

## On synergies and vertical integration

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### Abstract

We analyze in an incomplete contracts model whether a supplier should be integrated if in addition to his investment level he chooses the degree of relationship specificity. A basic trade-off arises: While non-integration leads to higher investment incentives, potential synergies are foregone. Hence, integration can be optimal even though only the supplier makes an investment decision. This may also clarify the discussion on which activities belong to a firm's core competencies. Furthermore, we show that if specificity is contractible, less than the efficient degree of specificity will deliberately be chosen since investment incentives are thereby improved. © 2001 Elsevier Science B.V. All rights reserved.

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### 1. Introduction

When trying to explain the reasons for the large number of mergers among both multinationals and small specialized businesses in recent years, the realization of potential synergies among the merging firms is often invoked.<sup>1</sup> In particular, it is

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<sup>1</sup>See, for instance, “Why too many mergers miss the mark”, *The Economist*, 4-Jan-97 or “More to synergy than the takeover game”, *Financial Times*, 4-May-98.

usually claimed that when integrated a supplier of inputs will adapt his technology in a much higher degree to the needs of his customer than when he is separately owned. In this paper we focus on vertical mergers and analyze the impact of ownership structures on the realization of synergies. Hence, a key question is why two separate firms might be unable to implement the same degree of relationship specificity as they would choose if they were commonly owned.

For example, consider a supplier of certain car parts who has to make investments in order to produce a specific input for an automobile manufacturer. Suppose that there is only one asset used in the production of the input, namely the supplier's plant. Following the seminal contribution of Grossman and Hart (1986), ownership is defined as residual rights of control over the use of assets. Provided that complete state-contingent contracts cannot be written, the owner of an asset can threaten to withdraw the asset from a relationship in order to use it otherwise if a contingency arises which was not specified in the initial contract. Asset ownership can hence improve investment incentives of a party that has to make unverifiable investments that are worthless without the asset. In our example, if the automobile manufacturer does not have to make any significant relationship-specific investments, the Grossman–Hart–Moore (GHM) analysis recommends that the investing party, i.e. the supplier, should own the plant.<sup>2</sup>

In this paper we want to emphasize that the investing party's decision in practice is more complex than simply deciding on the amount of effort invested in production. In particular, it has to be decided exactly how to spend the invested amount and how to design the production technology adopted. One important aspect in this context is the degree of specificity with regard to the needs of the buyer. For example, the supplier might choose highly specific machines or workers' training adapted to the buyer's needs. In this sense the supplier has an impact on the degree to which *synergies* may be realized within the relationship. Of course, if the input is only produced to be used by the buyer, the realization of the complete potential of synergies is optimal and would be accomplished in a first-best world. But the more specificity the seller chooses, the higher his dependency on the buyer and the stronger the threat of being held-up if contracts are incomplete.

In the first part of the paper we follow the GHM framework and assume that only asset ownership can be contractually determined. This is meant to capture the idea that specificity, much like investment in the sense of effort, often may not be verifiable by the courts. It is shown that this might lead to suboptimal adaptation and therefore to a failure to realize the entire potential synergies, given that firms are not integrated. However, if firms are vertically integrated, i.e. if the buyer owns the supplier's plant, no such effect arises and hence all gains from specificity are realized. Hence, if besides the investment decision the supplier also makes a specificity choice, the optimality of non-integration in the illustrative example is

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<sup>2</sup> See Hart and Moore (1990), Moore (1992), and Hart (1995).

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