Article Title: ARCHIVE | General Criteria: Methodology For Crude Oil And Natural Gas Price Assumptions For Corporates And Sovereigns Data: (EDITOR'S NOTE: —This article is no longer current. Please see "FAQ: How S&P; Global Ratings Formulates, Uses, And Reviews Commodity Price Assumptions," published Sept. 28, 2018.) 1. These criteria present Standard & Poor's Ratings Services' methodology and assumptions for its crude oil and natural gas (broadly known as hydrocarbons) price assumptions. This article is intended to help market participants better understand the way we determine hydrocarbon price forecasts. This article relates to our corporate criteria (see "Corporate Methodology," published Nov. 19, 2013), to our sovereign criteria (see "Sovereign Rating Methodology," Dec. 23, 2014), and to our criteria article "Principles Of Credit Ratings," published Feb. 16, 2011. 2. This paragraph has been deleted. SCOPE OF THE CRITERIA 3. These criteria apply to all corporate issuers and sovereign entities that have material exposure to crude oil or natural gas, whether as producers or consumers, and for sovereigns that depend on hydrocarbons, i.e., those where the production and sale of hydrocarbons and related products account for a large share of GDP, of government revenue, and/or of export revenue (such as the sovereigns of the Gulf Cooperation Council), but also those where imports of hydrocarbons account for a significant share of import payments or of government spending. 4. For crude oil, Standard & Poor's currently formulates assumptions for two price benchmarks: West Texas Intermediate and Brent. Both are liquid benchmarks and pricing relationships between the two often vary. For natural gas, we currently have assumptions for one benchmark, the Henry Hub pricing point in the U.S. 5. These price assumptions will not apply to Standard & Poor's corporate recovery ratings.(See "Revised Assumptions For Assigning Recovery Ratings To The Debt Of Oil And Gas Exploration And Production Companies," published Sept. 14, 2012.) SUMMARY OF THE CRITERIA 6. The methodology determines how Standard & Poor's formulates hydrocarbon price assumptions and how we use them in corporate and sovereign credit analysis. We establish pricing assumptions for four discrete periods: the current year; year one (i.e., the next calendar year); year two; and year three and beyond. In formulating our pricing assumptions, we consider market indicators and qualitative factors. 7. The main applications for the hydrocarbon price assumptions are: Forecasting operating performance for oil and gas exploration and production companies; Forecasting operating expense for material consumers of crude oil and natural gas, such as transportation companies; and Assessing the future fiscal and balance-of-payments performance of sovereigns, particularly hydrocarbon-dependent ones. 8. From these three benchmarks, we often establish price assumptions for other hydrocarbons on a relative basis in the context of company- or country-specific analyses. These price relationships are based on historical and expected correlation analyses, and are commonly referred to as basis differentials. Examples can include other grades of crude oil (e.g., Maya or Light Louisiana Sweet), natural gas liquids (e.g., propane and butane) and natural gas trading at different geographic hubs. Corporates 9. Standard & Poor's uses its price assumptions to assess a company's credit quality and to compare creditworthiness on a consistent basis among oil and gas companies globally. These price assumptions provide the basis for establishing our base case financial projections. 10. Using these pricing assumptions, we forecast cash flow and key credit ratios for companies where hydrocarbon prices represent a material driver. These outputs are then used to determine the financial risk profile assessments. Sovereigns 11. Standard & Poor's hydrocarbon price assumptions form important inputs into sovereign credit analysis, particularly for hydrocarbon-dependent sovereigns. Specifically, the future price of hydrocarbons can play an important role in assessing such sovereigns' GDP and economic structure, and their current and future state of government finances, and balance of payments. 12. This paragraph has been deleted. 13. This paragraph has been deleted. METHODOLOGY A. Calculating Price Assumptions 14. For widely traded commodities like crude oil and natural gas, the futures curve represents the starting point for our pricing assumptions. Although the futures curve is not necessarily a good predictor of future spot prices, it reflects market consensus at any given point in time. Furthermore, we believe that the futures curve generally does not systematically exceed or fall below future spot prices. 15. We establish pricing assumptions for four discrete periods: the current year; year one (i.e., the next calendar year); year two; and year three and beyond. For corporates, our forecast period typically focuses on the current plus next two years (see "Corporate Methodology," Section E, on Cash Flow/Leverage). The forecast time horizon is generally longer for sovereign entities. In formulating our pricing assumptions, we use market indicators and consider qualitative factors. In the near term, we primarily use the futures curves to formulate our pricing assumptions, given the depth and liquidity of these markets. In the outer years, when these markets become less liquid and arguably a worse predictor of future spot prices, we increasingly use our fundamental analysis. In the last period (year three and beyond), the assumptions primarily reflect our view of sustainable prices based on fundamental analysis. In our fundamental analysis, we focus on: Market- and issuer-specific supply and demand fundamentals: Standard & Poor's gathers and analyzes the factors underlying future supply/demand and spare capacity trends. We also consider Standard & Poor's economic forecasts and assumptions during the above timeframe. Industry cost curves: Cost curve analysis is important for establishing long-term price assumptions. Producers' break-even costs (generally defined as cash operating expenses plus finding and development costs on a per-unit basis) tend to support price floors in the long run. In the shorter term, however, companies typically may produce as long as they cover cash operating costs. Other factors: We also consider the pricing assumptions that companies use for their capital spending budgets, the degree to which financial derivatives may be influencing futures prices, and industry research on price trends and forecasts. For example, in our analysis we may review and consider research from the U.S. Energy Information Administration, the International Energy Agency, and Platts. B. Review Cycle 16. We typically review hydrocarbon assumptions quarterly. We make changes in assumptions due to changes in market indicators and our view of fundamental supply and demand. Noting the volatility and unpredictable nature of hydrocarbon prices, we may update our assumptions more frequently. In general, if the futures curve shifts such that there is at least a 20% difference between our futures prices and our near-term pricing assumptions and we view the difference to be sustainable, then we will typically modify our assumptions. C. Using Price Assumptions Corporates 17. Common price assumptions provide a comparable basis for evaluating the creditworthiness of companies that produce or are material consumers of crude oil and natural gas. They are a key input used to project a company's revenue, EBITDA, earnings, and cash flow. Where appropriate, the forecast considers issuer-specific production hedges as well as realized (or "well-head") prices, which can differ from the price benchmark because of geographic or quality basis differentials. Sovereigns 18. Hydrocarbon price assumptions are key inputs in assessing the creditworthiness of sovereigns. This is particularly the case for hydrocarbon-dependent sovereigns. As such, hydrocarbon price assumptions can affect key areas of sovereign credit analysis including: The level of GDP, the growth rate of GDP, and the structure of the economy; Public finances, budget balances, and, over the longer term, levels of net government debt; and External accounts, specifically the balance of payments, and, over the longer term, the international investment position. 19. Furthermore, volatility in hydrocarbon prices can lead to volatility and distortions in terms of trade, government finances, and economic performance of hydrocarbon-dependent sovereigns, thus introducing additional risk factors. The ultimate implications of the above factors for sovereign creditworthiness are detailed in our sovereign rating criteria (see "Sovereign Rating Methodology," published Dec. 23, 2014). REVISIONS AND UPDATES This article was originally published on Nov. 19, 2013. These criteria became effective on Nov. 19, 2013, the date of publication, and supersede "Revised Methodology For Oil And Natural Gas Price Assumptions," published Nov. 16, 2011, and "Standard & Poor's Revises Its Natural Gas Liquids Price Assumptions For 2011, 2012, and 2013," published Oct. 7, 2011. The referenced article "Sovereign Government Rating Methodology And Assumptions," published June 24, 2013, has been superseded by "Sovereign Rating Methodology," published Dec. 23, 2014. Changes introduced after original publication: Following our periodic review completed on Nov. 4, 2016, we updated contact details and some criteria references and deleted sections that appeared in paragraphs 12 and 13, which were related to the initial publication of our criteria and no longer relevant. Following our periodic review completed on Oct. 26, 2017, we renamed "Appendix 1: Summary Of Historic Changes To The Article" to "Revisions And Updates." RELATED CRITERIA AND RESEARCH Related Criteria Sovereign Rating Methodology, Dec. 23, 2014 Key Credit Factors For The Oil Refining And Marketing Industry, March 27, 2014 Key Credit Factors For The Oil And Gas Exploration And Production Industry, Dec. 12, 2013 Corporate Methodology, Nov. 19, 2013 Principles Of Credit Ratings, Feb. 16, 2011 These criteria represent the specific application of fundamental principles that define credit risk and ratings opinions. Their use is determined by issuer- or issue-specific attributes, as well as Standard & Poor's Ratings Services' assessment of the credit and, if applicable, structural risks for a given issuer or issue rating. Methodology and assumptions may change from time to time as a result of market and economic conditions, issuer- or issue-specific factors, or new empirical evidence that would affect our credit judgment.