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Credit-spread determinants and interlocking contracts: A study of the Ras Gas project ☆

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Abstract

This paper provides an in-depth study of the allocation of a firm's residual risks not explicitly managed through interlocking contracts in the context of project finance. Focusing on the Ras Gas project, we relate its credit spreads as a measure of investor risk perceptions to firm-specific risk factors in the context of 25-year supply agreements, debt covenants, and a debt-service guarantee contingent on output prices. Consistent with theoretical predictions, we find that unmanaged risk factors affecting the supply agreement drive Ras Gas' credit spreads, whereas managed ones have no effect. Interpreting our findings as evidence for the nexus-of-contracts view of the firm, we discuss some implications for financial design and valuation.
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1. Introduction

Investors' risk perceptions have long been recognized to be a function of firm-specific variables and, in particular, risk factors affecting firm value. In this paper, we analyze the credit-spread determinants of the Ras Laffan Liquefied Natural Gas Company, Ltd. (Ras Gas for short) in terms of the project's contractual structure. We pursue two objectives with this study. On the one hand, we attempt to provide some empirical evidence on credit-spread determinants from the perspective of the firm as a nexus of contracts. On the other, we wish to draw attention to the field of project finance, which offers many exciting and unique opportunities to investigate issues of fundamental importance in finance. Indeed, no other real-world setting corresponds more closely to the standard framework of corporate-finance models in terms of time structure with corresponding resolution of uncertainty, a small number of investors and classes of financial claims, actions by contracting parties, a single indivisible investment, etc.

The view of the firm as a nexus of contracts, first formulated in the seminal papers by Alchian and Demsetz (1972) and Jensen and Meckling (1976), underlies much of modern corporate finance. However, this approach begs the question of how financial contracts interact with other contractual relationships, and how capital markets price these interactions. In theory, the firm as a collection of contracts should be worth the sum of its constituent contracts. In practice, firms are very complex webs of contractual relationships, whose intricate interplay does not easily lend itself to empirical investigation. Indeed, prior studies of financial and organizational design based on large samples have focused on one contractual relationship at a time and are unable to identify the precise distribution of risks over a longer period. However, there is one particular area where a firm's contractual structure is sufficiently well-documented for such analysis: project finance. This financial technique is defined as the raising of funds to finance a single indivisible large-scale capital investment project whose cash flows are the sole means to meet financial obligations and to provide returns to investors.[1]

Ras Gas extracts, processes, and sells liquefied natural gas (LNG) from a field off the shore of Qatar. We study the effect of three interlocking contracts on the credit spreads of the project's actively traded bonds, which serve as our measure of investors' risk perception: (i) two 25-year output sales and purchase agreements (SPAs) with the Korea Electric Power Company (Kepco for short) as the dominant output buyer, (ii) the debt contract (bond covenants), and (iii) a debt-service guarantee by Mobil Corporation, one of the shareholders, to debtholders contingent on output prices. Given the specificity of the assets, the project's debtholders bear the costs of unforeseen contingencies and potential opportunistic behavior by the output buyers ("off-takers") because the LNG supply contract as the major source of revenue effectively secures the debt. Consequently, we would expect debt markets to price any off-take risk not explicitly managed through the firm's nexus of contracts. The project offers the unique opportunity of assessing the risk dynamics arising from interlocking contracts on the basis of market information because both the output seller (Ras Gas) and the dominant buyer (Kepco), have actively traded global bonds outstanding.

[1] Brealey, Cooper, and Habib (1996) provide an excellent survey of the economic issues in project finance; for a detailed introduction to project finance, see Finnerty (1996).

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