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Metal Prices, Currencies & Global Growth — Outlook 2015-17

Will China Remain a Key 'Growth Market' for Metals?

Patricia M. Mohr
Vice-President & Commodity Market Specialist,
Scotiabank, Toronto

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Association Des Economistes Québécois

Québec City Convention Centre

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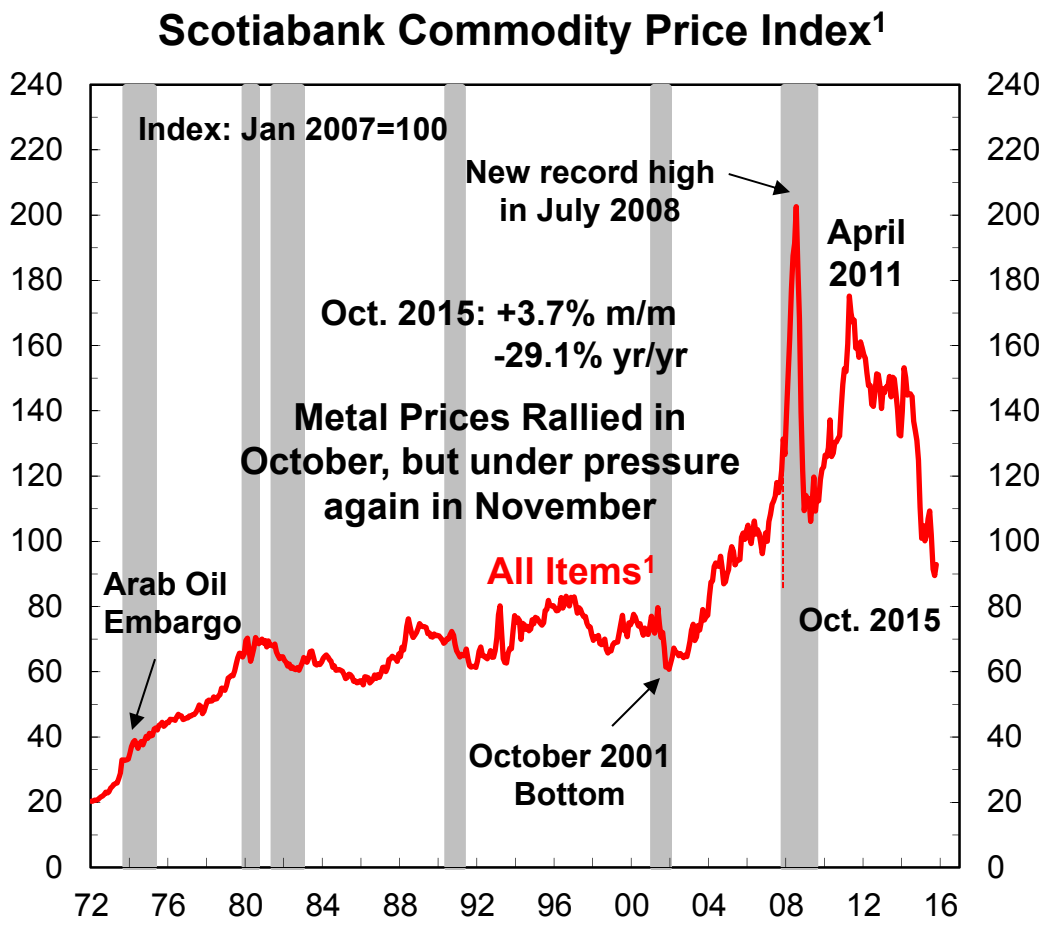
Commodity Prices Plunge Alongside Financial Market Volatility



1. A trade-weighted U.S. dollar-based Index of principal Canadian commodity exports, including Oil & Gas (39.9% weight), Metals & Minerals (30.1% weight), Forest Products (14.66% weight) and Agricultural commodities (15.35% weight). Index re-weighted as of January 2007. Shaded areas represent U.S. recession periods. Data to October 2015.

Scotiabank's Commodity Price Index rose to a near-term peak in April 2011, just prior to financial market concern over excessive Eurozone sovereign debt and the negative impact on global economic growth.

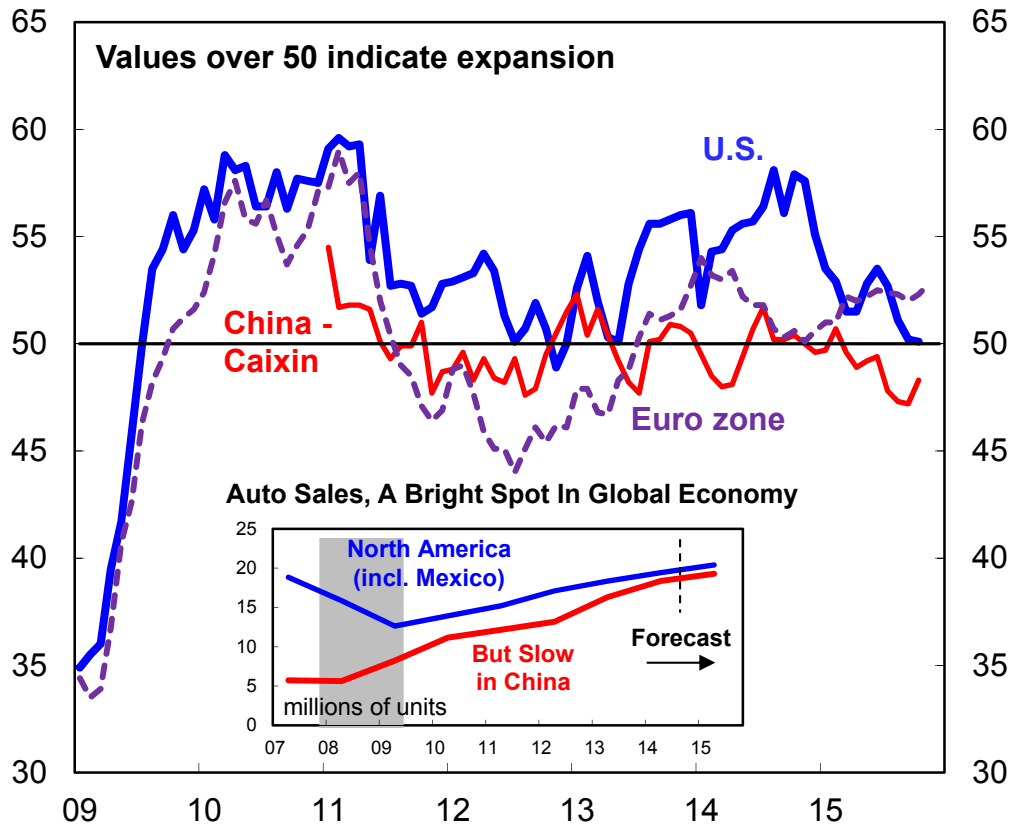
The correction since April 2011 was linked to: (until recently) austerity-led recession in the southern Eurozone, a fight for market share in oil & iron ore markets in a lacklustre global economy, an unwinding of grain prices due to large U.S. crops in 2013-15 and the 'deflationary' impact of a strong U.S. dollar.

In Aug. 2015, commodity prices fell near a decade low. Concern over a possible 'hard landing' in China's economy (linked to the sharp equity market correction & yuan depreciation) and consternation over possible Fed monetary policy tightening in Sept. (now delayed) pressured prices.

Metal prices should recover from 2017-20, once current copper mine expansion is over, markets recognize tightening zinc supplies due to mine depletion and major mining companies complete their iron ore expansion (forcing out higher-cost miners).

Global PMIs For Manufacturing

Drives Sentiment On Prospects For Commodity Markets



Source: Markit, ISM, Scotiabank Economics; Data to Oct./Nov. 2015. U.S. GDP is on track for a 2.4% gain in 2015, led by strong consumer spending and some improvement in residential construction, but business investment has slowed due to cutbacks in oil & gas (only partially offset by strength in high-tech R&D).

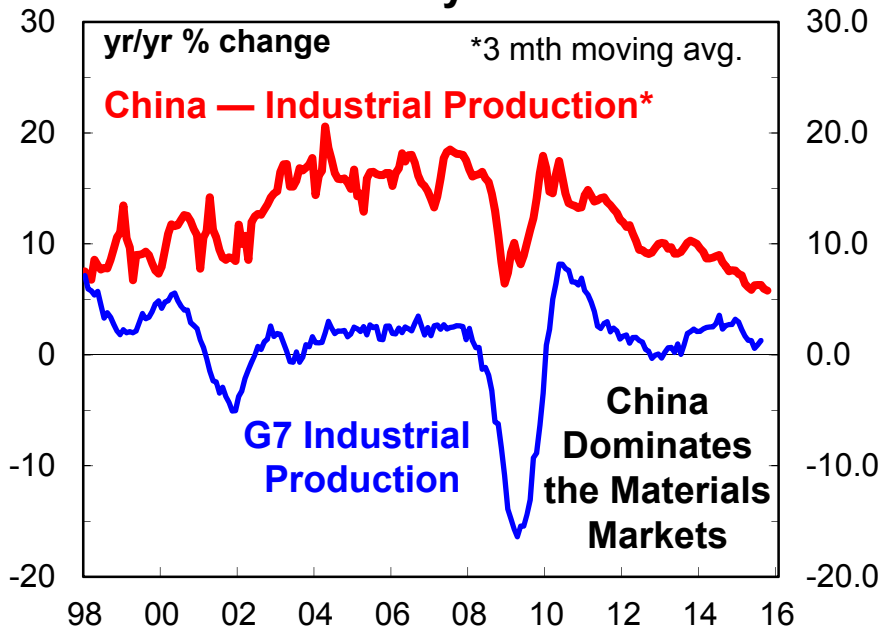
Global growth prospects in 2015 have been downgraded for the 4th consecutive year.

Jitters over a further slowdown in China's economy intensified last summer. China's 'Purchasing Manager Index for Manufacturing' — a key indicator of raw material demand — dropped below 50 for several months, though both the official PMI and the 'Caixin Markit PMI' edged up in September/October.

A 43.4% drop (June peak to August trough) in the Shanghai Composite Index called into question the near-term outlook for consumer spending in China (retail investors dominate equity trading), though the equity market has recently steadied. Vehicle sales eased in July & August, but rebounded in Sept/October.

While China once more cut one-year lending rates (-25 bp to 4.60%) & the Required Reserve Ratio for large banks (-50 bp) on August 25 to achieve its 7% GDP growth target for 2015, international financial markets have lost confidence in China's ability to achieve a smooth transition to a service-led economy. However, China is making progress on the shift; service sector now accounts for 49.4% of China's GDP, enabling a slightly stronger-than-expected 6.9% advance in 2015:Q3.

China — Vital to Global Commodity Markets



China's Share of Global Consumption in 2015e Compared with the United States (in brackets)

Copper	46.0% (8.4%)	Nickel*	51.8% (7.9%)
Zinc	47.7% (7.9%)	Aluminium	49.7% (9.6%)

Four Base Metals: China 48.6%, USA 9.0%. *Japan 7.4%.
World oil consumption: China 11.9%; USA 20.5%.
++ non-ferrous smelting & refining still strong, but weakness in power, cement, coal & equipment.

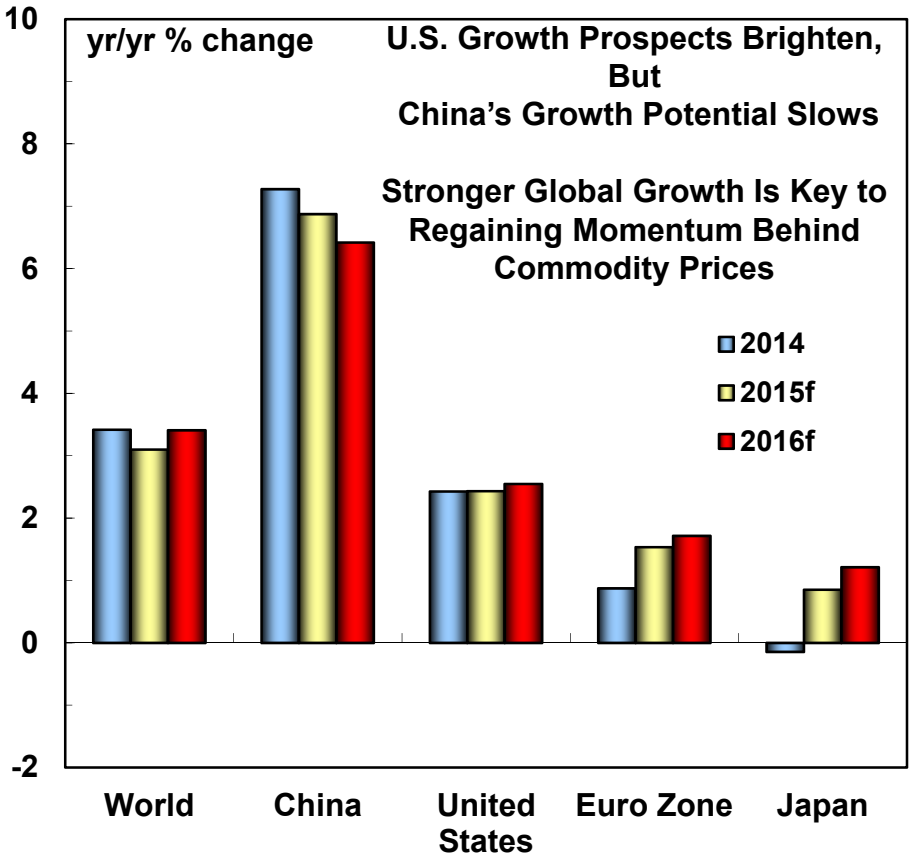
China Industrial Production:

Jan-Feb 2009	3.8% yr/yr (the bottom)
Mar 2009	8.3%
July 2009	10.8%
Dec 2009	18.5%
2010	14.4%
China tightens monetary policy.	
2011	13.7%
2012	10.0%
2013	9.7%
Q4 2014	7.6%
Q1 2015	6.4%
Q2 2015	6.3%
Q3 2015	5.9%
October 2015++	5.6%

G7 Industrial Production

U.S.	+0.3% (Oct)
Japan	-0.7% (Sep)
Germany	+0.2% (Sep)

Global Growth Risks Have Re-Emerged



Global growth has been stuck just above 3% p.a. for four consecutive years, keeping the global economy ticking over, but insufficient to boost commodity prices.

India is a key beneficiary of lower oil prices and restructuring efforts by the Modi government.

GDP (% per annum)

	2009	2012	2014	2015f	2016f	2017f
WORLD*	-0.6	3.2	3.4	3.1	3.4	3.6
CANADA	-2.7	1.9	2.4	1.1	1.8	2.3
UNITED STATES	-2.8	2.3	2.4	2.4	2.5	2.7
MEXICO	-4.7	3.9	2.1	2.5	2.8	3.5
CHINA	9.2	7.7	7.3	6.9	6.4	6.2
INDIA	6.6	5.2	7.1	7.3	7.6	7.5
LATAM						
PERU	1.1	6.0	2.4	2.9	3.5	4.4
CHILE	-1.1	5.4	1.9	2.1	2.0	3.0
COLOMBIA	1.7	4.0	4.6	3.0	3.0	3.2
BRAZIL	-0.3	1.0	0.1	-3.0	-1.5	1.8
JAPAN	-5.5	1.8	-0.1	0.9	1.2	1.0
EURO ZONE	-4.5	-0.7	0.9	1.5	1.7	1.8
RUSSIA	-7.8	3.4	0.6	-4.5	-0.5	1.5

*Scotiabank estimates. Average 1988-1997: 3.4% p.a. prior to the "economic take-off" in China. GDP growth 2000-07: World 4.5% p.a.; China 9.4%; Brazil 3.6%; India 7.1%; Russia 7.2%.

China's Growth Will Slow To 6.9% in 2015 and 6.4% in 2016

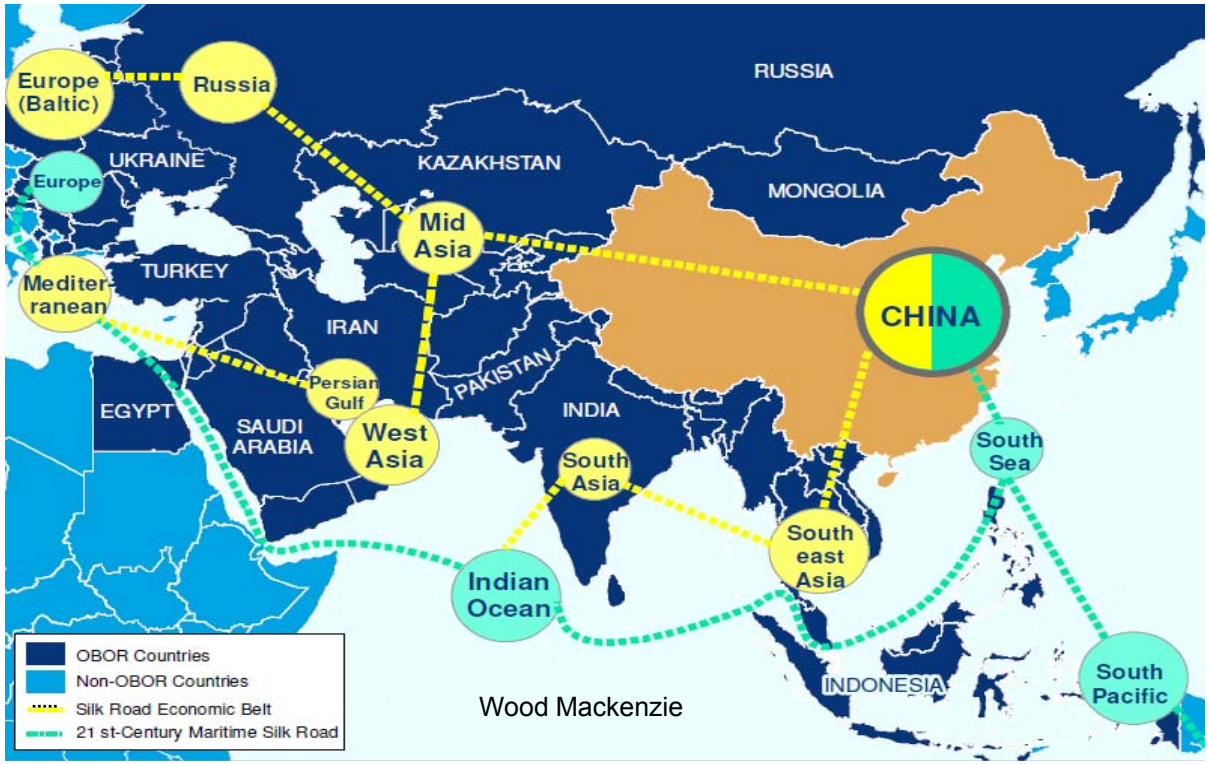
Since 2013:H2, Chinese policy makers have had a dual agenda: meaningful deleveraging/de-risking of China's 'shadow banking' sector & municipal finances by encouraging tighter credit adjudication, while still ensuring 7.0-7.5% GDP growth.

Banking sector liquidity stayed relatively tight through 2014, but fiscal stimulus (huge investment in high-speed railways) supported economy. In a long overdue move, the People's Bank of China cut the 'Required Reserve Ratio' for commercial banks in Feb 2015, in April, selectively in late June & again on August 25; one-year lending rates reduced 5 times since Nov. 2014 to 4.60%. China recently announced measures to shore up equity markets, after a huge drop in Shanghai Composite; 300 infrastructure projects (US$1.1 tr) will be accelerated & required down payments for second properties reduced to aid residential building; construction of 3 additional high-speed railways has recently been announced; however, fiscal stimulus will be less than applied in late 2008 to lift China's economy from the 'Great Recession' (measures which were vital in quickly reviving oil & base metal prices in 2009).

THE NEW LEADERSHIP ANNOUNCED A NEW PRO-GROWTH REFORM AGENDA, AFTER THE NOVEMBER 9, 2013 PLENUM OF THE COMMUNIST PARTY's Central Committee:

Outlined the 'decisive' role that 'markets' should play in allocating resources (e.g. decontrol of energy prices), fiscal reform to deleverage municipal finances (better aligning spending obligations with revenue by shifting some spending to the central gov't and allowing municipalities to issue debt), the beginning of 'rural' land & Hukou reform to enable farmers to move to smaller cities, facilitating urbanization, and reform of SOEs. If effectively implemented, the reforms should enable China's economy to achieve reasonable economic growth over the balance of the decade, though growth is slowing towards 6.4% in 2016.

One Belt One Road Initiatives: The Rebirth of Old Silk Roads



Further details will likely be provided in coming months on the development of a 21st-century 'Silk Road' – colloquially called 'One Belt, One Road' – President Xi Jinping's signature foreign policy initiative.

The aim of this policy: 1) to extend China's economic & foreign reach to central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan & Uzbek-istan), Russia and Europe as well as the maritime route via the Indian Ocean; 2) to further develop Western & Northern China – provinces of Xinjiang and Gansu -- and 3) to provide new markets for China – especially in the areas of construction services and infrastructure development to offset a peaking in domestic residential construction and an end to the manufacturing build-out.

China's 13th Five-Year Plan

China's Central Committee recently announced the broad outline of the 13th Five-Year Plan, a blueprint for economic and social development from 2016-20, as follows:

1) Doubling 2010 GDP and per capita income of residents in cities & rural areas by 2020; China is aiming to maintain average annual GDP growth of 6.5-7.0% until 2020, without aggressive stimulus or blind expansion of investment. A greater contribution to GDP growth is to come from consumer spending, as expected.

2) Innovation and 'green development' will be emphasized.

3) Given a declining population in the 20-34 year age cohort, China will now allow couples to have 2 children per family, abandoning its decade-long one-child policy.

4) Improving living standards -- 'quality' urbanization, with a possible impact on the property sector, and improving the social welfare system.

Medium-Term, The 'Emerging' Markets Will Remain Supportive For Commodity Prices

Huge Potential for Oil & Metal-Intensive Motor Vehicle Sales in China & India
China's population: 1.354 billion

Vehicle Penetration — 2014
(Vehicles per 1,000 people)

China	104
United States	803
Western Europe	589
Japan	595
India	30
Mexico	295

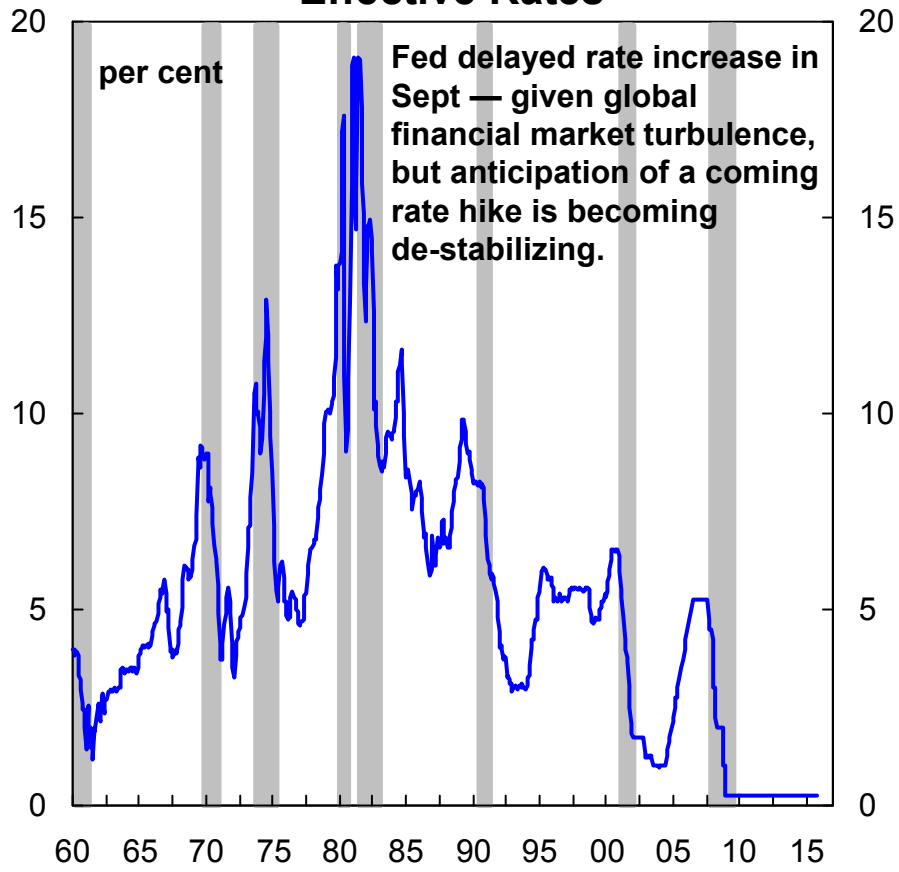
China's auto sales will shift to 2nd and 3rd-tier cities, given vehicle-licence restrictions in the 4 major tier-1 cities (to curb traffic congestion & pollution).

In coming years, China will continue to be a key driver of global auto sales, already accounting for 60% in 2013. Vehicle sales (incl. SUVs) soared to 17.9 million units in 2013 & 19.7 m in 2014, but will slow to 20.2 m (+2.7%) in 2015. Automakers are now offering price reductions to woo consumers back to showrooms & the sales tax has been halved to 5% through 2016, measures which are already shoring up sales.

China's potential GDP growth is slowing — in 2012: 8.5%, 2015-20: 6-7% p.a., 2025-30: 5% p.a. with less under-utilized labour & an end to the build-out of manufacturing. More emphasis is now placed on developing the service industries rather than 'heavy' industry; greater concern over air quality and environmental protection.

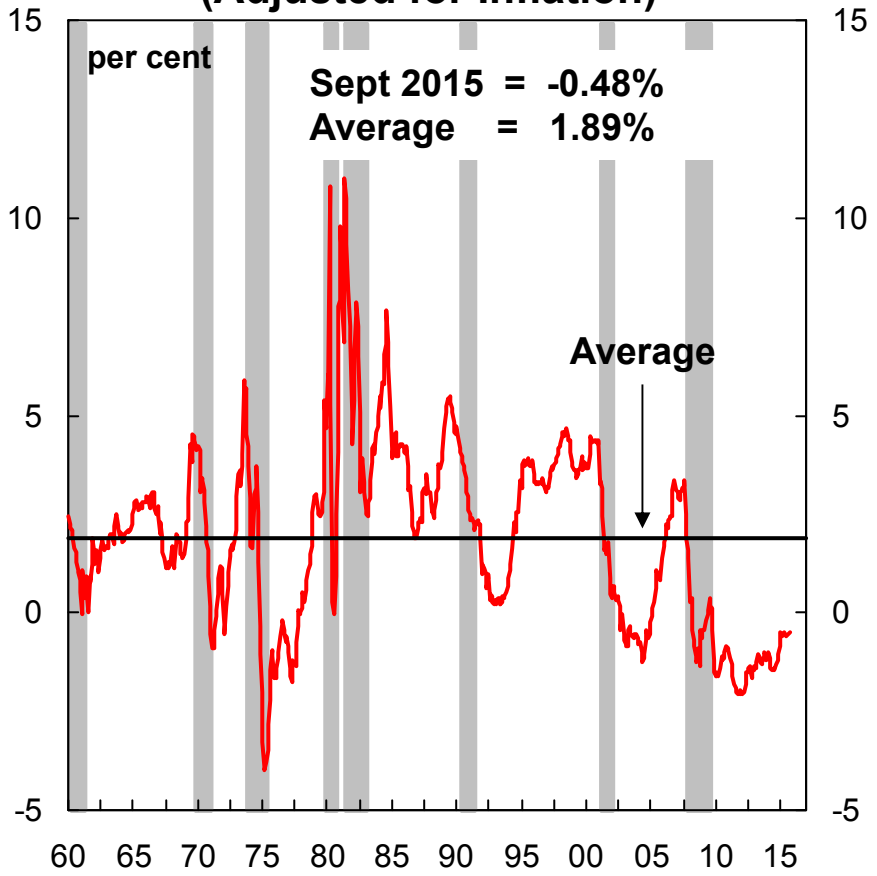
The Fed Has Been Determined To Strengthen U.S. Employment Recovery, But A Gradual Unwinding Of Accommodative Monetary Policy Is Coming

Federal Funds — Effective Rates



Fed Funds Target Rate is 0-25 bps. 'Asset purchase program' or Quantitative Easing ended on October 31, 2014 (purchases of longer-dated MBS & Treasury bonds were cut to zero in November; originally US$85 bn per month). Fed has delayed rate increase — possibly until Dec 2015 — given global financial turbulence last summer and concern over the impact on the U.S. economy.

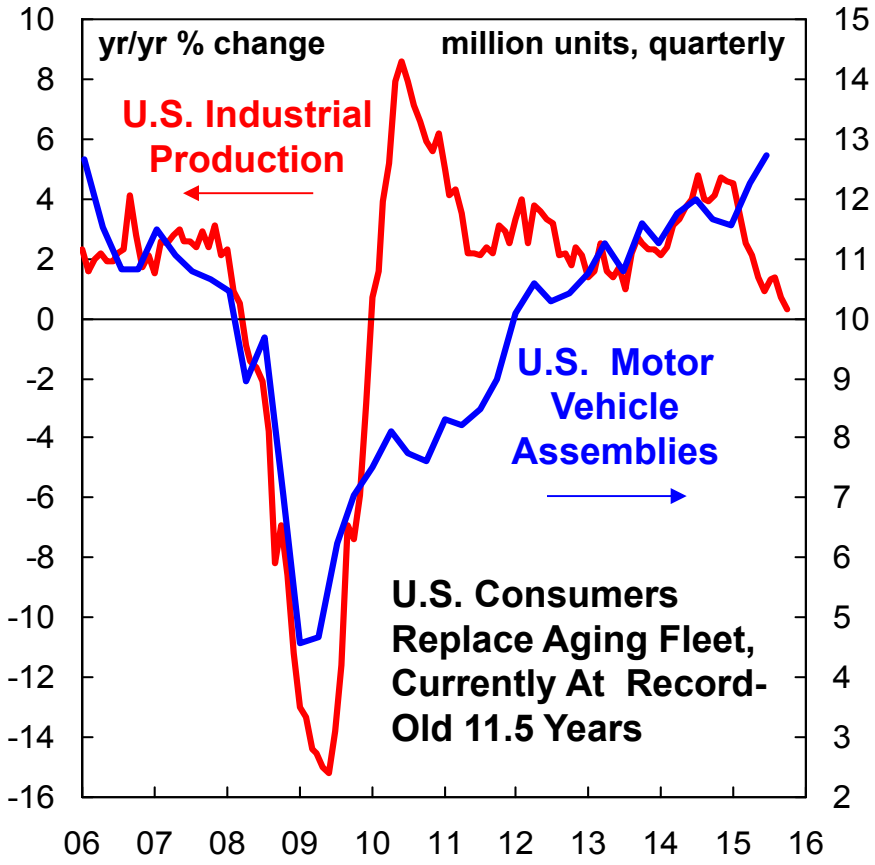
"Real" Federal Funds Rate (Adjusted for Inflation)*



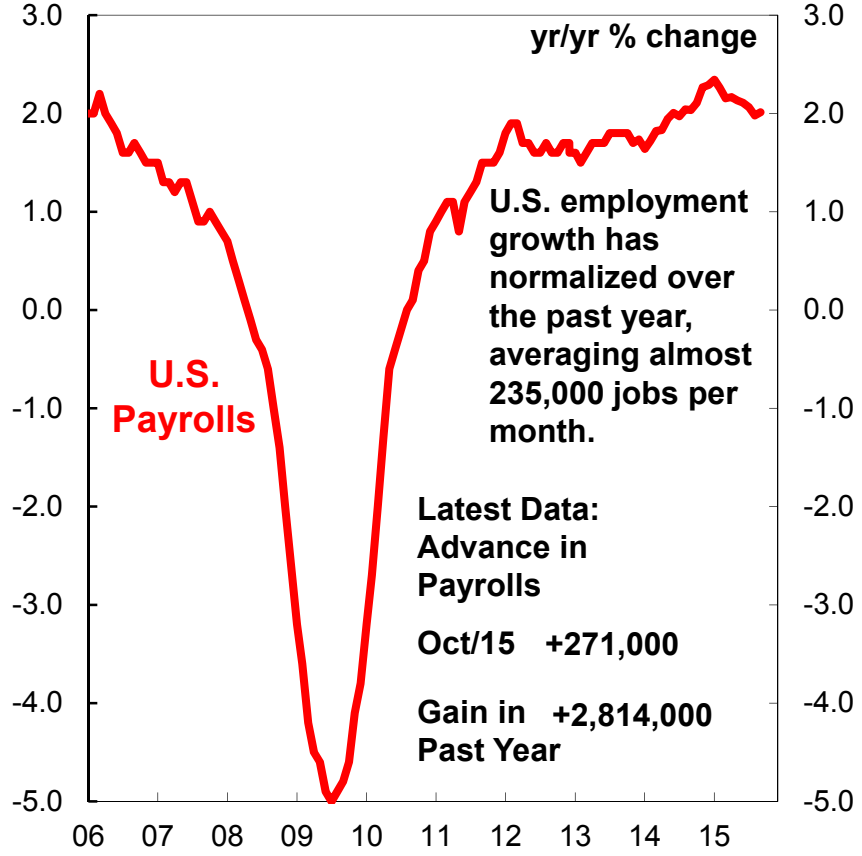
* Inflation-adjusted with the U.S. Personal Consumption Deflator (PCE) and the core PCE. Shaded areas represent U.S. recession periods. PCE inflation is currently well below the Fed's 2% target yr/yr. Unemployment rate in October was 5.0% (virtual full employment), but participation rate remains fairly low & increase in average hourly earnings modest.

Strong Auto Assemblies Buoy U.S. Industrial Activity & Employment Picks Up

U.S. Industrial Activity

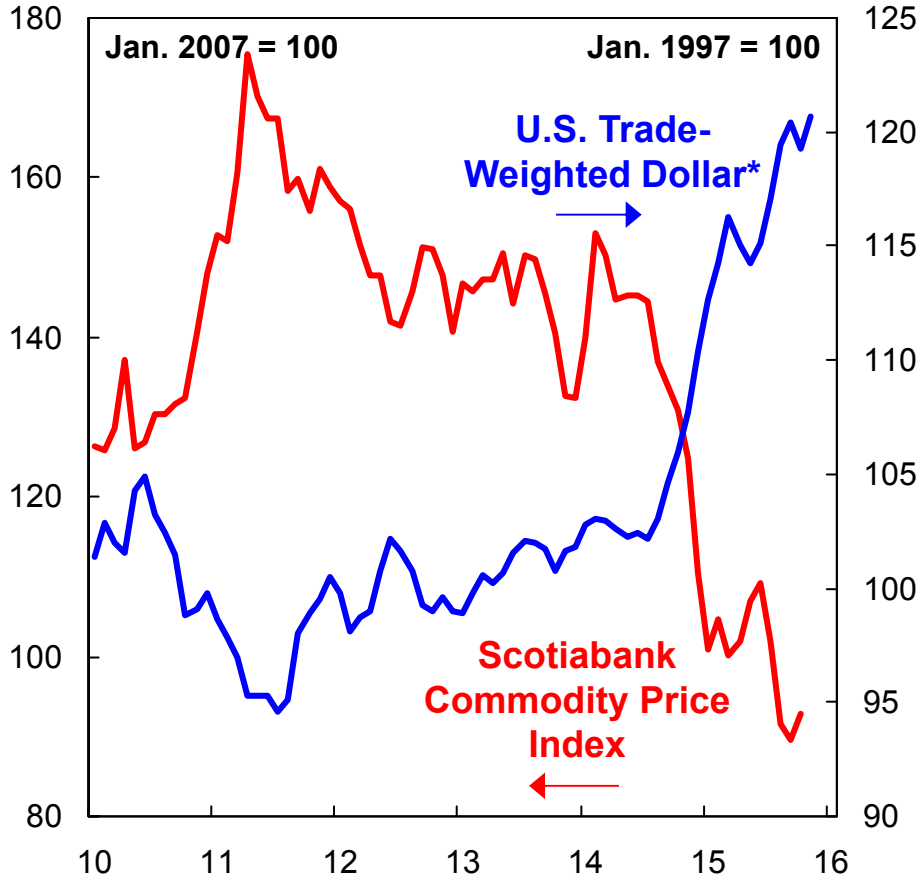


U.S. Employment Growth



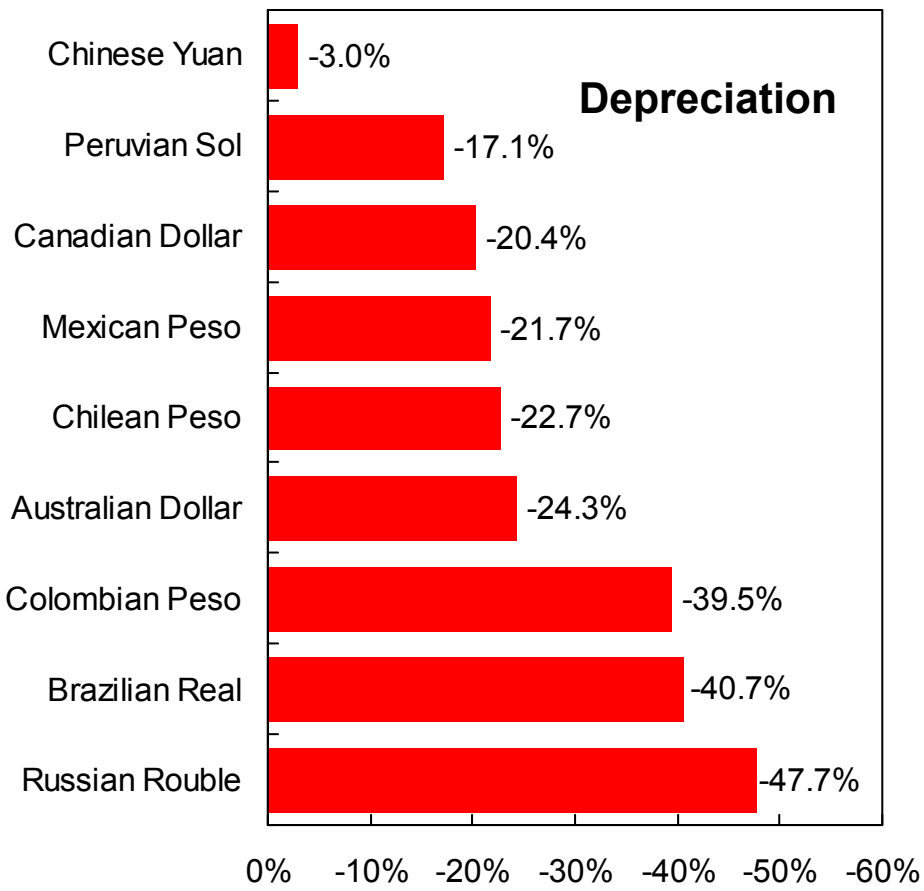
North American motor vehicle assemblies advanced by 5.5% in 2014 to 17.4 million units and will climb to 18.0 million in 2015 — exceeding the previous 17.7 million peak of 2000. Production will edge up further in 2016 to 18.4 million. U.S. household balance sheets are in the best shape in a decade. Mexico is leading the gain in NAFTA sales due to a strong labour market & many FTAs. SRC: Scotiabank Economics, Global Auto Report.

U.S. Dollar Strength Deflates Commodity Prices



* Federal Reserve 'Broad Dollar Index' of 26 currencies against the U.S. dollar.

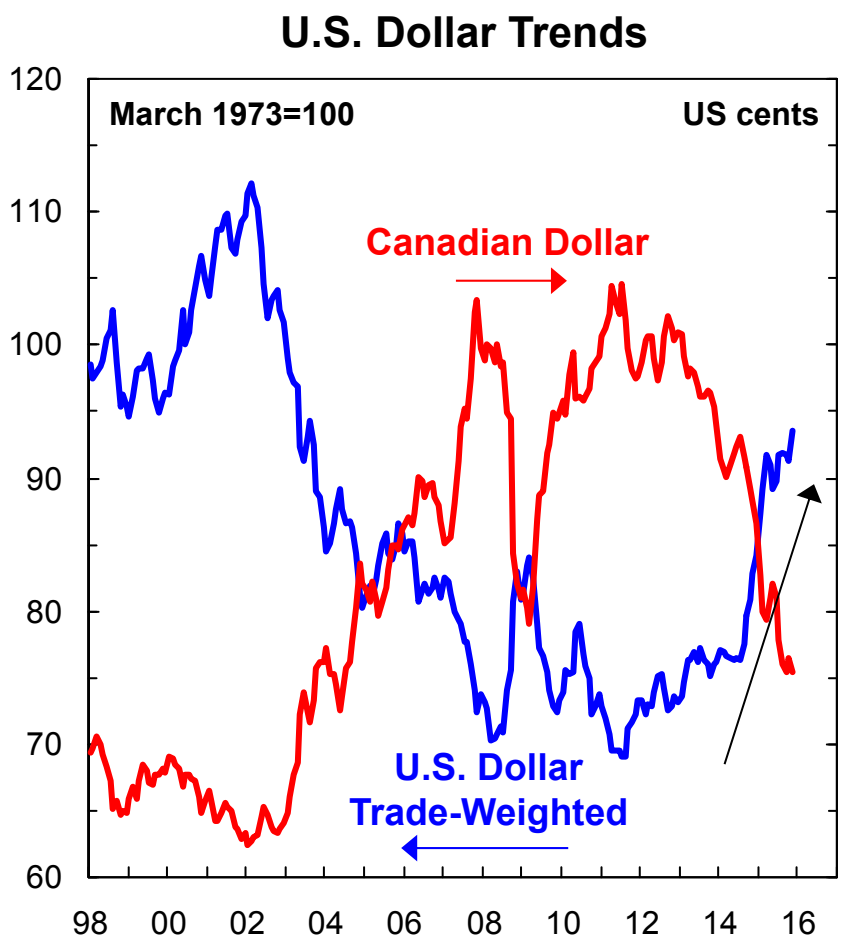
Currencies – Key Commodity Exporters (% change against U.S. dollar) July 1, 2014 to November 23, 2015

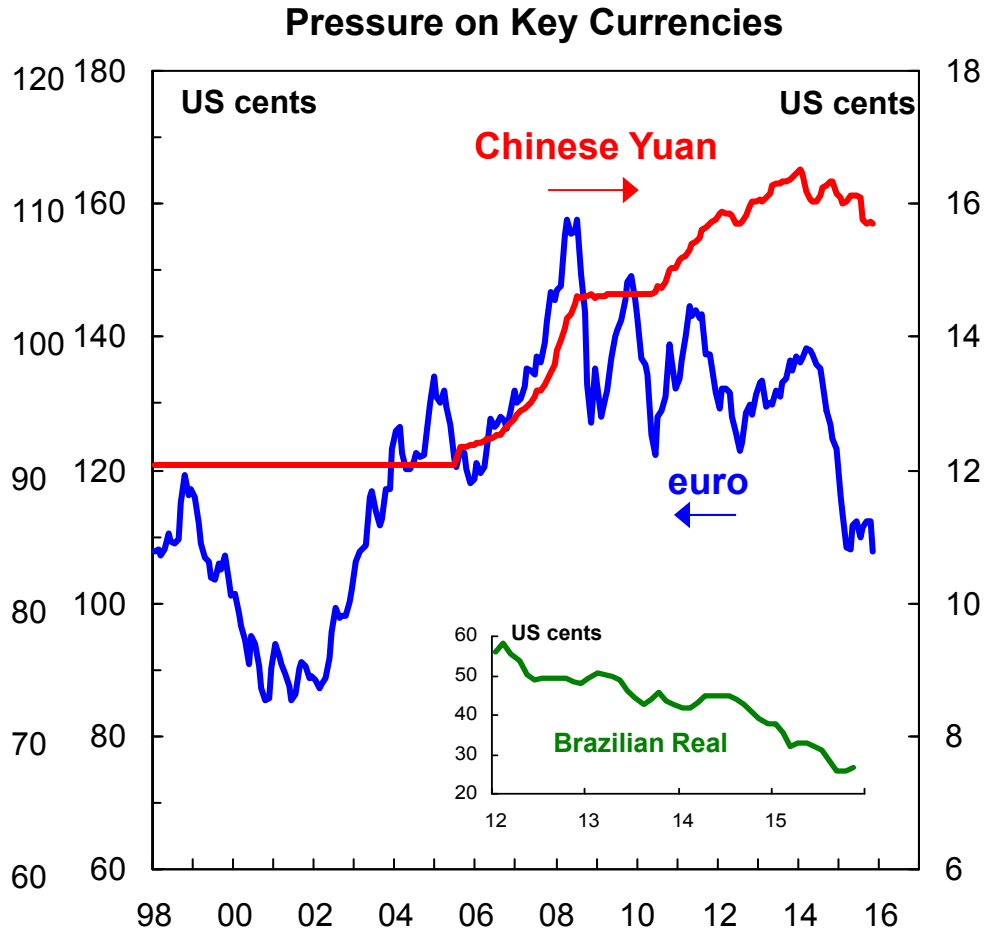


Commodity prices hold up better in local currencies; except for U.S. producers who are at a significant competitive disadvantage.

A Stronger U.S. Dollar Against Most Currencies Expected In 2015-16

Supported By Widening & Increasingly Attractive Growth & Interest Rate Differentials

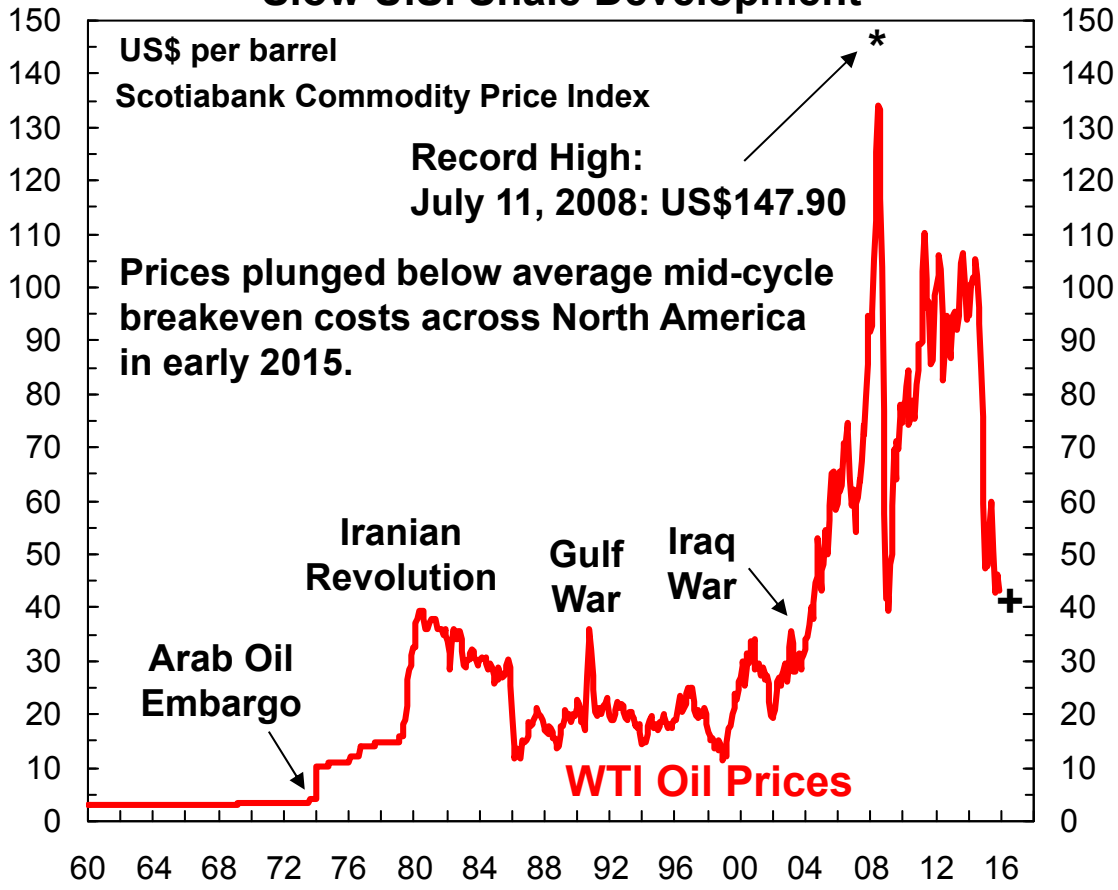




Data to November 23, 2015: euro US$1.0625; Cdn$ = US$0.7489; US$ = 6.3894 RMB. A stronger U.S. dollar creates 'headwinds' for dollar-denominated commodity prices; e.g. holds back potash prices in India.

Currency depreciation against the U.S. dollar has recently been a cushion for Canadian and LATAM oil & mining companies, providing some offset to lower commodity prices and boosting competitiveness .

Saudi Arabia Triggers Lower Oil Prices to Slow U.S. Shale Development



+ November 23, 2015: US$42.01 (Brent US$45.04).

of market share in the United States, but perhaps more importantly, in Asia (OPEC's 'growth' market). No change in strategy at June 5, 2015 OPEC meeting; no change is expected on December 4.

Oil Price Outlook (US$ per bbl)

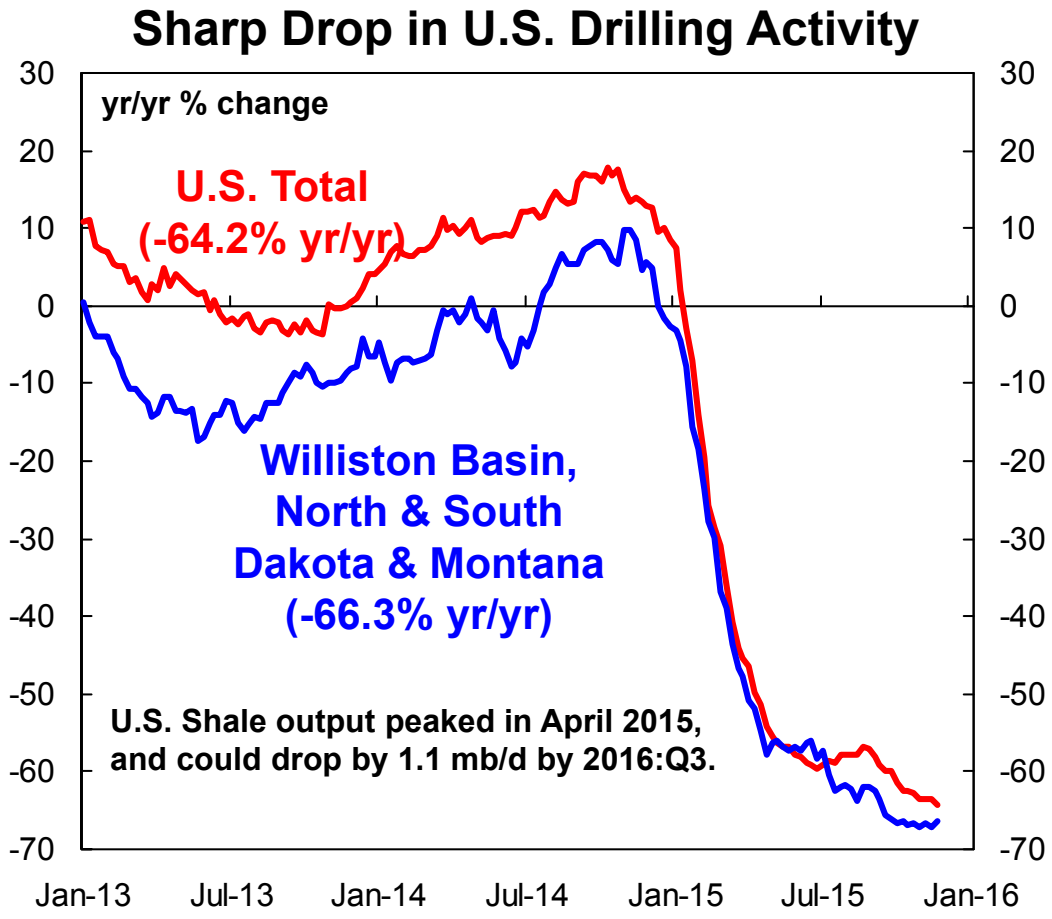
	WTI	Brent
2014	93	99
2015e	49-50	54-55
2016F	45-50	50-55
(year end	55	60)
2017F	55-60	60-65

The plunge in oil prices last Fall reflected concern over a lacklustre global economy, sapping growth in petroleum demand to a mere 0.8 mb/d in 2014; lower oil prices have lifted global demand at fastest pace in 5 years in 2015, up 1.8mb/d(+2.0%).

The remarkable growth of U.S. 'light, tight' oil production from the North Dakota Bakken and the Permian & Eagle Ford Basins of the United States (1.28 mb/d from Jan 2014 to Jan 2015) indirectly contributed to a glut of 'light, sweet' oil in the Atlantic Basin. Nigerian crude oil — backed out of the U.S. market — had difficulty finding a market in Europe, given a soft Eurozone economy and a partial recovery in Libyan exports.

Saudi Arabia & the major Gulf Co-Operation Council members decided not to cut output to shore up prices at the Nov 27, 2014 OPEC meeting, but instead to allow prices to drop to levels triggering a slowdown in U.S. shale development. The Saudis feared a further loss

Oil Prices Expected to Remain 'Lower for Longer'



Data to November 20, 2015, Baker Hughes Inc.

It appears likely that oil prices will stay relatively low and volatile through 2016:H1, before this year's more than US$200 bn decline in world exploration & development spending begins to significantly cut international supply and boost prices.

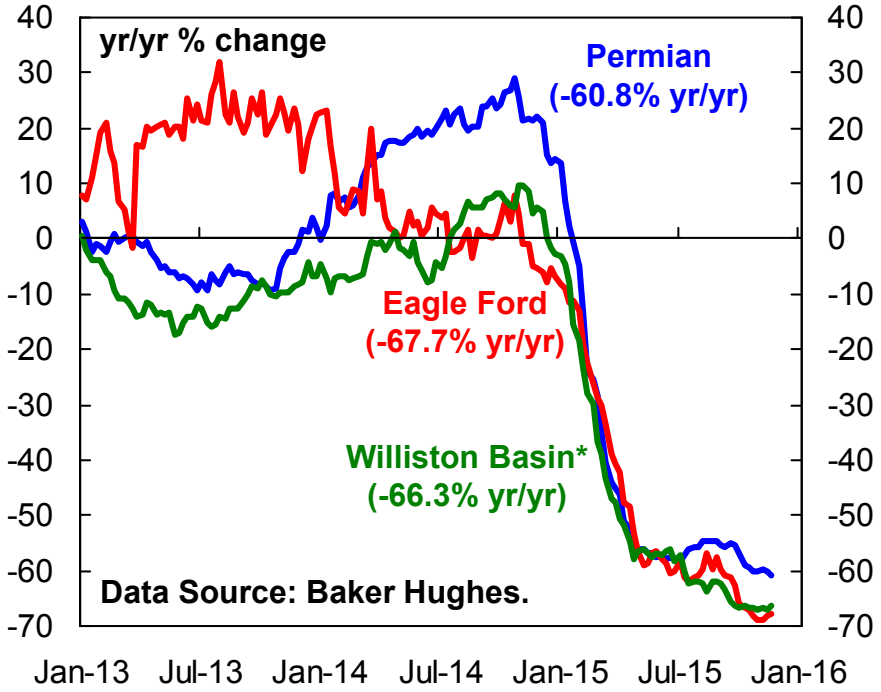
WTI oil prices have been exceptionally volatile in 2015. After dropping as low as US$38 in late August, a short covering rally helped to lift prices back to $45 in early September.

Global oil demand in 2015 has advanced at the fastest pace in 5 years, but a supply-side adjustment to bring global supplies down in line with demand and rebalance world markets — is not yet obvious.

Three developments were behind the double-dip in oil prices through August: 1) U.S. shale production has been resilient at ever lower prices, despite a sharp drop in drilling activity. Shale producers have cut costs by squeezing suppliers (-20-40%) and improving engineering productivity; 2) OPEC producers, led by Saudi Arabia & Iraq, have actually increased output since Nov. by 1.4 mb/d to build market share in Asia; and 3) the recent equity market correction in China and yuan depreciation have called into question the 'China Growth Story' — that is, the outlook for strong growth in Chinese petroleum demand over the medium term. However, China's oil demand has been quite robust this year (+5.2% yr/yr in 2015:H1) and we believe it is important not to over-react to current jitters.

Iranian oil will likely return to world markets in early 2016, restraining prices, though expectations could be too high (a wild card).

U.S. Drilling Activity Drops -- Shale Basins



Going forward, a review of 100 plays across North America, reveals that Montney oil, the Kaybob oil window and the southeast Saskatchewan Bakken (US$41-51) in Canada are close to the bottom of the cost curve in USA & Canada. Saskatchewan plays benefit from a flexible, competitive royalty system. Viking is also low cost.

Among the U.S. shales, most plays in the North Dakota Bakken require a WTI oil price of US$50-60 to yield a 9% IRR after tax on mid-cycle costs (Eagle Ford is low at US$33-58; Permian Basin US$40-67, mostly US$54-59).

Alberta oil sands US$56 (Top Decile), Avg. US$71 (possibly lower due to a competitive Canadian currency). SRC: Scotiabank Equity Research

EXPANDED OIL PIPELINE CAPACITY TO B.C. AND ATLANTIC COASTS IS CRITICAL FOR CANADIAN ECONOMY:

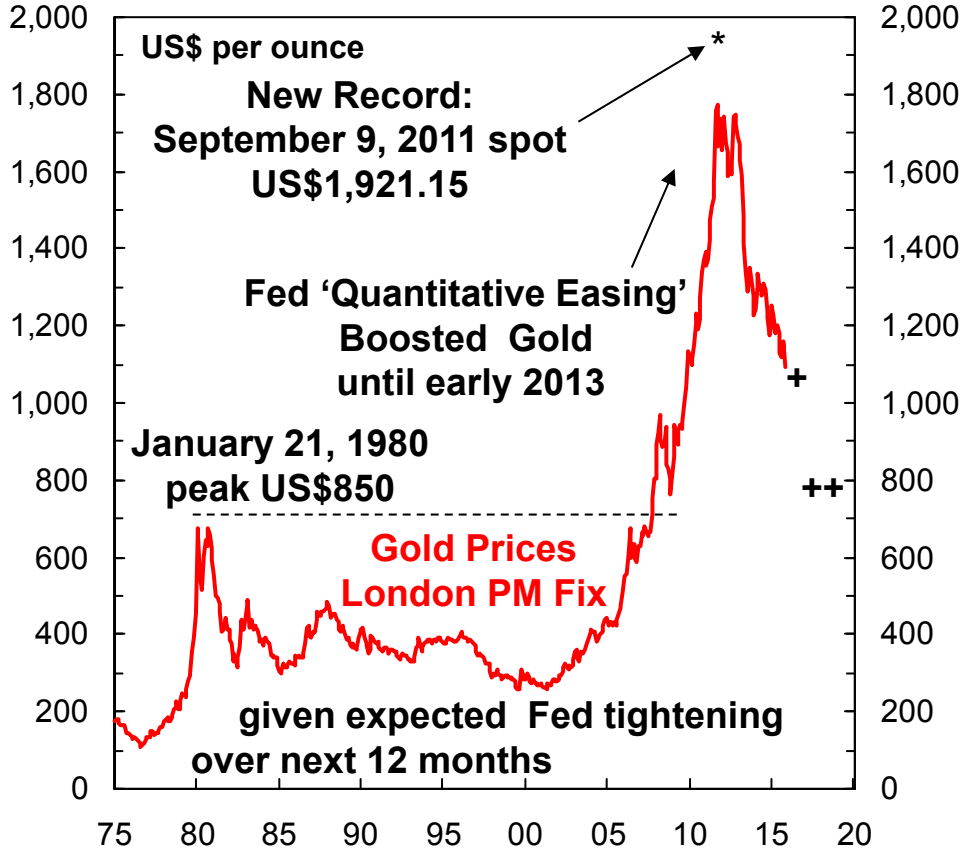
Quebec would be key beneficiary of the Energy East Pipeline from Hardisty, Alberta to Montreal, Quebec City and onward to Saint John, New Brunswick. Pipeline delivery of inexpensive oil from Western Canada would cement the economic viability of refineries in Quebec, likely leading to capacity expansion & upgrading over time. Economics of oil transport to Asia/Pacific from St. John to Europe & India is favorable.

COMPETITIVENESS OF WESTERN CANADA'S OIL PRODUCTION:

WTI oil price required to cover sustaining capital & dividends and maintain output currently averages US$54 for a sample of 7 Western Canadian oil producers (volume weighted); Low-Tier US$50. IMO, CNQ & MEG require lowest WTI oil price.

Excluding dividends, most companies require US$45-55 WTI before becoming Free Cash Flow positive – a testament to the long-life low decline nature of the oil sands as well as mature, low-decline conventional assets. Integrated, diversified & low-decline producers have the right defensive mix in a low oil price environment.

Gold Prices Dampened by U.S. Dollar Strength

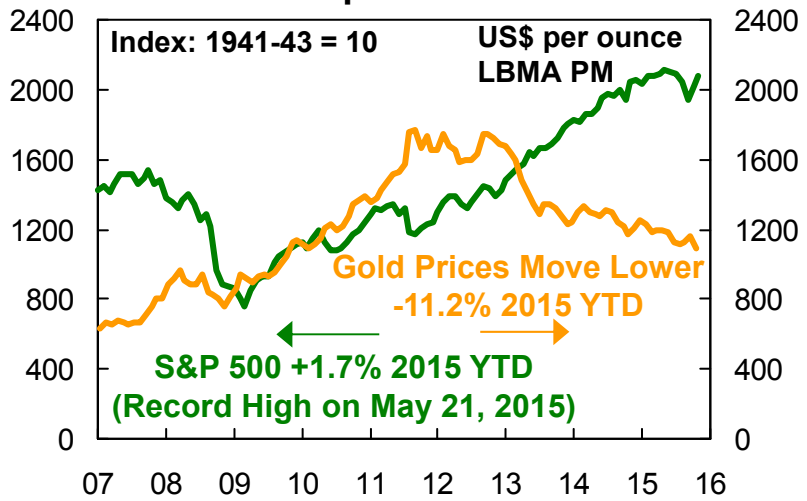


+ 'LBMA Gold Price PM' on November 23, 2015: US$1,070.50; Ultimate safe-haven is US dollar Treasury bills.

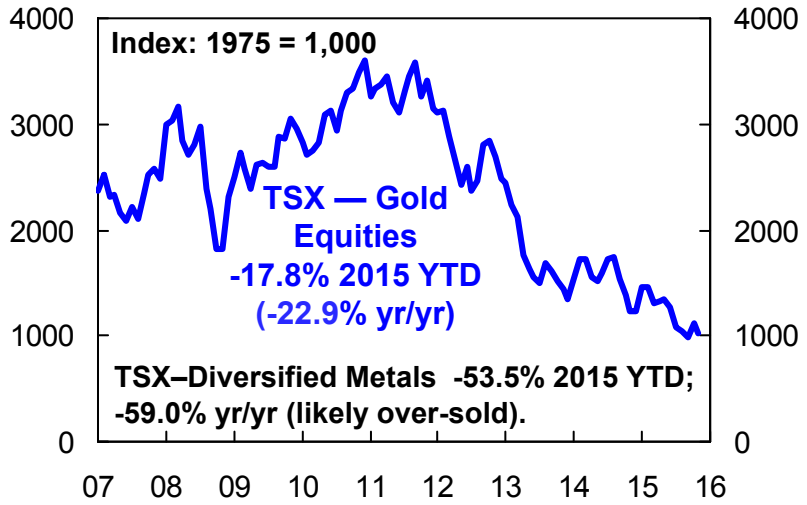
++ Avg. World 'All-In Sustaining Cash Costs' have dropped significantly in the past year. Bullion prices should strengthen starting in 2017, as world gold production begins to decline due to recent mine project deferral.

Gold Prices: 2014 US$1,266 2017F US$1,200
2015F US$1,162
2016F US$1,090

Investors Shift From Gold To U.S. Equities in 2013-14

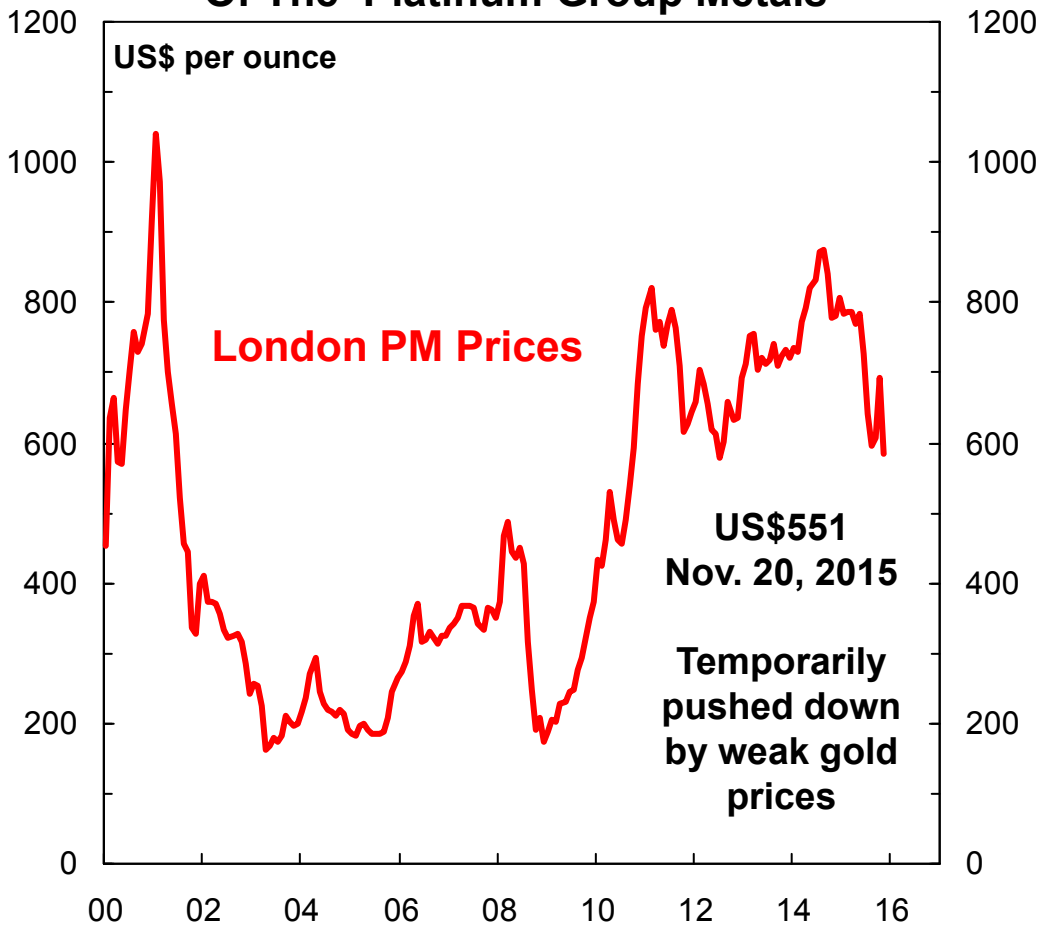


TSX Gold Equities Edge Down Further



Data to November 23, 2015

Palladium Has The Strongest Outlook Of The 'Platinum Group Metals'



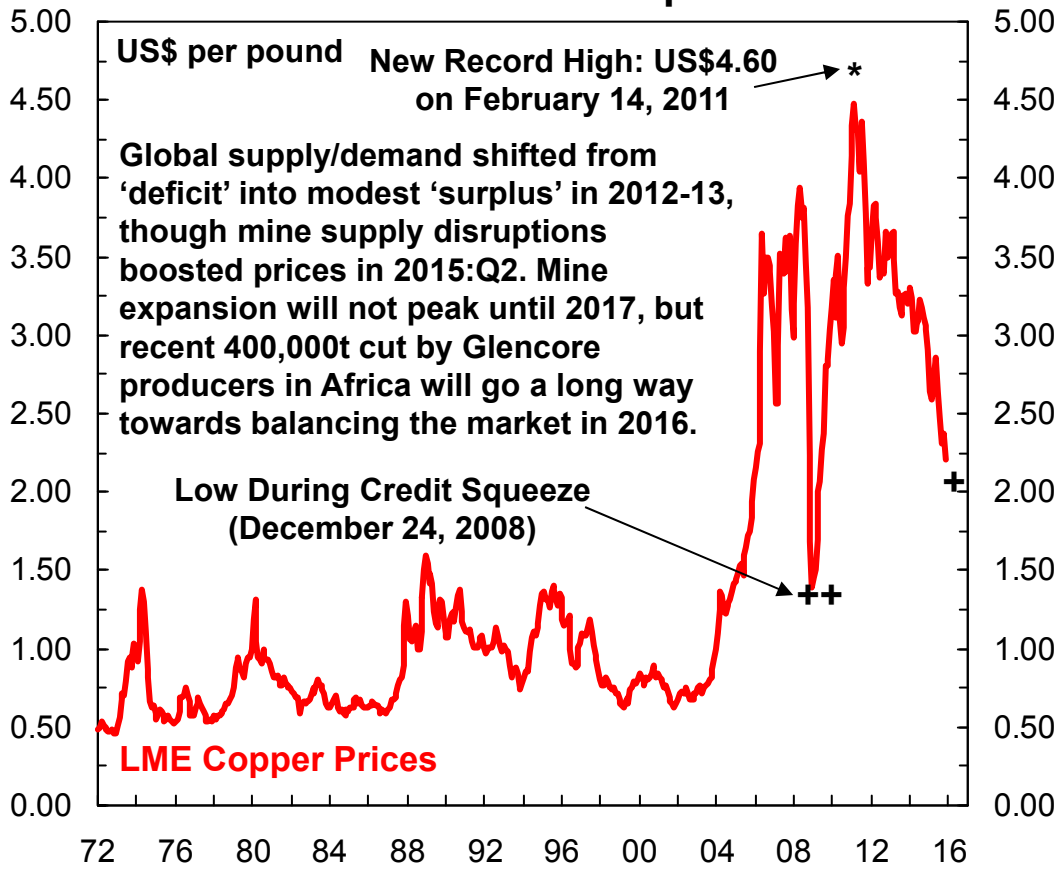
Over the medium term, palladium offers the greatest upside for prices within the PGMs due to rising vehicle ownership in China and tightening emissions standards.

Palladium is used in catalytic converters to control exhaust emissions in gasoline-driven automobiles, while platinum is used more widely in diesel-fueled vehicles, which are less popular in China.

China adopted the China IV emissions standards — equivalent to euro IV in the European Union and has given itself until 2016 to implement them fully. The China V standard — roughly equivalent to Euro V — must be implemented in China for gasoline and diesel vehicles as of January 1, 2018.

Currently, the average catalytic converter in China contains about 2.4 grams of PGMs (2 grams palladium & 0.4 gram platinum). In North America, of the 3.7 g of PGMs, 2.9g are palladium & 0.8g is platinum).

Copper Prices Trend Lower With Global Mine Expansion



LME cash settlement prices. + Latest data: November 23, 2015: US$2.05 just below average world breakeven costs including depreciation, interest & indirect costs (reflecting lower diesel costs in 2015 & impact of currency depreciation against US dollar). Base metal prices are currently generally 'over-sold'.

++ Dec 24, 2008 recession low: US$1.26.

Price Outlook

2009	US$2.34
2011	US$4.00
2014	US$3.11
2015e	US$2.49
2016F	US$2.10
2017F	US$2.10

The strength of copper prices in 2008-12 reflected only limited global mine development, up 1.7% p.a. from 2008-2012, in the face of strong demand growth from China and the 'emerging' world.

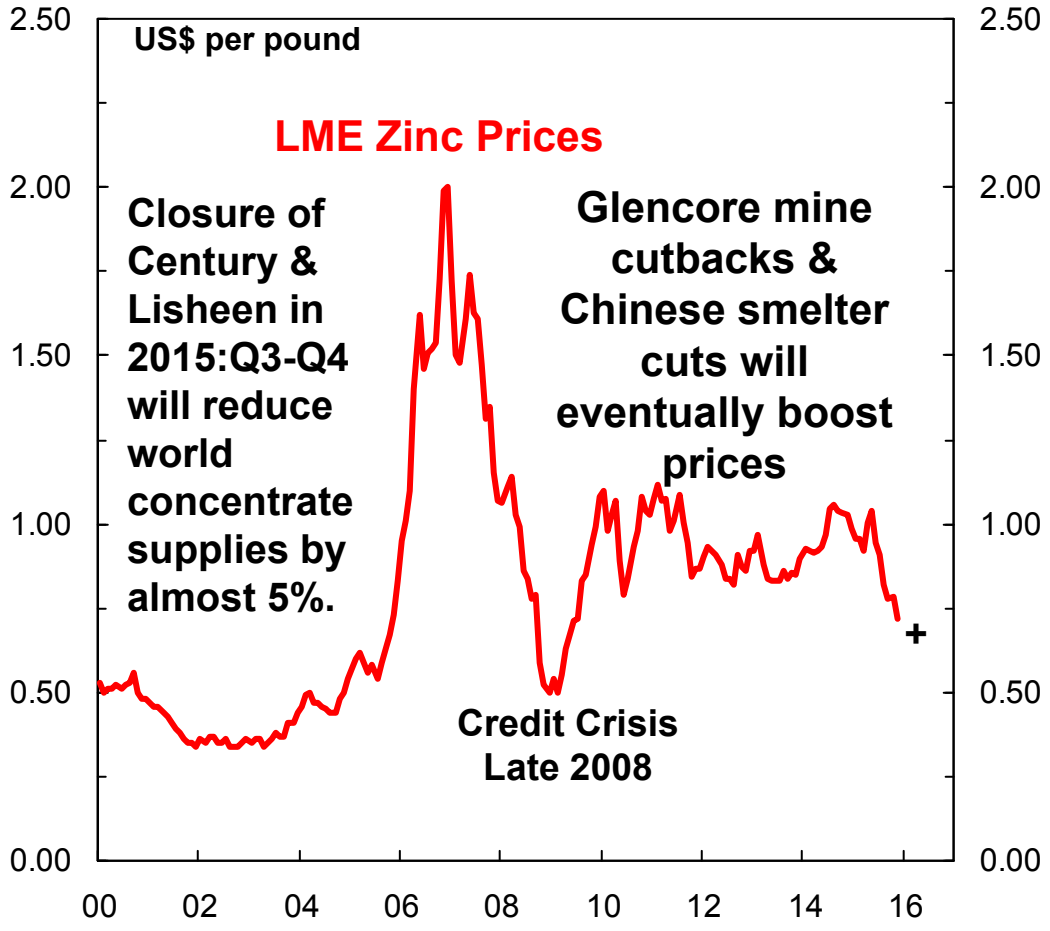
China's refined copper consumption:

2009	2010	2013	2014	2015f	2016f
+25%	+10.8%	+11.7%	+7.3%	+3.0%	+4.3%

Refined copper demand in China is revised down moderately to only 3.0% in 2015 in view of recent economic developments. However, a pick-up in power sector investment, after a relatively weak 2015:H1, strength in railway investment & tight scrap supplies will be supportive in late 2015.

Prices have edged down in 2015 alongside ongoing mine development and slow global consumption growth of only 2.3%. Grupo Mexico and Freeport McMoRan were among the first producers to react to lower copper prices by curbing output. In the late decade, prices should recover — back over US$3.00 per pound.

Zinc — Relatively Strong Fundamentals



+ LME official cash settlement price Nov. 23, 2015: US$0.68 — just below avg. world breakeven costs including depreciation & corporate overheads, but still well above mine cash costs & the Dec. 2008 recession low of US$0.50. Zinc concentrate supplies should become visibly tight by 2016:H2, boosting premiums.

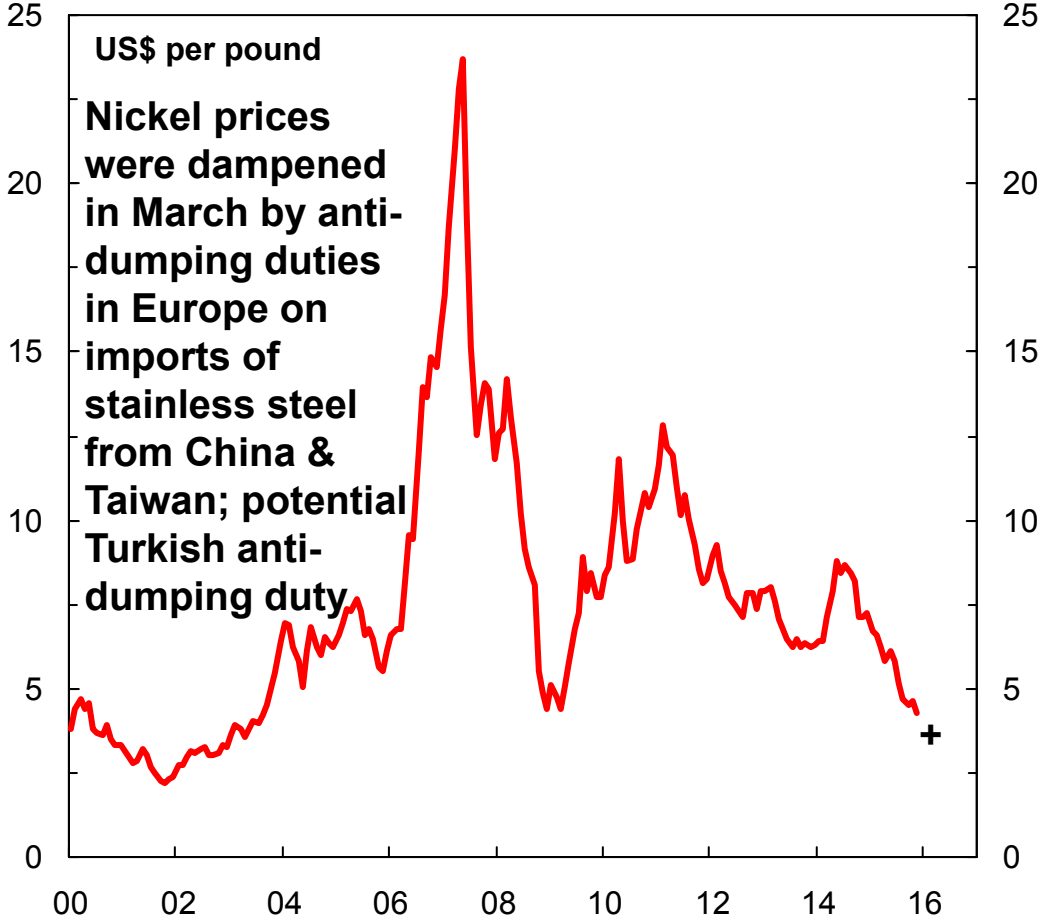
Zinc Price Outlook

2014	US$0.98
2015e	US$0.88
2016F	US$0.80
2017F	US$1.25

Zinc was the 5th best performing commodity within the 'Scotiabank Commodity Price Index' in 2014 , boosted by strong investor and Commodity Fund interest, with a sizeable 'deficit' in the global concentrate as well as the refined market expected by 2016.

In Aug 2015, downside risks to zinc consumption in China and a big shift in stocks from off-warrant to LME warehouses pressured prices. Medium-term, prices will rally strongly, as mine development is deferred. Of the 24 mine projects which could be developed through 2018-19 (including 4 in Canada) only 2 have financing (Vedanta's Dugald River & MMG's Gamsberg). Glencore's 500,000t cut in output will reduce global mine supplies by 3.6% in 2016, increasing the 'deficit' further.

Nickel Prices



+ November 23, 2015: US$3.70. Important for Vale/Glencore Sudbury nickel complex; In Quebec, Raglan, Nunavik Nickel & the proposed Dumont Nickel project of Royal Nickel.

Price Outlook

2014	US$7.65
2015e	US$5.50
2016F	US$5.40
2017F	US$7.00

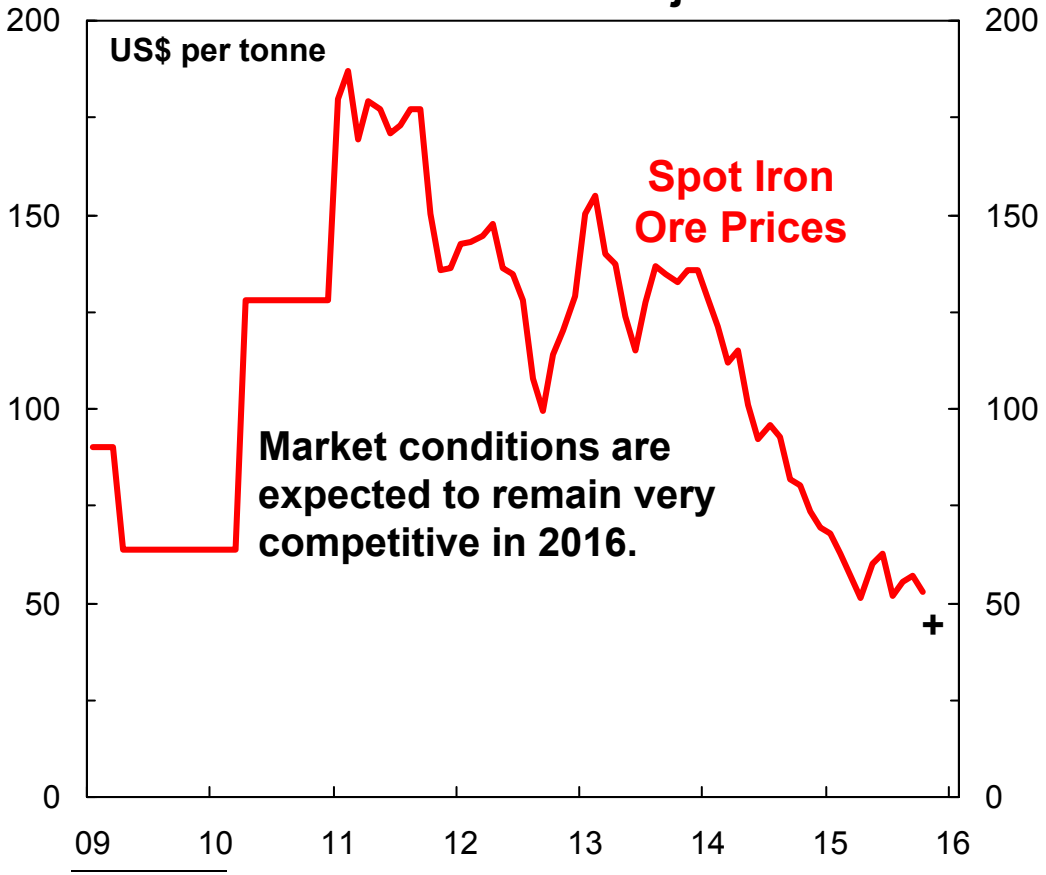
Nickel prices initially responded favourably to the ban by Indonesia on the export of all unprocessed nickel-containing ore (as of January 12, 2014). However, concern over the ban has recently faded due to weak global stainless steel demand and production. Prior to the ban, Indonesia had accounted for 33.7% of world nickel supplies.

Stainless steel production in China will increase by less than 1% in 2015 (worldwide by 0.4%). Weak capital spending in heavy industry & the Oil & Gas sector has pared demand for stainless and high alloy steels (strength in commercial aircraft continues). Distributors are buying steel & nickel on a hand-to-mouth basis.

LME nickel prices at US$3.70 have dropped below average world breakeven costs (including depreciation), but remain above average mine cash costs for existing mines in Canada. Most 'Nickel Pig Iron' plants in China are still operating, but are not covering costs.

World supply & demand conditions for nickel will shift into a small 'deficit' in 2016, as global stainless steel production picks up moderately (+3.5%) in the face of no new mine supply and lower refined output. The 'deficit' will grow in 2017.

Iron Ore Prices, 62% Fe Fines, Delivered To Tianjin



+ Nov. 20, 2015: US$45 per tonne; Nov. 2014 US$73.40; peak February 2013 US$155.

Baffinland Iron Mines' Mary River project benefits from the high-quality of its ore (67.5% Fe) and premiums for lump & clean fines.

Spot iron ore prices delivered to northern China have lost 70% of their value since early 2013. China's steel production — accounting for 50.2% of the world total — grew by only 0.1% in 2014 and has declined by -2.1% YTD. A slowdown in China's residential construction due to over-building several years ago has dampened steel demand; the property market in Tier 1 cities is turning around, but still weak elsewhere.

Four major low-cost producers in Western Australia & Brazil — who dominate the world iron ore market and earn the bulk of their revenue from iron ore — embarked on a program of mine expansion in 2013-14, forcing out higher-cost producers in other regions. 2 major projects still starting up: Roy Hill in Australia late 2015 & Vale's SD11 project in Brazil (90 mt) in 2016.

World iron ore output expected to drop by -65 mt in 2015 due to closure of high-cost mines in China (-81.5 mt) and Africa
A slowdown in capacity expansion by the majors should pave the way for a modest increase in prices by 2018, though improvement will be slow.

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