

ROCKS AND MONEY

Laura Kay Ethetton¹

ABSTRACT

The decision to pursue a prospect reflects both geologic and economic evaluation. Yet, geoscience and economics are often treated as separate and distinct disciplines. This may lead to erroneous financial analyses and poor exploration decisions. Economic models should probe beyond the common range of reserve estimates. Economic model assumptions such as reserves per well, initial flow rate, and decline rate are based on reservoir characteristics such as depth of the reservoir, porosity, permeability, reservoir thickness, and drive mechanism. Since these parameters affect the rate of production, and, consequently, the rate at which revenue is generated, they are critical in determining economic viability.

Factors that affect the rate of production influence the economic performance measures that incorporate the time value of money. Measures such as Net Present Value and Rate of Return are sensitive to the time interval between investment and receipt of revenue. Therefore, they are sensitive to the rate of production.

When the geologic parameters used in an economic model are based on pertinent regional production data, a range of parameters can be established and sensitivities can be run to determine the variability of economic possibilities. The economic analysis is closely tied to the geologic model, one can better judge how much money can be squeezed from the rocks.

¹ Conoco, Inc., P.O. Box 2197, Houston, Texas 77252