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Comparison of capital asset pricing model and Gordon's wealth growth model for selected mining companies

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2016-03-17
http://hdl.handle.net/10539/20121

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ABSTRACT

Capital is a scarce resource globally and mining projects must compete with projects from other sectors for this resource. A decision to invest available capital in mineral projects requires that valuation be conducted to assess the expected return on the projects. The discounted cash flow (DCF) analysis method is commonly used for the valuation of mining projects whereby future cash flows are discounted to present value using a discount rate. Economic and finance theory provides valuable tools to calculate discount rates. However, there is often uncertainty on an appropriate discount rate to apply to a project, as the discount rate must account for such factors as risk and stage of development of the project, despite the significant impact this parameter has on the outcome of a valuation.

There are several methods for determining the cost of equity. This study considers the commonly applied Capital Asset Pricing Model (CAPM) and Gordon's Wealth Growth Model because of their simplicity and availability of parameters required to estimate the cost of equity. CAPM and Gordon's Wealth Growth Model are based on different assumptions, resulting in differences in the estimated cost of equity. This study explores how differences in the cost of equity obtained by these two methods can be explained for a mining company environment and proposes a way forward.

These models have theoretical superiority when estimating the cost of equity. However, the final test of any model must be on the accuracy of its estimates. The relationship between estimated cost of equity and actual cost of equity represented by the equity component extracted from Weighted Average Cost of Capital (WACC) values from the Bloomberg database was examined. It was observed from the analysis that the empirical performance of CAPM and Gordon's Wealth Growth Model was severely affected by numerous uncertainties in the global economic markets during the period under review.

The application of CAPM and Gordon's Wealth Growth Model during economic instability renders these models improper to estimate the cost of equity for mining companies reliably. Gordon's Wealth Growth Model seemed to be more superior over

CAPM based on the graphical presentation and statistical analysis applied in the research. Therefore, this research recommends that Gordon's Wealth Growth Model be used to estimate the discount rates for mining companies during a state of economic market instability.