

## Notice of Report Changes

Starting this month, ISM-Houston is changing the calculation method used to develop the Houston Purchasing Managers Index™ (H-PMI™). This change is being made to improve the accuracy of the H-PMI™ as a forecast tool for predicting moves in the Houston area economy on a three to four month forecast horizon. While the legacy model had a high forecast accuracy, the new model provides a significant improvement. The correlation between the forecast model and the Houston economy, as measured by the Dallas Federal Reserve's Houston-Sugar Land-Baytown Business-Cycle Index, has been increased from a coefficient of determination ( $r^2$ ) of 0.51 to 0.63 with this change. Additionally, the Mean Absolute Scaled Error (MASE) relative to a Naïve Forecast has improved from 0.72 to 0.64.

An extensive analysis of historical H-PMI™ data showed that seasonally adjusting the underlying indicators and updating the weights applied to these indicators when producing the high level index improved the forecast accuracy. Starting with this report, the new model will be used to calculate the H-PMI™. The report format has also been lengthened to allow the inclusion of more information that is readily available from the analysis. In addition to the difference between the positive and negative responses to the queries regarding the underlying indicators, the calculated values for these responses are now included. The reporting of the underlying indicators now includes the seasonally adjusted defusion index for these indicators to more closely align ISM-Houston's reporting activities with those of the Institute for Supply Management.

Additional information regarding this model revision can be obtained by contacting the report's author.

# Potential Slowdown Due to Falling Crude Prices?

## Finished Goods Inventories, Lead Times and Prices Paid Show Strength

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The Houston affiliate of the Institute for Supply Management's survey of area supply chain professionals indicates that our economy is now showing a potential for contraction near term. While four of eight underlying indicators are now predicting expansion near term, the other half are showing a potential for economic contraction.

The Houston Purchasing Managers Index (H-PMI) fell from 51.5% to 48.9% in January. Readings below 50% generally indicate contraction near term. The seasonally adjusted Finished Goods Inventory and Prices Paid Indices moved sharply towards expansion, while the Lead Times Index continued to indicate growth near term. The Employment Index, while staying positive, moved down significantly from its late 2014 highs. The Sales/New Orders, Production, and Purchased Inventory Indices all moved from showing expansion to potential contraction during the month. The Purchases Index also moved marginally into the contraction range.

Of significant note in this month's numbers, not all Houston area industries are being negatively impacted by the fall in crude oil prices. While the overall Sales/New Orders, Production, and Purchases Indices fell below 50% this month, much of this downturn was driven by weakness in the Oil and Gas Exploration area along with its supporting industries. Sales/New Orders, Production and Purchases increased for Utilities, Durable Goods Manufacturing unrelated to Oil and Gas, and to a lesser extent for Non-Durable Goods Manufacturing. While not as strong, the Lead Times Index showed a similar correlation for the same industries.

### INDICES AT A GLANCE

Index	Jan	Dec	Change	Track	Rate	Trend* (Mos)
Houston PMI	48.9	51.5	-2.6	Contracting	Fr. Exp.	1
Sales/New Orders	47.2	52.0	-4.8	Falling	Fr. Rising	1
Production	46.0	50.7	-4.7	Falling	Fr. Rising	1
Employment	52.1	68.2	-16.1	Rising	Slower	51
Purchases	49.9	53.4	-3.5	Falling	Fr. Rising	1
Prices Paid	35.2	52.5	-17.3	Falling	Fr. Rising	1
Lead Times	55.1	57.3	-2.2	Rising	Slower	63
Purchased Inventory	44.5	48.7	-4.2	Falling	Faster	1
Finished Goods Inventory	41.7	56.9	-15.3	Falling	Fr. Rising	1

\* Months on current track



**Commodities Reported Up in Price:** Titanium dioxide, pharmaceuticals, and vaccines

**Commodities Reported Down in Price:** Crude oil, fuels, polyethylene resins and films, real estate, computers and computer components.

**Commodities Reported in Short Supply:** Custom pharmaceuticals

### WHAT OUR RESPONDENTS ARE SAYING ...

#### Oil and Gas Exploration, and Key Support Services:

- Dramatic change in crude price is a concern as this impacts margins and internal capital availability
- Although still evaluating and uncertain, internal discussions and planning are weighting economic scenarios for what might be a new normal crude price
- We are reassessing all projects that are not in completion stage
- Texas rig counts are dropping quickly
- We are moving to reduce fixed costs and we see others taking similar actions
- Purchases for oil field support activities are significantly down

#### Manufacturing - Durable Goods:

- The drop in crude price has negatively impacted the manufacturing of products use by the drilling industry
- Slight increase in sales; looking good and keeping a steady pace

#### Manufacturing - Non-Durable Goods:

- Existing capital expansions continue, while projects in development are being cut
- Much of the craft related skilled labor freed up by recent refinery strikes has been absorbed into project and maintenance activities in other plants

#### Wholesale Trade:

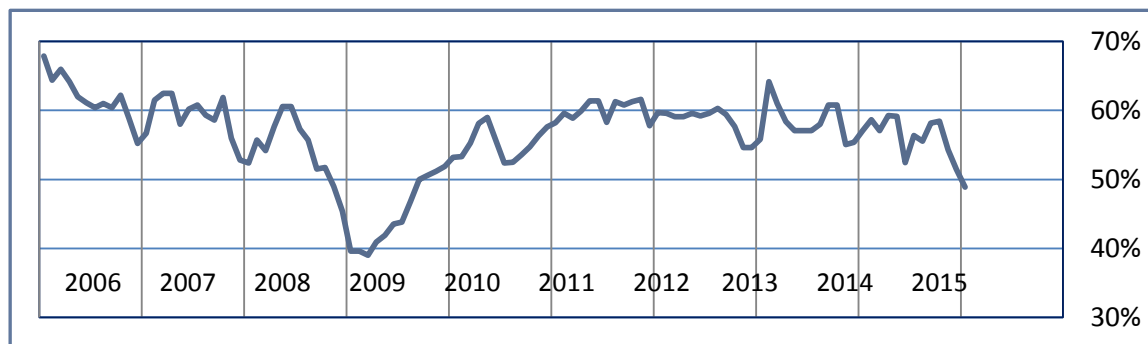
- The good news on lower oil prices is that it normalizes other costs like labor
- Classic over supply situation, we need to get demand in balance with supply

#### Health Care:

- The volume of purchases and contracts is increasing across the organization
- New construction is down, renovations are up
- The Medical Industry has many employment opportunities

### Houston PMI Trend

The Houston PMI indicates likely shifts in production three or four months in advance. Readings over 50 percent generally indicate production expansion over the near term; readings below 50 percent show coming contraction.



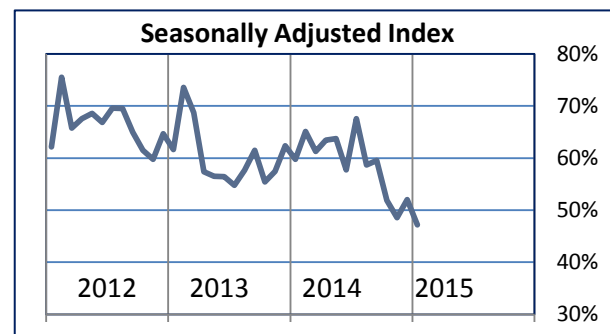
### Trend of Underlying Indicators

The Houston PMI is based on diffusion indices for eight underlying indicators as shown below. The net value of each of these indicators is simply the percentage of respondents who cite a positive shift from the previous month minus the percentage who cite a negative shift. The diffusion index is calculated based on the percent of respondents reporting higher results plus one-half of those responding the same with a seasonal adjustment based on an X12 ARIMA forecast using the previous 12 years data. Seasonally adjusted values above 50 percent for the Sales/New Orders, Production, Employment, Purchases, Lead Times and Purchased Inventory indicators point towards expansion and values below 50 percent signal contraction. The Prices Paid and Finished Goods Inventory indicators are inversely correlated to economic activity, meaning that values below 50 percent point to expansion and values above point to contraction.

#### Sales/New Orders

	% Higher	% Same	% Lower	Net	Index
Aug-14	29	61	10	19	58.7
Sep-14	36	46	18	18	59.5
Oct-14	29	45	26	3	51.9
Nov-14	27	40	33	-7	48.5
Dec-14	25	48	27	-3	52.0
Jan-15	30	34	36	-6	47.2

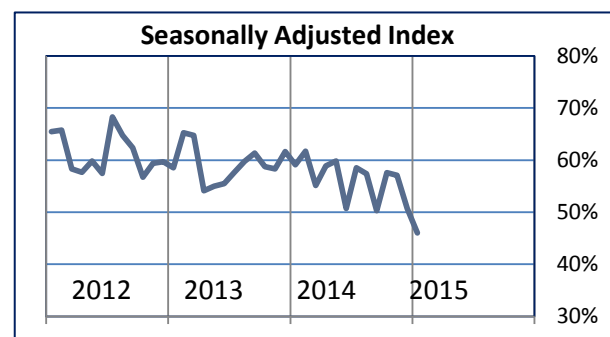
The seasonally adjusted New Orders Index moved below 50% this month, showing a potential for economic contraction near term.



#### Production

	% Higher	% Same	% Lower	Net	Index
Aug-14	14	86	0	14	57.4
Sep-14	14	72	14	0	50.3
Oct-14	26	62	12	15	57.6
Nov-14	27	60	13	13	57.0
Dec-14	18	60	22	-4	50.7
Jan-15	21	53	26	-6	46.0

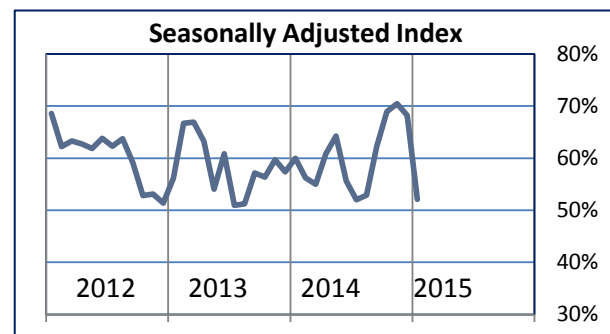
The Houston Production Index also fell below 50%, after last month's seasonally adjusted fall to just above neutral.



#### Employment

	% Higher	% Same	% Lower	Net	Index
Aug-14	24	62	14	10	52.9
Sep-14	41	45	14	27	62.2
Oct-14	47	44	9	38	68.9
Nov-14	43	50	7	37	70.4
Dec-14	38	52	10	29	68.2
Jan-15	21	56	23	-2	52.1

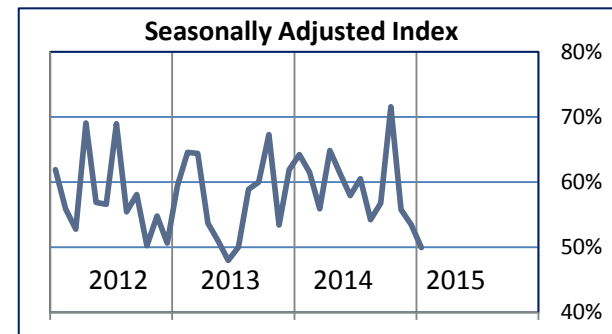
The seasonally adjusted Houston Employment Index moved significantly lower, but stayed on the positive side of 50%.



### Purchases

	% Higher	% Same	% Lower	Net	Index
Aug-14	29	52	19	10	54.2
Sep-14	36	46	18	18	56.7
Oct-14	44	50	6	38	71.6
Nov-14	33	44	23	10	55.8
Dec-14	32	34	34	-3	53.4
Jan-15	38	28	34	4	49.9

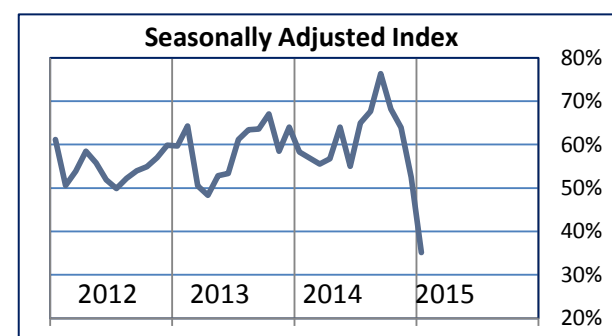
The seasonally adjusted Houston Purchases Index fell to 49.9% this month, dropping just below neutral.



### Prices Paid

	% Higher	% Same	% Lower	Net	Index
Aug-14	33	67	0	33	67.7
Sep-14	50	50	0	50	76.4
Oct-14	38	59	3	35	68.2
Nov-14	30	67	3	27	63.9
Dec-14	15	69	16	-1	52.5
Jan-15	4	66	30	-26	35.2

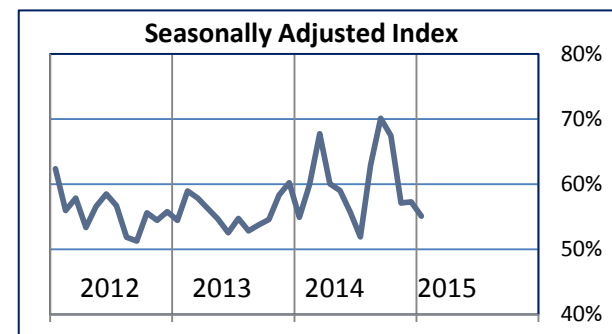
A high percentage of our respondents indicate that Prices Paid were down this month. Lower prices can lead to increased consumption, requiring higher production.



### Lead Times

	% Higher	% Same	% Lower	Net	Index
Aug-14	29	71	0	29	62.9
Sep-14	41	59	0	41	70.1
Oct-14	35	62	3	32	67.5
Nov-14	17	80	3	13	57.1
Dec-14	19	73	8	11	57.3
Jan-15	19	70	11	8	55.1

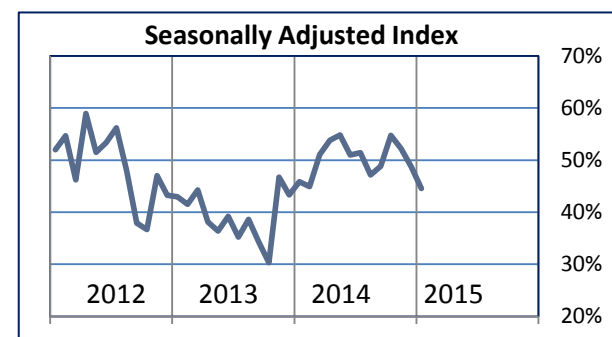
The Houston Lead Times Index continued to indicate a tight market for major goods including those used for capital and turn around activities.



### Purchased Inventory

	% Higher	% Same	% Lower	Net	Index
Aug-14	10	76	14	-5	47.2
Sep-14	9	77	14	-5	48.8
Oct-14	15	73	12	3	54.7
Nov-14	20	60	20	0	52.2
Dec-14	11	67	22	-11	48.7
Jan-15	11	74	15	-4	44.5

The seasonally adjusted Houston Purchased Inventory Index fell again this month.



### Finished Goods Inventory

	% Higher	% Same	% Lower	Net	Index
Aug-14	24	66	10	14	58.4
Sep-14	23	59	18	5	51.8
Oct-14	24	58	18	6	57.4
Nov-14	27	63	10	17	57.6
Dec-14	27	59	14	14	56.9
Jan-15	21	51	28	-8	41.7

The Houston Finished Goods Inventory Index fell to its lowest level in 15 months indicating that our respondents are taking action to reduce working capital.

