DISTANCE TO DEFAULT: OIL CORPORATES AND HEDGING STRATEGY

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Overview

The addition and rapid growth of North American shale oil production on global supply channels coincided with the recent global oil price collapse. Independent oil producers have shown themselves to be instrumental in the tight oil production growth and movement towards US oil independence. Predicting the industry's capability to maintain and further develop domestic shale oil production requires an understanding of financial and operational resilience. Equity investors, like debt providers, have contributed to firm capital structure scalability in a cyclical industry. The risk of firm default during an energy price trough is critical for equity and debt valuations. This paper investigates the effect of hedging programs by a homogeneous group of independent, domestic-focused tight oil producers on firm distance to default. In order to determine if hedge programs influence firm financial distress metrics, forty-four domestic tight oil producers were analyzed over a five-year period (2011-2015), utilizing a balanced fixed effect panel model.

Methods

A fixed effect balanced panel model used to determine the significant of hedging ratio, defined as hedging volume divided by expected annual production in t+1, to the distance to default measurement. In order to manage the challenges in calculating firm asset volatility variable in the KMV distance to default metric, I implemented the naïve distance to default measure presented in Bharath and Shumway (2008). The inputs for the distance to default model of Bharath and Shumway (2008) are sources from financial statements and equity market historical data.

Results

The magnitude of the hedge is statistically significant for distance to default with a coefficient value of 0.8931, indicating a .89% increase in number of standard deviations in distance to default with a 1% increase in hedge ratio. The number of standard deviation that represents distance to default values plotted against hedge ratio to annual production confirms that higher hedge ratios result in a larger distance to default metric.

Conclusions

Results conclude that hedge volumes exhibit a significant positive interaction with firm distance to default, supporting previous research. Hedge ratio volume was statistically significant to the distance to default dependent variable. Distance to default provides a real-time measure for hedge ratio importance to firm financial resilience and default probability and is the primary input to the default probability calculations used by ratings agencies. As the hedge volume decreases the distance to default narrows.

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