IHS Markit™

Pricing & Purchasing Summit

Understanding and Using Futures Markets

26 September 2016

ihsmarkit.com

KC Chang, Senior Economist, +1 416 682 7308, kc.chang@ihsmarkit.com

Introduction: What you should learn

- The difference between a price forecast and prices on the futures market.
- How to interpret futures markets price data.
- How well does the IHS price forecast perform vs. the futures market.
- How to use IHS prices to identify buying opportunities in the futures market.

Overview: Forward & Futures Curves

- **Forward Contract:** It is a customized contract between two parties to buy or sell an asset at a specified price on a future date.
- **Futures Contract:** It is an exchange-traded contract. It is a standardized forward contract that allows market participants to trade on an open-exchange.
  - For the IHS Pricing and Purchasing service, several raw material commodities are traded daily on futures exchange around the world.
  - Futures contracts are a financial instrument used by procurement departments to ensure a steady supply of raw materials used in the manufacturing process.
  - Futures contracts also allow procurement managers to hedge against price risk.
  - Futures contracts can also be used to speculate as opposed to hedge against upcoming economic events.

Futures contracts by product

Metals

- Aluminum
- Copper
- Nickel
- Zinc
- Iron Ore
- Gold
- Platinum
- Palladium

Energy, Gas & Chemicals

- Crude Oil
  - West Texas Intermediate
  - Brent
- Natural Gas
- Gasoline
- Diesel Fuel
- Propane
- Ethylene
- Rubber

Agriculture

- Corn
- Soybeans
- Wheat
- Cattle
- Hogs
- Butter
- Milk

Futures market exchanges by location

- **London Metal Exchange:** Nonferrous metals
- **Intercontinental Exchange (ICE) :** Agriculture, Energy, Ferrous metals, Precious metals
- **Chicago Mercantile Exchange:** Agriculture, Energy, Ferrous metals, Plastics
- **Dalian Commodity Exchange:** Agriculture, Nonferrous metals, Plastic
- **Shanghai Futures Exchange:** Agriculture, Energy, Ferrous metals, Plastics
- **Tokyo Commodity Exchange:** Agriculture, Energy, Precious Metals, Rubber

Futures Curves

- A commodity can have multiple futures contracts being traded on an exchange. The contract's delivery date is a key determinant of a buyer/seller interest in a specific contract.

  Example: A company wanting to ensure copper arrives at its factory by December 2016 would be interested in entering a futures contract with a November or December 2016 delivery date.

- The price of a futures contract can fluctuate daily on the exchange.

- **Futures Curve:** Plots the current price of futures contracts while making note of each contract's delivery date.
  - Futures curves are not necessarily a price forecast, but they do provide a daily '**snapshot**' of how market participants view a commodity price will move.

Futures Prices: An Imperfect Price Indicator

Most Importantly!

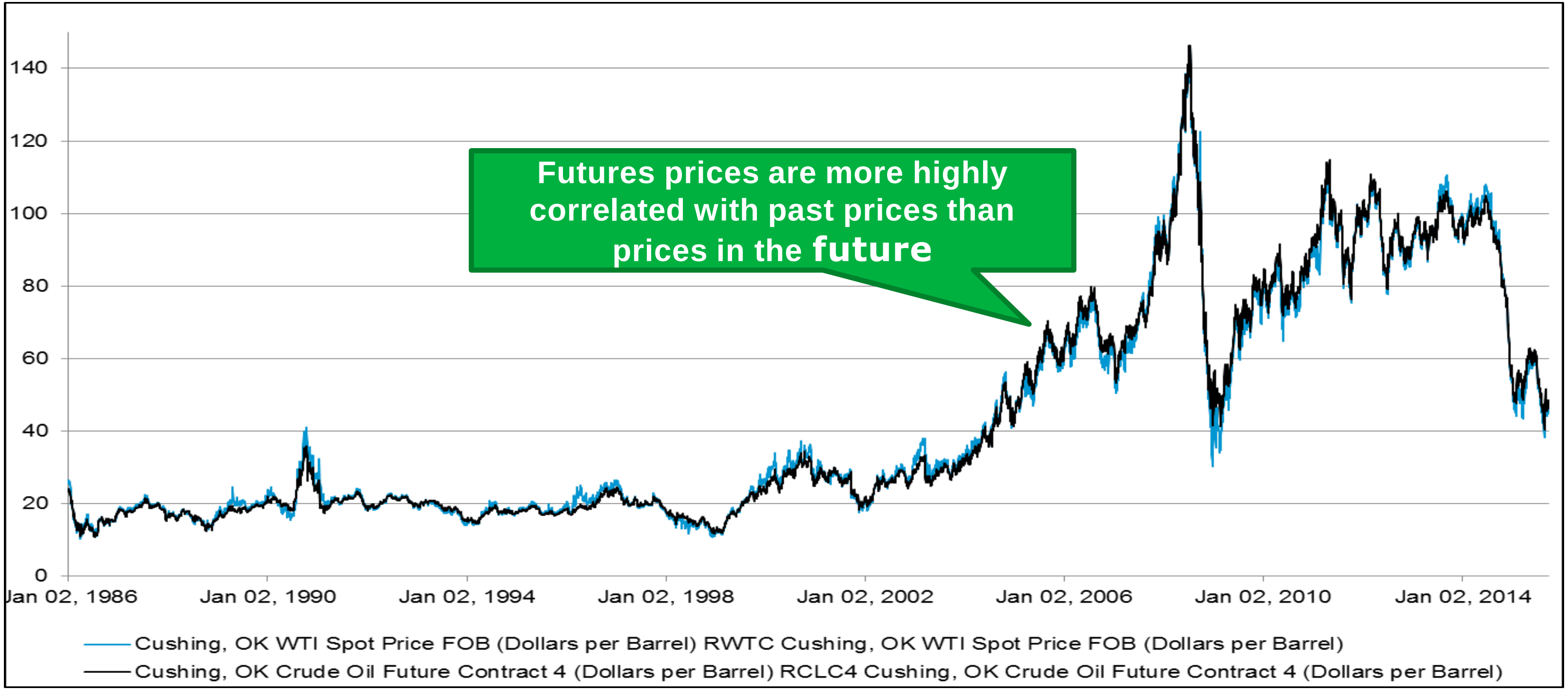
Futures and forward prices reflect the risk free rate that is inherent within their pricing formulas. This makes sense – as they are hedging instruments that eliminate sources of systematic risk.

BIASED FORWARD EXPECTATIONS INDICATOR

- **Expectations of future developments play a role** – but this is contingent on what we know about the world today:
  - Expectations cannot anticipate "shocks" or other wise "sharper" developments in supply demand fundamentals
  - Aggregated expectations may take a "consensus" view of fundamentals that do not come from expert analysis
  - Expectations will be heavily influenced by current price developments - making the outlook less valuable and highly volatile
  - **Other technical limitations to consider:** Market liquidity, convenience yield, cost of carry/storage costs, inventory dynamics and storage available can all impact on "futures curve"

Futures prices – Price of futures, not future prices

- Factors ranging from market liquidity, convenience yield, cost of carry/storage costs, to storage available can all impact on the price of futures without changing future prices



IHS Price Forecast: How is it different from futures?

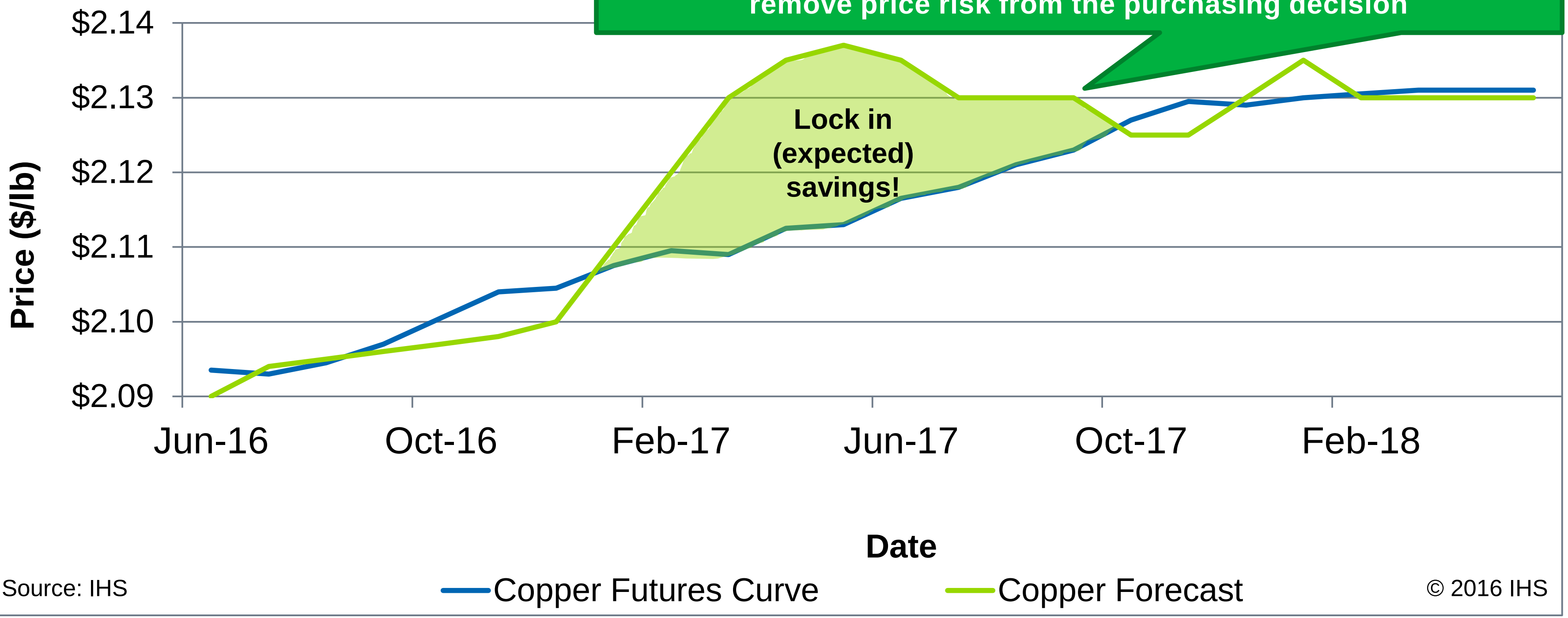
- **Core definition:** A forecast is a predictor or estimator of future events.
  - Estimations on supply fundamentals that come through IHS analysis of global production developments
  - Estimations on demand fundamentals that come though economic research and analysis of consumption dynamics
  - Exchange rate effects: Incorporation of IHS views on exchange rates. Generally an inverse relationship between the overall strength of the dollar and commodity prices

- **Application**: Procurement executives can use IHS price forecast to identify buying opportunities and minimize supply risk.

Futures prices – buying decisions

Copper Futures Curve

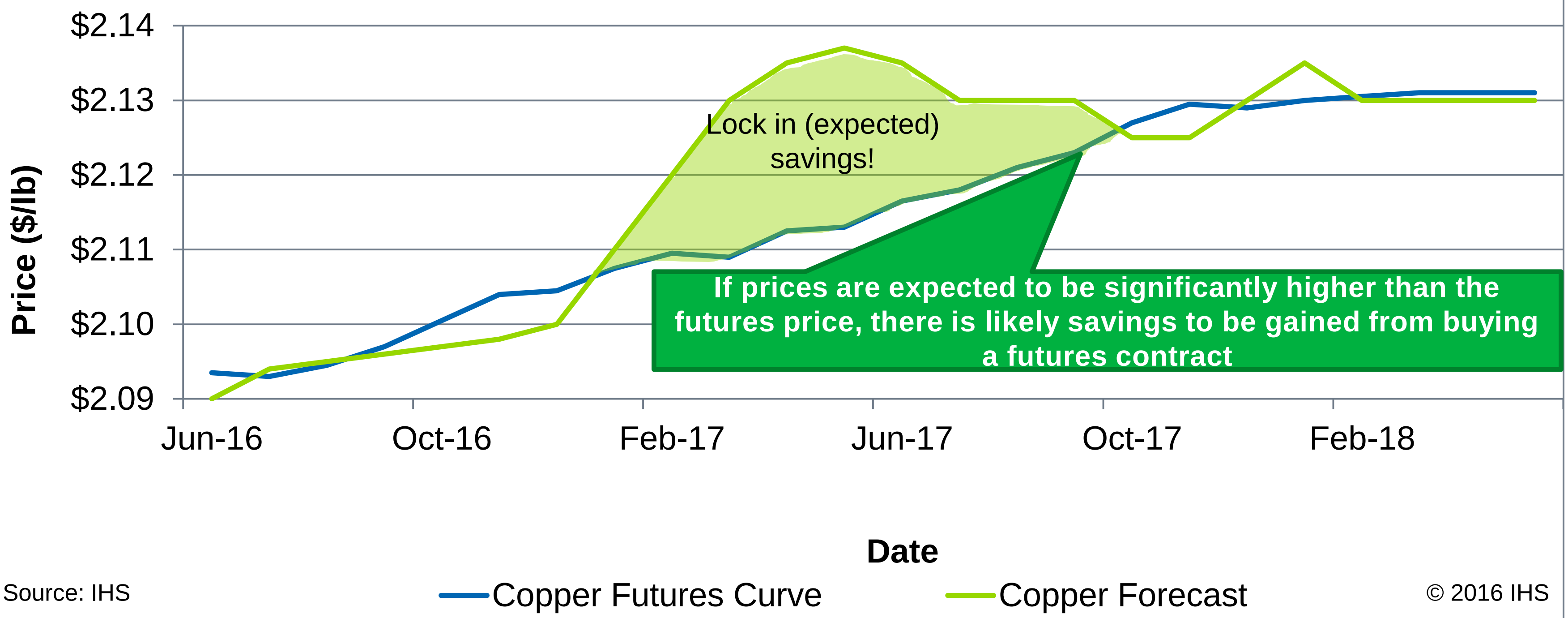
Futures curves can be matched with forecasts to determine valuable points to lock in prices (i.e. buy a long contract) to remove price risk from the purchasing decision



Source: IHS

Futures prices – buying decisions

Copper Futures Curve



Source: IHS

Interpreting Futures Data

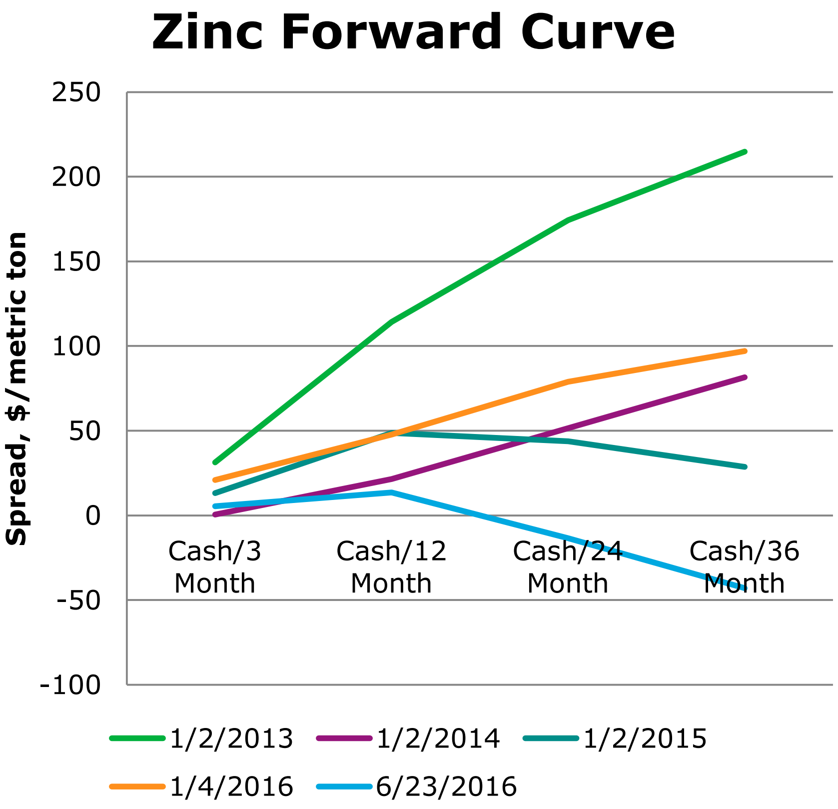
Contango: The futures price is higher than the spot price for a commodity.

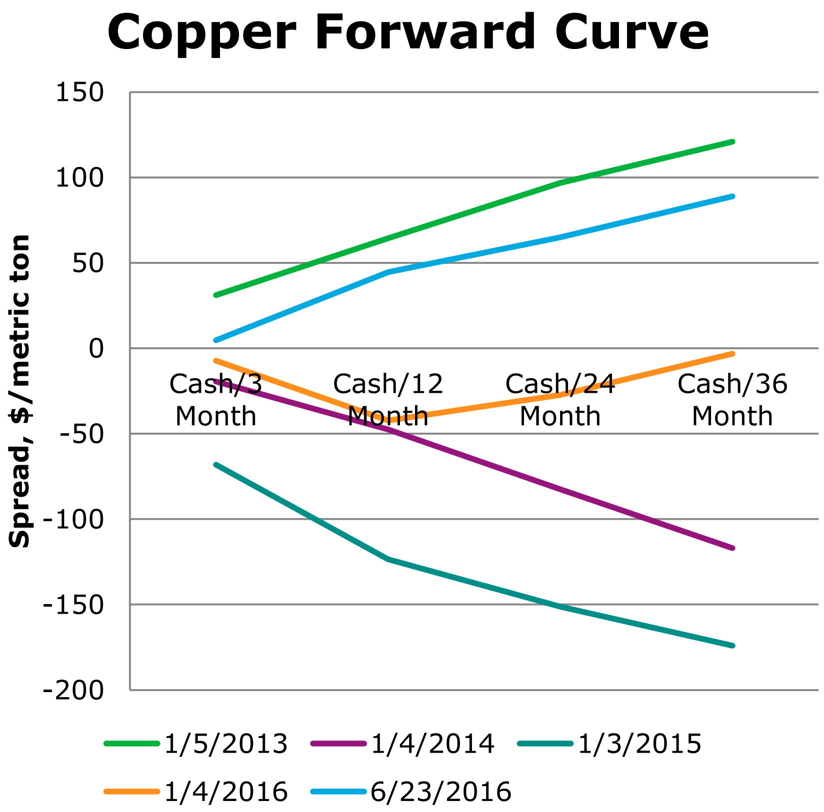
- *The market is willing to pay a premium to have the commodity in the* ***future*** *as opposed to buying the commodity today and paying the storage/carry cost.*

Backwardation: The futures price is lower than the spot price for a commodity.

- *The market is willing to pay a premium to have the commodity* ***today*** *as the higher spot price suggests low inventory/supply.*

- **How to interpret:** Changes in the price spread curve provide market intelligence
  - Widening spread: A market is becoming better supplied
  - Shifting from backwardation to contango => commodity market shifting from deficit to surplus conditions
  - Shifting from contango to backwardation =>commodity market shifting from surplus to deficit conditions


Zinc Forward Curve
Spread, $/metric ton
250
200
150
100
50
0
-50
-100
Cash/3 Month
Cash/12 Month
Cash/24 Month
Cash/36 Month
1/2/2013
1/2/2014
1/2/2015
1/4/2016
6/23/2016


Copper Forward Curve
Spread, $/metric ton
150
100
50
0
-50
-100
-150
-200
Cash/3 Month
Cash/12 Month
Cash/24 Month
Cash/36 Month
1/5/2013
1/4/2014
1/3/2015
1/4/2016
6/23/2016

Which is more accurate: IHS forecast or futures price?

	Aluminum	Copper	Nickel	Zinc	Overall advantage
3 Month	IHS	IHS	IHS	IHS	IHS
12 Month	Futures	Futures	IHS	IHS	Split
24 Month	IHS	IHS	IHS	IHS	IHS
36 Month	IHS	IHS	Futures	IHS	IHS
Overall advantage	IHS	IHS	IHS	IHS	IHS

Comparison of IHS forecast and the LME futures price from 2007 to 2016

IHS Forecast vs Future Price: How do we compare?

- **3-month outlook:** IHS outperforms the future market. Analysts better at filtering out daily market noise.

- **24-month outlook:** IHS outperforms the futures market. Price forecast driven supply/demand model linked to an overall IHS global economic model maintained by analysts.

- **36-month outlook:** Long-term price forecast based on data-driven economic analysis as opposed to market reaction to incoming data.

Futures Market: An imperfect indicator

- Futures market show a bias towards optimism in the short-run.

- Future market prices are volatile
  - Is the daily price change responding to economic data or people’s reaction to economic data?

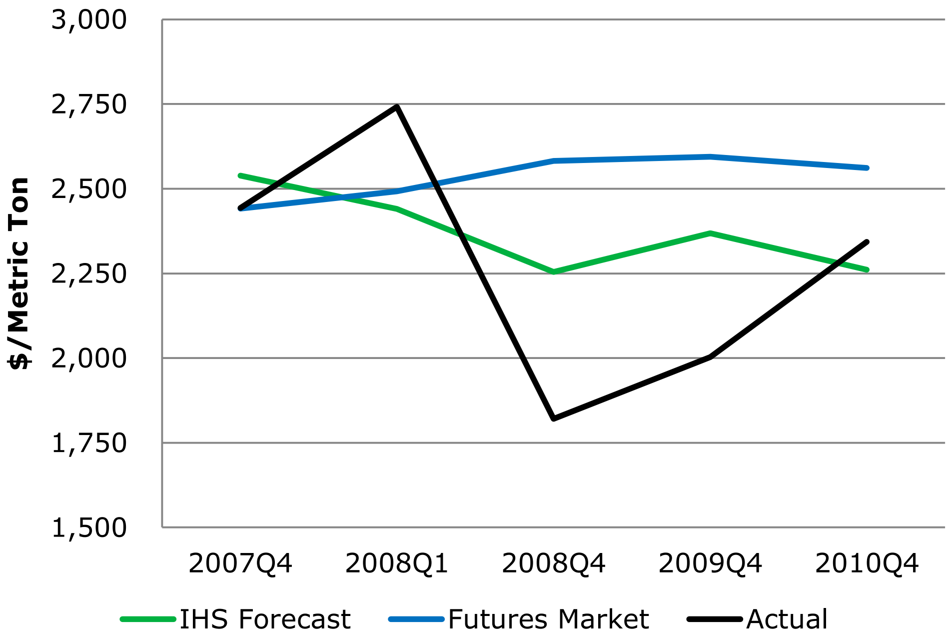
- Anticipating turns in the economy
  - Analysts better than futures market at anticipating turning points in the overall economy

Key takeaway

- Price forecasts are important.
- Forecasts are indispensable when looking at prices over a longer term time horizon.
- Futures markets reflect market sentiment based on the latest economic news release.
- The market opinion is not always accurate.

IHS price forecasts identify buying opportunities within future markets for raw commodities such as nonferrous metals.

IHS Historic Aluminum Forecast (2007 Q4)



Thank You
Questions?

IHS Markit Customer Care:

CustomerCare@ihsmarkit.com
Americas: +1 800 IHS CARE (+1 800 447 2273)
Europe, Middle East, and Africa: +44 (0) 1344 328 300
Asia and the Pacific Rim: +604 291 3600

IHS Markit™