THE OUTLOOK FOR WORLD OIL PRICES

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Summary and Major Conclusions:

The investment implications of stable oil prices are generally positive. Lower oil prices will exert downward pressure on consumer prices, which will enhance purchasing power for households, thereby boosting US GDP. Corporate profit margins will benefit from lower input and transportation costs, thereby lifting company earnings. The expected favorable supply/demand balance will reduce exogenous economic risk, thereby supporting somewhat higher equity valuations. The net effect should be a positive for world equity markets.

- Crude oil and petroleum products remain in abundant supply worldwide. Demand is increasing at the slowest pace since the 2008 recession and oil production has also slowed, but is expanding at a pace well in excess of demand.

- Oil prices have fluctuated within a range of $52 to $58 per barrel over the past six months, with an average price of $55 per barrel. The chronic oversupply condition that first emerged in 2014 has not disappeared.

- The sharp slowdown in world manufacturing is a major factor behind the weakness in oil consumption. The trade conflict between the US and China is another factor, as is economic weakness in Asia. China has accounted for the largest portion of growth in world oil consumption over the past two decades.

- World oil production is increasing at a slower pace than in recent years, but at a faster pace than consumption. The slowdown in output can be attributed to both geopolitical and domestic market forces. Within OPEC, US sanctions on Iran have resulted in a steep decline in exports from that country.

- US shale oil production is in the early stage of a slowdown from the blistering pace that began in 2016. Exploration firms are less incentivized to drill for oil when expectations for market prices are low. In addition, publicly owned drilling companies are facing pressure from shareholders to spend less on new investments and to increase dividends and share buybacks.

- As a result, total US oil production in 2020 is expected to expand by only 1 million barrels per day (bpd), down from a peak of nearly 2 million bpd in 2018. Consistent with these trends, capital investment in the oil patch is likely to decline again in 2020.

- My forecast assumes an increase in world oil consumption in 2020 of only 1.5 million bpd. This compares with a slightly larger increase in oil production of 2.5 million bpd.

- With no growth in developed economies, the expected increase in demand will be concentrated in the emerging economies of Asia, primarily China and India. The entire increase in world supply is coming from the US and other non-OPEC countries, most notably Canada, Brazil, and Norway.

- My forecast for 2020 assumes that world oil prices will continue to fluctuate within a trading range, defined as $48 per barrel on the downside and $58 on the upside. The basis for this forecast is an assumption that world oil production will increase at a faster rate relative to the increase in consumption.

- Decisions on the part of the OPEC/Russia alliance regarding production quotas is a wild card in the outlook. Currently at 1.2 million bpd, an orchestrated cut in output by the cartel has been necessary to prevent an outright collapse in oil prices.

- In an environment in which supply exceeds demand, deeper cuts in output may be necessary to keep a floor under oil prices. The current agreement on production quotas between OPEC and Russia expires in March of next year, and the oil alliance may decide to cut production further.

- Consumers worldwide will benefit from lower prices for petroleum products, as will business firms in energy-intensive industries. In the negative column, the declining trend in energy sector investments will have a dampening effect on world GDP.

- Lower oil prices will exert downward pressure on consumer prices, which will enhance purchasing power for households, thereby boosting US GDP. Profit margins will benefit from lower input costs, thereby lifting company earnings. The net effect should be a positive for world equity markets.

World oil prices have fluctuated within a trading range over the past six months, with an excess of supply versus demand exerting downward pressure on market prices. This week's *Economic Perspective* provides answers to questions regarding supply and demand trends within world oil markets, along with projections of future price movements.

WHAT IS THE CURRENT CONDITION OF WORLD OIL MARKETS?

Crude oil and petroleum products remain in abundant supply worldwide. Demand is increasing at the slowest pace since the 2008 recession and oil production has also slowed, but is expanding at a pace well in excess of demand. The result is a generally elevated level of crude oil inventories, which is exerting downward pressure on prices. Market prices have fluctuated within a range of $52 to $58 per barrel over the past six months, as measured by West Texas Intermediate (WTI) crude, with an average price of $55 per barrel. The average price of North Sea Brent crude oil has been $61 over this same period. From a long-term perspective, the chronic oversupply condition that first emerged in 2014 has not disappeared (see chart 1).

WHAT EXPLAINS THE SLUGGISH GROWTH IN DEMAND?

The sharp slowdown in world manufacturing is a major factor behind the weakness in oil consumption. The trade conflict between the US and China is another factor. Chinese GDP growth has slowed to only 6%, the slowest pace in 27 years. China has accounted for the largest portion of growth in world oil consumption over the past two decades. A long-term peak in China's industrialization process is consistent with a reduced demand for energy. In general, economic weakness in emerging Asia is a major factor behind the slowdown in world consumption (see chart 2).

Chart 1: World Oil Prices Fluctuating Within a Narrow Trading Range
Price Per Barrel, West Texas Intermediate (WTI) Crude, US Dollars
Source: Bloomberg

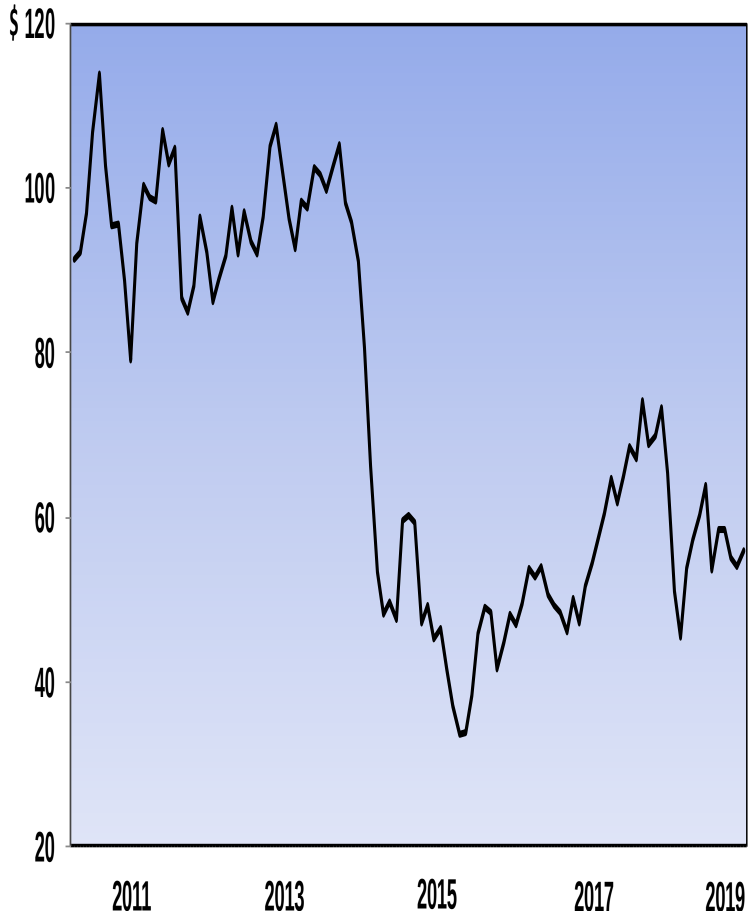
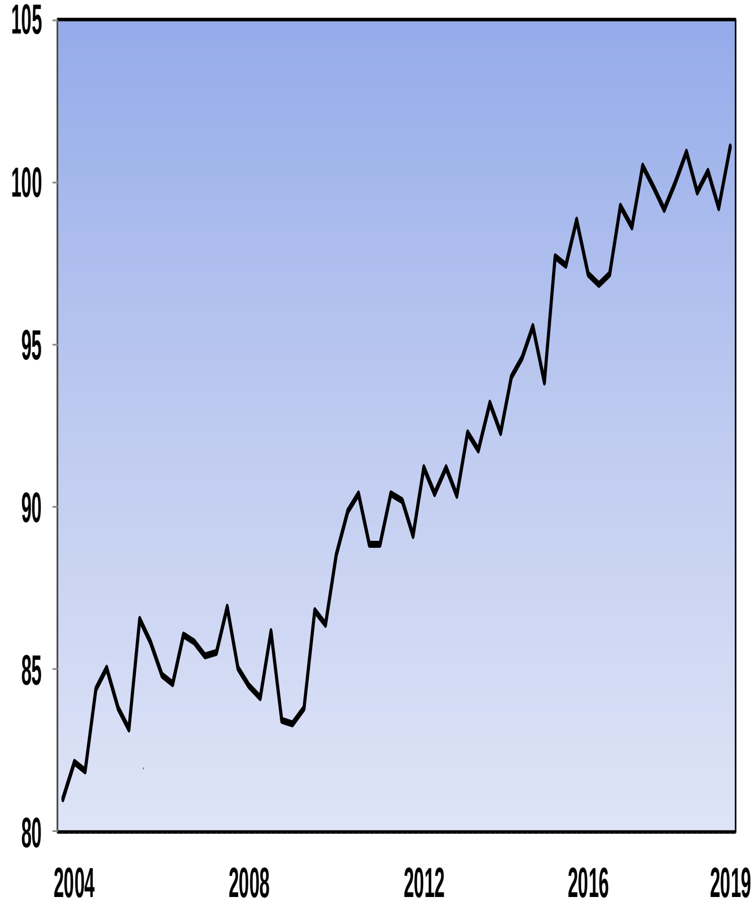


Chart 2: Slower Growth in World Oil Demand
World Oil Consumption, Millions of Barrels Per Day
Source: Department of Energy



COULD YOU DISCUSS THE FUNDAMENTAL FACTORS AFFECTING SUPPLY?

World oil production is increasing at a slower pace than in recent years, but at a faster pace than consumption. The slowdown in output can be attributed to both geopolitical and domestic market forces. *US shale oil production is in the early stage of a slowdown from the blistering pace that began in 2016*. Within OPEC, US sanctions on Iranian oil exports have resulted in a steep decline in exports from that country.

Iran is currently producing 2.1 million bpd, down from a peak of nearly 4 million bpd one year ago. Political turmoil within Venezuela has resulted in an implosion in production from 2 million bpd in 2017 to only 600,000 barrels currently. Finally, the Vienna Alliance — OPEC plus Russia — has withheld 1.2 million bpd of oil capacity from the market in an effort to artificially support oil prices (see chart 3).

Chart 3: Sharp Decline in OPEC Oil Production
Oil Production by the OPEC Cartel
Hundreds of Barrels Per Day
Source: Bloomberg

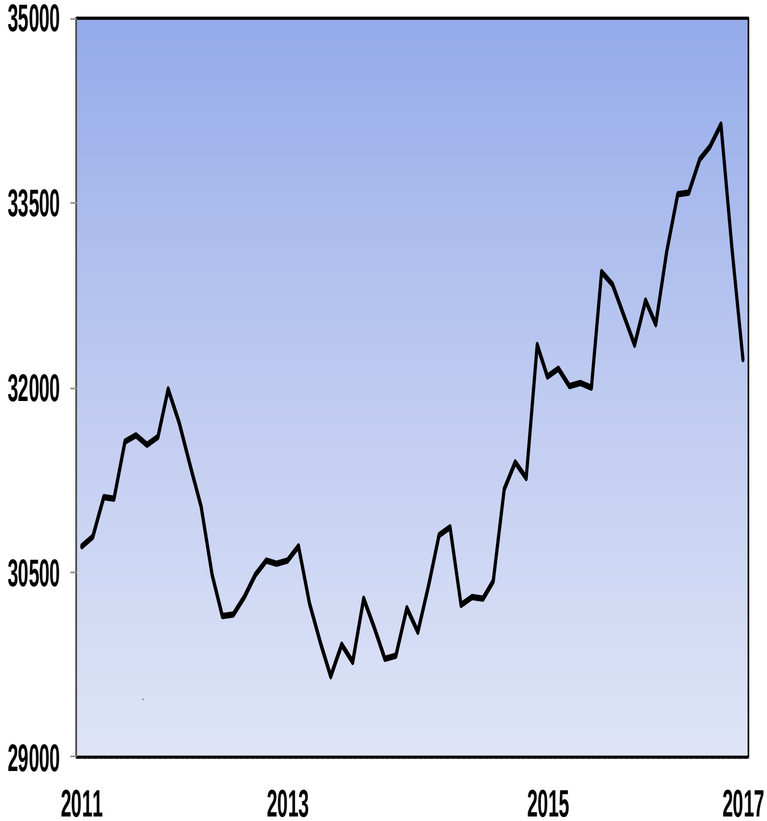
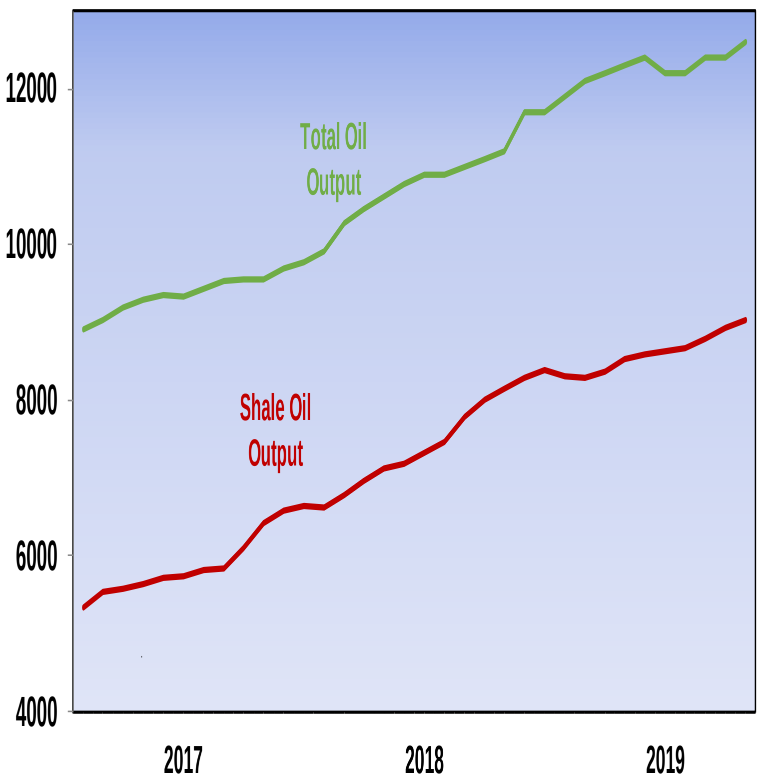


Chart 4: Record Production of US Oil Driven by Shale
Production of Total US Crude Oil
Production of US Shale Oil
Hundreds of Barrels Per Day
Source: Department of Energy



WHY IS US SHALE PRODUCTION IN A SLOWDOWN PHASE?

There are several reasons. First, firms are less *incentivized* to drill for oil when expectations for market prices are low. Oil prices are currently 20% below the levels of one year ago, and are widely expected to drift lower in the foreseeable future. Second, publicly owned drilling companies have been receiving pressure from shareholders to exercise more capital discipline by cutting back on new investments to direct free cash flow to dividends and share buybacks (see chart 4).

Finally, from a purely geological perspective, oil rig productivity has declined somewhat from the spectacular pace of the previous several years. Following a period of rapid production, a so-called young well then suffers a steep decline in its base, which results in reduced future output.

As a result, total US oil production is expected to expand by only 1 million bpd in 2020, down from a peak of nearly 2 million bpd in 2018. Consistent with these trends, capital investment in the oil patch is likely to decline again in 2020. The sluggish spending backdrop in recent years is manifested in the depressed level of US rotary oil rigs in operation (see chart 5).

Chart 5: US Oil Exploration in a Long-Term Decline
US Rotary Oil Rigs in Operation
Source: Baker Hughes

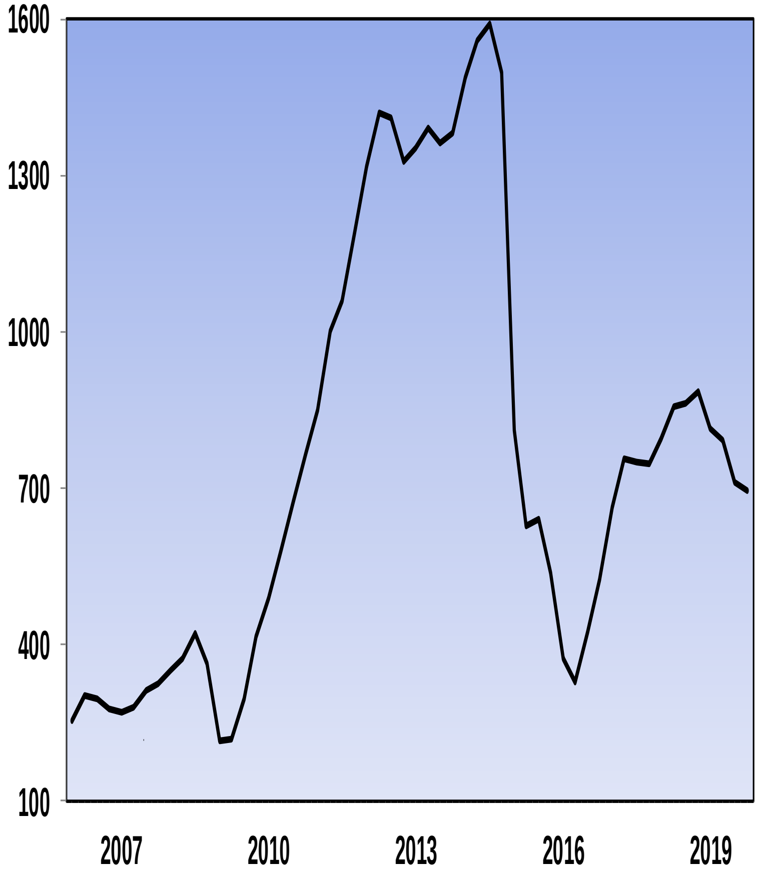
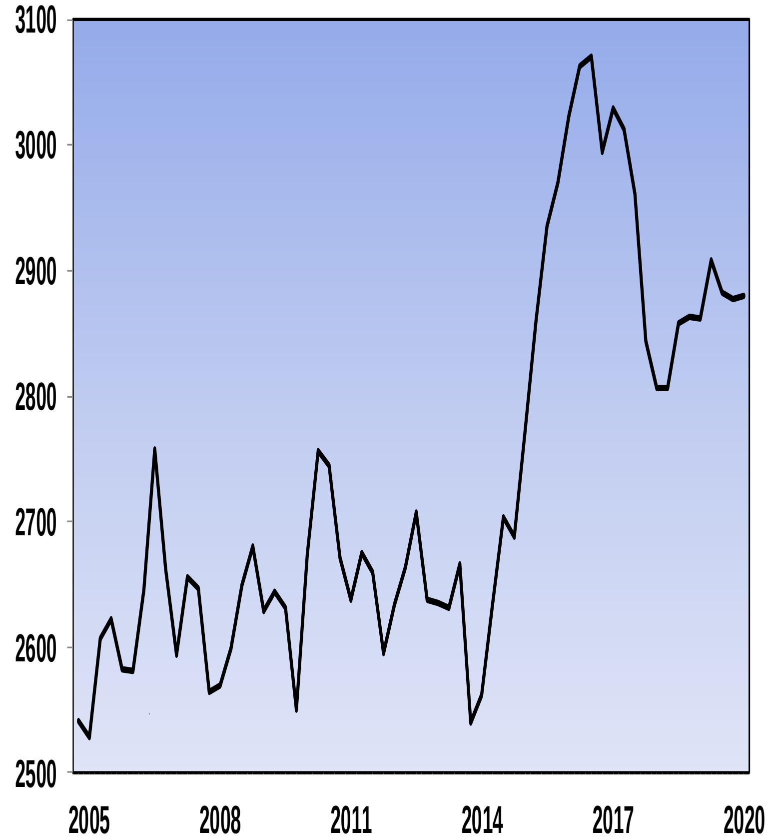


Chart 6: World Oil Inventories Still Above Long-Term Averages
Crude Oil Inventories Worldwide
Hundreds of Barrels
Source: Bloomberg



CAN YOU ELABORATE ON THE OUTLOOK FOR SUPPLY AND DEMAND?

My forecast assumes an increase in world oil consumption in 2020 of only 1.5 million bpd. This compares with projections for a larger increase in oil production of 2.5 million bpd. With zero growth in developed economies, the expected increase in demand will be concentrated in the emerging economies of Asia, primarily China and India. The entire increase in world supply is from the US and other non-OPEC countries, most notably Canada, Brazil, and Norway. This forecast is consistent with an increase in world oil inventories over the course of the next year. OPEC oil production is expected to decline again in 2020 (see chart 6).

WHAT IS THE OUTLOOK FOR WORLD OIL PRICES?

My forecast for 2020 assumes that world oil prices will continue to fluctuate within a trading range, defined as $48 per barrel on the downside and $58 on the upside, as measured by WTI crude. The basis for this forecast is an assumption that world oil production will increase at a faster rate than the increase in consumption.

WHAT IS THE OUTLOOK FOR OIL INDUSTRY INVESTMENT?

Capital investment in oilfield equipment is in a downtrend that could persist for another one to two years. Low market prices and capital restraint on exploration companies are exerting downward pressure on spending. Compared with an interim peak of $110 billion in 2018, investment in the domestic onshore market is expected to fall to $100 billion for all of this year and to $90 billion in 2020. The all-time peak was $155 billion in 2014.

ARE DEEPER PRODUCTION CUTS WITHIN OPEC POSSIBLE?

Yes, the production quotas for the OPEC cartel are a wild card in the outlook. Currently at 1.2 million bpd, the orchestrated cut in output by the Vienna Alliance of oil producers has been necessary to prevent an outright collapse in oil prices. In the context of a surplus of supply over demand, deeper cuts in output may be necessary to keep a floor under oil prices. The current agreement on production quotas between OPEC and Russia expires in March of next year, and the oil ministers within the alliance may decide to cut production further. Future quotas will depend upon supply/demand conditions at the time.

CAN YOU EXPLAIN WHY THE TERRORIST ATTACKS ON SAUDI OIL FACILITIES DID NOT HAVE A LONGER-LASTING EFFECT?

The surprisingly quick adjustment in world oil prices following the drone attacks on Saudi Arabian oil facilities was instructive. The immediate knee-jerk reaction of speculators caused a 15% spike in prices, the largest one-day increase in decades. However, within a week, oil prices stabilized and returned to levels just prior to the attack.

The implication of this price action is that oil market participants are complacent regarding current and future supply and demand conditions, and not fearful of a fundamental shortfall in supply anytime soon. The market's perception is accurate, with one caveat: While underlying conditions are supportive of lower prices, the risk of another drone attack on Saudi oil facilities is material. Moreover, retaliation by Saudi Arabia against Iran's oil facilities is also possible, all of which implies a heightened risk of another disruption in supply.

In the absence of future hostilities, supply and demand conditions are quite favorable for consumers of petroleum products, and the path of least resistance for oil prices appears to be lower in the foreseeable future.

WHAT ARE THE RISKS TO THE OUTLOOK?

There are upside and downside risks to the outlook for oil prices. The primary downside risk is an end of sanctions on Iran, which would increase the supply of oil on the market, thereby exerting downward pressure on market prices. The primary upside price risk is another attack on Saudi oil facilities and/or a retaliation against Iran's oil facilities, which would imply heightened risk of another disruption in supply. An outright war between Saudi Arabia and Iran could do immeasurable damage to world oil production capacity, with disastrous economic consequences. Finally, decisions by the Vienna Alliance regarding supply is a wild card in the outlook, rendering oil price forecasts extremely challenging.

WHAT ARE THE BROAD ECONOMIC IMPLICATIONS?

The economic implications are mixed. Consumers worldwide will benefit from lower prices for petroleum products, as will business firms in energy-intensive industries. In the negative column, the declining trend in energy investments will have a dampening effect on world GDP. Finally, as a *net exporter* of oil and petroleum products, the US will not be a beneficiary of lower oil prices as it has been in previous decades, when it was a *net importer* of oil.

WHAT ARE THE INVESTMENT IMPLICATIONS?

The investment implications are generally positive. Lower oil prices will exert downward pressure on consumer prices, which will enhance purchasing power for households, thereby boosting US GDP. Corporate profit margins will benefit from lower input and transportation costs, thereby lifting company earnings. The expected favorable supply/demand balance will reduce exogenous economic risk, thereby supporting somewhat higher equity valuations.

The net effect should be a positive for world equity markets. In the negative column, the corporate bond market could be a casualty of lower oil prices and reduced energy company earnings. A sizeable portion of the high-yield corporate bond market is comprised of energy companies; all else equal, lower oil prices increase the risk of delinquencies and defaults within the energy sector.

Robert F. DeLucia, CFA, was formerly Senior Economist and Portfolio Manager for Prudential Retirement. Prior to that role, he spent 25 years at CIGNA Investment Management, most recently serving as Chief Economist and Senior Portfolio Manager. He currently serves as the Consulting Economist for Prudential Retirement. Bob has 45 years of investment experience.

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MSCI Emerging Market Index: An index of equity market performance for developing markets, primarily in Asia, Latin America, and Eastern Europe. The index tracks both large-cap and small-cap stocks and is weighted by market capitalization.

MSCI World Ex US Index: Measures the performance of the large and mid-cap segments of world, excluding US equity securities. It is free float-adjusted market-capitalization weighted.

Russell 2000 Small-Cap Index: Is an index measuring the performance of approximately 2,000 small-cap companies within the United States.

S&P 500® Index: Measures the performance of 500 widely held stocks in US equity market. Standard and Poor's chooses member companies for the index based on market size, liquidity and industry group representation. Included are the stocks of industrial, financial, utility, and transportation companies. Since mid-1989, this composition has been more flexible and the number of issues in each sector has varied. It is market capitalization-weighted.

State Street Investor Confidence Index: measures investor confidence or risk appetite quantitively by compiling actual buying and selling patterns of institutional investors.

US Trade-Weighted Dollar Index: An index that measures the value of the US dollar in relationship with other currencies, statistically weighted on the basis of importance to the US as trading partners.

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