The Use of Risk Analysis and Strategic Classification to Manage Exploration Portfolios

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Risk analysis is critical to successfully exploring and developing oil and gas properties in today's turbulent environment. Risk analysis should go beyond deciding whether to drill a well, however; it also should be used to determine a company's strategy. Strategic planning is needed to set the direction of a company, improve profitability, allow the company to divest itself of unprofitable projects, and concentrate resources where they will do the most good.

The strategic classification method matches the quality of an oil and gas opportunity with a company's ability to pursue it. Several types of risk are quantified, including technical, economic, environmental, political, and competitive. These are subsequently benchmarked against historical risk and actual well results. Risk factors fall into two categories: those external to the company environment, which cannot be changed; and those internal to the company, which can. Opportunities and threats are external factors that affect a company's ability to make a profit but cannot be controlled. Strengths and weaknesses, which measure a company's internal ability to pursue a project, can be controlled. External and internal criteria are matched to determine the strategic classification of the project. By strategically classifying opportunities, a company can determine whether to strengthen its position, dilute its interest, or withdraw altogether. It can also be used to determine strategy such as concentrating in frontier areas versus more mature areas or increasing or divesting assets. Use of a strategic project classification will ensure that resources, both human and monetary, are used to maximize profitability and in accordance with company goals.

Post-Mid-Cretaceous Seismic Stratigraphy and Depositional History, Deep Gulf of Mexico Basin

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A detailed seismic stratigraphic analysis of the deep Gulf of Mexico basin has resulted in the definition of 18 post-mid-Cretaceous seismic sequences. A chronostratigraphic framework established in this study allows for the first time a detailed comparison of deep Gulf stratigraphy with that of the peripheral Gulf regions. This comparison reveals a genetic relationship in time and space between deep-water sedimentary rocks and Cenozoic shelf margins. It provides useful information to help infer approximate locations of large sediment fairways traversing the continental slope.

Upper Cretaceous to middle Eocene sequences reflect the influences of the Laramide orogeny and mountain building in the southern Cordilleran, which resulted in a tremendous sediment accumulation along the western margin of the deep basin. During the Oligocene and Miocene a progressive northward migration of depocenters occurred in the deep Gulf of Mexico, mainly in response to the major mid-Tertiary reorganization of source areas and the development of the Mississippi River drainage systems. A progressively westward migration of depocenters occurred during the Pliocene, which was followed by a subsequent eastward shift during the Pleistocene. These shifts are closely associated with the lateral migration of major deltaic shelf margins.

Deep-water sedimentary rocks are represented mainly by basinal turbidites deposited in lower fan settings. Each sequence contains several submarine fan lobes distributed along the deep basin margins, whereas the rest of the deep basin has been dominated by basinal mud-rich turbidites and sediment starvation.