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# The influence of competition on international sourcing strategies in the service sector

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### ABSTRACT

Rising importance of service industries and international trade in services led to increased competition in the service sector. The aim of this study is to analyze the international sourcing behavior of service firms as a strategic means to contend with competition. Our theoretical predictions suggest that there is a U-shaped relationship between a service firm's domestic competitive position and its pursuit of international sourcing: the relationship is first negative and at later stages positive. The international sourcing behavior of domestic competitors and inward investments of foreign rivals are expected to positively affect a service firm's international sourcing magnitude. A large-scale empirical analysis using a panel of 579 German service firms supports our hypotheses.

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## 1. Introduction

The service sector has long been recognized as an energizing force in the global economy and determinant of national living standards (e.g., Riddle, 1986). Since the 1980s, a growing proportion of world trade is attributed to commercial services trade (WTO, 2013). For service firms, the strong and growing internationalization tendencies not only offer business opportunities in new geographic markets but also hold significant challenges related to fiercer competition. Previous research largely focuses on international market entry strategies for service firms to exploit foreign business opportunities and expand sales volumes (e.g., Brouthers & Brouthers, 2003; Ekeledo & Sivakumar, 1998; Swoboda, Elsner, & Morschett, 2014). Despite rising scholarly attention toward the service sector, the question of how service firms cope with the increased competitive pressures associated with internationalization remains unanswered. This study addresses this gap and explores to which extent international sourcing strategies are used by service firms as a means to contend with competition. To approach this question, we develop hypotheses on the effects of domestic and foreign competitive forces on international sourcing behavior of service firms. We empirically test our theoretical predictions using a unique panel dataset of 579 German service firms.

Authors propose diverse strategic means to counter domestic and foreign competitors, such as pricing considerations (Simon, 2005), advertising (Thomas, 1999), or innovation activities (Arend, 2009). In addition, firms might lever on a global configuration of their value chains and engage in sourcing of inputs from foreign locations in order to increase their international competitiveness and mitigate the competitive threats they face in the domestic market (Dunning, 1998; Wiersema & Bowen, 2008). There is a considerable body of literature on how manufacturing firms internationalize their value chains and employ international sourcing strategies in response to increased competitive pressure (Swamidass, 1993; Cavusgil, Yaprak, & Yeoh, 2008). Several studies report that manufacturing firms adapt their international sourcing behavior and location decisions for certain value chain activities as strategic reaction to foreign inroads into their domestic markets (e.g., Moxon, 1975; Arpan, De La Torre, & Toyne, 1981; Hutzschenreuter & Gröne, 2009; Kaufmann & Körte, 2010). As a result of such reactions, manufacturing firms can experience positive effects on their profitability resulting either directly from international sourcing of intermediate inputs (e.g., Murray, Kotabe, & Wildt, 1995; Trent & Monczka, 2003) or indirectly from value chain internationalization (e.g., Farrell, 2005; Hutzschenreuter, Lewin, & Dresel, 2011). Hence, international sourcing is recognized as a strategy that positively affects a manufacturing firm's financial (e.g., return on sales) and strategic (e.g., market share) performance (Kotabe & Omura, 1989; Murray et al., 1995; Kotabe & Murray, 1996).

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Whereas research on service firms in general is constantly growing, studies dealing with the internationalization of service industries are rather scarce (Kundu & Merchant, 2008; Pla-Barber & Ghauri, 2012). Kundu and Lahiri (2015) state that research on service firms' internationalization has not kept pace with the unprecedented growth of services and multinational service firms over the years. Some notable exceptions study the international sourcing behavior of service firms (Jaklič, Čirjaković, & Chidlow, 2012; Kotabe, Murray, & Javalgi, 1998; Murray & Kotabe, 1999). To what extent service firms employ international sourcing as a response strategy to increased competition, however, remains untold. In fact, Porter's long standing claim that "( . . . ) little is known about competition in services ( . . . )" (Porter, 1990, p. 240) still holds regarding the paucity of studies that relate foreign and domestic competitive forces to strategic response opportunities open to service firms in an international context.

The need for a distinct research agenda for service industry internationalization stems from the special characteristics of services. These characteristics include the facts that services are "non-physical", their production and consumption typically take place simultaneously, and that services are linked to close customer interaction. Additionally, services are difficult to standardize and therefore offer high variability in the quality of services offered to the customer, which poses particular challenges for output control and quality assurance in international service delivery (Zeithaml, Parasuraman, & Berry, 1985). There is a common understanding in the fields of marketing (e.g., Edgett & Parkinson, 1993) and international business (e.g., Boddewyn, Halbrich, & Perry 1986; Dunning, 1989) that these distinct service characteristics have important implications for the internationalization process of service firms (e.g., Hellman, 1996; Sanchez-Peinado, Pla-Barber, & Hébert, 2007), their international strategies (e.g., Campell & Verbeke, 1994; Lovelock, 1999), and performance implications (e.g., Capar & Kotabe, 2003; Contractor, Kundu, & Hsu, 2003). Because of these service features, it is questionable whether strategies to cope with increased (international) competition identified for manufacturing firms are equally valid in the service sector (e.g., Kotabe, 1989).

This paper aims to investigate how competition in the domestic market affects the international sourcing strategy of a service multinational enterprise (SMNE). We argue that an SMNE's international sourcing strategy is influenced by its competitive position in the domestic market (i.e., market share) and the respective market environment (i.e., international sourcing activities of domestic competitors), as well as the intensity of inroads by foreign competitors into that market (i.e., inward foreign direct investments). To the best of our knowledge, the effect of different domestic and foreign competitive forces on a service firm's decision to engage in international sourcing has not been investigated before. We predict a U-shaped relationship between a service firm's domestic market share and its reliance on international sourcing. The relationship is first negative and at later stages positive. International sourcing behavior of domestic competitors and inward investments of foreign rivals are expected to have a positive effect on a service firm's decision to source internationally.

Our study contributes to two streams of literature. First, the results add to the existing knowledge on internationalization strategies of service firms. Previous literature predominantly focuses on market-seeking motivations to internationalize (e.g., Brouthers & Brouthers, 2003; Swoboda et al., 2014). We show that service firms also internationalize their value chain at the upstream end in order to fend off competition in their home market. Second, we deliver novel insights for literature that deals with firms' global sourcing practices (e.g., Hutzschenreuter & Gröne, 2009; Wiersema & Bowen, 2008). Existing literature mostly

draws on the manufacturing sector when analyzing outsourcing and/or offshoring decisions. The study illustrates that not just manufacturing firms use international input sourcing as a means to cope with competition. Rather, service firms are influenced by their rivals when deciding on international sourcing strategies, too. Before we develop and test our hypotheses, we deliver a brief review of the relevant literature on international sourcing in the service sector in the next section.

## 2. State of the field: literature on international sourcing in the service sector

Early studies on the internationalization of service firms are predominantly conceptual. A major goal of these studies is delivering a fresh view on the so far commonly assumed non-tradability of services across country boundaries (Rathmell, 1966; Zeithaml et al., 1985). A common feature of this early work on the internationalization of the service sector is the restriction on international marketing of services across national and cultural borders enabling service firms to exploit market opportunities abroad (Hellman, 1996; Roberts, 1999). Only very few conceptual articles consider international sourcing as strategy for service firms in their quest for exploring new sources of sustainable competitive advantage at the upstream end of the value chain. Those who do frequently differentiate between a firm's core service and supplementary elements accompanying their core service offering (e.g., Anderson & Narus, 1995; Lovelock, 1992). It is argued that global sourcing of value-adding supplementary services offers opportunities for differentiation and represents a vital strategic lever for obtaining a competitive advantage vis-à-vis international competitors (e.g., Kotabe et al., 1998; Lovelock, 1999).

The studies of Kotabe et al. (1998) and Murray and Kotabe (1999) are among the first that adopt the perspective of a service firm as buyer rather than seller of services and offer empirical evidence for service firms' international sourcing practices for core as well as supplementary services. Guided by a modified global sourcing strategy framework originally developed for manufacturing firms, Murray and Kotabe (1999) find that the nature and structure of the service industry affect service firms' international sourcing strategies. When a service firm's competitive advantage in the home market decreases due to abundant supply of its core service, it may source supplementary services from abroad to stay competitive. Furthermore, availability of supplementary services on global markets positively affects the likelihood of foreign sourcing. Kotabe et al. (1998) show that the appropriate use of sourcing strategies for core and supplementary services can increase a service firm's market performance.

Much of the empirical research that has developed in the area of service sourcing during the last decades is focused on specific questions studied in particular geographical contexts rendering service sourcing research a highly fragmented field (Nordin & Agndal, 2008). More recent analyses aim to bridge the gap between traditional research on international sourcing pursued by manufacturing firms on the one hand and service firms on the other hand. For this purpose, the scope of the traditional "service"-notion is broadened and (similarities and) critical differences between both types of firms concerning the antecedents and consequences of service sourcing practices are dismantled.

In this vein, the traditional service core paradigm (i.e., the assertion that four specific characteristics – intangibility, heterogeneity, inseparability, and perishability – make services uniquely different from goods) has been largely abandoned in favor of a more activity-based perspective. In this view, the notion "service" represents a "perspective on value creation rather than a category of market offerings" (Edvardsson, Gustafsson, & Roos, 2005, p. 118). This further stresses the possibility of physical separation of

different activities involved in the service production process from the final point of sale (Edvardsson et al., 2005; Grönroos, 2006). This perspective advances the analytical framework for global service sourcing by regarding the nature of the activities that are sourced from abroad as a key determinant of the viability of a firm's global sourcing strategy. Furthermore, technological advancements seem to spur the spatial decoupling of service production and consumption (Murray & Kotabe, 2004).

Since certain activities share attributes that make the manufacturing/services distinction—as well as the distinction between core and supplementary service elements—less relevant, it is less important to categorize an activity as manufacturing or service for global sourcing research and practice (Jensen & Petersen, 2012). In general, service firms' international sourcing strategies are assumed to be driven by similar factors as they are reported for manufacturing firms, such as factor cost differentials, access to strategic resources, and scale and scope economies (Jensen & Petersen, 2014). By contrast, Jaklič et al. (2012) find that the motivation for international sourcing by service firms is more long-term oriented and directed toward innovation and learning as opposed to cost-cutting motivations which represent the primary driver for international sourcing in manufacturing industries. Their empirical analysis reveals that service (as opposed to manufacturing) firms neither reduce labor costs nor increase profitability through international sourcing strategies. Instead, they use international sourcing of services to improve the quality of their existing service offerings and to introduce new services, along with accessing new knowledge and technological know-how abroad. In support of these findings, other empirical studies identified international sourcing of advanced services as an antecedent of strategic business development and organizational change (Jensen, 2009) and as positively contributing to the resource stocks of client firms (Jensen & Petersen, 2012).

To conclude, the state of research on international service sourcing can be summarized as follows: despite the fact that manufacturing-based theories can provide a suitable theoretical background and starting point for further extension and modification to a service context (Javalgi & Martin, 2007), numerous researches criticize the research progress and persistent lack of theoretical and empirical rigor in studies on international sourcing of service firms (Javalgi & White, 2002; Nordin & Agndal, 2008). They point out that research in the field is not increasing in proportion to its practical relevance. Although the debate on service firms' international strategies is still dominated by the perception of service firms as sellers of services, there is a growing stream of research taking the view of service firms as buyers of certain services activities in their value creation process. However, sourcing as a strategic response to competition stemming from internationalization tendencies in the service sector received no attention so far. In particular, the effect of different domestic and foreign competitive forces on a service firm's decision to engage in international sourcing has not been investigated before. In order to fill this gap and advance our understanding of determinants and prevalence of international sourcing strategies in service industries, we develop three hypotheses that guide our analysis on the effects of domestic and foreign competitive forces on the international sourcing behavior of service firms.

### 3. Hypotheses development

We expect a service firm's competitive position in its domestic market to be a central factor determining the decision on how much inputs are sourced internationally. A common indicator for a firm's competitive position in a given market is the total size of its realized market share in that market. A high (low) market share suggests a strong (weak) competitive position relative to

competitors. High market share can be interpreted as a firm's ability to attract more consumers relative to competing firms (Porter, 1980). We argue that firms with low levels of market shares apply international sourcing differently compared to firms with high levels of market shares in order to cope with competitive pressures.

Firms with low levels of market share serve a smaller customer base compared to competitors with higher market shares. In line with existing literature, we assume that every final service offered to the customer consists of (1) a core service which constitutes the core competency of the service firm and (2) (often multiple) supplementary services that can be produced either by the firm itself or by outside suppliers (Murray & Kotabe, 1999). A small customer base prohibits firms to efficiently produce the necessary supplementary service components in-house. Low levels of final service "units" sold do not allow the firm to offer a variety of supplementary services beyond the core service at reasonable costs. Instead, firms have to satisfy customer demands for these supplementary services through sourcing these components from international suppliers (Ebben & Johnson, 2005; Fiegenbaum & Karnani, 1991). As the customer base increases, internalizing and collocating the production and sales of certain inputs that are frequently requested becomes beneficial (Berry & Kaul, 2015). Hence, some features (such as design or technical know-how) are not provided by external suppliers anymore but by the firm itself now. We, therefore, propose that firms with a weak competitive position will decrease their reliance on internationally sourced service inputs as their market share grows from small to moderate levels.

As the customer base gets bigger and bigger, the diversity of customer demands regarding certain service features, notably concerning supplementary service components beyond the core service, increases. Fulfilling all customization demands itself bears the risk of weakening the foundation of the firm's competitive position since the very specific and broad customization demands bind resources that might be better used in defending and strengthening the firm's core competency. Therefore, firms with a large customer base are likely to source services that are beyond their core competency from sources that can provide certain secondary inputs more efficiently. By sourcing these inputs from foreign locations that offer cost and knowledge advantages the firm can simultaneously concentrate on its core competency and meet a very high variety of demands for customization (Kotabe et al., 1998). Hence, we predict that firms with a strong competitive position will source more service inputs internationally as their market shares rise.

To summarize, we expect the relationship between market share and the pursuit of international sourcing to be negative for firms with weak competitive positions and to be positive for those with strong competitive positions in their domestic markets. Hence, we hypothesize that there is a U-shaped relationship between a service firm's market share and its pursuit of an international sourcing strategy.

**Hypothesis 1.** The relationship between a service firm's competitive position and its reliance on international sourcing of inputs is U-shaped. For firms with weak competitive position the relationship is negative, whereas for firms with strong competitive position the relationship is positive.

We next consider the behavior of a firm's competitors as a determinant of its international sourcing decisions. In our argumentation we differentiate between domestic and foreign competitive forces that pressure the firm in its domestic marketplace. Most obviously, moves from domestic rivals directly affect a firm in its home market (Porter, 1981). Strategy research in general suggests multiple response modes for firms facing

increased domestic competitive pressure (Chen, 1996; Gimeno, 1999; Karnani & Wernerfelt, 1985; Yu, Subramaniam, & Cannella, 2009). An appropriate reaction against internationalization moves of domestic competitors may lie in the pursuit of internationalization strategies of the focal firm itself (Choi, Tschoegl, & Yu, 1986; Flowers, 1976; Graham, 1974). Hence, we analyze international sourcing as a possible strategic reaction to increased competitive pressure from domestic rivals.

The quantity of internationally sourced inputs entering the final service production process affects the features of the final service. Internationally sourced service inputs may optimize a service firm's cost structure (and hence allow for lowering the prices charged from customers) or may offer additional attributes to better meet customers' demands (Murray & Kotabe, 1999). A service firm cannot easily display all critical features of its final service offering to the customer. Whereas a manufactured product can be evaluated by its physical properties the quality of a service cannot be evaluated prior to consumption (Lovelock & Gummesson, 2004). Therefore, service firms are urged to promote their final service offerings through comparable features, such as the price or certain qualitative attributes which are regularly linked to the location where they have been produced (Javalgi, Cutler, & Winans, 2001; Lin & Chen, 2006). Customers tend to evaluate (parts of) a service offering by what they associate with the provider's country-of-origin (Ahmed, Johnson, Ling, Fang, & Hui, 2002; Pappu, Quester, & Cooksey, 2007). Consider, for example, a retailer offering a financing service as an add-on. Customers would probably consider a Swiss bank providing the financing service as more reliable than banks from other origins. An example of price advantage would be a German software firm that sources programming services from abroad (e.g., India). Due to this strategy, the firm is able to offer lower prices compared to firms that employ domestic German programmers only.

In a situation where domestic competitors increase the share of service inputs sourced from abroad, a focal service firm may gradually lose its competitiveness regarding its final service offering since the service features of its rivals' offerings have improved in terms of price and/or qualitative attributes in the first place. As a reaction, a service firm is forced to increase the share of internationally sourced inputs. In doing so, it can sustain the fiercer price competition in the industry and/or can be able to increase service differentiation through sourcing certain supplementary services from abroad (Kotabe & Murray, 2004). Considerable evidence indicates that firms indeed act mimetically by copying each other's organizational structures (Fligstein, 1985), innovations (Greve & Taylor, 2000), and location decisions (Henisz & Delios, 2001). In the example case of the German software firm, a possible reaction toward domestic competitors sourcing from India might be to source certain programming service from an equivalent foreign location (e.g., India, China, etc.), too (Jain, Kundu, & Niederman, 2008). We expect that the more pronounced the trend in the domestic industry to engage in international service sourcing, the more the focal firm sources its services globally. This leads us to our second hypothesis:

**Hypothesis 2.** The more domestic competitors source internationally, the more a focal service firm relies on international sourcing of inputs.

Besides domestic competitive pressures, service firms may also be subject to attacks by foreign rivals. Foreign competitors usually possess a set of different and oftentimes superior skills and resources relative to a domestic firm (Yip, 1982) and employ foreign direct investment (FDI) to transfer these firm-specific advantages abroad (Hymer, 1976). This is particularly salient for firms in service industries since investments needed to setup a business abroad are much smaller compared to manufacturing

facilities (e.g. Erramilli, 1991; Roberts 1999). Foreign firms challenge domestic firms by reducing profitability (Esposito & Esposito, 1971), margins (Katics & Petersen, 1994), and putting their survival at stake (Coucke & Sleuwaegen, 2008; De Backer & Sleuwaegen, 2003; Greenaway, Gullstrand, & Kneller, 2008). In the light of intensifying competition in an industry due to inward FDI, domestic firms are forced to improve their cost position and/or their value proposition (technological or marketing leadership) in order to maintain their competitiveness. Previous research shows that incumbent firms adjust their vertical scope as competition via inward FDI in the home market intensifies (Hutzschenreuter & Gröne, 2009).

In the service sector, firms can offset firm-specific advantages of foreign rivals through increasing the share of internationally sourced service inputs from favorable foreign locations. Therefore, we expect inward investments from foreign competitors to increase the magnitude of international sourcing by domestic service firms, which leads us to our last hypothesis:

**Hypothesis 3.** The more foreign rivals invest in the domestic industry, the more a focal service firm relies on international sourcing of inputs.

## 4. Empirical methods

### 4.1. Data and sample

For this study, we use two firm-level databases maintained by the Deutsche Bundesbank. The first is the Microdatabase Direct Investment which provides information on German investments abroad (outward FDI) and investments of foreign firms in Germany (inward FDI) (Schild & Walter, 2015). As it is a legal obligation to report any FDI activities exceeding a balance sheet total of € 3 million, this database nearly provides all inward and outward FDI activities. The second is the Balance of Payments database which provides information on imports (and exports) to (from) Germany. The Deutsche Bundesbank classifies firms with respect to main industries, leaving us with 19 different service industries for our analysis. We combined these two databases in order to set up a unique panel data set specifically tailored for investigating our research question.

We complement these data with German industry growth rates from the Federal Statistical Office of Germany. The final sample consists of 579 German SMNEs which are under observation between the years 2002 and 2008. As the average observation period of a sample firm is about 3.21 years, we obtain 1859 firm-year observations. Since some firms left the database and others entered it during the observation period, the panel is unbalanced.

### 4.2. Measures

#### 4.2.1. Dependent variable

International service sourcing occurs when certain service inputs, which have been produced in a foreign location, enter the production process in the focal SMNE's home country. These inputs are transferred to the home country via imports. The Balance of Payments database of the Deutsche Bundesbank comprises yearly accounts on the magnitude of such service imports made by German SMNEs. Given that international trade-based measures in the form of import- and export-accounts are commonly applied to capture global sourcing practices of firms (Andersson & Fredriksson, 2000; Cho, 1990; Makhija, Kim & Williamson, 1997; Wiersema & Bowen, 2011), we use firm-level information on yearly service imports as a proxy for a focal SMNE's international service sourcing. We scaled the dependent variable *international sourcing* by the denominator total (i.e., global) sales as suggested by Mauri

and Phatak (2001) and recently practiced by Berry and Kaul (2015) in a similar study on firm's global sourcing practices. Using a service firm's total sales as denominator is also consistent with our theoretical notions since we are interested in studying the SMNE's (relative) extent of international sourcing, that is, the proportion of the firm's overall service offering that is sourced from foreign locations. In this line of reasoning, we also do not distinguish between intra-firm and inter-firm supply sources of service inputs. Rather, we interpret international sourcing as a strategy dependent on the interplay between the comparative advantages of countries and the competitive advantages of firms (Kogut, 1985). Following this view, we consider service firms' international sourcing activities as aiming at the effective exploitation of both internal and external partners' firm-specific competitive advantages in foreign locations (Kotabe & Murray, 2004), which are a function of the different location-specific advantages that characterize these locations (Verbeke, 2013).

4.2.2. Independent variables

We calculate a service firm's market share in its domestic market by dividing the firm's domestic sales by the aggregated sales of all domestic firms in the respective service industry and year. This measure is standard in the literature (e.g., Araújo & Salerno, 2015; Georgopoulos & Preusse, 2009). To capture the general predisposition of a service firm's domestic competitors to engage in international sourcing of service intermediates, we draw on the international sourcing activity of an average domestic firm in the same industry. The variable international sourcing by domestic competitors is operationalized as the mean of the variable international sourcing across all domestic firms in the respective service industry and year.

In service industries, foreign competition primarily occurs in the form of FDI in foreign-owned affiliates rather than via final service exports from foreign locations. Numerous studies report that service firms predominantly use FDI to enter and to serve foreign markets since the export of a complete final service offering to customers in other countries is (prohibitively) expensive (Carman & Langeard, 1980; Ekeledo & Sivakumar, 2004; Erramilli & Rao, 1993). Hence, we use the magnitude of FDI inflows (employed to set up new or expand existing subsidiaries) by foreign service firms into the domestic service industry as a proxy for the extent of foreign competition. To this end, we aggregate firm-level investment data of foreign rivals to a single industry inward investment figure. In doing so, we receive yearly measures for the overall foreign competitive threat foreign firms exert on domestic service firms in each of the 19 service industries in our sample. As second step, we scale these industry-specific measures by the denominator total sales volume in the domestic industry in order to account for size effects across the different service industries. Since the resulting variable industry inward FDI shows a highly skewed distribution, it receives a

(natural) logarithmical transformation before it enters the regressions.

We use a one-year time lag between the dependent and all independent (and control) variables. This offers an appropriate time frame in which a service firm that is affected by domestic and foreign competitive pressure might react by adapting its international sourcing activities.

4.2.3. Control variables

In order to separate the hypothesized effects from other factors that might impact a service firm's international sourcing strategy, we include several control variables. First, studies report that the overall development of the home market affects a firm's internationalization tendencies (Tookey, 1964). Operating in a growing domestic market relieves the pressure to internationalize in order to increase competitiveness and firm performance (Elango & Sethi, 2007), and in this realm may also affect the extent to which a firm engages in international input sourcing as a means to contend with competition. We control for these effects by including the sales growth rate of a focal service firm's domestic industry from the previous year to the current year as home market growth. Data were provided by the Federal Statistical Office of Germany. Furthermore, several studies show that firm size is an important factor in explaining firms' strategies (Pan & Li, 2000; Shan 1991). Literature states that small- and medium-sized firms lack critical (managerial, financial, organizational) resources which, as a result, constrains strategy formulation and implementation in contrast to larger firms that have a greater capacity to commit resources and absorb risk when developing and executing international strategies (Agarwal, 1994; Kor & Mahoney, 2004; Penrose, 1995). To account for these effects, we control for firm size on the basis of employment figures, which is a widely established measure in the literature for firm size (e.g., Gatignon & Anderson, 1988). Consistent with previous studies (Di Gregorio, Musteen, & Thomas, 2008; Zahra, 2003), we operationalize firm size as the natural logarithm of the total number of employees.

Literature in the field of industrial organization suggests that industry structure in a firm's domestic market determines its strategy and performance (e.g., Porter, 1980). In particular, the type of competition, that is, whether the respective market is dominated by one or a few competitors (i.e., monopoly, oligopoly) or rather split among a larger number of competitors (i.e., perfect competition), represents an important facet of industry structure which bears implications for firm strategy in that market (Porter, 2008). In order to capture the general structure of competition as a fundamental characteristic of a firm's domestic industry, we account for the degree of industry concentration in the focal firm's domestic industry. Therefore, we control for the total number of foreign and domestic SMNEs active in the respective industry and year. Due to data limitations, we cannot account for domestic firms which do not maintain any foreign operations nor receive any imports from other parties located in foreign countries, since these

Table 1  
Descriptive statistics and correlation matrix.

Variable	Mean	S.D.	Min	Max	Correlations							
					1	2	3	4	5	6	7	
1 International sourcing	0.35	3.51	0.00	74.58	1.00							
2 Industry inward FDI	0.004	0.02	0.00	0.06	0.05	1.00						
3 International sourcing by domestic competitors	0.35	0.66	0.00	5.38	0.19***	0.24***	1.00					
4 Market share	0.03	0.10	0.00	0.90	-0.01	0.33***	0.24***	1.00				
5 Industry size	828	942	7.75	2434	-0.01	0.06***	-0.07***	-0.23***	1.00			
6 Firm size	5.58	1.97	1.80	11.37	-0.01	-0.02	0.01	0.29***	-0.32***	1.00		
7 Home market growth	0.04	0.07	-0.14	0.52	-0.01	0.17***	-0.06***	-0.01	0.03	-0.06***	1.00	

Number of observations: 1859. \*\*\*p < 0.01.

firms' business activities are not included in Germany's Balance of Payment account. Consequently, our measure for *industry size* accounts for all (foreign and domestic) service firms that uphold any form of cross-border activities in a given year. Lastly, we include time dummies to control for time-dependent influences that affect firms across all industries, such as economic shocks, inflation rates, or regulatory changes. Since the dependent variable is forwarded by one year, we lose 2008 as the last year of the observation period (we do not have information for the dependent variable in 2009). This leaves us with a final period for the empirical analysis ranging from 2002 to 2007. While 2002 is the base year, we obtain separable time dummy effects for the years 2003–2007.

## 5. Results

We report descriptive statistics and correlations of the variables in Table 1. Due to confidentiality rules that apply to the use of the Deutsche Bundesbank data, all maximum and minimum values refer to the mean of the highest three and lowest three observations of at least three different parent companies. In cases where we transformed the variables before including them into the regressions, we report the untransformed descriptives in Table 1. The correlation matrix shows that the variables are mostly independent of each other. The variance inflation factors are close to one (mean 1.18; maximum 1.32), indicating no problems with multicollinearity in this sample.

Using ordinary least squares regression to conduct estimations with panel data may yield biased estimates since repeated observations for the same panel members are pooled over time. Feasible generalized least squares (FGLS) regression corrects for this particular biases (Baltagi & Wu, 1999). Further, when employing a Breusch-Pagan/Cook-Weisberg test we find that heteroscedasticity is present in our data (Wooldridge, 2009). The FGLS estimator is particularly suitable for heteroskedastic error structure with no cross-sectional correlation (Wooldridge, 2009). This estimation technique has been frequently used by other studies that face similar error structure patterns in their data (e.g.,

Desai, 2015; Fisch & Zschoche, 2011; Song, 2015). Table 2 presents the regression results. Model 1 is the base model with only the control variables. The coefficient of *industry size* is negative and significant throughout all models suggesting that the bigger the domestic industry, the less important is international sourcing of inputs for domestic firms. The coefficient of *firm size* is mostly negative and significant whereas the effect of *home market growth* is rather unstable throughout the regression models. We use Models 2 and 3 to test Hypothesis 1, which posits a U-shaped relationship between a focal firm's market share and its international input sourcing. Model 2 comprises the linear effect of *market share* on *international sourcing* and indicates a positive and significant relation. To avoid collinearity with the squared term, we centered the variable on its mean. We add the squared term of *market share* in Model 3 and find that the linear term of *market share* turns negative and significant while the squared term of *market share* is positive and significant. The results of Model 3 thus support Hypothesis 1 that there is a U-shaped relationship between a focal firm's market share and its international sourcing behavior.

We test the effect of domestic competitors' sourcing strategies on a focal service firm's international sourcing behavior in Model 4. The coefficient of *international sourcing by domestic competitors* is positive and significant lending support to Hypothesis 2. Increased international sourcing tendencies within a service firm's industry seem to positively influence the firm's international sourcing of service inputs. In Model 5 we analyze if inward investments of foreign rivals pressure domestic firms to increase their reliance on international sourcing strategies. Hypothesis 3 is supported as the coefficient of *industry inward FDI* is positive and significant. We present the full model in Model 6. All effects remain stable.

## 6. Discussion

This study examines how the international sourcing behavior of service firms depends on stimuli from the competitive environment in their domestic market. We found that a service firm's competitive position (i.e., domestic market share) has a curvilinear

**Table 2**  
FGLS regression results on international sourcing.

International sourcing	Hypothesis	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Industry inward FDI	H3					0.037*** (0.004)	0.029*** (0.003)
International sourcing by domestic competitors	H2				0.577*** (0.019)		0.467*** (0.026)
Market share <sup>2</sup>	H1			0.496*** (0.147)			2.740*** (0.442)
Market share			0.040** (0.019)	-0.387*** (0.121)			-2.220*** (0.205)
Industry size		-8.67E - 05*** (4.25E - 06)	-9.45E - 05*** (4.47E - 06)	-9.79E - 05*** (4.55E - 06)	-1.45E - 05*** (1.13E - 06)	-7.46E - 05*** (6.65E - 06)	-5.06E - 05*** (3.28E - 06)
Firm size		-0.040*** (0.002)	-0.043*** (0.002)	-0.041*** (0.002)	-0.016*** (0.001)	-0.026*** (0.003)	-0.001 (0.001)
Home market growth		-0.233*** (0.077)	-0.207*** (0.077)	-0.212*** (0.076)	-0.035 (0.023)	0.062 (0.108)	0.106*** (0.039)
Year 2003		-0.040*** (0.015)	-0.059*** (0.015)	-0.069*** (0.016)	-0.008** (0.004)	-0.021 (0.020)	0.024*** (0.008)
Year 2004		-0.087*** (0.019)	-0.087*** (0.018)	-0.093*** (0.018)	-0.001 (0.004)	-0.070*** (0.020)	0.008 (0.009)
Year 2005		-0.067*** (0.022)	-0.071*** (0.022)	-0.073*** (0.022)	0.014*** (0.004)	-0.031 (0.023)	0.001 (0.008)
Year 2006		0.003 (0.022)	0.004 (0.022)	-0.005 (0.022)	-0.001 (0.005)	0.008 (0.024)	-0.003 (0.009)
Year 2007		0.003 (0.022)	0.016 (0.021)	0.001 (0.021)	0.033*** (0.002)	0.088*** (0.020)	0.008 (0.009)
No. of observations		1859	1859	1859	1859	1859	1859
Wald Chi <sup>2</sup>		3139***	2105***	1927***	8074***	525.5***	980.8***

Standard errors in parentheses; \*p < 0.10; \*\*p < 0.05; \*\*\*p < 0.01.

relationship with its international sourcing strategy. At low levels of market share, the relationship is negative, whereas at high levels of market share, the relationship is positive. Further, our analysis shows that the more domestic competitors engage in international sourcing, the more a service firm increases its international sourcing of service inputs. When a service firm faces increased competition via inward investment of foreign rivals, it also reacts with an increase in international service sourcing.

The results of this study add to the existing literature on service firm internationalization as well as on global sourcing strategies. First, previous literature predominantly focuses on internationalization strategies for downstream activities to exploit a service firm's existing capabilities in the form of expanding sales in a broader geographic context (e.g., [Brouthers & Brouthers, 2003](#); [Swoboda et al., 2014](#)). This study explicitly focuses on service firm internationalization at the upstream end of the value chain for reasons related to exploring new strategically relevant resources and capabilities abroad that may help to contend increased competitive threats. International sourcing of inputs represents a distinct facet of international diversification that is concerned with expanding a firm's international scope through geographic dispersion of its upstream value-adding activities, such as procurement, production, and new product development ([Wiersema & Bowen, 2011](#)). [Rugman and Verbeke \(2008\)](#) show that the international diversification of service firms, measured by their sales and assets dispersion, is much smaller compared to manufacturing firms since service firms face increased challenges of adapting upstream activities and downstream activities separately in distant locations. This study adds an interesting insight to their findings on internationalization strategies of service firms: although firms in service industries may well lack globalization in terms of geographic dispersion of upstream and downstream activities, they are still gradually increasing the share of upstream activities performed abroad in response to increased competitive pressure.

Second, we deliver novel insights for the literature that deals with firms' global sourcing behavior in reference to competition and firm strategy (e.g. [Hutzschenreuter & Gröne, 2009](#); [Wiersema & Bowen, 2008](#)). Existing literature mostly draws on the manufacturing sector when analyzing antecedents and consequences of offshoring/outourcing as a firm strategy ([Schmeisser, 2013](#)). This study explicitly focuses on firms in service industries and illustrates that these firms progressively rely on offshoring of service activities and international sourcing of inputs as a means to cope with competition. In doing so, service firms tend to show a similar reaction pattern to external competitive pressures as it is portrayed for firms in manufacturing industries ([Cavusgil et al., 2008](#); [Swamidass, 1993](#)). In that sense, this study identifies international input sourcing as one relevant competitive strategy of service firms when confronted with competitive pressure in their domestic environment.

With regard to the driving forces for such strategic conduct, we argue and provide empirical evidence that service firms' international sourcing practices are directly related to their domestic rivals' behavior. The greater the domestic rivals' confidence on international sourcing of inputs, the greater a focal service firm's tendency to source service inputs from international locations. Such mimetic behavior of firms in the same industry, product market, or strategic niche has been already reported for other sectors than services ([Garcia-Pont & Nohria, 2002](#); [Yang & Hyland, 2006](#)). Mimetic behavior was identified as viable means to maintain competitive parity or reduce rivalry in situations of uncertainty ([Lieberman & Asaba, 2006](#)). With respect to a service firm's competitive position in its domestic industry as determinant for its service sourcing behavior, our argument conceptually integrates two generic motivations for global sourcing practices,

i.e. to increase overall efficiency vs. to access and retrieve strategic resource and capabilities at distant locations. The empirically identified U-shaped relationship supports our argument and suggests that service firms in highly fragmented (many firms with equal but relatively small market shares) or rather monopolistic (few competitors with strongly disparate market shares) markets do heavily rely on international sourcing practices to gain or maintain their competitiveness. In addition, we show that service firms' pursuit of international sourcing strategies is positively related to increased penetration of the domestic market by foreign service firms. Such inroads by foreign rivals into a firm's domestic markets are alarming since they indicate certain firm-specific advantages of the foreign rivals over domestic firms which enable them to compete effectively in that market. Hence, the study offers empirical evidence that domestic service firms, when facing increased competition from foreign rivals, alter their value chain architecture in favor of sourcing service inputs from foreign locations to compensate for certain firm-specific disadvantages.

Our findings have some important implications for managers. Market share proves to be a decisive factor influencing a service firm's international sourcing strategy. Managers should be aware that when a firm attracts more customers relative to its competitors (that is, its market share is rising), this might influence the sourcing behavior of the competitors. Furthermore, firms exhibit different sourcing behavior on low versus high levels of market share. Service firms with a relatively weak competitive position hardly maintain the resources to fulfill customer demands beyond the core service. Accordingly, these firms largely depend on outside suppliers which deliver supplementary services for the final customer. When their market share rises (i.e., sales increase vis-à-vis competitors), however, firms seem to be better able to integrate certain supplementary service inputs back into the production process of their final service offering and to benefit from internalization advantages and advantages rooted in collocating production of core and supplementary service components at the final point of sale. Hence, firms with a small customer base will decrease their reliance on internationally sourced inputs as their market share grows.

Firms that serve a large customer base (i.e., high market shares), on the other hand, have to fulfill a multiplicity of customization demands. Extensive customization binds resources that might threaten the firm to jeopardize its core competency. Therefore, those firms tend to source inputs that are beyond their core competency from foreign locations that offer cost and knowledge advantages. In doing so, the firm can simultaneously concentrate on its core competency and meet various demands for customization. Consequently, firms with a strong competitive position will source more service inputs internationally as their market share increases.

When domestic competitors engage more in international sourcing, our findings indicate that a focal service firm increases the share of internationally sourced inputs in the value creation process as well. In doing so, the firm might catch up with developments in the industry such as improved cost efficiency through low-cost sourcing or the sourcing of supplementary services augmenting final service offerings. Therefore, managers who redesign a service firm's international value chain should not be surprised when domestic competitors follow suit and imitate their strategy of international input sourcing. Such mimetic behavior, however, might lead to increased competition in input markets and may erode cost advantages as the demand for certain foreign inputs increases.

Finally, we want to point out that our study has a number of limitations. The anonymity of the database prevents us from adding additional firm-level information that would be valuable for the analysis. For example, we do not know to what extent the

firms within a certain service industry are in fact in direct competition with each other. Additionally, service firms probably focus on a rather limited geographic market (Rugman & Verbeke, 2008) or they specialize on different services within a particular industry. Future studies may address these problems by collecting more fine-grained firm-level data, for example, via management surveys. Also, they may further advance our findings by examining how firms adjust their sourcing within their intra- vs. inter-firm network of supply sources. Furthermore, since we interpret a firm's imports from other countries as its international sourcing behavior we cannot completely rule out that these imports are not exclusively used in the production process of the final service. If final production of the service takes place in a third country, we are not able to recognize this as input sourcing by that third country. Promising avenues for future research may also involve the long-term analysis of international sourcing strategies and performance implications of shifts in international sourcing behavior driven by increased competition. Finally, our study's analysis of international sourcing strategies is restricted to service firms from Germany as a high-cost country. It would be interesting to see if our findings also hold in different settings, for example, parent firms from emerging countries and low-cost destinations.

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