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Do firms benefit from multinationality through production shifting?

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ABSTRACT

Previous work shows that multinationality creates firm value due to the potential of multiple host countries to provide operational flexibility. This paper examines whether this value effect on the stock market is backed by a profitability effect of exercising operational flexibility through production shifting across countries. Our panel study of German MNCs confirms that production shifting due to local factor cost changes increases the profitability of international production networks. However, the results also suggest that production shifting from countries with rising labor costs to countries with falling labor costs is not prevalent in MNCs and is not related to the number of host countries. Implications for future research are given.

1. Motivation of the study

The concept of operational flexibility has become extremely influential in international business to substantiate the benefits of multinationality (Rugman and Verbeke, 2004). However, Lee and Chung (2007) voice the concern that previous research has been mostly restricted to examining the firm value impact of geographically diversified subsidiary structures, rather than examining the actual behavior of firms. This study sheds light on the prevalence and profitability of exercising operational flexibility through shifting production across countries.

Operational flexibility is the opportunity to transfer resources across borders through an international network of subsidiaries, and creates value by its potential to reduce the costs of operating in an uncertain world (Kogut, 1983). The advantages of possessing operational flexibility include arbitrage opportunities of exploiting international price differences and leverage opportunities of capturing international bargaining power (Kogut, 1985). Kogut and Kulatilaka (1994) devised a model to quantify the value of having the arbitrage opportunity to shift production from a production site in one country to a production site in another country. This work has been extended by other optimization models of international production systems that operate under uncertainty (Dasu and Li, 1997; Huchzermeier and Cohen, 1996).

Tang and Tikoo (1999) argue that the value of operational flexibility leads to a higher firm value as it enables the multinational corporation (MNC) to shift production from a country with rising labor costs to a country with falling labor costs, which results in an increase in expected future cash flows. Their study supports the findings of Allen and Pantzalis (1996) that a rising breadth of internationalization (number of host countries) is associated with a higher evaluation of MNCs on the stock market, and that this effect is limited by the depth of internationalization (concentration of foreign subsidiaries in a few countries). Lee and Makhija (2009) show that MNCs with a high breadth and a low depth of internationalization gain an appreciation on the financial market when uncertainty in the home country is high.

The expectation of analysts and shareholders that greater operational flexibility leads to higher cash flows is based on two critical assumptions. One is that MNCs with a larger country scope shift production to a higher extent, and the second is that MNCs shift production profitably. Concerning the first assumption, Kogut (1985) mentions that the value of operational flexibility

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depends on the strategic issue of whether the benefits of using the opportunities are sufficient to justify the costs attached to the loss of scale economies in production. It further depends on the cognitive issue of whether managers perceive and identify potential options, and on the organizational issue of whether mechanisms exist that permit coordination of the international activities essential to the exploitation of flexibility. Rangan (1998) observes production shifting as reactions to changes in the exchange rate between two locations and admits that these reactions are relatively modest. Belderbos and Zou (2007) show that MNCs adjust foreign affiliate employment in response to both local labor cost changes and to labor cost changes in other countries within production networks with up to nine locations. However, Tong and Reuer (2007) stress the declining marginal benefits of the value of operational flexibility as multinationality increases and the rising coordination costs that are associated with multinationality. Empirical evidence of the relationship between multinationality (breadth of internationalization) as the number of host countries and the use of operational flexibility across those host countries is missing so far.

Concerning the second assumption that MNCs produce higher cash flows by exercising opportunities to shift production from countries with rising labor costs to countries with falling labor costs, Kogut and Kulatilaka (1994) state that production shifting across borders can be expensive due to the costs associated with plant shutdowns and start-ups, labor contracting, and managerial time commitments. Furthermore, production plans and transportation routes need to be rescheduled. Those costs may in part be anticipated by the MNC and reduce its tendency to shift production from the outset. Some of the costs, however, will not be anticipated and add to the resistance of subsidiary managers to capacity adjustment (Tang and Tikoo, 1999), the loss of motivation among the remaining employees (Brockner et al., 1992), and the political consequences of employee dismissal (Carroll, 1984). These costs diminish the profitability of exploiting temporary price differentials across countries and call the value creation of operational flexibility into question. The net effect of the costs and benefits of production shifting is an empirical question which has not yet been addressed in the literature.

Previous research has shown that a greater potential of operational flexibility gained through multinationality does not prevent downfalls in corporate profitability (Reuer and Leiblein, 2000). Nevertheless, financial markets seem to expect that having more opportunities to operate flexibly is associated with earning higher cash flows. The goal of this paper is to examine the two critical assumptions that underlie this expectation using an empirical approach. To this end, our study tries to identify production shifting as a reaction to local factor cost changes within the individual set of host countries of an MNC, and to test whether adapting production capacity in those countries turns out to be profitable in spite of the related costs. The findings suggest that analysts and shareholders should not take for granted that MNCs exercise operational flexibility but can expect a profit-enhancing effect of exercising operational flexibility. Further research is necessary to strengthen the causal link between multinationality and performance that is provided by operational flexibility and to more closely consider the conditions (Kogut and Kulatilaka, 1994; Kogut, 1985) under which MNCs benefit from operational flexibility.

2. Methods

2.1. Data

An empirical examination of the assumptions that MNCs shift production corresponding to their multinationality and that they earn higher profits through production shifting requires data on the capacity adjustments and financial performance of international production networks as subsystems of an MNC. We use a database of the Central Bank of Germany that comprises the balance sheets, turnover figures, and the number of employees of all foreign direct investment objects of German parent firms above a balance sheet total of currently €3 million.

Transportation and coordination costs restrict the opportunities to shift production across countries. A short geographical distance facilitates earning the benefits of operational flexibility (Rugman and Verbeke, 2004). Belderbos and Zou (2007) consider capacity shifts within production networks of Japanese MNCs that are located in East Asia. To German MNCs, Europe is the most relevant production region; Europe accounts for 56% of their foreign production. Firms shift production internationally to minimize the cost of input factors (Kogut, 1985). Europe is an attractive region to study production shifting in response to local factor cost changes for two reasons. 1) as MNCs evaluate factor costs in the currency of their home country, exchange rate fluctuations are further superimposed on international factor cost movements. In European production networks, exchange rate fluctuations play a minor role due to the euro (European Central Bank, 2007). 2) the common market leads to strongly correlated factor costs such as energy (International Energy Agency, 2010). An important exception is labor; the levels and movements of labor costs in Europe are very diverse (OECD, 2010). Thus, by focusing on European production networks of German MNCs, we capture the majority share of their foreign production in a concentrated region where factor cost changes across countries are mostly represented by labor costs. However, the obstacles to production shifting through labor market regulations or production quotas may differ between European countries. They reduce the flexibility and affect the profitability of international production networks (Kogut and Kulatilaka, 1994).

As the German Central Bank data show whether foreign subsidiaries conduct production or other activities, we were able to filter out all production subsidiaries and build a panel of firms holding production networks in Europe. We excluded parent firms with zero employees or turnover from the analysis as well as foreign investment objects with zero employees. By eliminating outliers with a return on sales below −1000% or above 1000% we obtained a panel of 787 production networks that are at least 2 and, on average, 3.6 years under observation in the years between 2003 and 2007 (2767 firm years). Data on national labor markets were taken from statistics issued by the Organisation for Economic Co-operation and Development (OECD) and were matched to the firm data at the country level.