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Tenth District Energy Activity Accelerated

Federal Reserve Bank of Kansas City Releases Second Quarter Energy Survey

KANSAS CITY, Mo. –The Federal Reserve Bank of Kansas City released the second quarter Energy Survey today. According to Chad Wilkerson, Oklahoma City Branch executive and economist at the Federal Reserve Bank of Kansas City, the survey revealed that Tenth District energy activity accelerated, and expectations for future activity continued to remain strong.

“District drilling and business activity grew faster in Q2, with additional growth expected in the next six months,” said Wilkerson. “Commodity prices have increased considerably, and firms reported more drilling and business activity and higher revenues. However, supply-chain issues, labor shortages, higher wages and benefits, and cost inflation continued to impact production growth and profitability.”

The Kansas City Fed's quarterly Tenth District Energy Survey provides information on current and expected activity among energy firms in the Tenth District. The survey monitors oil and gas-related firms located and/or headquartered in the Tenth District, with results based on total firm activity. Survey results reveal changes in several indicators of energy activity, including drilling, capital spending, and employment. Firms also indicate projections for oil and gas prices. All results are diffusion indexes – the percentage of firms indicating increases minus the percentage of firms indicating decreases. A summary of the survey is attached. Results from past surveys and release dates for future surveys can be found at <https://www.kansascityfed.org/surveys/energy-survey>.

The Federal Reserve Bank of Kansas City serves the Tenth Federal Reserve District, encompassing the western third of Missouri; all of Kansas, Colorado, Nebraska, Oklahoma and Wyoming; and the northern half of New Mexico. As part of the nation's central bank, the Bank participates in setting national monetary policy, supervising and regulating numerous commercial banks and bank holding companies, and providing financial services to depository institutions. More information is available online at www.kansascityfed.org.

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TENTH DISTRICT ENERGY SUMMARY

Second quarter energy survey results revealed that Tenth District energy activity accelerated, and the majority of firms reported additional drilling and business activity and higher revenues. Firms reported that oil prices needed to be on average \$65 per barrel for drilling to be profitable, but \$98 per barrel for a substantial increase in drilling to occur. Similarly, natural gas prices needed to be \$4.64 per million Btu for drilling to be profitable on average, and \$6.34 per million Btu for drilling to increase.

Summary of Quarterly Indicators

Tenth District energy activity accelerated in the second quarter of 2022, as indicated by firms contacted between June 15th, 2022, and June 30th, 2022 (Tables 1 & 2). The drilling and business activity index accelerated from 29 to 57, the highest on record since December 2016 (Chart 1). The quarterly indexes for revenues, number of employees, and wages and benefits, reached their highest levels since the survey began in 2014. The index for profits remained elevated, and supplier delivery time also increased. On the other hand, the pace of growth for employee hours and access to credit indexes eased.

Year-over-year indexes were mixed compared with the previous survey. The year-over-year drilling and business activity index rose from 52 to 77. The year-over-year indexes for revenues, capital expenditures, and profits increased at the fastest rate in survey history (since 2014). Other survey indexes remained highly positive, indicating growth.

Expectations for future activity remained strong in Q1 2022. The future drilling and business activity index grew from 42 to 50, and expectations for future revenues rose at a faster pace. However, firms expected slightly more modest growth for capital spending, profits, employment, wages and benefits, and access to credit moving forward. Price

expectations for oil were lower compared to current prices. Expectations for natural gas prices expanded, while natural gas liquids prices were expected to remain flat.

Summary of Special Questions

Firms were asked what oil and natural gas prices were needed on average for drilling to be profitable across the fields in which they are active. The average oil price needed was \$65 per barrel, while the average natural gas price needed was \$4.64 per million Btu (Chart 2). Firms were also asked what prices were needed for a substantial increase in drilling to occur across the fields in which they are active. The average oil price needed was \$98 per barrel, with a range of \$70 to \$140. The average natural gas price needed was \$6.34 per million Btu, with responses ranging from \$3.50 to \$12 (Chart 3). Overall, firms reported the highest prices needed to substantially increase drilling in survey history (since 2014).

Firms were also asked what they expected oil and natural gas prices to be in six months, one year, two years, and five years. Oil price expectations again surpassed survey records, and natural gas expectations jumped compared to Q1 2022. The average expected WTI prices were \$109, \$102, \$88, and \$86 per barrel, respectively. The average expected Henry Hub natural gas prices were \$7.06, \$6.65, \$6.06, and \$5.77 per million Btu, respectively.

Energy firms were also asked about the impact of supply-chain issues (Chart 4). More than 80% of firms reported that supply-chain issues had a slightly or significantly negative impact.

In addition, firms were asked about constraints to growth (Chart 5). Around 55% of firms reported uncertainty about government regulation, 32% of firms reported labor shortages, cost inflation and/or supply-chain bottlenecks, and about 7% of firms reported volatility in oil prices.

Selected Energy Comments

“Historically, higher prices would usher in higher supplies and thus lower prices. External factors will prolong the cycle this time.”

“There is a near term supply imbalance that was manifested out of multi-year capital under-investment and rapid demand improvements (hence global inventories decreasing rapidly). Now we're finding demand tempered with economic uncertainty entering the picture. Long term the marginal barrel should decrease, however the restraint in OPEC and service situation could be important to better predicting supply changes.”

“[Oil] demand will be steady post COVID moderated by high prices. Supply will be capacity restrained with below average capital spending.”

“Increases in [oil] supply will continue to be minimal due to capital constraints, regulatory burdens and labor/supply shortages.”

“We need labor. We would produce more if we could.”

“[Our price expectations are based on] continued development of domestic resources and easing of tensions in eastern Europe.”

“Global growth will continue to play the biggest role with higher prices. Russia has a major role with this as well.”

“The majority of our acreage is federal. We cannot drill it without the ability to fracture treat the well during completion due to the quasi moratorium on fracking on federal acreage.”

“Prices will stay elevated due to little new investment in the search for reserves. Much of the expenditures have just replaced depleted reserves. Demand for fossil fuels will remain steady or even increase.”

“The markets will be very volatile for a while... maybe for the next 12 months.”

Table 1
Summary of Tenth District Energy Conditions, Quarter 2, 2022

Energy Company Indicators	Quarter 2 vs. Quarter 1 (percent)*				Quarter 2 vs. Year Ago (percent)*				Expected in Six Months (percent)*			
	No			Diff	No			Diff	No			Diff
	Increase	Change	Decrease	Index^	Increase	Change	Decrease	Index^	Increase	Change	Decrease	Index^
Drilling/Business Activity	57	43	0	57	77	23	0	77	50	50	0	50
Total Revenues	87	13	0	87	90	10	0	90	55	45	0	55
Capital Expenditures					74	23	3	71	55	42	3	52
Supplier Delivery Time	35	39	26	10	55	13	32	23	35	45	19	16
Total Profits	77	13	10	68	87	6	6	81	48	39	13	35
Number of Employees	42	58	0	42	58	39	3	55	42	58	0	42
Employee Hours	39	61	0	39	58	39	3	55	32	68	0	32
Wages and Benefits	61	35	3	58	81	16	3	77	63	37	0	63
Access to Credit	19	77	3	16	26	68	6	19	16	74	10	6
Expected Oil Prices									26	42	32	-6
Expected Natural Gas Prices									41	28	31	10
Expected Natural Gas Liquids Prices									30	40	30	0

*Percentage may not add to 100 due to rounding.

^Diffusion Index. The diffusion index is calculated as the percentage of total respondents reporting increases minus the percentage reporting declines.

Note: The second quarter survey ran from June 15, 2022 to June 30, 2022 and included 31 responses from firms in Colorado, Kansas, Nebraska, Oklahoma, Wyoming, northern New Mexico, and western Missouri.

Chart 1. Drilling/Business Activity Index vs. a Quarter Ago

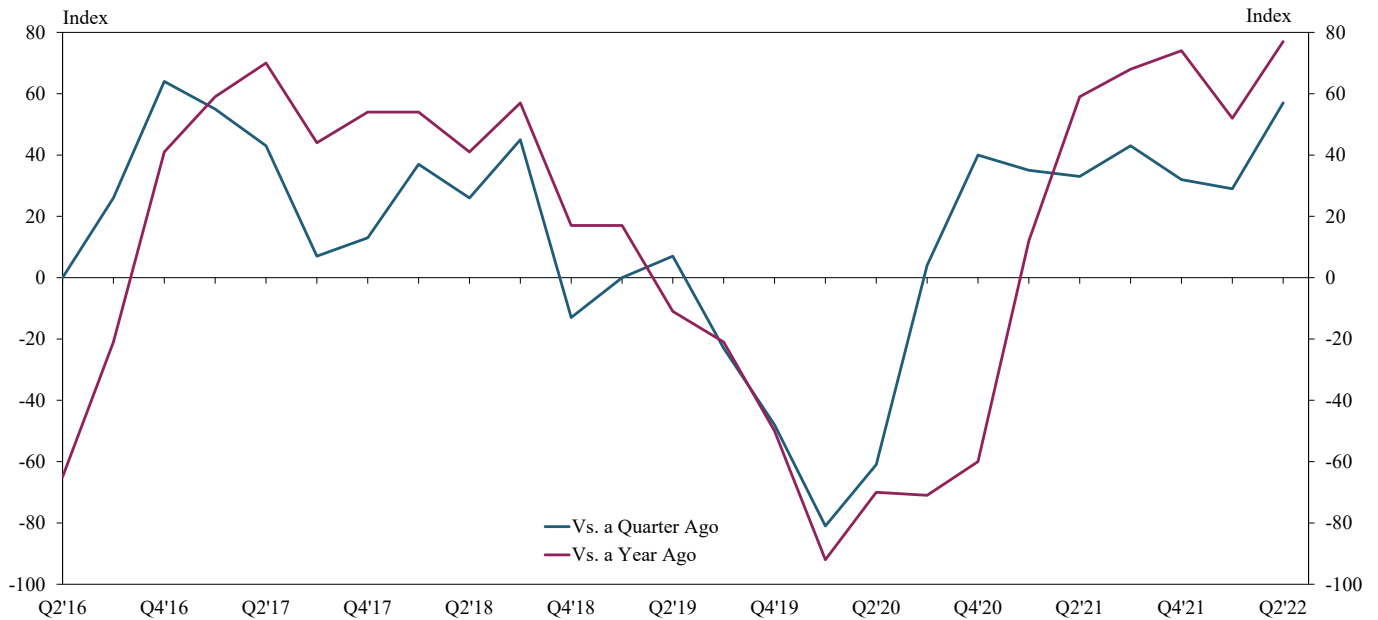


Table 2
Historical Energy Survey Indexes

	Q2'19	Q3'19	Q4'19	Q1'20	Q2'20	Q3'20	Q4'20	Q1'21	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22
<i>Versus a Quarter Ago</i>													
(not seasonally adjusted)													
Drilling/Business Activity	7	-23	-48	-81	-61	4	40	35	33	43	32	29	57
Total Revenues	-14	-10	6	-73	-78	-7	31	44	82	82	63	38	87
Capital Expenditures	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Supplier Delivery Time	7	-7	-6	-24	-13	-21	0	5	-3	-3	6	-9	10
Total Profits	-18	-23	-21	-81	-88	-24	14	36	70	69	34	44	68
Number of Employees	0	-10	0	-54	-56	-39	-14	12	25	26	34	39	42
Employee Hours	0	0	-12	-54	-55	-38	3	17	42	38	28	41	39
Wages and Benefits	15	10	9	-24	-38	-17	9	21	39	33	53	56	58
Access to Credit	-7	-6	-21	-32	-31	-28	-6	5	9	16	10	25	16
<i>Versus a Year Ago</i>													
Drilling/Business Activity	-11	-21	-50	-92	-70	-71	-60	12	59	68	74	52	77
Total Revenues	-22	-7	-19	-81	-74	-79	-77	20	88	92	88	72	90
Capital Expenditures	4	-10	-13	-68	-69	-66	-57	14	30	54	59	63	71
Supplier Delivery Time	7	-21	-13	-22	-26	-10	-9	7	3	8	9	-3	23
Total Profits	-24	-13	-30	-83	-84	-83	-69	5	91	82	84	75	81
Number of Employees	4	-13	-18	-62	-61	-59	-60	-17	12	31	32	66	55
Employee Hours	3	-17	-18	-62	-53	-62	-46	-7	30	45	29	63	55
Wages and Benefits	43	33	3	-30	-16	-24	-32	0	45	56	77	84	77
Access to Credit	-7	0	-16	-44	-35	-28	-46	-12	24	29	23	38	19
<i>Expected in Six Months</i>													
(not seasonally adjusted)													
Drilling/Business Activity	-26	-21	-16	-78	0	0	26	41	41	45	45	42	50
Total Revenues	-4	4	13	-78	-16	-7	51	54	76	58	50	53	55
Capital Expenditures	-4	-17	-13	-73	-35	-14	9	36	33	31	53	63	52
Supplier Delivery Time	14	-14	-23	-32	-19	3	-3	10	18	8	9	9	16
Total Profits	-7	-10	0	-81	-10	-3	51	37	79	59	44	38	35
Number of Employees	0	-3	-16	-68	-26	-38	-9	24	30	31	42	47	42
Employee Hours	-4	-10	-18	-59	-33	-31	-3	36	27	26	23	41	32
Wages and Benefits	15	17	-6	-49	-19	-28	12	36	36	46	71	72	63
Access to Credit	-3	-10	-9	-44	-13	-10	6	7	12	13	6	19	6
Expected Oil Prices	15	32	28	-19	28	28	51	24	55	33	34	-16	-6
Expected Natural Gas Prices	10	23	-6	16	38	34	37	31	59	31	3	0	10
Expected Natural Gas Liquids Prices	-7	13	10	-8	45	31	40	36	63	34	13	19	0
<i>Special Price Questions</i>													
(averages)													
Profitable WTI Oil Price (per barrel)		\$55		\$47		\$49		\$53		\$57		\$62	\$65
WTI Price to Substantially Increase Drilling	\$66		\$65		\$51		\$56		\$72		\$73	\$86	\$98
WTI Price Expected in 6 Months	\$57	\$58	\$60	\$33	\$41	\$43	\$48	\$62	\$74	\$73	\$75	\$96	\$109
WTI Price Expected in 1 Year	\$60	\$60	\$62	\$42	\$47	\$47	\$52	\$65	\$76	\$75	\$78	\$89	\$102
WTI Price Expected in 2 Years	\$63	\$63	\$65	\$50	\$53	\$53	\$56	\$67	\$76	\$75	\$78	\$83	\$88
WTI Price Expected in 5 Years	\$70	\$69	\$71	\$58	\$60	\$60	\$61	\$70	\$78	\$76	\$80	\$84	\$86
Profitable Natural Gas Price (per million BTU)		\$2.91		\$2.65		\$3.12		\$2.94		\$3.88		\$3.72	\$4.64
Natural Gas Price to Substantially Increase Drilling	\$3.40		\$3.66		\$2.88		\$3.28		\$3.82		\$4.27	\$4.53	\$6.34
Henry Hub Price Expected in 6 Months	\$2.52	\$2.59	\$2.38	\$2.02	\$2.17	\$2.62	\$2.68	\$2.72	\$3.19	\$4.72	\$3.66	\$4.45	\$7.06
Henry Hub Price Expected in 1 Year	\$2.59	\$2.58	\$2.49	\$2.34	\$2.41	\$2.71	\$2.88	\$2.94	\$3.21	\$4.22	\$3.92	\$4.32	\$6.65
Henry Hub Price Expected in 2 Years	\$2.79	\$2.81	\$2.69	\$2.57	\$2.64	\$2.87	\$3.03	\$3.14	\$3.34	\$4.31	\$3.97	\$4.29	\$6.06
Henry Hub Price Expected in 5 Years	\$3.16	\$3.20	\$3.09	\$2.94	\$3.02	\$3.28	\$3.23	\$3.50	\$3.71	\$4.79	\$4.29	\$4.74	\$5.77

Chart 2. Special Question - What price is currently needed for a drilling to be profitable and for a substantial increase in drilling to occur for oil? What do you expect WTI prices to be in six months, one year, two years, and five years?

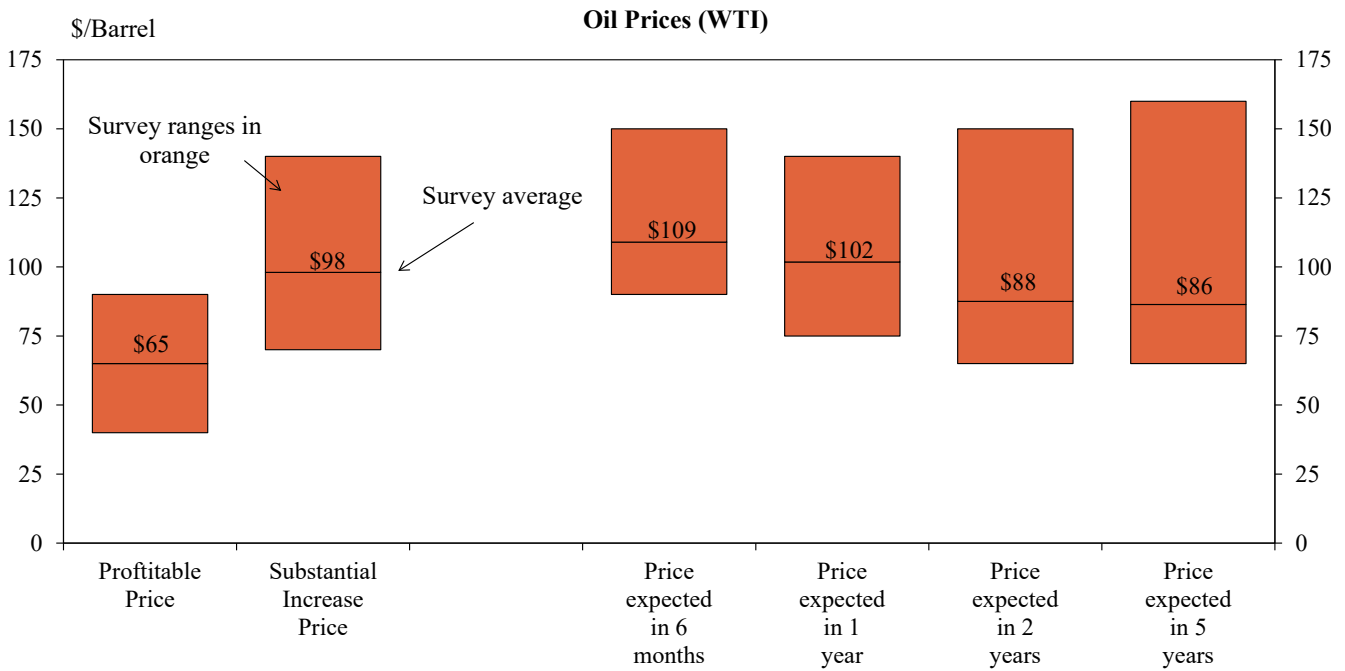


Chart 3. Special Question - What price is currently needed for a drilling to be profitable and for a substantial increase in drilling to occur for natural gas? What do you expect Henry Hub prices to be in six months, one year, two years, and five years?

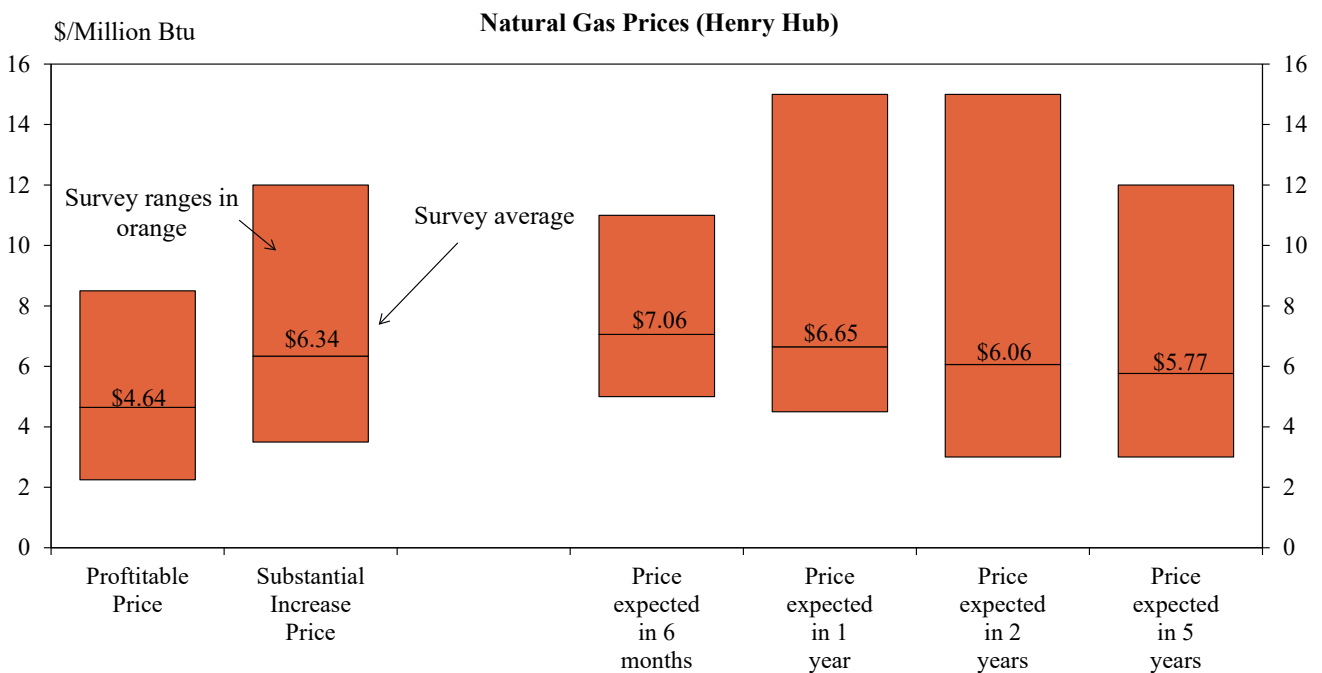


Chart 4. Special Question - How would you rate the impact of supply-chain issues on your firm?

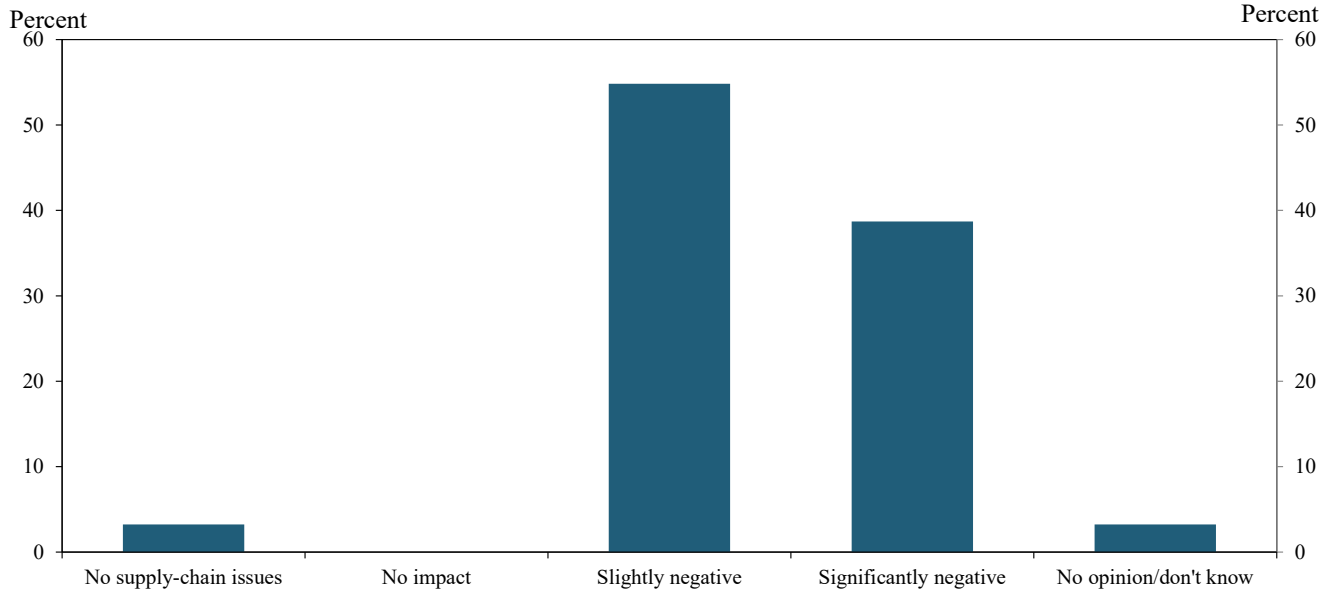


Chart 5. Special Question - Which of the following is the primary reason driving uncertainty regarding your firm's outlook?

