2007.[1] The 2007 increase was the largest calendar-year advance since a 7.1-percent jump in 1981, and the 2008 decline was the first year-over-year decrease since a 1.6-percent drop in 2001. Similarly, the index for intermediate materials, supplies, and components—which reflects selling prices for goods produced at earlier stages of processing—moved down 2.3 percent in 2008 after having climbed 7.1 percent in 2007.[2] The index for crude materials for further processing—that is, unprocessed goods and raw materials—dropped 24.6 percent in 2008 following a 19.8-percent rise in 2007. The decreases at the earlier stages of processing also were the largest calendar-year declines since 2001, when the intermediate goods index moved down 4.0 percent and crude goods prices fell 32.5 percent. The reversals in 2008 are primarily attributable to prices for energy goods, which plummeted after having increased sharply a year earlier. In addition, prices for foods within the finished and intermediates goods stages advanced at much slower rates than they had in 2007, while the crude foodstuffs and feedstuffs index turned down in 2008.

Changes in the PPIs for services were not consistent with those of the mining and manufacturing sectors. Price increases for total transportation and warehousing industries slowed to 3.1 percent in 2008 from 6.6 percent in the previous year, and the index for total traditional services industries rose 0.3 percent following a 1.8-percent increase in 2007. By contrast, margins received by total trade industries rose 7.3 percent in 2008 after having gone up by 3.9 percent a year earlier.

Stages of processing

Table 1 displays annual percentage changes in PPIs for selected stages of processing. In early-to-mid 2008, broad-based price increases that had begun accelerating in 2007 remained widespread across all stages of processing. The reversal that followed is most vividly demonstrated by price changes in the energy sector. (See chart 1.) Prices for crude energy materials climbed 58.6 percent during the first 7 months of 2008, only to fall 57.3 percent over the final 5 months of the year. (Crude energy materials include crude petroleum, natural gas, and coal.) Prices for intermediate energy goods surged 25.1 percent during the first 7 months of 2008, only to drop 37.4 percent over the remainder of the year, while the finished energy goods index jumped 19.2 percent though July and decreased by 33.9 percent during the rest of 2008.[3] Within the energy sector, changes in prices moved through successive processing stages almost instantaneously.[4]

In the foods and feeds sector, PPIs exhibited similar, though less extreme, price movements. (See chart 2.) After having

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Table 1. Annual percentage changes in Producer Price Indexes for selected stages of processing, 2004–08

Index	2004	2005	2006	2007	2008	Dec. 07 to Jul. 08	Jul. 08 to Dec. 08
Finished goods	4.2	5.4	1.1	6.2	–0.9	6.8	–7.5
Finished consumer foods	3.1	1.7	1.7	7.6	3.2	4.9	–1.4
Finished energy goods	13.4	23.9	–2.0	17.8	–20.3	19.2	–33.9
Finished goods less foods and energy	2.3	1.4	2.0	2.0	4.5	2.7	1.7
Finished consumer goods, excluding foods and energy	2.2	1.6	1.8	2.4	4.6	2.8	1.7
Capital equipment	2.4	1.2	2.3	1.4	4.3	2.5	1.8
Intermediate materials, supplies, and components	9.2	8.6	2.8	7.1	–2.3	13.4	–14.1
Intermediate foods and feeds	–2.3	2.4	4.7	17.2	2.0	17.8	–13.4
Intermediate energy goods	15.8	26.2	–3.3	19.8	–21.4	25.1	–37.4
Intermediate materials less foods and energy	8.3	4.8	4.5	3.3	2.9	9.6	–6.1
Materials for nondurable manufacturing	13.7	8.9	1.2	12.8	–5.2	20.3	–21.1
Materials for durable manufacturing	18.3	5.9	12.5	1.7	–5.1	16.3	–18.4
Materials and components for construction	10.1	6.1	4.3	2.0	7.5	8.3	–.8
Components for manufacturing	2.1	1.8	4.1	.4	3.7	3.2	.4
Supplies to nonmanufacturing industries, less feeds	5.7	3.4	3.0	2.2	5.6	6.5	–.7
Crude materials for further processing	17.4	21.1	–4.7	19.8	–24.6	34.9	–43.9
Foodstuffs and feedstuffs	–2.6	1.6	2.8	24.9	–14.5	8.5	–20.7
Crude energy materials	35.9	42.2	–15.7	16.2	–32.5	58.6	–57.3
Crude nonfood materials less energy	20.5	5.2	17.0	15.6	–24.1	31.8	–42.4
Service industries							
Total trade industries	[1]	[1]	[1]	3.9	7.3	5.0	2.2
Transportation and warehousing industries	[1]	[1]	[1]	6.6	3.1	8.8	–5.3
Total traditional services industries	[1]	[1]	[1]	1.8	.3	.4	–.1

[1] Datum is unavailable.

NOTE: Year-over-year percentage changes for stages of processing, and all service industry percentage changes, are not seasonally adjusted. The 7-month and 5-month percentage changes for stages of processing are seasonally adjusted.

climbed 24.9 percent in 2007 and another 8.5 percent during the first 7 months of 2008, prices for crude foodstuffs and feedstuffs fell 20.7 percent during the final 5 months of the year. The earlier increases, while rather broad-based, were particularly strong for grains and soybeans. The subsequent reversal also was widespread, with decreasing prices for raw fluid milk, grains, soybeans, and slaughter cattle leading the turnaround. Further down the production chain, the index for intermediate foods and feeds surged 17.8 percent in the first 7 months of 2008, outpacing a 17.2-percent jump in all of 2007. These gains were driven by rising prices for grain-based and soybean-based processed goods, such as prepared animal feeds, flour, and oils. In a sharp turnaround, a 13.4-percent retreat in intermediate foods and feeds prices during the last 5 months of 2008 mainly was due to falling prices for prepared animal feeds, flour, and dairy products. Index movements for finished consumer foods were less extreme. Led by higher prices for cereal and bakery products, beef, and oils, this index advanced 4.9 percent during the first 7 months of 2008. Over the final 5 months of 2008, prices for finished consumer foods declined 1.4 percent in response to falling prices for dairy products and for fruits and melons.

In contrast to the energy and food sectors, the 2008 index movements for the "core" sectors (sectors comprising goods other than foods and energy)[5] were not consistent throughout the various stages of processing. (See chart 3.) Within the category of crude nonfood materials less energy, price increases accelerated from 15.6 percent in 2007 to 31.8 percent in the first 7 months of 2008. Over the remainder of the year, however, this index tumbled 42.4 percent. The turnaround can be traced primarily to metals prices. After prices

Chart 1. **Energy goods by stage of processing, 2007 and 2008**

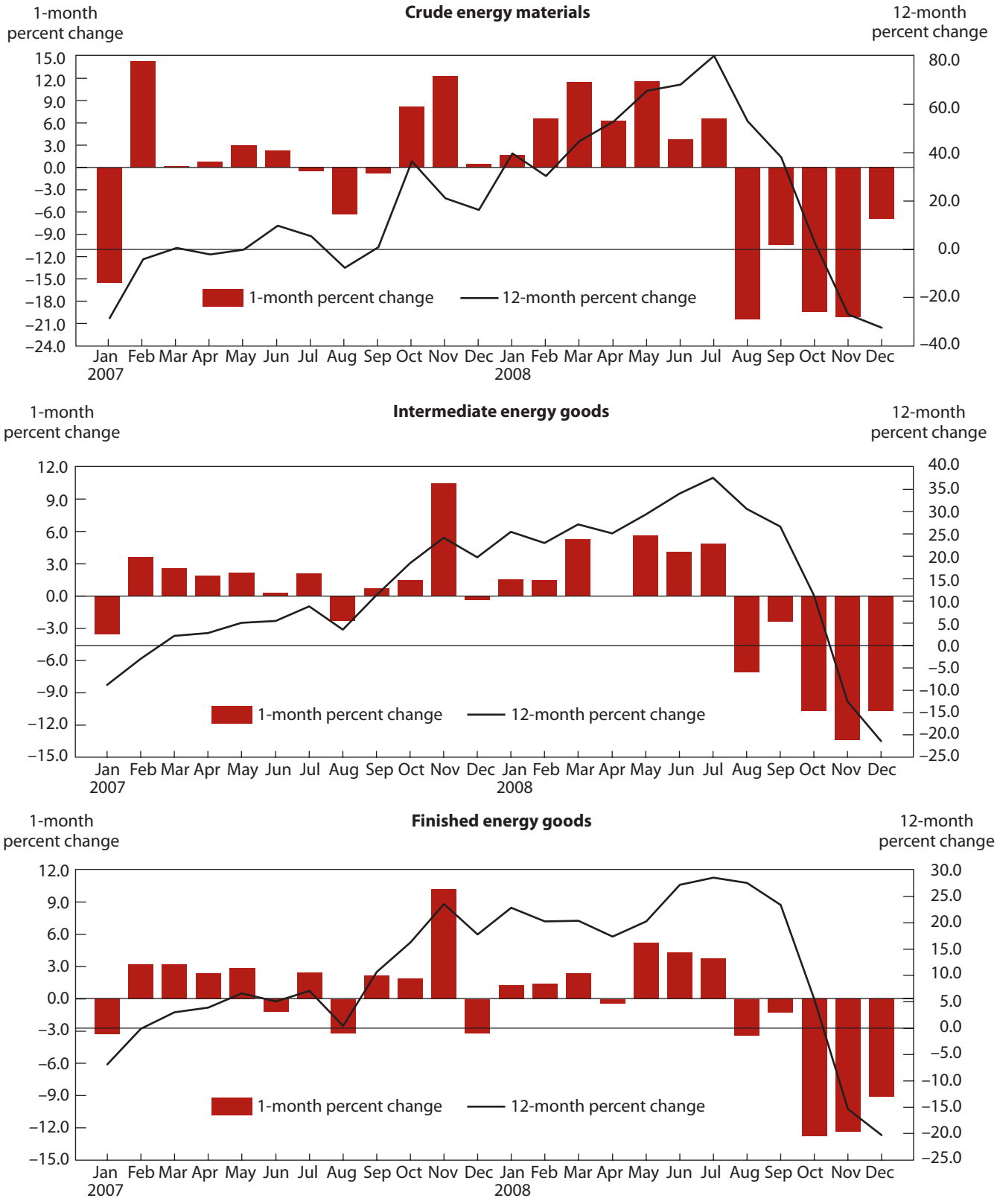


Chart 2. **Foods and feeds by stage of processing, 2007 and 2008**

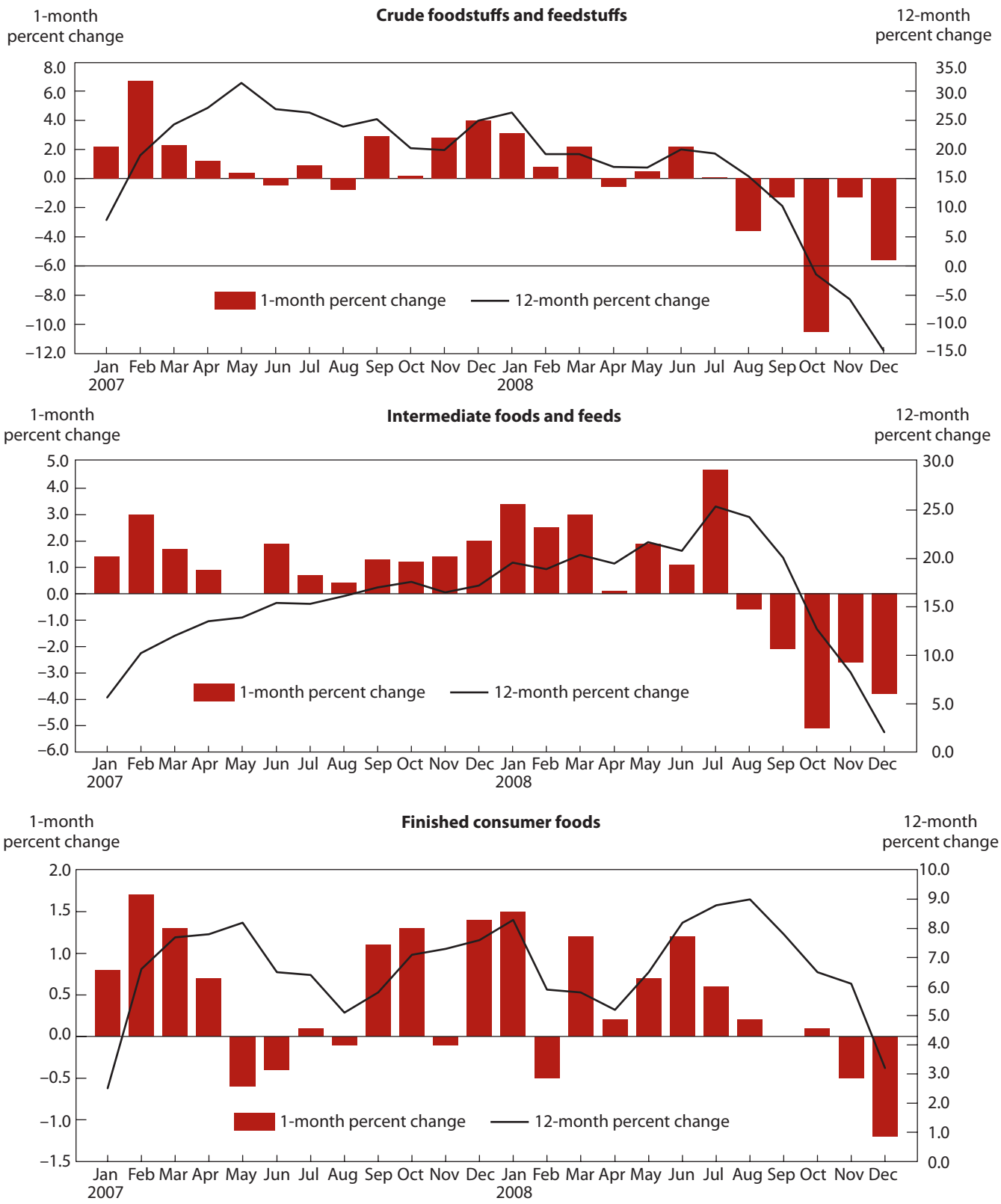
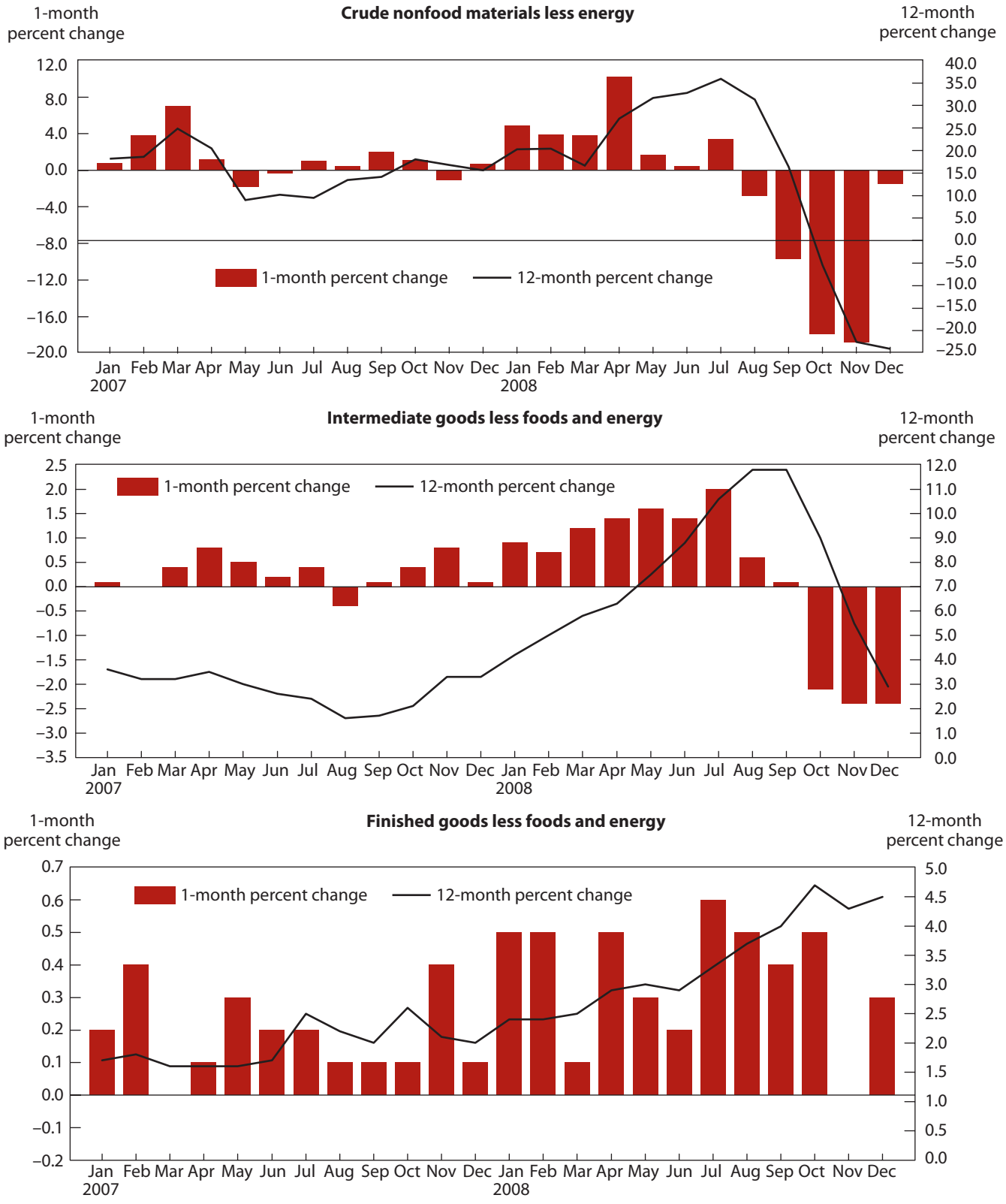


Chart 3. **Goods excluding foods and energy by stage of processing, 2007 and 2008**



for iron and steel scrap, nonferrous scrap, and nonferrous metal ores surged 90.6 percent, 13.7 percent, and 14.5 percent, respectively, in the first 7 months of 2008, prices for the same goods dropped 66.0, 49.7, and 42.1 percent, respectively, during the remainder of the year. Further down the production line, prices for intermediate goods other than foods and energy moved up at roughly the same rate in 2008 as they had in 2007. A more in-depth review, however, shows that the indexes for intermediate materials for manufacturing reversed course during the year 2008,[6] whereas price increases for components and supplies[7] accelerated in 2008, compared with the prior year. Similarly, prices for finished goods other than foods and energy rose more in 2008 than they had a year earlier. Examples of price acceleration in 2008 within intermediate core goods include fabricated structural metal products, plastic products, and agricultural chemicals. For finished core goods, an upturn in motor vehicle prices, as well as larger gains in civilian aircraft and pharmaceutical prices, led the faster rate of advance in 2008. More highly processed goods commonly exhibit price movements that are somewhat different from price movements for less processed goods, since basic material costs tend to be a smaller portion of total costs for producers of more highly processed goods than for manufacturers of less processed goods. Also, contracts and escalation agreements can delay or mitigate the pass-through effect of early-stage price volatility at successive stages of processing.[8]

Economic downturn and shifting producer prices

The 2008 downturn in producer prices can be traced to sluggish demand for both extracted and manufactured goods. The earlier runup in prices did not have traction because of—at least in part—this underlying weakness, as demonstrated by United States Gross Domestic Product (GDP) figures. As economic malaise spread worldwide, the dropoff in production deepened and business demand continued to weaken. Following a 3.6-percent rise in 2004, U.S. GDP growth steadily slowed.[9] From 2005 through 2008, the annual growth rates for U.S. GDP were 2.9, 2.8, 2.0, and 1.1 percent, respectively. Quarterly data for 2006 through 2008 provide additional insight into this slowdown. (See table 2.) Beginning in mid-2006, business spending on gross private domestic investment entered a general state of decline. In 2008, a drop in personal consumption expenditures was particularly noteworthy in that goods expenditures fell precipitously, while expenditures on services continued to inch higher. U.S. exports of goods also decreased at a sharp rate in the latter half of 2008, as an appreciating dollar made American goods more expensive in export markets.[10]

The economies of many other countries also performed poorly in 2008.[11] GDP in Japan fell at 3.6-, 2.3-, and 12.7-percent seasonally adjusted annualized rates in the second, third, and fourth quarters of 2008, respectively. In the Euro Area (EA15), GDP moved down 0.3 percent in each of the second and third quarters and 1.6 percent in the final quarter of 2008. After a flat second quarter, GDP in the United Kingdom declined 0.7 percent and 1.5 percent in the third and fourth quarters, respectively. In China, GDP growth slowed from 10.4 percent in the second quarter to 9.0 percent in the final quarter of 2008. Among developing countries as a whole, GDP growth was projected to be 6.3 percent for all of 2008, compared with 7.9 percent in 2007.

The economic downturn is reflected also in weaker U.S. industrial production and capacity utilization data from the Federal Reserve.[12] In the final quarter of 2007 and first quarter of 2008, industrial production barely inched forward. Then, over the final three quarters of 2008, industrial production decreased sharply: 3.4 percent in the second quarter, 8.8 percent in the third, and 12.1 percent in the fourth. Similarly, capacity utilization, which was 81.3 percent in the third quarter of 2007, fell in each of the next five quarters to 74.9 percent at the end of 2008.

Energy goods

The PPI for crude energy materials tumbled 32.5 percent in 2008, following a 16.2-percent rise a year earlier. This downturn can be traced primarily to crude petroleum prices, which decreased 57.7 percent after having increased 51.7 percent in 2007. In addition, the natural gas index moved down 17.2 percent in 2008 subsequent to a 4.9-percent decline in the prior year. In contrast, coal prices surged 28.8 percent following a 3.2-percent advance in 2007. Further along the production chain, retreating gasoline prices led the reversals in both the intermediate and finished energy goods indexes. Prices for other refined petroleum products—jet fuel, diesel fuel, heating oil, and residual fuel—also turned down in 2008. In contrast, prices for utility natural gas climbed after having decreased in 2007. The indexes for both residential and commercial electric power moved up more in 2008 than they had a year earlier, while prices for industrial electric power rose slightly less than they had in 2007. (See table 3.)

2008 price highlights for the finance industry

The sharp decline in the equity markets during 2008 was primarily the result of the financial crisis, a problem that was triggered by the collapse of the housing boom and the resulting devaluation of mortgage-backed securities and other related securities held by large financial institutions.

Throughout most of the last decade, low mortgage rates combined with lower lending standards and broadened offerings of subprime mortgages spurred increased demand for housing.[1] The rise in demand was supported by a robust secondary mortgage market in which mortgages were pooled together and securitized into mortgage-backed securities. These securities were then purchased by large financial institutions and, in many cases, were financed with borrowed funds at lower interest rates than the securities were yielding. Data published by the Securities Industry and Financial Markets Association show that the total value of outstanding mortgage-backed securities increased by approximately 150 percent between 2000 and 2007.[2] The increased consumer demand for housing and institutional demand for mortgage-backed debt caused a significant and ultimately unsustainable appreciation in housing values. According to the S&P/Case-Shiller U.S. National Home Price Index, housing prices increased 83 percent from the first quarter of 2000 through the second quarter of 2007.

In 2007 and 2008, the housing market deteriorated significantly. The S&P/Case-Shiller U.S. National Home Price Index decreased 24 percent between the second quarter of 2007 and the fourth quarter of 2008. As home values declined and adjustable-rate mortgages reset at higher levels, many borrowers defaulted on their mortgage payments. According to RealtyTrac, the number of foreclosure filings increased 194 percent between May 2006 and May 2008. These defaults led to large losses for the financial institutions holding mortgage-backed securities. Since many large institutions had purchased these securities with borrowed funds, the decline in the value of mortgage-backed securities led to an exponential decline in the value of these banks' assets.

As the extent of these losses gradually became more apparent in 2008, other banks began to question the viability of financial institutions that had bought mortgage-backed securities with borrowed money. As a result, the financial institutions that had made the risky purchases were unable to secure the short-term lending that is essential to their daily operations. The first major example of this was the collapse of Bear Stearns in March of 2008, which caused the Federal Reserve to broker the sale of the firm to JP Morgan Chase as a last-ditch effort to avoid bankruptcy. Similar resolutions occurred for other troubled financial institutions in the summer and fall of 2008, when Merrill Lynch, Wachovia, and Washington Mutual also were sold with the assistance of the Federal Reserve; Fannie Mae and Freddie Mac were placed into conservatorship; and American International Group became a company in which the Federal Government had an 80-percent stake.

When Lehman Brothers also neared collapse in September 2008, the government declined to intervene. The resulting bankruptcy was the largest in U.S. history.[3] Although the U.S. equities market had largely withstood the series of crises that had occurred earlier in the year, the unimpeded bankruptcy of Lehman Brothers introduced wider systemic risk to the financial markets. Following this collapse, the short-term credit markets froze almost completely and there was a dramatic flight of capital out of equities and other risk-bearing securities and into U.S. Treasuries.[4] The Dow Jones Wilshire 5000 index declined more than 23 percent in the fourth quarter of 2008 alone. Not only did the severity of the financial crisis become more apparent throughout the year, but also it worsened from the beginning to the end of 2008.

Notes

[1] Markus K. Brunnermeier, "Deciphering the Liquidity and Credit Crunch 2007–2008," *Journal of Economic Perspectives,* Winter 2009, pp. 77–100, on the Internet at **www.princeton.edu/~markus/research/papers/liquidity_credit_crunch.pdf** (visited July 6, 2009).

[2] "Outstanding U.S. Bond Market Debt," Securities Industry and Financial Markets Association, 2009, on the Internet at **www.sifma.org/research/pdf/Overall_Outstanding.pdf** (visited July 6, 2009).

[3] Sam Mamudi, "Lehman folds with record $613 billion debt," *MarketWatch*, Sept. 15, 2008, on the Internet at **www.marketwatch.com/story/lehman-folds-with-record-613-billion-debt** (visited July 6, 2009).

[4] Steven Mufson, "Flight to U.S. Treasury Bonds Is Bad News for the Economy," *The Washington Post*, Dec. 2, 2008, on the Internet at **www.washingtonpost.com/wp-dyn/content/article/2008/12/01/AR2008120103084.html** (visited July 6, 2009).

Petroleum products. At the close of 2007, U.S. field production of crude oil was nearly flat and crude oil stocks had fallen 8.4 percent compared with the end of 2006. Supply was down to 19.0 production days from 20.6 days a year earlier.[13] In early-to-mid 2007, the Organization of Petroleum Exporting Countries (OPEC) cut output to roughly 92.5 percent of capacity.[14] As recently as the summer of 2005, OPEC had been producing at over 97 percent of capacity. The curtailments in production contributed to a 51.7-percent surge in the PPI for crude petroleum in 2007, as well as a 55.7-percent jump in the first 7 months of 2008. In response, OPEC once again boosted production to nearly 97 percent of total capacity by July 2008. The uncertain supply situation also fueled a speculative runup in prices in the crude oil futures market. Buyers of New York Mercantile Exchange crude oil contracts for

Table 2. Annual rates of change of GDP, selected components of GDP, and components of personal consumption expenditures, first quarter 2005 through fourth quarter 2008

Year and quarter	Gross Domestic Product (GDP)	Selected components of GDP			Components of personal consumption expenditures		
		Personal consumption expenditures	Gross private domestic investment	Exports of goods	Durable goods	Nondurable goods	Services
2005							
Quarter 1	3.0	1.7	9.1	7.1	0.6	2.4	1.7
Quarter 2	2.6	3.6	–5.1	14.5	12.1	4.2	1.7
Quarter 3	3.8	3.7	4.0	–.8	5.4	3.0	3.8
Quarter 4	1.3	1.4	12.2	13.2	–11.7	4.7	2.5
2006							
Quarter 1	4.8	4.3	6.2	18.1	18.9	4.4	1.6
Quarter 2	2.7	2.8	–.4	6.7	1.8	3.1	2.8
Quarter 3	.8	2.2	–5.3	3.6	3.5	2.3	2.0
Quarter 4	1.5	3.7	–15.0	10.4	4.2	3.1	3.9
2007							
Quarter 1	.1	3.9	–9.6	2.1	9.2	3.5	3.1
Quarter 2	4.8	2.0	6.2	6.9	5.0	1.9	1.4
Quarter 3	4.8	2.0	3.5	21.8	2.3	1.2	2.4
Quarter 4	–.2	1.0	–11.9	5.1	.4	.3	1.4
2008							
Quarter 1	.9	.9	–5.8	4.5	–4.3	–.4	2.4
Quarter 2	2.8	1.2	–11.5	16.3	–2.8	3.9	.7
Quarter 3	–.5	–3.8	.4	3.7	–14.8	–7.1	–.1
Quarter 4	–6.3	–4.3	–23.0	–32.0	–22.1	–9.4	1.5

Table 3. Annual percentage changes in Producer Price Indexes for selected energy goods, 2004–08

Index	2004	2005	2006	2007	2008	Dec. 07 to Jul. 08	Jul. 08 to Dec. 08
Finished energy goods	13.4	23.9	–2.0	17.8	–20.3	19.2	–33.9
Residential natural gas	15.9	28.3	–11.6	–.9	6.6	33.7	–20.2
Gasoline	27.4	41.5	1.8	36.1	–51.4	19.2	–59.5
Heating oil	42.0	41.8	5.2	30.9	–40.6	47.7	–59.7
Liquefied petroleum gas	28.5	44.3	–15.1	59.1	–64.1	33.6	–73.2
Residential electric power	2.3	6.8	2.3	4.5	6.3	4.1	2.1
Intermediate energy goods	15.8	26.2	–3.3	19.8	–21.4	25.1	–37.4
Industrial natural gas	20.1	31.5	–13.2	–2.8	5.9	40.2	–24.5
Commercial natural gas	17.5	30.3	–13.6	–.9	7.1	33.1	–18.7
Natural gas to electric utilities	20.4	25.0	–16.1	–3.8	.7	38.5	–27.3
Diesel fuel	37.9	46.7	2.3	33.9	–38.2	44.5	–57.2
Jet fuel	45.5	41.3	6.6	41.3	–39.1	39.7	–56.4
Residual fuel	1.0	80.4	–23.5	38.2	–43.8	56.9	–64.2
Industrial electric power	2.3	10.4	4.0	7.3	4.6	1.9	2.7
Commercial electric power	3.1	6.6	3.4	3.8	6.1	4.1	2.0
Crude energy goods	35.9	42.2	–15.7	16.2	–32.5	58.6	–57.3
Natural gas	44.3	43.7	–26.2	–4.9	–17.2	67.7	–50.6
Crude petroleum	30.5	49.6	.1	51.7	–57.7	55.7	–72.8
Coal	10.0	9.7	5.5	3.2	28.8	25.4	2.8

NOTE: Year-over-year percentage changes are not seasonally adjusted. The 7-month and 5-month percentage changes are seasonally adjusted.

delivery 3 months forward, hedging against even larger price increases, bid up futures prices from early 2007 through mid-2008.[15] After falling to $50.58 on January 18, 2007, the future price for a barrel of light, sweet crude oil steadily climbed to $78.21 by July 31 and $95.98 to close out 2007. After a brief respite to start 2008 ($88.11

on February 7), futures prices surged to a peak of $145.18 on July 14.

In mid-2008, the underlying weakness of the U.S. economy and economies across the globe began to weigh heavily on the crude oil market. In an abrupt reversal, crude petroleum prices dropped 72.8 percent in the final 5 months of 2008 to end the year 57.7 percent below their December 2007 level. Despite a 4.3-percent decline in 2008 U.S. crude oil field production, crude oil ending inventories grew 13.3 percent and supply expanded to 21.9 production days. Because of the steep drop in crude oil prices, OPEC once again curtailed production, which was just over 90 percent of capacity at the end of 2008. By that time, however, the spot price for Cushing, OK/West Texas intermediate crude oil had tumbled by over 73 percent from its mid-July high, while the spot price for European Brent Sea crude oil decreased by more than 75 percent. The reversal in the New York Mercantile Exchange future price for crude oil was similarly sharp: the price dropped 76.7 percent from July 14 (the day of the peak price) to December 19, with a price of $33.87 per barrel on the latter date.

In addition to events in the crude oil market, the economic slowdown in the U.S. drove down prices for refined petroleum products. Data from the U.S. Energy Information Administration for "total product supplied"[16] show that total refined petroleum product consumption, at a year-over-year rate, began declining as early as mid-2007.[17] The early stages of this downturn were led by lower demand for distillate fuel (heating oil and diesel) and jet fuel. By early 2008, gasoline consumption also was falling. At the close of 2008, total product supplied was down 6.5 percent for refined petroleum products as a whole, on a year-over-year basis, with gasoline, distillate fuel, and jet fuel supplied falling 3.6, 9.8, and 13.0 percent, respectively. As a result, despite lower production in 2008 and mixed data on stocks compared with a year earlier, the average price of gasoline fell 59.5 percent in the final 5 months of 2008 to close the year 51.4 percent lower than it was at the end of 2007. In a similar fashion, the indexes for heating oil, diesel fuel, jet fuel, and residual fuel all declined sharply over the last 5 months of 2008 to end the year well below 2007 levels.

Natural gas products. On a calendar-year basis, the PPI for wellhead and pipeline natural gas has moved down in each of the past 3 years. Starting in September 2007 and running through July 2008, however, wellhead and pipeline natural gas prices surged over 125 percent. The subsequent reversal in prices was similarly strong; a 50.6-percent decline to close out 2008 left the index for wellhead and pipeline natural gas 17.2 percent lower than in December 2007. (In price terms, the average dollar price per thousand cubic feet went from $5.32 in September 2007 to $10.62 in July 2008 and returned to $5.87 in December.[18]) In contrast, the indexes for utility natural gas—natural gas that is distributed to electric utilities and industrial, commercial, and residential buyers—all increased in 2008 after having fallen in 2007. Natural gas utilities also raised prices significantly in the first portion of 2008, but price reductions in the final 5 months of the year were smaller than they were in the wellhead and pipeline market. The differential between the wellhead and pipeline price changes and the utility natural gas price changes can be attributed to supply contracts between wellhead and pipeline producers and purchasing utilities, to contracts between natural gas utilities and their customers, and to regulated rates in the utility sector. These agreements influence both the timing and the magnitude of price pass-through—that is, the amount of a price increase or decrease that is passed on to a subsequent level in the supply chain—in the natural gas market.

The abrupt shifts in wellhead and pipeline natural gas prices can be traced partly to changing levels of working gas in underground storage.[19] In September 2007, working gas in underground storage was near the top of its 5-year historical range and essentially identical to its September 2006 level, at 3,315 billion cubic feet (Bcf). By March 2008, storage was near the lower end of its 5-year range at 1,247.5 Bcf, about 22.2 percent below its March 2007 level. At the close of 2008, working gas in underground storage was once again nearing the top of its 5-year range, at 2,840.4 Bcf. During the runup in prices, both U.S. production of natural gas and U.S. consumption of natural gas grew; however, a large dropoff in natural gas imports occurred during the same period.[20] This reduction drove the decline in the quantity of working natural gas in underground storage. Market speculation for crude petroleum also contributed to the rapid swings in wellhead and pipeline natural gas prices, since commodity traders of crude petroleum look to wellhead and pipeline natural gas investments as a less expensive substitute for their crude petroleum positions. Consequently, large shifts in crude oil prices influenced prices for wellhead and pipeline natural gas.

Liquefied petroleum gas. The index for liquefied petroleum gas fell 64.1 percent in 2008 after having risen 59.1 percent in 2007. As was the case with most other energy

products, a large gain in the first part of 2008 was outweighed by significant decreases during the remainder of the year. The category for liquefied petroleum gases includes products such as propane, ethane, butane, and isobutane. Liquefied petroleum gases can be derived from either natural gas or crude petroleum, and the downswing in prices for both crude oil and natural gas led to the fall in the liquefied petroleum gas price index.[21]

Coal and electric power. The PPI for coal jumped 28.8 percent in 2008. A majority of this advance occurred during the first 7 months the year, when coal prices increased 25.4 percent. Since natural gas and coal are the two most common fuel inputs for electric power generation and sometimes are substituted for each other, this rise in coal prices can be linked—at least in part—to higher prices for wellhead and pipeline natural gas.[22] Longer term contracts between coal producers and electricity-generating firms are common; therefore, higher coal prices often do not translate into higher electricity prices until contract renewals are implemented. Also, domestic supplies were negatively affected by coal exports, which surged 37.8 percent in 2008 to 81.5 million short tons, as well as coal imports, which edged down 5.9 percent to 34.2 million short tons.[23]

Further down the chain of production, the PPI for electric power moved up 5.8 percent in 2008 after having risen 4.9 percent a year earlier. Prices for residential and commercial electric power advanced at faster rates in 2008, while the index for industrial electric power increased at a modestly slower rate than it had in 2007. Higher prices for coal and volatility in the crude petroleum and natural gas markets resulted in reduced electricity generated from petroleum and natural gas.[24] Overall, net electricity generation fell 1.0 percent in 2008. Interestingly, net generation from renewable sources[25] jumped 17.3 percent to account for 3.0 percent of total net generation at the end of 2008. Over the last 3 calendar years, total electricity generation from renewable resources has climbed 41.7 percent.[26]

Foods and related products

The PPI for finished consumer foods rose 3.2 percent in 2008 following a 7.6-percent advance in 2007. Accounting for this slowdown, the indexes for natural, processed, and imitation cheese; fresh vegetables, except potatoes; eggs for fresh use; fluid milk products; and fresh fruits and melons turned down in 2008. In contrast, price increases accelerated from 2007 to 2008 for beef and veal, bakery products, and confectionery end products. (See table 4.)

At the earlier stages of processing, prices for intermediate foods and feeds increased 2.0 percent in 2008

Table 4. Annual percentage changes in Producer Price Indexes for selected foods and related products, 2004–08

Index	2004	2005	2006	2007	2008
Finished consumer foods	3.1	1.7	1.7	7.6	3.2
Beef and veal products	–3.8	3.2	–8.3	2.6	6.2
Confectionery end products	7.2	2.8	–1.0	3.2	10.5
Bakery products	2.1	2.4	4.0	5.1	10.3
Natural, processed, and imitation cheese	14.0	–7.7	–3.1	32.1	–5.9
Fluid milk products	5.0	1.0	–1.4	25.9	–7.7
Fresh fruits and melons	18.0	–12.2	29.5	6.5	–20.3
Fresh vegetables, except potatoes	–22.2	39.7	–11.2	14.6	–23.8
Eggs for fresh use	–29.4	5.0	22.2	56.4	–25.8
Intermediate foods and feeds	–2.3	2.4	4.7	17.2	2.0
Prepared animal feeds	–11.1	5.6	11.8	20.1	7.3
Shortening and cooking oils	.2	–3.3	11.0	25.4	4.3
Processed eggs	–7.3	3.5	.5	48.2	–.7
Flour	4.9	2.6	11.9	55.6	–20.9
Crude foodstuffs and feedstuffs	–2.6	1.6	2.8	24.9	–14.5
Wheat	–5.0	–1.0	22.3	109.0	–45.5
Soybeans	–29.7	7.0	7.9	76.8	–29.8
Raw fluid milk	19.1	–9.8	–4.7	52.4	–27.4
Corn	–22.9	.7	79.2	21.5	–24.0
Slaughter cattle	–10.9	9.5	–9.8	8.2	–10.0
Slaughter hogs	48.7	–14.7	–4.4	–12.4	6.2
Slaughter chickens	4.3	–7.3	3.8	9.3	22.3

Wild ride for milled rice in 2008

Milled rice prices faced a roller coaster of a year in 2008. The PPI for milled rice set an all-time record in February that it then broke in each of the next 5 succeeding months, reaching its peak in July. After the runup in prices during the first half of the year, record production helped push prices lower over the final 5 months of 2008, but by the end of the year the PPI for milled rice had only dropped 15 percent from its midyear high, mainly because of restrictive trade policies.

In the overall U.S. agricultural economy, rice is a relatively minor crop. It is usually ranked eighth among field crops in regard to both value of production and planted acreage.[1] However, it is an important crop both locally and regionally; the production and milling of rice are concentrated in four main regions.[2] One interesting aspect of U.S. rice is how international prices, mainly those from Thailand and Vietnam, affect domestic prices. Although the United States is not a significant producer of rice, it also is not a significant consumer of rice, so almost half of the rice produced in the country is exported; U.S. rice exports consist of between 12 and 14 percent of world rice trade, which usually ranks the United States as the third or fourth largest exporter of milled rice.[3] Domestic prices, therefore, are affected substantially by international events, particularly those in Asia, which accounts for 90 percent of global rice consumption according to the U.S. Department of Agriculture (USDA). In Asia, rice is the staple food for billions of people, and worldwide it is the second-most consumed cereal grain after maize.

One major factor contributing to higher rice prices in the first half of 2008 was the increase in fuel and fertilizer prices, both of which reached then-record highs during the planting cycle in early 2008.[4] Relative to other domestically grown field crops, rice is especially fuel- and fertilizer-intensive, making producers particularly vulnerable to rising crude oil costs.[5] Another factor that pushed up rice prices was the increase in the prices of other agricultural commodities such as wheat, corn, and soybeans. In some areas, rice competes for acreage with these crops; as a result, rice price increases kept pace with those of other agricultural commodities. Additionally, in many parts of the world, consumers shift between rice-based and wheat-based foods according to price and availability.[6] However, of greater importance for rice prices in early 2008 was the declining value of the dollar throughout that period.[7] According to the USDA, most of the rice trade is denominated in dollars, meaning that a drop in the value of the dollar increases most rice prices. It is important to note that, despite the rapid increases in the price of rice, world rice production in 2008 was projected by both the USDA and the Food and Agriculture Organization of the United Nations to be at record levels, and U.S. production was projected to hit a 3-year high.[8]

Although higher production costs, increased prices for other agricultural commodities, and the devaluation of the dollar were all underlying contributors to the increase in world rice prices, the main factor was a combination of export bans and regulations put in place by the major rice-producing nations. Rice has traditionally been a commodity that is consumed in the country where it is produced, usually with no more than 10 percent of its production marked for export. In 2008, worldwide rice exports as a percentage of world rice production were 6.7 percent, which was below the corresponding figures for corn (10–12 percent), wheat (18 percent), and soybeans (30 percent).[9] The fact that such a small percentage of rice is sold on the international market leads to increased price volatility, especially in the face of supply shocks generated by export bans and regulations. After India and Vietnam imposed partial export bans in October 2007, China, Egypt, and Cambodia all announced programs to restrict their exports in order to make more rice available in their domestic markets at relatively stable prices. Thailand, the world's largest rice exporter, recorded lower exports in early 2008 due to the government's domestic procurement and storage program.[10] By late April 2008, price quotes for Thailand's high-quality long-grain rice had more than doubled from the beginning of the year to $993 per ton, a record in nominal dollar terms (that is, without adjusting for inflation).[11] The various export bans led to panic buying by a number of large importers, most notably the Philippines and flood-ravaged Bangladesh.

The beginnings of the worldwide financial crisis in August resulted not only in a precipitous drop in agricultural prices effected primarily by reduced demand, but also in an appreciation of the U.S. dollar, which put further downward pressure on rice prices. In November, the Food and Agriculture Organization announced that in 2008, for the fourth consecutive year the size of the world's rice crop would hit a record high.[12] The Food and Agriculture Organization projected production increases for Bangladesh, China, Pakistan, Vietnam, Thailand, India, the Philippines, and several countries in Sub-Saharan Africa. These robust forecasts helped to soothe the international rice market, in which prices continued their downward trend and arrived at levels more in line with historical norms.[13] This slide in prices was dampened, however, primarily by trade restraints in Egypt and India and by government stockpiling in Thailand.[14] As such, through the end of the year prices for milled rice remained higher than those of other agricultural commodities.

Notes

[1] *Rice Backgrounder*, RCS–2006–01 (U.S. Department of Agriculture, December 2006), p. 3.

[2] *Ibid.*

Notes—Continued —Wild ride for milled rice in 2008

[3] *Ibid*, p. 6–8.

[4] "What's Behind the Surge in Global Rice Prices?" *Amber Waves*, U.S. Department of Agriculture, September 2008, p. 3.

[5] *Rice Backgrounder*, RCS–2006-01.

[6] "What's Behind the Surge in Global Rice Prices?"

[7] Donald Greenlees, "As the Dollar Slides, Two Continents Feel the Side Effects in Divergent Ways," *The New York Times*, March 27, 2008, B1.

[8] *Rice Outlook*, RCS–08k (U.S. Department of Agriculture, December 2008).

[9] *U.S. Rice Industry: Background Statistics and Information* (U.S. Department of Agriculture, April 2008).

[10] *Food Outlook* (United Nations Food and Agriculture Organization, November 2008), p. 23, on the Internet at **www.fao.org/docrep/011/ai474e/ai474e05.htm** (visited July 17, 2009).

[11] *Thailand Weekly Rice Price Update* (U.S. Department of Agriculture, May 2, 2008).

[12] *Food Outlook*, **www.fao.org/docrep/011/ai474e/ai474e05.htm**.

[13] *Ibid*.

[14] *Ibid*.

after having climbed 17.2 percent in the previous year. The indexes for prepared animal feeds and for shortening and cooking oils also rose less than they had in 2007. Prices for flour; fluid milk products; natural, processed, and imitation cheese; and processed eggs turned down in 2008. By contrast, prices for refined sugar and byproducts turned up in 2008, and the indexes for beef and veal and milled rice increased more than they had in 2007.

The PPI for crude foodstuffs and feedstuffs fell 14.5 percent in 2008, compared with a 24.9-percent gain in 2007. This reversal is attributable to downturns in prices for raw fluid milk, wheat, soybeans, corn, and slaughter cattle. In contrast, prices for slaughter chickens advanced more in 2008 than a year earlier, and the index for slaughter hogs turned up after having fallen in 2007.

Raw fluid milk and processed dairy products. Raw fluid milk prices fell 27.4 percent in 2008 after having surged 52.4 percent in the previous year. Milk production per dairy cow rose 1.0 percent from 2007 to 2008.[27] After milk prices rose to record levels in 2007,[28] milk producers increased their dairy herd sizes in an attempt to take advantage of the higher prices. However, the increased numbers of dairy cattle, producing more milk on average per cow than in 2007, resulted in increased supply and lower milk prices in 2008.[29] Additionally, raw milk prices declined in the latter half of 2008 as a result of the worldwide financial crisis, as demand from dairy product manufacturers such as bottled milk, cheese, and butter producers declined late in the year.

The index for processed fluid milk products moved down 7.7 percent in 2008 after having jumped 25.9 percent in the previous year, and prices for natural, processed, and imitation cheese declined 5.9 percent subsequent to having advanced 32.1 percent in 2007. Prices for processed fluid milk products closely follow the price of the primary raw material, raw fluid milk. Larger milk supplies also translated into lower prices in 2008 for natural, processed, and imitation cheese.

Vegetables and fruits. The PPI for fresh vegetables, except potatoes, dropped 23.8 percent in 2008, following a 14.6-percent increase a year earlier. This index was volatile throughout 2008 in response to fluctuating weather conditions throughout the United States. A January freeze in Florida damaged tomato, eggplant, and squash crops, severely reducing crop yields.[30] The freeze drove prices higher when these crops were due for harvest in March. By late spring, however, prices had declined as growing conditions became favorable in both the East and the West. The index for fresh vegetables, except potatoes, moved up again in June because of higher prices for lettuce in California caused by high temperatures that reduced yields in the Salinas and Santa Maria growing areas.[31] Above-average temperatures also hit the Southeast, decreasing quality (mainly by causing some heavy scarring) and lowering yields of eggplant, squash, and cucumbers. In July and August, vegetable prices dropped roughly 25 percent in response to falling tomato prices, which declined by over 50 percent during this period. A salmonella warning from the Food and Drug Administration advised consumers not to eat raw red Roma, raw red plum, or raw red round tomatoes, or products that contain these types of raw red tomatoes.[32] Consequently, demand for tomatoes and tomato products fell shortly after the announcement; and by August, vegetable prices had reached their lowest point for the year. Prices rose from September to November as the fall growing season took over and vegetable supplies shrank. Finally, prices declined in December because of weak demand for lettuce, broccoli, cauliflower, and carrots following Thanksgiving.

The PPI for fresh fruits and melons fell 20.3 percent in 2008, after having increased by 6.5 percent a year earlier. In December 2007, the index for fresh fruits and melons had reached its highest level since July 1991,[33] a phenomenon led by a steep runup in strawberry prices. After increasing in January 2008, the fresh fruits and melons index fell for 3 consecutive months (by 14.4 percent in total) as California crops of navel oranges, grapefruits, tangerines, tangelos, and lemons recovered from a devastating freeze that had occurred in January 2007.[34] After rising in May 2008, prices again decreased for the next 3 months—by 16.1 percent in all—an event driven by price declines for stone fruits (especially peaches, plums, prunes, nectarines, and cherries) and berries (especially strawberries, raspberries, blueberries, and blackberries). After bottoming in October, the index for fresh fruits and melons increased in November and December, mainly because of higher strawberry prices, as the transition from the west coast crop to the east coast crop was delayed by cool temperatures in Florida.[35]

Grains, soybeans, and prepared animal feeds. Prices for grains fell 29.1 percent in 2008 after having risen 59.2 percent in 2006 and 40.8 percent in 2007. The 2008 decline was primarily the result of a 45.5-percent decrease in wheat prices and a 24.0-percent drop in corn prices. On March 31, 2008, the U.S. Department of Agriculture (USDA) report *Prospective Plantings* estimated that the total area of planted wheat would be six percent higher in 2008 compared with 2007.[36] Later projections from the USDA and the Food and Agriculture Organization of the United Nations estimated that worldwide wheat production would be a record 684 million tons in 2008.[37] The weakening economy, which led to an overall decline in prices of other commodities (corn, soybeans, and oil, among others), and a stronger U.S. dollar also contributed to lower wheat prices. In late 2008, the global economic crisis pushed wheat prices down further as international demand fell by over 50 percent.[38]

Similar to wheat prices, corn prices also turned down—falling 24.0 percent in 2008. Prices began dropping in midsummer because of an increase in the projected size of the harvest, and they gained downward momentum in September as the global economic crisis began to take hold. Along with stock prices, commodities prices fell as the financial meltdown gripped the world, and a strengthened dollar reduced demand in other countries for goods imported from the United States. Also, corn prices tend to fall in the fourth quarter of the year after the U.S. harvest is complete, when supply levels are typically at their highest.[39]

The PPI for soybeans fell 29.8 percent in 2008, after having climbed 76.8 percent a year earlier. Soybean prices declined for the same reasons as corn prices. Although they rose during the first of half of 2008, soybean prices started to fall sharply midyear when USDA production and supply data came into focus.[40] In September, prices plummeted when the global financial turmoil began in earnest.

The rate of increase in the prepared animal feeds index slowed to 7.3 percent in 2008 from 20.1 percent in 2007. This slowdown was the result of lower prices for principal feed ingredients—corn, soybeans, and wheat—which were passed on to producers of prepared animal feeds.

Slaughter cattle and beef and veal. The index for slaughter cattle turned down 10.0 percent in 2008, following an 8.2-percent advance a year earlier. Most of the 2008 decline occurred late in the year, because prices were supported through August by strong export demand for both beef and cattle, largely because of the weak dollar. In August 2008, beef and veal exports were up 66.5 percent over 2007 year-to-date levels.[41] Additionally, the effects of the weak dollar made foreign beef more expensive for U.S. consumers, decreasing import demand and bolstering prices in the U.S. beef and cattle markets. After posting a 5-year high in August,[42] the slaughter cattle index tumbled—falling 2.1 percent in September, 10.3 percent in October, and 8.9 percent in December. This downturn in prices was attributable to the strengthening of the U.S. dollar and to the economic crisis that occurred in the latter half of 2008. Unfavorable global economic conditions caused an overall decrease in global demand for beef, pushing prices even lower. According to the U.S. Meat Export Federation, after enjoying strong growth in a number of foreign markets (notably Japan, Vietnam, and Russia in addition to traditional partners Mexico and Canada) through August 2008, U.S. beef and pork exports faced slackening demand conditions by autumn due to "limited credit availability, volatile currency exchange rates, and global economic uncertainty."[43]

The PPI for beef and veal advanced 6.2 percent in 2008 after having risen 2.6 percent in 2007. As with the slaughter cattle index, prices for beef and veal increased steadily through early and mid-2008, driven by high export and low import demand.[44] The weakness of the U.S. dollar increased foreign demand for beef and other agricultural products, allowing trade partners to enjoy favorable terms of trade and cheaper prices. Similar to slaughter cattle prices, the beef and veal index experienced late-year declines in conjunction with the global

economic turmoil. As opposed to the decrease in the slaughter cattle index, however, the decrease in the beef and veal index was not enough to offset the increases from earlier in 2008.

Chicken eggs. Prices for eggs for fresh use declined 25.8 percent in 2008, following a 56.4-percent jump in 2007. Likewise, the index for processed eggs edged down 0.7 percent in 2008 after having risen 48.2 percent a year earlier. Prices for feed corn and prepared poultry feed began a steep downturn in the latter portion of 2008. Feed costs, which represent more than half of the cost of egg production, are typically passed on to buyers. Corn supplies remained strong in 2008 because of a combination of high inventory levels at the start of the year and the second-highest level of planted acreage on record.[45]

Flour. The index for flour fell 20.9 percent after having climbed 55.6 percent in 2007. Flour prices hit their peak in March 2008 and steadily declined over the remainder of the year. Trends in the price of flour usually mirror price trends of wheat. World wheat production was estimated to have increased by 12.0 percent in 2008, a record.[46] As a result, wheat prices dropped from their record level and dragged down flour prices with them. The high level of worldwide wheat production decreased U.S. trade opportunities, which kept more supplies of wheat and flour in the domestic market.

Cooking oils. Prices for shortening and cooking oils advanced 4.3 percent in 2008 after having climbed 25.4 percent in the previous year. Prices for oilseed commodities such soybeans, cottonseeds, and sunflowers jumped dramatically in the first part of the year. Farmers switched acreage previously reserved for oilseeds to corn in order to profit from historically high corn prices. In the second half of the year, however, the prospects for a good harvest put downward pressure on oilseed commodity prices. Additionally, the global financial crisis caused commodity prices to fall even further and caused demand (both domestic and foreign) for cooking oil products to diminish. This resulted in a rapid decline in prices in the second half of the year, although not enough to completely offset the gains from early in the year.

Finished goods other than foods and energy

The advance in the PPI for finished goods other than foods and energy, commonly known as the finished core index, accelerated to 4.5 percent in 2008 from 2.0 percent in 2007. (See table 5.) In 2008, the index for motor vehicles turned up 3.6 percent after having fallen 0.7 percent in the previous year. Prices for malt beverages also rose following decreases in 2007. The indexes for civilian aircraft, soap and synthetic detergents, consumer plastic products, household furniture, and pet food increased more than they had in the prior year. By contrast, the rise in the index for cigarettes slowed to 2.8 percent from 9.2 percent in 2007.

Motor vehicles. The index for motor vehicles moved up 3.6 percent in 2008 following a 0.7-percent decline in 2007. Leading the upturn, prices for passenger cars and light trucks increased 3.7 and 3.5 percent, respectively, after having decreased in the previous year. Motor vehicle prices dropped 3.0 percent from December 2007 to September 2008, as manufacturers discounted 2008 model-year vehicle prices prior to introducing 2009 model-year vehicles. When new models were introduced into the index in October, prices for motor vehicles jumped 7.7 percent. With this introduction, the index for passenger cars rose 4.2 percent and the index for light trucks increased 11.4 percent. Much of this increase was the result of automakers' input material supply contracts, which locked them into purchasing steel and aluminum at the relatively high prices reached in late summer of 2008. Additionally, late in the year, the appeal of cargo space and power, combined with lower fuel prices and improved efficiency, renewed demand for trucks and placed upward pressure on prices. The motor vehicle price increases were considered surprising by some, given an overall 18.1 percent drop in domestic vehicle sales for 2008, but automakers, desperate for cash to cover their fixed costs, kept prices at relatively high levels in order to capture as much revenue as possible.[47]

Civilian aircraft. Civilian aircraft price increases accelerated to 7.3 percent in 2008 from 3.3 percent in the prior year. In 2007, airlines began updating fleets, most of which had been aging since 2001.[48] At the beginning of 2008, it was reported that aircraft manufacturers had enough production orders to last 5 years.[49] In addition to strong demand, rising input costs for steel and aluminum placed upward pressure on civilian aircraft prices. Aircraft manufacturers tend to engage in long-term contracts, so higher input prices earlier in the year continued to have an effect on aircraft manufacturers even as the economy declined and market prices for steel and aluminum fell later in the year.

Table 5. Annual percentage changes in Producer Price Indexes for selected finished goods other than foods and energy, 2004–08

Index	2004	2005	2006	2007	2008
Finished goods other than foods and energy	2.3	1.4	2.0	2.0	4.5
Pet food	7.3	1.0	3.3	6.0	17.4
Soap and synthetic detergents	1.1	1.6	6.6	1.0	11.1
Consumer plastic products[1]	8.3	8.4	3.6	3.3	9.3
Civilian aircraft	7.1	3.9	5.3	3.3	7.3
Household furniture	3.5	3.7	2.1	1.2	6.2
Malt beverages	.1	6.0	–.4	–.8	5.5
Cigarettes	1.1	4.8	.8	9.2	2.8
Motor vehicles	1.5	–3.8	.9	–.7	3.6

[1] Currently PPI code 072B. Formerly PPI code 0728.

Soap and synthetic detergents. The index for soap and synthetic detergents jumped 11.1 percent following a 1.0-percent gain in 2007. Higher export demand due to the weak U.S. dollar, and a slow reaction to declining energy costs, drove the steady increase in this index. Chemical production is an energy-intensive process; therefore, soap and detergent inputs were affected by the peak in energy prices in mid-2008. As a result of long-term contracts, high energy prices early in the year caused larger-than-average increases later in the year. Prices for alkalies and chlorine, prime ingredients in cleaners used to remove dirt without excess scrubbing, climbed 47.3 percent. The index for surfactants—ingredients used to amplify the spreading and wetting properties of water—rose 11.1 percent.

Cigarettes. The index for cigarettes moved up 2.8 percent in 2008, compared with a 9.2-percent advance in the previous year. After no change in the first 3 months of 2008, cigarette prices increased in April and May mainly because of tobacco companies concluding their annual Master Settlement Agreement payments for 2008.[50] Master Settlement Agreement payments are mandated compensation that tobacco companies must pay to help Federal and State governments cover tobacco-related health-care costs and smoking prevention efforts. The index also edged up in September because some States crafted legislation that blocks illegal online sales of tobacco to minors, sales that were undercutting tobacco prices in stores.[51]

Intermediate goods other than foods and energy

The PPI for intermediate materials less foods and energy rose 2.9 percent in 2008, slightly less than its 2007 increase of 3.3 percent. In 2008, higher prices for materials and components for construction outweighed lower prices for materials for both durable and nondurable manufacturing. (See table 6.) The 2008 increase in intermediate core prices was the smallest calendar-year advance since a 2.1-percent rise in 2003.

Materials and components for construction. The rise in the PPI for materials and components for construction accelerated to 7.5 percent in 2008 from 2.0 percent in 2007. The index for fabricated structural metal products increased 12.7 percent after having advanced 2.3 percent in the previous year. Prices for paving mixtures and blocks, asphalt felts and coatings, plastic products, and cast iron pressure and soil pipe and fittings also rose more than in 2007. The index for gypsum products turned up in 2008 after having fallen in the prior year. By contrast, the index for nonferrous metals turned down 21.6 percent after having risen 3.9 percent in 2007. Despite a 9.8-percent drop in private construction in 2008, public construction increased 7.2 percent, to a record $307.8 billion.[52]

The index for fabricated structural metal products rose steadily during the first 9 months of 2008 before declining in the final 3 months of the year. This index is mainly influenced by prices for steel, the main input. Steel prices typically affect the fabricated structural metal products index with a lag because of the time it takes steel to move through the stages of production. Steel prices surged in the first half of the year because of high demand for construction, especially in developing nations. In recent years, countries such as China, India, and Thailand have been building up infrastructure to support their expanding industrial sectors. China, the largest consumer of steel, accounts for 35 percent of total world steel use, according to the International Iron and Steel Institute.[53] This institute also reported that at least 3 million tons of

Table 6. Annual percentage changes in Producer Price Indexes for selected intermediate goods other than foods and energy, 2004–08

Index	2004	2005	2006	2007	2008
Intermediate goods other than foods and energy	8.3	4.8	4.5	3.3	2.9
Materials and components for construction	10.1	6.1	4.3	2.0	7.5
Asphalt felts and coatings	4.1	15.3	5.0	1.4	57.8
Cast iron pressure and soil pipe and fittings	21.6	3.7	9.4	3.1	35.7
Paving mixtures and blocks	4.3	14.3	27.6	1.6	34.3
Prefabricated metal buildings	35.5	2.0	5.5	2.0	25.5
Fabricated structural metal products	17.6	2.9	4.7	2.3	12.7
Gypsum products	20.0	18.8	5.5	–22.1	7.2
Plastic products	6.1	11.0	1.1	1.6	6.0
Materials for nondurable manufacturing	13.7	8.9	1.2	12.8	–5.2
Industrial chemicals	24.6	13.6	4.0	16.3	–10.5
Primary basic organic chemicals	44.0	22.3	–1.6	27.8	–51.2
Basic inorganic chemicals	7.3	17.7	16.4	10.4	49.1
Inedible fats and oils	–15.6	11.9	12.4	48.9	–19.3
Plastic resins and materials	28.6	10.8	–7.8	9.7	–8.3
Paper	6.1	5.0	4.7	1.6	9.7
Rubber and rubber products	5.1	6.2	4.0	2.7	14.0
Medicinal and botanical chemicals	–1.8	2.3	1.2	1.1	14.6
Agricultural chemicals and chemical products	8.2	8.9	–3.0	24.1	44.4
Materials for durable manufacturing	18.3	5.9	12.5	1.7	–5.1
Nonferrous metals	17.8	18.4	26.1	3.9	–21.6
Steel mill products	48.8	–3.8	11.6	.9	4.8
Steel pipe and tube	66.0	1.2	5.5	–1.3	28.6
Semifinished steel mill products	83.6	3.5	3.9	9.4	4.0
Hot rolled steel bars, plates, and structural shapes	53.8	–1.0	7.5	8.1	3.3
Hot rolled steel sheet and strip	28.8	–13.9	8.3	2.0	1.7
Cold rolled steel sheet and strip	35.5	–1.2	41.2	–9.1	–10.5
Prepared paint	4.0	7.9	5.3	3.8	11.7

steel were used to build the stadiums and make necessary infrastructure improvements for the 2008 Summer Olympics in Beijing.[54] By the end of the year, slowdowns in the construction and automotive sectors caused demand for steel to greatly diminish. Consequently, the index for fabricated structural metal products declined over the last 3 months of 2008, although not enough to offset record-high prices reached earlier in the year.

Materials for durable manufacturing. The index for materials for durable manufacturing turned down 5.1 percent in 2008 after having risen 1.7 percent in 2007. The index for nonferrous metals dropped 21.6 percent following a 3.9-percent increase in the previous year. Prices for plastic resins and materials and primary basic organic chemicals also turned down in 2008 after having advanced a year earlier. The index for cold rolled steel sheet and strip fell more than it had in 2007, while prices for semifinished steel, hot rolled steel sheet and strip, and hot rolled steel bars, plates, and structural shapes rose less than in the prior year. In 2008, the slowing economy led to lower demand for many materials for durable manufacturing, negatively affecting prices.

The index for primary nonferrous metals fell 29.8 percent in 2008 subsequent to a 3.9-percent increase in 2007.[55] This was a dramatic downward turn from the annual gains of the preceding 6 years. Mainly because of production-cost pressure, primary nonferrous metal prices increased 17.5 percent from December 2007 to May 2008. According to the U.S. Geological Survey's annual Mineral Commodity Summaries report, record-low inventories and labor issues in the beginning of the year led to higher prices for copper and a ramping up of copper production.[56] Aluminum prices jumped early in the year because of rising energy costs linked to updated electric power contracts affecting aluminum producers in China—the world's largest producer.[57] These new contracts had a significant impact on prices because energy is a major input to aluminum production. Later, the index fell rapidly because of pressure from surplus materials and slumping demand. When energy prices turned down, signaling an economic slowdown, Chinese aluminum producers attempted to prevent a surplus by making major production cuts in October, but to no avail.[58]

Falling demand from the construction sector and motor vehicle manufacturers, the main users of primary nonferrous metal products, pushed prices lower through the end of 2008.

Materials for nondurable manufacturing. The index for materials for nondurable manufacturing turned down 5.2 percent in 2008 after having risen 12.8 percent in 2007. The index for primary basic organic chemicals dropped 51.2 percent after having increased 27.8 percent in the prior year. Prices for plastic resins and materials and for inedible fats and oils also fell in 2008 after having risen a year earlier. By contrast, prices for basic inorganic chemicals, agricultural chemicals and chemical products, paper, medicinal and botanical chemicals, and rubber and rubber products rose more than in the prior year.

The downturn in the index for primary basic organic chemicals can be attributed to falling crude petroleum prices, since primary basic organic chemicals are made from a petroleum refining process. Prices for crude petroleum, like those of other energy materials in 2008, grew substantially in the first half of the year before falling at a rapid rate in the second half of the year. In addition, chemicals are purchased as inputs by manufacturers of plastics, rubber, and fibers. Demand for organic chemicals was severely affected by the economic downturn, with the resulting buildup of chemical inventories placing severe pressure on prices.

Crude nonfood materials less energy

The PPI for crude nonfood materials less energy turned down 24.1 percent in 2008 after having risen 15.6 percent in 2007. (See table 7.) The 2008 decrease for basic industrial materials was the first calendar-year decline since a 9.9-percent drop in 2001. The slowing economy contributed significantly to the downturn in prices for basic industrial materials by eroding demand. In 2008, the index for iron and steel scrap fell 35.2 percent after having increased 29.4 percent in the preceding year. Prices for nonferrous metal ores, wastepaper, soybeans, and raw cotton also turned down in 2008 after having gone up in the prior year. By contrast, the rise in the index for phosphates jumped to 87.3 percent from 52.0 percent in 2007. Prices for wood chips also advanced more than they had in the prior year.

Iron and steel scrap. Prices for iron and steel scrap turned down 35.2 percent in 2008 after having risen 29.4 percent in 2007. Prices for iron and steel scrap, like those of many commodities, experienced a bubble that grew quickly through the first half of 2008. When this trend reversed course, rapid declines dominated the latter half of the year. Before the downturn began, the index rose 90.6 percent over the first 7 months of 2008. Iron and steel scrap prices then plummeted in September, October, and November—69.7 percent in total—mainly because of the retracting global economy. Iron and steel scrap are melted and reformed into new steel products that are used primarily by the construction and automotive industries. These sectors succumbed to the economic malaise of the latter half of 2008, leading to a dramatic drop in demand for steel. The U.S. Geological Survey reported that buyers in Asia and Europe cancelled many orders, leading to oversupply. Despite an attempt to relieve oversupply by slashing steel mill utilization to 71 percent in October, which led to an increase in ferrous scrap prices in December, the index closed 2008 well below its level from the end of 2007.[59]

Wastepaper. Wastepaper prices moved down 55.1 percent in 2008, compared with a 53.4-percent jump in the previous year. Products in this index are recycled and later sold as recycled paper and cardboard. China, as well

Table 7. Annual percentage changes in Producer Price Indexes for selected crude nonfood materials less energy, 2004–08

Index	2004	2005	2006	2007	2008
Crude nonfood materials less energy	20.5	5.2	17.0	15.6	–24.1
Wastepaper	17.3	–9.1	19.1	53.4	–55.1
Iron and steel scrap	50.8	–10.8	2.9	29.4	–35.2
Soybeans	–29.7	7.0	7.9	76.8	–29.8
Nonferrous metal ores	49.9	26.2	31.3	10.8	–33.7
Raw cotton	–35.5	16	2.9	20.1	–12.3
Pulpwood	–3.0	–.3	5.0	–1.3	4.7
Construction sand, gravel, and crushed stone	4.3	7.7	9.3	8.4	6.7
Wood chips	2.4	3.9	26.7	.8	8.9
Phosphates	12.7	5.0	1.2	52.0	87.3

The unbearable lightness of demand: a survey of the ferrous scrap market in 2008

The importance of recycling to the steel industry should not be understated. In 2007, more than three quarters of domestic steel production was derived from recycled scrap.[1] Typically, the savings achieved by using scrap for steel manufacturing are substantial. For this reason, in the 1990s there was a revolution in steel production brought about by the adaptation of Electric Arc Furnace (EAF) technology for the manufacture of flat rolled steel products. The superior cost structure of EAFs over traditional blast furnaces (EAFs are smaller and, because they rely upon ferrous scrap, also cheaper to operate) led to an expansion of steel production around the world.

A variety of forces pushed world steel production to record levels in 2008. Some trends had been emerging for more than a decade; the collapse of the Soviet Union, for example, resulted in the birth of a massive ferrous scrap export industry. However, between 2002 and 2007, Russia enacted several policies both to reduce scrap exports and to channel exports through port facilities in Russia instead of those in Ukraine.[2] The result was a sizable cut in Russian scrap exports at the same time that Middle Eastern steel production was taking off in such places as Egypt and Turkey, servicing the oil-state construction booms.

Meanwhile, American steel makers, who had been unified in predictions of bankruptcy and pleas for Federal protection in 2001, began seeing healthy profits. Industry optimism was boosted by increasing consolidation that provided much needed pricing power. A vital factor giving heart to American ferrous scrap producers was the sharp depreciation of the American dollar relative to other major currencies. The dollar's depreciation made American scrap metal more attractive to foreign buyers, which in turn helped spur production of U.S. steel. Thus, both steel and ferrous scrap producers were confident striding into 2008, even in the face of warning signs in such sectors as housing and automobiles. In December 2007, the Producer Price Index for iron and steel scrap stood at an all-time high, a level that was then exceeded in each of the first 7 months of 2008; the index soared 91 percent from January to July.

During this period ferrous scrap markets saw extreme price hikes due to tight global supplies, as demand for steel grew faster than the supply of ferrous scrap inputs. As the U.S. dollar fell to almost 60 percent of the value of the Euro, American steel makers not only managed to push imports (mostly Chinese) out of the American market, but they came close in July 2008 to exporting more steel than the country imported for the first time in decades. Another factor that helped U.S. steel exports to rise was the relative self-sufficiency of American steel producers. Asian steel producers are much more dependent upon imported iron ore than American producers, who tend to own ore-producing properties.

In January 2008, Rio Tinto (the world's largest iron-ore mining firm) led other companies in an effort to lift the approximately $80/ton of iron ore that Asian firms were paying to a level closer to that of the world iron-ore spot price (around $180/ton in January 2008).[3] By late February, Rio Tinto had succeeded in raising the price that Japanese and Korean steel makers paid by about 65 percent. By June, the Chinese firms finally had capitulated, agreeing to 80-percent price hikes.[4] U.S. ferrous scrap exports during the first three quarters of 2008 increased almost 40 percent compared with the same period in 2007.[5]

During mid-August and early September 2008, the economic downturn signaled a turning point for steel and ferrous scrap exports. The Producer Price Index for iron and steel scrap fell 22 percent in September. This was followed by a decline of 39 percent in October and 36 percent in November. From August to November the ferrous scrap index tumbled 70 percent from its high.

Ore exporters, flush from hard-won price hikes, were stunned when ore and scrap, after having been shipped halfway across the world, were turned away at the gates of Asian steel mills.[6] The construction boom in the oil states—and its resulting demand for steel—retreated as oil prices dropped almost as fast as ferrous scrap prices. This price collapse was compounded by a corresponding collapse in production: domestic steel output was cut almost in half over this time frame.[7]

The suddenness of the drop in the price of steel exacerbated the effect of the price changes for scrap. In contrast to steel mills with blast furnaces that plan production months in advance, steel producers that used mostly EAFs were able to respond quickly in the face of collapsing steel demand. Demand for scrap dropped drastically, some EAFs fell silent, and steel mills worked through stockpiled scrap and prepurchased ore while producing steel that fewer people wanted to buy.

By the end of the year, steel producers presided over mills that had drastically cut back production. Demand for scrap in the world economy was almost as low as demand for new steel, as firms and consumers averse to spending money delayed junking cars and other aging machines, waiting for signs of an uptick in the economy.

Notes

[1] "Steel recycling rates at a glance," on the Internet at **www.recycle-steel.org/pdfs/2007Graphs.pdf** (visited July 17, 2009).

Notes— Continued —The unbearable lightness of demand: a survey of the ferrous scrap market in 2008

[2] Dan Sandoval, "The Russian bear roars: discussions of global markets typically revolve around China; however, Russia is growing in prominence," on the Internet at **www.entrepreneur.com/tradejournals/article/169458968.html (**visited July 6, 2009).

[3] Robert Matthews, "Rio Tinto to Lift Ore Prices," *The Wall Street Journal*, Jan. 17, 2008, A13.

[4] Alex Wilson, "BHP, China Reach Iron-ore Deal," *The Wall Street Journal*, July 4, 2008; see **http://online.wsj.com/article/SB121515896854028845.html** (visited July 20, 2009).

[5] *Institute of Scrap Recycling Industries Friday Report*, Jan. 16, 2009. Visit **www.isri.org** to obtain contact information and request a copy of the report.

[6] Robert Matthews, "Steelmakers Squeeze Suppliers," *The Wall Street Journal*, Nov. 18, 2008, B2.

[7] *Institute of Scrap Recycling Industries Friday Report*, Nov. 21, 2008. Visit **www.isri.org** to obtain contact information and request a copy of the report.

as other parts of Asia, is the main importer of recycled materials from the United States because it has no indigenous source of fiber supply. In the first 3 months of 2008, wastepaper prices rose 3.8 percent because of increased demand for exports in the wake of a weak U.S. dollar. Prices began to turn down in April when the U.S. dollar started showing signs of recovery. The index fell dramatically in the final quarter of 2008, 54.4 percent, as the global economic slowdown led to weak demand and a surplus of unsold waste products. Low volume makes recycling wastepaper more expensive than using landfills, a phenomon which exacerbated an already existing weakness in demand.

Raw cotton. Prices for raw cotton declined 12.3 percent in 2008 following an increase of 20.1 percent in 2007. The index rose slightly through April and fell over the remainder of the year, other than when it made a moderate jump in September. Prices for cotton rose slowly early in the year as farmers switched to planting more profitable crops, especially soybeans. Soybean prices were up 76.8 percent in 2007, and they increased an additional 26.0 percent during the first half of 2008. As a result, the number of acres on which cotton was harvested was 26.3 percent lower in 2008 than in 2007.[60] Fear of a shortage of cotton intensified when hurricanes Gustav and Ike damaged crops in early September, causing a 4.4-percent spike in the index. Initial reporting estimated that more than 47 percent of the cotton crop had been destroyed.[61] By October, prices were declining again as it became clear the predicted crop damage had been overstated. By the end of 2008, undersupply worries were overshadowed by the reality of a surplus due to the slowing global economy. Falling demand from developing countries, major consumers of cotton that were particularly vulnerable to the global economic downturn, forced cotton prices down.[62] The initial undersupply of cotton somewhat worked in favor of cotton prices when the economy crashed. Although the cotton index declined 8.9 percent in 2008, prices did not fall as much as those of corn and soybeans, which dropped 24.0 and 29.8 percent, respectively.

Construction sand, gravel, and crushed stone. Subsequent to an 8.4-percent increase in 2007, the index for construction sand, gravel, and crushed stone rose 6.7 percent in 2008, moving steadily higher in every month of the year. While growth slowed in this index, continued investment in nonresidential construction and government infrastructure projects supported the increase in prices. According to the U.S. Department of Commerce, spending in the nonresidential-construction sector increased 15.3 percent in 2008.[63] Demand was also bolstered by publicly funded construction projects and government expenses, such as road construction, beach upkeep, and snow and ice control. According to the U.S. Geological Survey, 23 percent of construction sand, gravel, and crushed stone in the U.S. was used for road construction in 2008.[64]

Services

Total trade industries. The Producer Price Index for the net output of total trade industries rose 7.3 percent in 2008 after having increased by 3.9 percent a year earlier. PPIs for trade industries measure changes in margins—that is, the difference between the selling price and acquisition cost of an item—received by wholesalers and retailers. The majority of trade industry indexes benefited from falling prices in late 2008, as acquisition costs fell faster than the selling prices of products. In 2008, the margin indexes for merchant wholesalers of durable and nondurable goods, grocery stores, and discount department stores increased more than they had a year earlier. By contrast, margins received by new car dealers turned down in 2008. (See table 8.)

The margin index for merchant wholesalers of nondurable goods climbed 17.3 percent in 2008 compared

Table 8. Annual percentage changes in Producer Price Indexes for selected services industries, 2004–08

Index	2004	2005	2006	2007	2008
Total trade industries	([1])	([1])	([1])	3.9	7.3
Wholesale trade industries	([1])	([1])	([1])	3.0	11.2
Durable goods wholesalers	([1])	1.7	5.8	4.0	7.1
Nondurable goods wholesalers	([1])	4.6	7.6	1.6	17.3
Discount department stores	8.5	.1	–3.6	4.7	14.6
Supermarkets and grocery stores	7.4	6.3	–.4	4.5	8.9
New car dealers	2.4	3.9	4.4	4.2	–3.7
Transportation and warehousing industries	([1])	([1])	([1])	6.6	3.1
Couriers	9.1	8.2	3.0	12.3	1.2
Scheduled passenger air transportation	–1.5	7.7	–1.1	9.0	4.7
Postal service	0.0	0.0	6.3	6.6	2.8
General freight trucking	6.3	5.3	2.3	4.2	–.3
Long-distance general freight trucking, by the truckload	4.8	5.9	1.2	3.1	–.6
Long-distance general freight trucking, less than truckload	8.0	5.3	3.7	5.2	–2.3
Local general freight trucking	8.9	3.1	3.8	6.9	1.9
Line-haul railroads	7.4	13.1	1.9	9.2	3.8
Rail transport of freight, by the carload	9.3	13.8	1.1	9.2	4.6
Rail transport of freight, intermodal	–.8	10.4	5.5	11.4	–2.3
Passenger rail transportation	.5	9.4	4.8	3.1	3.3
Total traditional services industries	([1])	([1])	([1])	1.8	.3
General medical and surgical hospitals	4.6	4.2	3.9	3.8	2.1
Portfolio management	9.9	10.1	5.8	9.8	–16.8
Securities brokerages	1.6	1.2	5.2	1.6	–10.5
Commercial banking	1.3	11.5	1.3	–5.5	–9.3

[1] Datum is unavailable.

with a 1.6-percent advance in the prior year. This index rose early in the year as margins were affected by low inventories for groceries and strong sales of chemical products. In the second half of 2008, wholesale margins continued to expand, reflecting a rapid collapse in the prices of commodities used in food products. U.S. Census Bureau data tracking nondurable goods in December 2008 showed wholesale inventories 4.1 percent below 2007 levels and a 6.9-percent increase in shipments.[65]

Margins received by merchant wholesalers of durable goods advanced 7.1 percent in 2008 subsequent to a 4.0-percent gain in the prior year. Margins for durable goods rose because bloated inventories at the factory level resulted in wholesalers' acquisition costs decreasing faster than selling prices. The November 2008 University of Michigan consumer confidence sentiment index reading of 55.3 was near its record low set in April and May of 1980, as declining employment, falling incomes, and evaporating household wealth left consumers in their most pessimistic state in 50 years—stifling demand for big-ticket items.[66] December data from the U.S. Census Bureau showed wholesale inventories 7.0 percent above 2007 levels and a 2.7-percent annual decline in shipments in 2008.[67]

Margins received by supermarkets and grocery stores moved up 8.9 percent in 2008 following a 4.5-percent rise in 2007. Expanding margins were broad based in this industry. Margins turned up or rose more in 2008 for meats, produce, frozen foods, nonedible groceries, and general merchandise. Most of the margin growth occurred in the second half of the year, as fuel prices—a major factor in food prices—plummeted. Nevertheless, margins began eroding around the holiday season because grocers were forced to lower prices in response to weak demand.

The margin index for discount department stores moved up 14.6 percent in 2008 compared with a 4.7-percent gain in the previous year. Consumers, faced with historical declines in wealth due to the collapse of the stock and housing markets, avoided upscale, high-end stores and rediscovered discount department stores. They sought less expensive, store-branded products, resulting in higher margins for discount stores. Through this increase in foot traffic and attention to acquisition costs, discount stores found they could prosper in the weak economic environment.

By contrast, the margin index for new car dealers moved down 3.7 percent in 2008 compared with a 4.2-percent advance a year earlier. Most of the 2008 decline in margins was due to a 16.8-percent decrease in margins for new vehicle sales, as well as a drop in financing and insurance prices.[68] From its inception in December 1999 though December 2008, the index for the margin on new vehicle sales fell 22.6 percent. Dealer margins on used vehicle sales also fell in 2008, by 11.9 percent. Margins received by car dealers were negatively affected by higher fuel prices early in the year, which shifted demand away from SUVs and sport models (which typically have higher margins than most other vehicles), and by the deterioration in consumer confidence and wealth that occurred later in the year.

Total transportation and warehousing industries. The Producer Price Index for the net output of total transportation and warehousing industries rose 3.1 percent in 2008 after having advanced 6.6 percent in the preceding year. The majority of the indexes included in this category peaked in the third quarter of 2008 and then fell sharply, due to the economic slowdown and the effect of diminishing fuel surcharges. In 2008, the indexes for couriers, scheduled passenger air transportation, the U.S. Postal Service, and line-haul railroads increased at slower rates compared with 2007. Prices received by the general freight trucking industry group declined following gains in the prior year.

The index for couriers edged up 1.2 percent in 2008 subsequent to a 12.3-percent increase in 2007. Prices in this industry peaked in September at a level 9.3 percent higher than the start of the year; during the final quarter of 2008, the index retreated 8.5 percent. Some companies in this industry downsized their operations by limiting delivery areas, in response to the weak economic climate and a poor business outlook. Demand is price sensitive in this industry, and soaring fuel surcharges early in the year caused some buyers to pursue alternatives to help lower costs, including buying from local businesses and lengthening delivery times.

Prices received by the scheduled passenger air transportation industry moved up 4.7 percent in 2008 compared with a 9.0-percent advance a year earlier. Fuel surcharges boosted this index in the first half of the year, although these gains were moderated by weak demand in subsequent months. According to Bloomberg News, "U.S. airline traffic fell in 2008 for only the fifth time since the government began tracking the data 35 years ago as the global economy weakened and carriers slashed schedules."[69]

The U.S. Postal Service index increased 2.8 percent in 2008 subsequent to advances of 6.6 percent in 2007 and 6.3 percent in 2006. As a result of the Postal Accountability and Enhancement Act of 2006, the U.S. Postal Service can increase rates with 45 days notice as long as the increase falls within the CPI rate of inflation for the prior 12 months. Through January 2008, the CPI increased 2.9 percent. The resulting increase in U.S. postal rates on May 12, 2008, was broad based, covering all mailing classes, domestic and international, as well as special services.[70]

The line-haul railroads index rose 3.8 percent following a 9.2-percent jump in 2007. Within this industry, the indexes for freight rail transportation by the carload and passenger rail transportation posted increases, while prices for intermodal freight transportation declined in 2008. As noted in a January 2009 press release from the Association of American Railroads, although 2008 freight rail traffic was the fourth highest in history, total ton-miles shipped by domestic railroads decreased 1.3 percent from 2007, and 15 of the 19 commodities followed by the association experienced a decrease in volume shipped in 2008.[71]

Prices received by the general freight trucking industry edged down 0.3 percent in 2008. Calendar-year declines of 0.6 percent and 2.3 percent, respectively, for truckload and less-than-truckload long-distance general freight trucking, were at or near record levels, and the 1.9-percent advance in the index for local general freight trucking was the index's smallest increase since 2002. Operational costs, affected greatly by volatile diesel fuel prices and lower freight volumes brought about by the weakened economy, made for an especially challenging environment in 2008 for the trucking industry. The American Trucking Association's for-hire truck tonnage index fell 14.1 percent in 2008, retreating to its lowest level since December 2000.[72]

Total traditional service industries. The Producer Price Index for the net output of total traditional service industries edged up 0.3 percent in 2008 following a 1.8-percent rise in the prior year. Prices received by the general medical and surgical hospitals industry increased at slower rates compared with 2007, whereas the indexes for portfolio management and securities brokerages turned down in 2008. Prices received by the commercial banking industry fell more than they had a year earlier.

The general medical and surgical hospitals index rose 2.1 percent in 2008 subsequent to a 3.8-percent gain a

year earlier. Each year, two factors account for the majority of the annual movement of this index. In January, adjustments are made to reflect changes in insurance companies' reimbursements and modifications in hospital billings. These adjustments resulted in a 0.2-percent advance in the hospital index in January 2008, compared with 0.8-percent gains in the prior two Januarys. Medicare and Medicaid reimbursement rates are usually revised in October, at the start of the Federal Government's fiscal year. For fiscal year 2009, the Centers for Medicare and Medicaid Services issued a final rule that increased Inpatient Prospective Payment System rates by 3.6 percent (1.6 percent for hospitals that do not submit quality data). The effect of this revision was a 1.2-percent rise in the October PPI for hospitals. For fiscal year 2009, hospitals are required to report 43 quality measures on their claims for Medicare inpatient services to qualify for a full update to their fiscal year 2009 payment rates. Overall, the final rule is estimated to increase Medicare payments to acute care hospitals by nearly $4.75 billion.[73]

In 2008, the index for portfolio management declined 16.8 percent compared with a 9.8-percent gain in 2007. The movement of this index reflects the fees paid to fund managers on the basis of the value of assets under management, assets which for the most part were reduced in 2008's historic bear market. Major market indexes like the Standard and Poor's 500 and the Wilshire 5000 registered 40 percent declines for the year, as asset prices were hammered by a deflating credit bubble and the associated economic contraction. In December 2008, the National Bureau of Economic Research reported that the U.S. economy had been in recession since December 2007.[74]

The index for securities brokerages dropped 10.5 percent in 2008 compared with a 1.6-percent gain a year earlier. Brokerage commissions are based on the asset value in stock or mutual fund transactions; consequently, the bear market in 2008 had a negative impact on pricing in this industry. Additionally, prices received by securities brokerages for margin lending were adversely affected when the Federal Reserve lowered the Federal funds rate to 0.25 percent in response to the weak economic environment.

Prices received by the commercial banking industry dropped 9.3 percent in 2008 after having fallen 5.5 percent in 2007. The banking sector had a very difficult year in 2008: annual earnings dropped to their lowest levels since 1989, with interest income falling 16.8 percent. The first full-year trading loss was a factor in the 11-percent decline in noninterest income.[75] Credit losses surged because of deteriorating asset quality in real estate portfolios. Problems in the credit market also led to lowered demand and pricing power for securitized products, items which are typically a major source of revenue for the commercial banking industry. According to the Federal Deposit Insurance Corporation's (FDIC's) quarterly banking profile, the percentage of unprofitable FDIC-insured commercial banks rose from 10.7 percent in 2007 to 22.1 percent in 2008 despite strong growth in domestic deposits.[76] □

NOTES

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[1] Finished goods are commodities that are ready for sale to final-demand users, either as durable or nondurable goods for consumers or as capital equipment for businesses.

[2] Intermediate goods consist of material and component inputs for manufacturing and construction, as well as supplies for all types of businesses.

[3] Intermediate energy goods are energy products for distribution to businesses, and finished energy goods are energy products for distribution to households.

[4] For a detailed discussion of price transmission across stages of processing, see Jonathan Weinhagen, "An empirical analysis of price transmission by stage of processing," *Monthly Labor Review*, November 2002, pp. 3–11, as well as Jonathan Weinhagen, "Consumer gasoline prices: an empirical investigation," *Monthly Labor Review*, July 2003, pp. 3–10.

[5] The stage-of-processing indexes for finished goods, intermediate goods, and crude goods other than foods and energy are commonly referred to as the *finished core*, *intermediate core*, and *crude core* indexes. Also, the index for crude goods other than foods and energy sometimes is referred to as the index for *crude nonfood materials less energy* or the index for *basic industrial materials*.

[6] See the indexes for materials for durable manufacturing and materials for nondurable manufacturing. These two indexes composed nearly 24 percent of the intermediate goods index at the start of 2008.

[7] See the indexes for materials and components for construction, components for manufacturing, and supplies to nonmanufacturing industries (less feeds). These three indexes composed nearly 43 percent of the intermediate goods index at the start of 2008.

[8] Jonathan Weinhagen, "An empirical analysis of price transmission by stage of processing," and "Consumer gasoline prices: an empirical investigation."

[9] *Gross Domestic Product: Fourth Quarter 2008 (Final)*, BEA 09–11 (Bureau of Economic Analysis, Mar. 26, 2009).

[10] *Ibid*; and *Strong dollar's downside*, The Hawk Eye, online at **www.thehawkeye.com/Story/mm-090908** (visited June 5, 2009).

[11] *Prospects for the Global Economy, Global Economic Prospects 2009: Commodity Markets at the Crossroads*, The International Bank for Reconstruction and Development/The World Bank, December 9, 2008, pp. 24–35. For additional GDP data, go to **www.esri.cao.go.jp/en/sna/menu.html** (visited June 30, 2009) for

data from the Economic and Social Research Institute (ESRI) of Japan, **http://epp.eurostat.ec.europa.eu** (visited June 30, 2009) for data from EUROSTAT, and **www.stats.gov.cn/enGliSH/ (**visited June 30, 2009) for data from the National Bureau of Statistics of China.

[12] *Federal Reserve Statistical Release, Industrial Production and Capacity Utilization*, G.17 (419), Table 11: "Historical Statistics for Industrial Production, Capacity, and Utilization: Total Industry" (Board of Governors of the Federal Reserve System, Mar. 16, 2009).

[13] The crude and refined petroleum products production, stocks, and consumption data included in this section come from databases of the Energy Information Administration (EIA) of the U.S. Department of Energy. These data are most easily accessed either by visiting the EIA online publication titled *This Week in Petroleum* at **http://tonto.eia.doe.gov/oog/info/twip/twip.asp** (visited June 30, 2009), or by visiting the EIA webpage for U.S. petroleum data at **www.eia.doe.gov/oil_gas/petroleum/info_glance/petroleum.html** (visited June 30, 2009).

[14] *Short-Term Energy Outlook*, Table 3C (Energy Information Administration, June 2009), online report available at **www.eia.doe.gov/emeu/steo/pub/contents.html** (visited June 30, 2009).

[15] See "International Petroleum (Oil) Prices and Crude Oil Import Costs," Energy Information Administration, at **www.eia.doe.gov/emeu/international/oilprice.html** (visited June 30, 2009).

[16] The EIA defines the term *product supplied* as follows: "[Product supplied] approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas processing plants, blending plants, pipelines, and bulk terminals. In general, product supplied of each product in any given period is computed as follows: field production, plus refinery production, plus imports, plus unaccounted for crude oil, (plus net receipts when calculated on a PAD District basis), minus stock change, minus crude oil losses, minus refinery inputs, minus exports." The EIA glossary is located at **www.eia.doe.gov/glossary/index.html** (visited June 30, 2009).

[17] See **http://tonto.eia.doe.gov/dnav/pet/pet_cons_psup_dc_nus_mbbl_m.htm** (visited June 30, 2009).

[18] *Natural Gas Prices*, Energy Information Administration, online report available at **http://tonto.eia.doe.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm** (visited June 30, 2009).

[19] *Weekly Natural Gas Storage and Natural Gas Monthly*, Energy Information Administration, online reports available at **www.eia.doe.gov/oil_gas/natural_gas/data_publications/natural_gas_monthly/ngm.html** (visited June 30, 2009). For the definition of working (top storage) gas in underground storage, go to **www.eia.doe.gov/glossary/glossary_w.htm** (visited June 30, 2009).

[20] *Ibid.*

[21] Propane is a component of the liquefied petroleum gas sector, for which EIA data are available. Within the propane market, there were no major shocks to propane production, imports, stocks, or demand over the 2007 to 2008 period. Data for propane are available at **http://tonto.eia.doe.gov/oog/info/twip/twip_propane.html** (visited June 30, 2009), an online publication produced by the EIA.

[22] "Table 1.1. Net Generation by Energy Source," Energy Information Administration, on the Internet at **www.eia.doe.gov/cneaf/electricity/epm/table1_1.html** (visited June 30, 2009). As of December 2007, the major sources of power and their percentages of net electricity generation were: coal, 48.5 percent; natural gas, 21.6 percent; nuclear power, 19.4 percent; and hydroelectric power, 6.0 percent.

[23] U.S. coal-sector data, EIA, on the web at **www.eia.doe.gov/emeu/mer/coal.html** (visited June 30, 2009).

[24] See **www.eia.doe.gov/cneaf/electricity/epm/table1_1.html**.

[25] Renewable resources, as defined by the EIA, include: wood, black liquor (paper pulp waste), other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal energy, solar thermal energy, photovoltaic energy, and wind.

[26] This shift is likely traceable to changing consumer preferences, due in part to higher prices for fossil fuels used for electric power generation. Despite higher prices for coal and natural gas, data from the Electric Power Research Institute describe the comparative cost of electric power generation per megawatt as follows: coal, $64; nuclear, $73; natural gas, $73 to $87; wind, $91; and solar, $175. See "Program on Technology Innovation: Integrated Generation Technology Options," Report No. 1018329, Electric Power Research Institute, November 2008, pp. 1–12, tables 1–4. To retrieve the file, go to **www.epri.com** (visited June 30, 2009), enter "epri 1018329" in the "search" field, and click on the "download" button.

[27] "Milk Production," National Agricultural Statistics Service, on the Internet at **http://future.aae.wisc.edu/collection/MilkProduction/mprod_2008_12.txt** (visited June 30, 2009).

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[29] "Milk Production," on the Internet at **http://future.aae.wisc.edu/collection/MilkProduction/mprod_2008_12.txt**.

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