

Submitted for Track 3:

The internationalization process and international new ventures

Ownership, internationalization and performance

Abstract

The relationship between internationalization and performance (I/P-relationship) has been characterized as one of the “big questions” in international business research. The attention may seem obvious. If companies cannot expect a positive pay-off from expanding internationally, why would companies and their owners bother to pursue international business opportunities? Still, after three decades of research results appear inconclusive; no strong and consistent pattern emerges. We argue that one reason could be lack of attention to governance issues. We examine the role ownership potentially plays both as a determinant of internationalization decisions made by companies and as a moderator of the I/P-relationship. Using a unique panel data set covering listed Norwegian companies over the period 2000 to 2010, we get partial support for our hypotheses. Ownership characteristics have effects on both internationalization and performance, but no clear moderating role on the I/P-relationship.

Keywords: internationalization, ownership structure, ownership identity, performance.

Ownership, internationalization and performance

1. INTRODUCTION

The relationship between internationalization and performance (I/P-relationship) has been characterized as one of the “big questions” in international business research (Bowen, 2007; Peng, 2004). The attention may seem obvious. If companies cannot expect a positive pay-off from expanding internationally, why would companies and their owners bother to pursue international business opportunities?

As pointed out by Hitt et al. (2006), Hennart (2007) and Wiersema and Bowen (2011) studies have used a variety of theoretical perspectives to argue for a generally positive relationship, explained by factors such as risk-spreading and cost-reducing benefits of diversification (Kim, Hwang, & Burgers, 1993; Kobrin, 1991; Reeb, Kwok, & Baek, 1998), exploitation of scale and scope economies through leveraging firm-specific resources (Kotabe, Srinivasan, & Aulakh, 2002), further development of organizational knowledge and capabilities, accessing best practice technology and increased competition stimulating innovation (Greenaway & Kneller, 2007; Ruigrok & Wagner, 2003; Vermeulen & Barkema, 2001), and increased potential for exercising market power vertically as well as horizontally (Hymer, 1960/1976; Kogut, 1985). Yet, the results of three decades of research seem inconclusive, without a strong and consistent pattern emerging from empirical studies.¹ The notion of a positive I/P-relationship has received mixed empirical support: Some studies report positive relationships, others report negative ones, and some fail to detect any association.²

Various explanations have been given for the mixed findings. Wiersema and Bowen (2011) point to measurement issues (see also Hennart, 2011). They argue that the most common way of measuring international diversification (or multinationality), the ratio of

foreign sales to total sales, has become increasingly inadequate for capturing the actual extent of firms' degree of internationalization. Firms do less traditional exporting of end products from their home base; instead they increasingly disintegrate and disperse their value activities with the aim to design an efficient global configuration. Bowen (2007) focuses above all on statistical issues regarding the specification and estimation of the purported relationships. He argues *inter alia* that empirical studies have so far not paid sufficient attention to endogeneity, firm heterogeneity, and to sample selection and omitted variable biases.³

Conversely, Hennart (2007, 2011) argues from a transaction cost (or internalization) perspective that there are in fact no compelling arguments for why multinationality *per se* would have an impact on performance. According to him, performance is a function of the appropriateness of the multitude of integration ("make or buy") decisions made by firms, some of which could be cross-border, and hence of their scope or "foreign footprint". Hennart (2011) reasons that since most firms are likely to have an essentially optimal scope, there would be no discernible performance differential between them due to variation in their foreign footprint. However, firms that have a foreign footprint that deviates from their optimum could experience an adverse effect on performance. That in turn explains the negative I/P-relationship reported in some studies. Hennart (2011) does not offer an equally straightforward explanation for a sometimes observed positive I/P-relationship, but speculates that successful highly internationalized firms could differ from other firms in terms of managerial and governance characteristics. For example, some companies may have managers who are more internationally experienced and therefore better able to work out and implement a strategy that is aligned with an optimal foreign footprint. Or, their governance in terms of ownership structure and the identities of owners and board members could encompass and bring superior international competence and outlook into play.

Governance issues have so far received relatively little attention in international business research (see, however, Filatotchev, Stephan, & Jindra, 2008; Lien, Piesse, Strange, & Filatotchev, 2005; Strange & Jackson, 2008), although scholarly interest is on the rise especially as a result of the increasing importance of multinational companies from non-Western countries, in which state, business group and family ownership is more prevalent. Majocchi and Strange's (2012) recent study, one of the few in a Western (Italian) context, report that family and state ownership are associated with lower levels of international diversification. However, this study neither links international diversification to performance, nor explores the possible effects of differences in governance on the I/P-relationship. To our knowledge, the only study explicitly doing the latter is Xiao et al. (2013) studying Chinese firms. The authors distinguish between four categories of firms: Incorporated firms (including state-owned ones); and privately owned firms and foreign owned firms; which are contrasted with "conventional locals" that include (unincorporated) state-owned firms as well as collective (e.g. township) enterprises. They find the three former types of "modern" firms to benefit more from internationalization than the "conventional locals". The authors also study the effect of the level of centralization of state ownership, with more centralized governance positively moderating the I/P-relationship.

In the same vein as Xiao et al. (2013) and responding to the calls by Bowen (2007) and Hennart (2007) for examining richer sets of firm specific characteristics, we examine the role ownership potentially plays both as a determinant of internationalization decisions made by companies and as a moderator of the I/P-relationship. The next section presents our conceptual framework, theory and hypotheses. The two following sections describe our methods, our unique set of panel data for 30 Norwegian listed firms between 2000 and 2010, and the results from the empirical analysis. A final section offers discussion and conclusions.

2. THEORY AND HYPOTHESES

By ownership we refer to the holding of equity in a company. There are many dimensions of ownership, but studies of ownership characteristics usually make a distinction between ownership structure, i.e. whether ownership is dispersed or concentrated, and ownership identity (or type), for example whether equity owners are private persons, institutions like banks or the government, or whether they are domestic or foreign (Thomsen & Pedersen, 2000). In this study, we look at structure as well as identity, with a focus on the distinctions between dispersed versus concentrated, private versus state, and domestic versus foreign.

Our conceptual framework (see Figure 1) considers three distinct effects of ownership: Direct effects (i) on performance and (ii) on internationalization; and (iii) a moderating effect on the I/P-relationship. Our theoretical developments consider both the different governance characteristics of the different types of ownership, as well as the different types of resources (for instance, in terms of access to capital, information and networks) that different owners may make available for firms.

[FIGURE 1 ABOUT HERE]

2.1 Ownership and performance

Dispersed ownership is usually assumed to affect performance negatively, since each owner, having only a small ownership stake, has insufficient incentives to devote effort to monitoring. One possible remedy for this collective action problem is concentrated ownership by block-holders, where large ownership stakes both create monitoring incentives and control. However, concentrated ownership carries with it the risk of expropriation of minority shareholders; often referred to as tunnelling (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000). Empirically, results for the effects of ownership dispersion on performance are somewhat mixed (see e.g. Becht, Bolton, & Röell, 2003).

It is empirically well established that state ownership, in general, leads to lower economic performance than in comparable private firms (e.g., Goldeng, Grünfeld, & Benito, 2008; Megginson & Netter, 2001). This may not be too surprising, as theoretical justifications for state ownership include addressing various kinds of market failures, and achieving social goals, which may come at the expense of economic performance. However, lower performance in state owned enterprises (SOE) may also arise due to specific corporate governance problems. Though state ownership shares are often large, state ownership is arguably the most dispersed ownership possible, with each citizen owning shares. Since state ownership likely attracts voters' attention only in special cases (Ludvigsen, 2010), politicians and bureaucrats may have insufficient incentives to devote resources to monitoring and governance. Multiple and unclear objectives, as well as multiple principals (e.g. different ministries) might also make effective governance more difficult. At the same time, standard corporate governance mechanisms such as takeovers and sale of shares are fully or partially deactivated in SOEs. Some of these corporate governance problems may however be mitigated with partial private ownership (Gupta, 2005).

Some studies have also considered the relationship between foreign ownership and performance, often finding a positive effect, both in terms of higher profitability (Goethals & Ooghe, 1997) and higher survival rates (Kronborg & Thomsen, 2009; Li & Guisinger, 1991). This is explained by, *inter alia*, transfer of top shelf technology from the foreign parent firm (especially in the case of vertical investments) (Blalock & Gertler, 2008; Moran, 2002; Smeets, 2008) and other ownership advantages such as better access to capital. There are though also studies reporting that the effect of foreign ownership tends to disappear when appropriately controlling for industry and firm characteristics, such as competition and size (Mata & Portugal, 2002; Taymaz & Özler, 2007). From an agency perspective, it could be

argued that greater distance (implying, notably, higher transaction costs) will lead foreign owners to monitor less than domestic owners. On the other hand, the disciplinary effect from potential sales of shares may be stronger, for instance due to weaker social links. Overall, from the above discussion, we propose:

Hypothesis H1: Performance is positively related to foreign ownership (H1a) and negatively related to dispersed ownership (H1b) and state ownership (H1c).

2.2 Ownership and internationalization

As noted above, dispersed ownership is usually argued to lead to greater managerial discretion since owners with small stakes have insufficient monitoring incentives. Managers may then pursue other goals such as prestige, and building an international “empire” might be one means to achieve this. On the other hand, concentrated owners that have invested a large share of their wealth in a firm might want to reduce risk by diversifying internationally. Recently, Oesterle et al. (2013) combined these arguments to derive predictions of a non-linear relationship, where high levels of internationalization might be observed both in the case of concentrated and dispersed ownership. The former arises as an expression of the owners’ preferences, and the latter as a result of managerial discretion.

State ownership may lead to a lower likelihood of internationalization due to cumbersome administrative approval procedures and a focus on (domestic) social goals (Benito, Lunnan, & Tomassen, 2011; Mazzolini, 1980).⁴ Following Vernon (1979), Majocchi and Strange (2012) note that SOEs may be more sensitive to political considerations relating to domestic employment, leading to less focus on value-maximization and in turn a lower degree of international diversification. Relatedly, Benito et al. (2011) argue that the state

owner will be more likely to prefer a company to keep its divisional headquarters at home. Both studies find support for the hypotheses, using Italian and Norwegian data, respectively. However, other studies find a positive or no relationship (Alonso, Clifton, Díaz-Fuentes, Fernández-Gutiérrez, & Revuelta, 2013; Kalotay & Sulstarova, 2010; Lien, et al., 2005). There are, indeed, also arguments why state ownership could increase internationalization. For example, SOE managers could perceive international operations as less risky either due to corporate governance problems or because of stronger home government political support (Knutsen, et al., 2011; Kumar, 1981; Vernon, 1979). This could, among other things, reduce political risk. Furthermore, SOEs may have greater access to financial resources for international projects due to “soft budget constraints”, or even to information on foreign countries collected by government agencies (Kumar, 1981). Finally, the effects of state ownership may also depend on the institutional setting for the home country’s SOEs. Estrin et al. (2012) find that although generally state ownership deters internationalization, this relationship is moderated by factors such as corruption and capital market development.

Foreign ownership can potentially boost companies’ internationalization, for at least two reasons. One is through augmenting ownership advantages such as knowledge about foreign markets and access to capital, which get channelled to the firm via foreign investors’ equity participation. The other is the access to business opportunities abroad that follows from becoming a constituent part of an already internationalized corporation. Sometimes the linkages are back to the foreign owner’s home country, for example when the equity stake in a company was acquired for sourcing purposes. Hence, foreign ownership may both increase the advantages and decrease the liabilities involved in internationalization.

From the above discussion, we hypothesize:

Hypothesis H2: The degree of internationalization is positively related to foreign ownership (H2a) and to dispersed ownership (H2b) and negatively related to state ownership (H2c).

2.3 Ownership and the I/P-relationship

Compared to the direct effects of ownership on performance and internationalization discussed above, this potential moderating effect has hardly received any attention in the literature (but see Xiao et al., 2013). As noted by Majocchi and Strange (2012), for a given level of internationalization there may be a great variety in the strategies chosen, e.g. in terms of whether one chooses exporting, FDI or licensing. Project types e.g. in terms of FDI location choices are obviously also important. Ownership could affect the incentives and capabilities of firms to achieve benefits from internationalization in several ways. With dispersed ownership, managers may choose projects aligned with their personal goals such as prestige, rather than projects that maximize shareholder value, for example by focusing less on fully realizing scope and scale economies, or managing risk. In contrast, concentrated owners presumably have stronger motivation to monitor the international activities of firms. Furthermore, given higher stakes in the firm, they likely prefer international strategies that achieve risk diversification.

State ownership, on its hand, could mean that SOE internationalization is not primarily motivated by improving performance at all, but rather by home government strategic goals (Deng, 2007). Governments may be willing to accept substantial losses in SOE international activities, at least in the short run, to ensure such goals are achieved. In addition, SOE managers may have weaker incentives to implement value-maximizing international strategies because of corporate governance failures (Xiao et al., 2013). Thus, for a given level of internationalization, the composition of activities may not be the value maximizing one, but

rather reflect managers' personal preferences. At the same time, soft budget constraints could induce SOEs to undertake more risky international strategies (for a given level of internationalization), as they bet on the government to save them because of political costs of SOE failure (Knutsen, et al., 2011). Consistent with this, Eliassen and Grøgaard (2007) argue that introducing partial private ownership in SOEs will lead to an increased focus on risk management.

Finally, foreign owners may have better information and hence be better able to identify value-creating international projects and avoid mistakes. They may also have better access to international networks that increase the value of international operations. However, it could be that foreign owners have also already achieved a relatively more favourable level of risk diversification, making this particular advantage less relevant.

The above discussion focuses on how ownership affects incentives, but ownership could also matter via capabilities. Some authors argue that state ownership leads to less innovation (Lawson, 1994), which could *inter alia* mean that SOEs have less absorptive capacity (Cohen & Levinthal, 1990) and hence ability to achieve learning from their international operations. The common unwillingness to adjust the state ownership share to fit the firm's strategy could also restrict benefits from internationalization, for example by limiting the ability to recruit co-owners that could offer various advantages to the firm. On the other hand, if financial constraints on innovation matter (Hyytinen & Toivanen, 2005), soft budget constraints in SOEs could have a countervailing effect. Indeed, SOEs have in some cases been used to realize risky high-technology projects (Ramamurti, 1987).

Different owner identities could also matter for what types of international projects are feasible. For example, it has been suggested that SOEs can benefit from stronger home government political support, making possible projects that private firms cannot undertake.

Stronger links to foreign policy and diplomacy could mitigate political risks, and reduce transaction costs more generally (Kumar, 1981). In principle, being a highly diversified and possibly having a longer time horizon than most private owners, the state-owner can shoulder more risk, permitting SOEs to undertake risky investments that private firms shy away from (Aharoni, 1986; Hveem, Knutsen, & Rygh, 2012). A larger choice set of possible investments could imply an ability to reap greater benefits from internationalization. However, the link with the home state could also sometimes be a liability. SOEs might be suspected to be agents of the home government, which could, for example, reduce access to technology with possible national security implications (Shapiro & Globerman, 2012). Thus, the overall effect of state ownership on investment options is unclear.

Similar considerations apply to foreign owners. Information and network advantages could make feasible investments that, for example, hitherto purely domestic firms would find too challenging or risky.

The above discussion leads to our final set of hypotheses:

Hypothesis H3: The I/P-relationship is positively moderated by foreign ownership (H3a) and negatively moderated by dispersed ownership (H3b) and state ownership (H3c).

3. DATA AND METHODS

We test our hypotheses using a panel data set comprising 30 of the largest public listed Norwegian firms over the period 2000 to 2010. The Norwegian context is particularly well suited for this study for several reasons. First, because Norway is a relatively small, but advanced open economy, many companies of some size and significance seriously consider internationalization as a key element in their strategies. Internationalization levels still vary considerably across companies and time. Second, the Norwegian context provides substantial

variation in terms of both ownership structure (e.g. how dispersed or concentrated ownership of a given company is), and ownership categories, for example, national versus foreign owners, and private versus state ownership across different industries (Goldeng, et al., 2008). Finally, our study utilizes a panel data set enabling us to deal with several of the model specification and estimation concerns pointed out by Bowen (2007). Using panel data allows us, for example, to explicitly take into account unobserved firm characteristics.

Our data consists of companies listed on the Oslo Stock Exchange, where the distribution across the three categories of (i) private national, (ii) private foreign and (iii) state ownership was roughly 1/3 for each for much of the decade covered in the study (www.oslobors.no). Our focus on listed firms ensures first-rate data coverage and access. Our dataset is made up of the major listed companies provided that companies had a history dating back to at least 2000 and available data on variables of interest to this study.⁵ While this might raise some concerns about survivor bias, the population of large Norwegian firms has been remarkably stable in the previous two decades (Benito, Larimo, Narula, & Pedersen, 2002; Grøgaard, Gioia, & Benito, 2013). The dataset comprises companies in the resource, manufacturing and services sectors, thus covering a range of industries. The information has been collected from companies' annual reports, company web sites, company directories and information resources such as Factiva and Kompass, and in some cases direct contact with firms: as a rule, companies were contacted whenever their web sites and/or annual reports did not provide sufficient information.

The structure of the collected data is that of a balanced panel consisting of a total of 30 companies \times 11 years, i.e. 330 observations. The companies in the data set are quite large companies with on average 7827 employees and almost 31 billion NOK in annual sales in 2010. They are also highly international, with an average foreign sales ratio in 2010 of 70 per

cent (see Table 1). Nevertheless, there is substantial variation in the data in the sense that we have both companies without international activities at some point and with complete internationalization.

We use both *Tobin's Q* (*TOBQ*) – the ratio of market-to-book value of a company's assets – and profitability measures – return on assets (*ROA*) and return on sales (*ROS*) – to capture performance.⁶ Ownership variables are measured as follows: Foreign ownership (*FOROWN*) as the percentage of equity held by non-Norwegians; concentrated ownership (*OWNCONC*) as the percentage of equity held by the five largest owners; and state ownership (*STATEOWN*) as the percentage of equity held by the Norwegian State. In agreement with Wiersema and Bowen's (2011) recommendation of using multiple measures of internationalization, we use both the ratio of foreign sales to total sales (*FSTS*) and foreign employment to total employment ratio (*FETE*) to capture the degree of internationalization.

We control for various company and industry characteristics that may have effects on internationalization and/or performance: size of the company measured by the number of employees (*EMPLOYEES*); corporate diversification (*CONGLOM*) captured by a dummy where companies were given the value of 1 if they were conglomerates, and zero otherwise (the classification was based on Grøgaard et al. (2013)); a dummy capturing whether the main sector of the company was industrial (*GOODS*), coded 1 if so, zero otherwise; a dummy capturing whether the main sector of the company was services (*SERVICES*) coded 1 if so, zero otherwise, with the reference category being the extractive sector (in particular, the petroleum sector); and the existence of an industry cluster in Norway in the companies' main industries (*CLUSTER*) coded 1 if so, zero otherwise.⁷ All variables were measured annually, although some variables, especially industry variables, obviously vary little or not at all across

years. Table 1 provides descriptive statistics for the independent variables (the correlation matrix and variance inflation factors are shown in tables in the Appendix).

[TABLE 1 ABOUT HERE]

4. ESTIMATION AND RESULTS

4.1. Direct effects of ownership on internationalization and performance

As mentioned, we test two measures of internationalization: Share of sales abroad and share of employees abroad. As the first round of estimations, we employ OLS regressions pooling the data across the covered period. However, since we have annual observations for each company and since it is likely that unobserved firm characteristics may affect the relationship (Wagner, 2008), we also use random effects (RE). A Hausman test suggested that a random effects rather than a fixed effects (FE) specification was appropriate. Other criteria also point to the use of RE. When using FE, time invariant variables (such as sector and the existence of a cluster) are subsumed under the firm fixed effects (Greene, 2003). However, variables which are relatively temporally stable (such as state ownership for most firms in our sample) also make the use of FE problematic (Beck & Katz, 2001). Further, Greene (2003, p. 293) notes that the FE model can be viewed as applying only to the cross-sectional units in a given study. This could be the case for a model with a full set of countries, or geographical regions. On the other hand, RE is appropriate if we can view our sampled cross sectional units as a random sample from a larger underlying population. Our data are arguably more of the latter kind, and we hence use RE rather than FE alongside OLS.

Because we use *FSTS* and *FETE* as our measures of internationalization, the degree of internationalization is a proportion bounded between zero and one, and ordinary regression analysis may produce predictions outside this interval. As a robustness check, we therefore also employ the fractional probit approach of Papke and Wooldridge (2008) for balanced

panels.⁸ This method has been used e.g. by Wagner (2008) in his study of the relationship between the fraction of exports in total sales and firm characteristics in West and East German manufacturing.

[TABLE 2 ABOUT HERE]

The results for H1, i.e. effect of ownership on performance, are shown in Table 2. Panel A in the table shows the results for models using *FSTS* as the measure of internationalization, whereas Panel B shows the results for models that use FETE instead. The results are very similar across the two panels, suggesting that they are largely insensitive to the choice of internationalization measure. The baseline OLS regressions (models 1, 2 and 3 in panel A, and 7, 8 and 9 in panel B) provide statistically strong results across the three measures of performance, but only the coefficients for foreign ownership are consistent with our hypotheses (H1a), namely that foreign ownership is associated with higher performance. The OLS estimates of the effects of state ownership are positive, which runs counter to our hypothesis. Likewise, the coefficients for the ownership concentration variables are persistently negative, thereby indicating that ownership concentration actually hampers the performance of companies. Moving to the RE panel regressions, the results provide the same overall picture, but effects are somewhat “washed out” by taking into account unobserved firm characteristics (models 4,5 and 6 in Panel A, and 10, 11 and 12 in panel B). The statistical support for hypothesis H1a remains, whereas the contrary results for ownership concentration and for state ownership are either weakened somewhat (H1b) or become insignificant altogether (H1c).⁹

When interpreting these results, it is however important to bear in mind that finding significant moderation effects related to Hypothesis 3 would essentially imply that the effects

discussed here are conditional on the level of internationalization. We return to this important point below.

[TABLE 3 ABOUT HERE]

The results for H2, i.e. effect of ownership on internationalization, are shown in Table 3. We hypothesized that the degree of internationalization is positively related to foreign ownership (H2a) but negatively related to ownership concentration (H2b) and to state ownership (H2c). Again, we run separate models for *FSTS* and *FETE*. Our baseline OLS regressions (models 13 and 14) indicate strong support for H2a for both measures of internationalization. H2b is also supported for *FSTS*, but not for *FETE*. Finally, our regressions do not provide statistical support for the hypothesis that state ownership is negatively associated with internationalization (H2c), even though the signs of the coefficient are consistently negative. Again, re-running the models with RE estimations (models 15 and 16) weakens the results obtained with OLS. The only consistent and robust effect of ownership on internationalization is that foreign ownership is associated with higher levels of foreign sales ratios. This result remains significant (although only at the 10% significance level) also in the fractional probit model (model 17).

4.2. The moderating effect of ownership on the I/P-relationship

The moderating effect is tested using an interactive framework (Brambor, Clark, & Golder, 2006). For example, we expect that if the share of foreign ownership is high, the I/P-relationship will be (more) positive (H3a), and hence the coefficient for the interaction term for foreign ownership and degree of internationalization ($FOROWN \times FSTS$) will be positive. Similarly, we expect the I/P-relationship to be positively moderated by concentrated ownership ($OWNCONC \times FSTS$) (H3b), while we expect it to be negatively moderated by state ownership ($STATEOWN \times FSTS$) (H3c). Note also that the direct effects of ownership and

internationalization can only be interpreted as such when the value of the interacted variable is zero (Brambor, et al., 2006; Braumoeller, 2004). In fact, finding significant interaction effects would suggest that the results reported in Table 2 are themselves conditional on the level of internationalization (Edwards, 2009). The results are given in Tables 4 and 5 below. Table 4 displays the results using *FSTS* as the internationalization measure (models 19 to 24). Table 5 shows the results for models using *FETE* as the internationalization measure (models 25 to 30).

[TABLES 4-5 ABOUT HERE]

Looking at the interaction terms, the overall picture that emerges from our estimations is quite mixed, with only limited support for hypothesis H3. The findings are (a) that foreign ownership positively moderates the effect of *FETE* on *ROS* (models 27 and 30, table 5) but negatively moderates the effect of *FSTS* on *ROA* (model 23, table 4); (b) that state ownership positively moderates the relationship between both *FSTS* and *FETE* and *ROS* (model 24, table 4 (see also model 19, table 4), and model 30, table 5). The first result partly supports H3a, whereas the other runs counter to H3c. Ownership concentration appears to have a moderating effect when estimated with OLS (models 19 and 21), but the effects disappear across all three performance measures when estimated with RE.

Almost inevitably, a model including an extensive set of interaction effects is prone to multicollinearity. Although very high variance inflation factor (VIF) values (see Appendix Table 2) suggest that multicollinearity may be a problem for our interaction models, we choose to keep all the variables that are important for the conceptual model (including the first order terms) since omitting them may cause even greater problems in terms of omitted variable bias (Brambor, et al., 2006; O'Brien, 2007). Nevertheless, given the inconclusive results found for interaction effects, one could reasonably ask whether the estimated effects

are reliable and trustworthy, or unstable due to high VIFs. One typical sign of multicollinearity is that coefficients shift signs and/or move in and out of statistical significance (Kennedy, 2003) with small changes in the model specification. As an informal probe into the possibility that results were tainted by multicollinearity in the data, we hence re-run a series of versions of model 30 where we systematically drop individual direct effects or interaction terms. As shown in table 6, it turns out that the interaction results are remarkably stable across the various configurations of variables, suggesting that neither multicollinearity in the full models nor omitted variable bias in the most parsimonious models are driving the results. More or less similar results were obtained for some other models we tested, although in most cases VIFs could not be reduced to acceptable “rule-of-thumb” levels in specifications including foreign ownership and its interaction. That, together with the fact that the results are not fully robust across internationalization measures, suggests that strong conclusions are not warranted.

5. DISCUSSION AND CONCLUSIONS

There has been a surge of studies on the relationship between internationalization and performance in recent years. The focus has tended to be on whether there is in fact such a relationship, and if so, whether it follows some specific form; for example linear versus non-linear shapes. Findings have been mixed, for a variety of reasons, which has recently lead to calls for theoretical developments as well as for using more sophisticated econometric approaches in estimation. In this study we respond to both these calls. First, we bring corporate governance into the analysis, and develop a theoretical framework where ownership characteristics influence internationalization as well as performance, and also moderate the I/P-relationship. Second, we rigorously test our hypotheses using both pooled and panel data techniques and taking the results meticulously through various robustness checks.

To the best of our knowledge, this study is the first that uses data from an affluent Western country to explore the possible effects of differences in governance on the I/P-relationship. Our data from Norway should be particularly well-suited for the purpose of examining effects of different governance models, inasmuch as it is from a context where considerable variation exists in terms of ownership structure and types. Our data set contains a rich mix of dispersed and concentrated ownership, private and state ownership, and domestic and foreign ownership. One downside, of course, is that the small size of the Norwegian economy leaves us with a somewhat limited, yet fairly heterogeneous data set, which in turn may have led to less conclusive findings.

Ownership characteristics have been given little attention in previous I/P-studies, but we find that ownership is indeed important. In particular, our analyses strongly suggest that higher levels of foreign ownership in companies boost their degree of internationalization. Most models also indicate that foreign ownership increases performance, although the fact that the interaction term with internationalization is occasionally significant when it is added suggests that this effect may be contingent on the degree of internationalization. Hence, we find support for the enduring dictum in the field of international business studies regarding ownership advantages; foreign ownership may both increase the advantages and decrease the liabilities involved in internationalization.

Interestingly, and against our expectations, it turns out that state ownership neither leads to lower levels of internationalization nor to lower performance. Further, while we also cited some arguments for why state ownership might positively moderate the I/P-relationship, overall the positive effect found in some models is surprising. An interesting theoretical possibility could be that governments' relative reluctance towards high SOE internationalization means that SOEs are forced to select only the most favourable projects. In

this sense, governance problems in SOEs caused by missing market discipline may be partially substituted for by political control mechanisms. However, our analyses found few indications that state ownership reduces internationalization, which casts doubt on the relevance of this particular mechanism here.

On the other hand, as mentioned the effect of state ownership on internationalization might also depend on the institutional setting of the SOE's home country (Knutsen et al., 2011; Estrin et al., 2012). Norwegian corporate governance of SOEs has become increasingly professionalized, and many of the SOEs in our sample are essentially expected to behave like private firms. Our study cannot demonstrate whether the even performance and internationalization of companies in which the Norwegian State is an equity owner is primarily due to good governance and management. An alternative explanation is that the Norwegian State is simply holding on to ownership in companies that for a long time were given privileged treatment – in some cases even monopoly status – that made it possible for them to develop superior resource bases, which they still benefit from. Whichever reason, however, the findings from this study do not warrant a general cautionary note against state ownership.

Finally, regarding concentrated ownership, there are some indications that it actually reduces performance (contrary to expectations), but very little evidence of a moderation effect. Also, the generally inconclusive findings for how concentrated ownership affects internationalization are interesting and call for further analysis, especially regarding possible non-linear relationships as suggested by Oesterle et al. (2013).

This study does not, of course, completely clarify the roles of governance and ownership for companies' internationalization. No single study would. Overall the results are somewhat mixed and sometimes contrary to expectations, but our study has demonstrated the

relevance of ownership and governance issues for internationalization and the internationalization-performance relationship. Next steps should include taking into account the potential issue of reverse causality between performance and internationalization emphasized by economists (Greenaway & Kneller, 2007). Possibly, it could also be useful to estimate these relationships as a system to gain more insight into how ownership affects the I/P-relationship via its effect on internationalization. Finally, it may be worthwhile exploring how governance affects the proposed benefits of various types of internationalization (Hashai, Asmussen, Benito, & Petersen, 2010). This remains a white spot in the otherwise voluminous body of research on foreign operation modes.

ENDNOTES

¹ Similar inconclusive results e.g. regarding the effect of exporting on productivity (“learning by exporting”) is found in a largely separate economics literature, though a number of these studies report evidence of learning effects (Greenaway & Kneller, 2007)

² In a recent meta-analysis of 54 empirical studies published between 1974 and 2008, Yang and Driffield (2012) find that, overall, internationalization yields positive returns, but the relationship is typically non-linear. It is probably U-shaped for non-US companies, suggesting higher initial costs of internationalization (due to mistakes made in the early phases, lack of resources, and high levels of liability of foreignness) for companies that originate in smaller countries, where limited domestic markets may compel them to internationalize before fully ready. US companies, on the other hand, more likely face an inverted U-shaped relationship, indicating they are more likely to delay internationalization until they have developed an adequate resource and competence base.

³ Indeed, economists take it as “something of a stylised fact that *ex-ante* productivity determines the choice of whether or not to export” (Greenaway & Kneller, 2007, p. F135, our emphasis).

⁴ An additional point is that since generally only the most productive firms start international activities (Girma, Kneller, & Pisu, 2005), there could also be an indirect ownership effect on internationalization via performance (Knutsen, Rygh, & Hveem, 2011).

⁵ The dataset comprises the following companies: Aker, Aker Solutions, Atea, Cermaq, DNO International, EDB Business Partner, Ekornes, Farstad Shipping, Hafslund, Kongsberg Automotive, Kongsberg Gruppen, Lerøy Seafood Group, Marine Harvest Group, Norsk Hydro, Norske Skogindustrier, Odfjell, Orkla, Petroleum Geo-Services, Prosafe, Rieber & Søn, Schibsted, Scana Industrier, Statoil, Stolt-Nielsen, Telenor, TGS-NOPEC Geophysical Company, Tomra Systems, TTS Marine, Veidekke, Yara International.

⁶ Different performance measures have different strengths and biases. In a heterogeneous data set like the one used in this study, it is practically impossible to find a performance measure that would be completely neutral across industries, firms and time. For example, emphasis on intangibles inflates *Tobin's Q* and *ROA* measures whereas *ROS* could be partially driven by the maturity of an industry. In this study, we attenuate the likelihood of biased findings by using three different measures of performance.

⁷ Based on previous studies of clusters in the Norwegian economy (see Reve & Jakobsen, 2000), the following sectors were coded as clusters: fisheries and aquaculture (ISIC code 05), oil and gas and related services (ISIC codes 11 and 74), yards (ISIC code 35), shipping (ISIC code 61), and telecommunications and IT (ISIC codes 64 and 72).

⁸ Since our panel is strongly balanced, this can be implemented with the *xtgee* command in Stata®. We adapt the Stata® code for Papke and Wooldridge (2008) at <http://econ.msu.edu/faculty/papke/>.

⁹ Due to space limits, we do not provide detailed comments on the control variables.

REFERENCES

- Aharoni, Y. (1986). *The evolution and management of state owned enterprises*. Cambridge, MA: Ballinger
- Alonso, J. M., Clifton, J., Díaz-Fuentes, D., Fernández-Gutiérrez, M., & Revuelta, J. (2013). The race for international markets: Were privatized telecommunications incumbents more successful than their public counterparts? *International Review of Applied Economics*, 27, 215-236.
- Becht, M., Bolton, P., & Röell, A. (2003). Corporate governance and control. In G. M. Constantinides, M. Harris & R. Stulz (Eds.), *Handbook of the Economics of Finance* (pp. 1-109): Elsevier.
- Benito, G. R. G., Larimo, J., Narula, R., & Pedersen, T. (2002). Multinational enterprises from small economies. *International Studies of Management and Organization*, 32, 57-78.
- Benito, G. R. G., Lunnan, R., & Tomassen, S. (2011). Distant encounters of the third kind: Multinational companies locating divisional headquarters abroad. *Journal of Management Studies*, 48, 373-394.
- Blalock, G., & Gertler, P. J. (2008). Welfare gains from foreign direct investment through technology transfer to local suppliers. *Journal of International Economics*, 74, 402-421.
- Bowen, H. P. (2007). The empirics of multinationality and performance. *Research in Global Strategic Management*, 13, 113-142.
- Brambor, T., Clark, W. R., & Golder, M. (2006). Understanding interaction models: Improving empirical analyses. *Political Analysis*, 14, 63-82.
- Braumoeller, B. F. (2004). Hypothesis testing and multiplicative interaction terms. *International Organization*, 58, 807-820.
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128-152.
- Deng, P. (2007). Investing for strategic resources and its rationale: The case of outward FDI from Chinese companies. *Business Horizons*, 50, 71-81.
- Edwards, J. R. (2009). Seven deadly myths of testing moderation in organizational research. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends: Doctrine, verity and fable in the organizational and social sciences* (pp. 143-164). New York: Routledge.
- Eliassen, K. A., & Grøgaard, B. (2007). Internationalisation. In J. From & K. A. Eliassen (Eds.), *The privatisation of European telecommunications*. Burlington, VT: Ashgate Publishing.
- Estrin, S., Meyer, K. E., Nielsen, B. B., & Nielsen, S. (2012). The Internationalization of State Owned Enterprises: The Impact of Political Economy and Institutions. *Working Paper*. London: London Business School.
- Filatovchev, I., Stephan, J., & Jindra, B. (2008). Ownership structure, strategic controls and export intensity of foreign-invested firms in transition economies. *Journal of International Business Studies*, 39, 1133-1148.
- Girma, S., Kneller, R., & Pisu, M. (2005). Exports versus FDI: an empirical test. *Review of World Economics*, 141, 193-218.
- Goethals, J., & Ooghe, H. (1997). The performance of foreign and national take-overs in Belgium. *European Business Review*, 97, 24-37.
- Goldeng, E., Grünfeld, L. A., & Benito, G. R. G. (2008). The performance differential between private and state owned enterprises: The roles of ownership, management and market structure. *Journal of Management Studies*, 45, 1244-1273.
- Greenaway, D., & Kneller, R. (2007). Firm heterogeneity, exporting and foreign direct investment. *Economic Journal*, 117, F134-F161.
- Greene, W. H. (2003). *Econometric analysis* (5th ed.). Upper Saddle River, NJ: Prentice Hall.
- Grøgaard, B., Gioia, C., & Benito, G. R. G. (2013). An Empirical Investigation of the Role of Industry Factors in the Internationalization Patterns of Firms. *International Studies of Management and Organization*, 43, 81-100.
- Gupta, N. (2005). Partial privatization and firm performance. *Journal of Finance*, 60, 987-1015.

- Hashai, N., Asmussen, C. G., Benito, G. R. G., & Petersen, B. (2010). Technological knowledge intensity and entry mode diversity. *Management International Review*, 50, 659-681.
- Hennart, J. F. (2007). The theoretical rationale for a multinationality-performance relationship. *Management International Review*, 47, 423-452.
- Hennart, J. F. (2011). A theoretical assessment of the empirical literature on the impact of multinationality on performance. *Global Strategy Journal*, 1, 135-151.
- Hitt, M. A., Tihanyi, L., Miller, T., & Connelly, B. (2006). International diversification: Antecedents, outcomes, and moderators. *Journal of Management*, 32, 831-867.
- Hveem, H., Knutsen, C. H., & Rygh, A. (2012). State ownership, political risk and foreign direct investment. In K. Eliassen (Ed.), *Business and Politics in a New Global Order* (pp. 89-110). Oslo: Gyldendal Norsk Forlag AS.
- Hymer, S. H. (1960/1976). *The international operations of national firms: a study of direct foreign investment*. Cambridge, Mass.: MIT Press.
- Hyytinen, A., & Toivanen, O. (2005). Do financial constraints hold back innovation and growth?: Evidence on the role of public policy. *Research Policy*, 34, 1385-1403.
- Kalotay, K., & Sulstarova, A. (2010). Modelling Russian outward FDI. *Journal of International Management*, 16, 131-142.
- Kennedy, P. (2003). *A guide to econometrics* (5th ed.). Oxford: Blackwell.
- Kim, W. C., Hwang, P., & Burgers, W. P. (1993). Multinationals' diversification and the risk-return trade-off. *Strategic Management Journal*, 14, 275-286.
- Knutsen, C. H., Rygh, A., & Hveem, H. (2011). Does state ownership matter? Institutions' effect on foreign direct investment revisited. *Business and Politics*, 13, 2.
- Kobrin, S. J. (1991). An empirical analysis of the determinants of global integration. *Strategic Management Journal*, 12, 17-31.
- Kogut, B. (1985). Designing global strategies: Comparative and competitive value-added chains. *Sloan management review*, 26, 15-28.
- Kotabe, M., Srinivasan, S. S., & Aulakh, P. S. (2002). Multinationality and firm performance: The moderating role of R&D and marketing capabilities. *Journal of International Business Studies*, 33, 79-97.
- Kronborg, D., & Thomsen, S. (2009). Foreign ownership and long-term survival. *Strategic Management Journal*, 30, 207-219.
- Kumar, K. (1981). Multinationalization of third-world public sector enterprises. In K. Kumar & MacLeod (Eds.), *Multinationals from Developing Countries*. Lexington, Mass.: D.C. Heath, Lexington Books.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Tunnelling. *American Economic Review*, 90, 22-27.
- Lawson, C. (1994). The theory of state-owned enterprises in market economies. *Journal of Economic Surveys*, 8, 283-309.
- Li, J., & Guisinger, S. (1991). Comparative business failures of foreign-controlled firms in the United States. *Journal of International Business Studies*, 22, 209-224.
- Lien, Y. C., Piesse, J., Strange, R., & Filatotchev, I. (2005). The role of corporate governance in FDI decisions: Evidence from Taiwan. *International Business Review*, 14, 739-763.
- Ludvigsen, S. (2010). State Ownership and Corporate Governance. (Doctoral dissertation). Oslo: BI Norwegian Business School.
- Majocchi, A., & Strange, R. (2012). International diversification. *Management International Review*, 52, 1-22.
- Mata, J., & Portugal, P. (2002). The survival of new domestic and foreign-owned firms. *Strategic Management Journal*, 23, 323-343.
- Mazzolini, R. (1980). The international strategy of state-owned firms: An organizational process and politics perspective. *Strategic Management Journal*, 1, 101-118.
- Meggison, W. L., & Netter, J. M. (2001). From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature*, 39, 321-389.

- Moran, T. H. (2002). *Beyond sweatshops: Foreign direct investment and globalization in developing countries*. Washington, D.C.: Brookings Institution Press.
- O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41, 673-690.
- Oesterle, M.-J., Richta, H. N., & Fisch, J. H. (2013). The influence of ownership structure on internationalization. *International Business Review*, 22, 187-201.
- Papke, L. E., & Wooldridge, J. M. (2008). Panel data methods for fractional response variables with an application to test pass rates. *Journal of Econometrics*, 145, 121-133.
- Peng, M. W. (2004). Identifying the big question in international business research. *Journal of International Business Studies*, 35, 99-108.
- Ramamurti, R. (1987). *State-owned enterprises in high technology industries*. New York: Praeger Publishers.
- Reeb, D. M., Kwok, C. C. Y., & Baek, H. Y. (1998). Systematic risk of the multinational corporation. *Journal of International Business Studies*, 263-279.
- Reve, T., & Jakobsen, E. W. (2000). *Et verdiskapende Norge*. Oslo: Universitetsforlaget.
- Ruigrok, W., & Wagner, H. (2003). Internationalization and performance: An organizational learning perspective. *Management International Review*, 43, 63-83.
- Shapiro, D., & Globerman, S. (2012). The international activities and effects of state-owned enterprises. In K. Sauvant, L. Sachs & W. S. Jongbloed (Eds.), *Sovereign Investment: Concerns and Policy Reactions* (pp. 98-144). New York: Oxford University Press.
- Smeets, R. (2008). Collecting the pieces of the FDI knowledge spillovers puzzle. *World Bank Research Observer*, 23, 107-138.
- Strange, R., & Jackson, G. (2008). *Corporate governance and international business: Strategy, performance and institutional change*. Basingstoke: Palgrave Macmillan.
- Taymaz, E., & Özler, Ş. (2007). Foreign ownership, competition, and survival dynamics. *Review of Industrial Organization*, 31, 23-42.
- Thomsen, S., & Pedersen, T. (2000). Ownership structure and economic performance in the largest European companies. *Strategic Management Journal*, 21, 689-705.
- Vermeulen, F., & Barkema, H. (2001). Learning through acquisitions. *Academy of Management Journal*, 44, 457-476.
- Vernon, R. (1979). The international aspects of state-owned enterprises. *Journal of International Business Studies*, 10, 7-15.
- Wagner, J. (2008). Exports and firm characteristics: first evidence from fractional probit panel estimates. In: University of Lüneburg Working Paper Series in Economics.
- Wiersema, M. F., & Bowen, H. P. (2011). The relationship between international diversification and firm performance: why it remains a puzzle. *Global Strategy Journal*, 1, 152-170.
- Xiao, S. S., Jeong, I., Moon, J. J., Chung, C. C., & Chung, J. (2013). Internationalization and Performance of Firms in China: Moderating Effects of Governance Structure and the Degree of Centralized Control. *Journal of International Management*, 19, 118-137.
- Yang, Y., & Driffield, N. (2012). Multinationality-Performance Relationship. *Management International Review*, 52, 23-47.

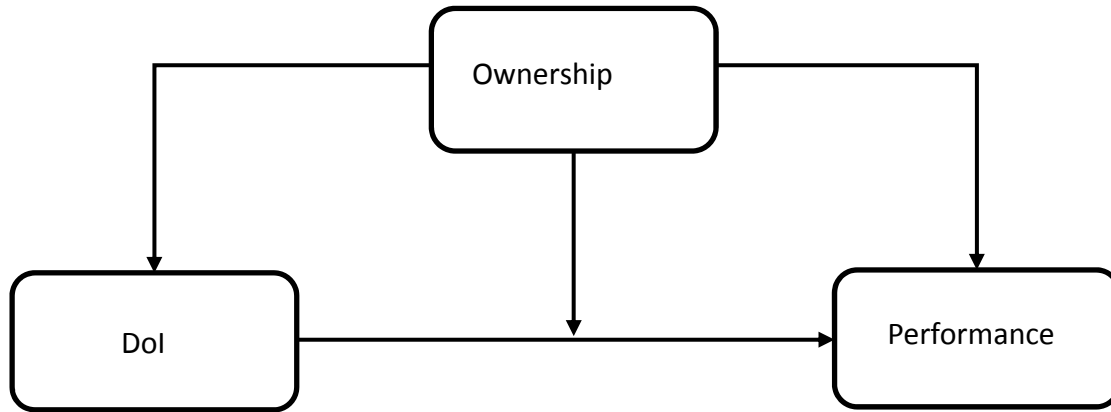


Figure 1. Ownership, degree of internationalization and performance: A conceptual framework.

Table 1. Descriptive statistics

	mean	SD	min	p50	max
<i>OWNCONC</i>	54.3	20.4	16.6	54.9	100
<i>FOROWN</i>	31.8	24.0	0	32.5	87.9
<i>STATEOWN</i>	16.6	23.6	0	6.80	100
<i>EMPLOYEES</i>	7826.8	10073.4	29	3509.5	46255
<i>GOODS</i>	0.47	0.50	0	0	1
<i>SERVICES</i>	0.33	0.47	0	0	1
<i>CLUSTER</i>	0.55	0.50	0	1	1
<i>CONGLOM</i>	0.12	0.33	0	0	1
<i>FSTS</i>	0.70	0.27	0	0.77	1
<i>FETE</i>	0.60	0.29	0	0.68	1
<i>ROA</i>	0.14	0.39	-3.63	0.11	2.44
<i>ROS</i>	0.10	0.18	-1.30	0.077	0.69
<i>TOBQ</i>	0.84	0.86	0.00064	0.67	9.20

Note: Statistics are calculated for all 330 observations.

Table 2: Models for testing H1 ($n=330$, standard errors in parentheses)

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	OLS for Tobin's Q	OLS for ROA	OLS for ROS	Random effects for Tobin's Q	Random effects for ROA	Random effects for ROS
<i>OWNCONC</i>	-0.011*** (0.0024)	-0.0034*** (0.0012)	-0.0019*** (0.00052)	-0.0097** (0.0039)	-0.0012 (0.0025)	-0.0014* (0.00080)
<i>FOROWN</i>	0.010*** (0.0022)	0.0036*** (0.0011)	0.0011** (0.00048)	0.014*** (0.0056)	0.0049** (0.0024)	0.0017** (0.00069)
<i>STATEOWN</i>	0.0059*** (0.0022)	0.0037*** (0.0011)	0.0017*** (0.00048)	0.0042 (0.0037)	0.0013 (0.0012)	0.00082 (0.00076)
<i>EMPLOYEES</i>	-0.000013** (0.0000052)	-0.0000039 (0.0000025)	-0.0000018 (0.0000011)	-0.000014** (0.0000055)	-0.0000030 (0.0000028)	-5.4e-10 (0.0000012)
<i>GOODS</i>	0.24* (0.14)	0.10 (0.066)	-0.019 (0.029)	0.18 (0.18)	0.092 (0.11)	-0.026 (0.052)
<i>SERVICES</i>	-0.24* (0.13)	-0.068 (0.064)	0.017 (0.029)	-0.34 (0.26)	-0.12 (0.17)	0.0012 (0.063)
<i>CLUSTER</i>	0.22** (0.11)	0.18*** (0.054)	0.083*** (0.024)	0.18 (0.15)	0.18 (0.12)	0.083* (0.045)
<i>CONGLOM</i>	-0.27* (0.16)	-0.011 (0.077)	-0.0072 (0.035)	-0.20 (0.16)	-0.0052 (0.093)	0.0075 (0.045)
<i>FSTS</i>	-0.25 (0.19)	-0.13 (0.090)	-0.0016 (0.041)	-0.14 (0.24)	-0.24** (0.11)	-0.0083 (0.063)
Constant	1.18*** (0.21)	0.15 (0.10)	0.12** (0.046)	1.00*** (0.29)	0.12 (0.26)	0.083 (0.091)
R^2	0.183	0.095	0.143	0.1712	0.0707	0.1196
Panel B	(7) OLS for Tobin's Q	(8) OLS for ROA	(9) OLS for ROS	(10) Random effects for Tobin's Q	(11) Random effects for ROA	(12) Random effects for ROS
<i>OWNCONC</i>	-0.012*** (0.0024)	-0.0034*** (0.0012)	-0.0019*** (0.00052)	-0.0097** (0.0038)	-0.0011 (0.0025)	-0.0014* (0.00078)
<i>FOROWN</i>	0.012*** (0.0021)	0.0035*** (0.0010)	0.0012** (0.00047)	0.014** (0.0059)	0.0043* (0.0024)	0.0019*** (0.00058)
<i>STATEOWN</i>	0.0058*** (0.0022)	0.0037*** (0.0011)	0.0017*** (0.00048)	0.0040 (0.0035)	0.0013 (0.00089)	0.00068 (0.00075)
<i>EMPLOYEES</i>	-0.000010** (0.0000052)	-0.0000031 (0.0000025)	-0.0000017 (0.0000011)	-0.000011* (0.0000059)	-0.00000096 (0.0000027)	0.00000073 (0.0000016)
<i>GOODS</i>	0.34** (0.14)	0.12* (0.068)	-0.015 (0.030)	0.23 (0.16)	0.11 (0.096)	0.00055 (0.048)
<i>SERVICES</i>	-0.10 (0.14)	-0.024 (0.066)	0.021 (0.030)	-0.26 (0.23)	-0.043 (0.17)	0.030 (0.063)
<i>CLUSTER</i>	0.22** (0.11)	0.17*** (0.052)	0.084*** (0.024)	0.18 (0.13)	0.15 (0.11)	0.088* (0.046)
<i>CONGLOM</i>	-0.36** (0.16)	-0.038 (0.078)	-0.010 (0.035)	-0.27 (0.17)	-0.045 (0.093)	-0.019 (0.053)
<i>FETE</i>	-0.55*** (0.18)	-0.15* (0.087)	-0.018 (0.039)	-0.29 (0.25)	-0.22** (0.11)	-0.11** (0.051)
Constant	1.23*** (0.20)	0.13 (0.096)	0.12*** (0.043)	1.02*** (0.26)	0.060 (0.26)	0.12 (0.085)
R^2	0.201	0.098	0.143	0.1855	0.0744	0.1084

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Models for testing H2 ($n=330$, standard errors in parentheses)

	(13) OLS for FSTS	(14) OLS for FETE	(15) Random effects FSTS	(16) Random effects for FETE	(17) Fractional probit for FSTS	(18) Fractional probit for FETE
<i>OWNCONC</i>	-0.0013 [*] (0.00072)	-0.0011 (0.00074)	-0.000094 (0.0012)	0.00041 (0.0011)	0.00097 (0.0040)	0.0030 (0.0035)
<i>FOROWN</i>	0.0049 ^{***} (0.00061)	0.0040 ^{***} (0.00063)	0.0030 ^{**} (0.0013)	0.00070 (0.0026)	0.0086 [*] (0.0049)	0.00018 (0.0079)
<i>STATEOWN</i>	-0.00094 (0.00066)	-0.00059 (0.00068)	-0.0013 (0.0018)	-0.0016 (0.0020)	-0.0026 (0.0078)	-0.0044 (0.0069)
<i>EMPLOYEES</i>	-0.0000023 (0.0000015)	0.0000032 ^{**} (0.0000016)	-0.0000018 (0.0000044)	0.0000082 ^{***} (0.0000018)	-0.0000064 (0.000012)	0.000021 ^{***} (0.0000074)
<i>GOODS</i>	0.13 ^{***} (0.040)	0.24 ^{***} (0.041)	0.14 (0.15)	0.26 [*] (0.13)		
<i>SERVICES</i>	-0.089 ^{**} (0.039)	0.21 ^{***} (0.040)	-0.064 (0.12)	0.27 ^{**} (0.11)		
<i>CLUSTER</i>	0.17 ^{***} (0.032)	0.071 ^{**} (0.033)	0.13 (0.095)	0.043 (0.10)		
<i>CONGLOM</i>	0.011 (0.048)	-0.17 ^{***} (0.049)	-0.10 (0.084)	-0.29 ^{***} (0.097)		
Constant	0.52 ^{***} (0.057)	0.31 ^{***} (0.059)	0.54 ^{***} (0.15)	0.31 [*] (0.19)	0.25 (0.44)	-0.36 (0.45)
R^2	0.297	0.321	0.2548	0.2249	n.a.	n.a.

^{*} $p < 0.10$, ^{**} $p < 0.05$, ^{***} $p < 0.01$

Table 4: Model for testing H3, using FSTS as internationalization measure ($n=330$, standard errors in parentheses)

	(19) OLS for Tobin's Q	(20) OLS for ROA	(21) OLS for ROS	(22) Random effects for Tobin's Q	(23) Random effects for ROA	(24) Random effects for ROS
<i>OWNCONC</i> × <i>FSTS</i>	-0.026** (0.010)	-0.0022 (0.0049)	-0.0055** (0.0022)	-0.0093 (0.016)	0.0054 (0.0037)	-0.0048 (0.0036)
<i>FOROWN</i> × <i>FSTS</i>	0.018* (0.0094)	-0.0058 (0.0046)	-0.0027 (0.0021)	0.024 (0.016)	-0.0091*** (0.0034)	-0.00015 (0.0017)
<i>STATEOWN</i> × <i>FSTS</i>	0.018** (0.0076)	0.0027 (0.0037)	0.0020 (0.0017)	0.0070 (0.0073)	-0.00046 (0.0023)	0.0036** (0.0018)
<i>OWNCONC</i>	0.0072 (0.0086)	-0.00095 (0.0042)	0.0026 (0.0019)	-0.0032 (0.014)	-0.0048 (0.0049)	0.0023 (0.0025)
<i>FOROWN</i>	-0.0026 (0.0078)	0.0082** (0.0038)	0.0034** (0.0017)	-0.0037 (0.011)	0.012*** (0.0033)	0.0019 (0.0013)
<i>STATEOWN</i>	-0.0067 (0.0054)	0.0020 (0.0027)	0.00016 (0.0012)	-0.0029 (0.0062)	0.0030* (0.0018)	-0.0015 (0.0013)
<i>EMPLOYEES</i>	-0.000011** (0.0000052)	-0.0000046* (0.0000025)	-0.0000020* (0.0000011)	-0.000012** (0.0000049)	-0.0000039 (0.0000030)	-0.00000009 (0.0000014)
<i>GOODS</i>	0.28** (0.14)	0.096 (0.066)	-0.012 (0.030)	0.20 (0.18)	0.076 (0.11)	-0.013 (0.050)
<i>SERVICES</i>	-0.22 (0.14)	-0.055 (0.069)	0.042 (0.031)	-0.40 (0.29)	-0.11 (0.17)	0.017 (0.069)
<i>CLUSTER</i>	0.27** (0.11)	0.18*** (0.055)	0.082*** (0.025)	0.22 (0.14)	0.16 (0.12)	0.096** (0.045)
<i>CONGLOM</i>	-0.31* (0.16)	-0.011 (0.079)	-0.0019 (0.035)	-0.24 (0.16)	0.0019 (0.098)	0.00058 (0.051)
<i>FSTS</i>	0.53 (0.72)	0.087 (0.35)	0.36** (0.16)	-0.40 (1.04)	-0.30* (0.17)	0.18 (0.21)
Constant	0.51 (0.63)	-0.052 (0.31)	-0.19 (0.14)	1.18 (0.91)	0.15 (0.36)	-0.089 (0.18)
R^2	0.223	0.102	0.159	0.1977	0.0794	0.1335

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Model for testing H3, using FETE as internationalization measure ($n=330$, standard errors in parentheses)

	(25) OLS for Tobin's Q	(26) OLS for ROA	(27) OLS for ROS	(28) Random effects for Tobin's Q	(29) Random effects for ROA	(30) Random effects for ROS
<i>OWNCONC</i> × <i>FETE</i>	-0.0048 (0.0079)	-0.00078 (0.0038)	-0.0012 (0.0017)	-0.0095 (0.0076)	0.0057 (0.0038)	0.00047 (0.0024)
<i>FOROWN</i> × <i>FETE</i>	0.011 (0.0075)	0.0023 (0.0037)	0.0032* (0.0016)	0.015 (0.020)	-0.0013 (0.0060)	0.0037** (0.0018)
<i>STATEOWN</i> × <i>FETE</i>	-0.0012 (0.0087)	0.0032 (0.0042)	0.0024 (0.0019)	-0.0013 (0.0088)	0.00073 (0.0027)	0.0035** (0.0017)
<i>OWNCONC</i>	-0.0097 (0.0063)	-0.0028 (0.0031)	-0.0012 (0.0014)	-0.0047 (0.0051)	-0.0045 (0.0033)	-0.0016 (0.0017)
<i>FOROWN</i>	0.0042 (0.0055)	0.0021 (0.0027)	-0.00083 (0.0012)	0.0053 (0.014)	0.0052* (0.0030)	-0.00042 (0.00082)
<i>STATEOWN</i>	0.0056 (0.0054)	0.0019 (0.0026)	0.00025 (0.0012)	0.0028 (0.0041)	0.0017 (0.0013)	-0.00092 (0.0012)
<i>EMPLOYEES</i>	-0.0000069 (0.0000055)	-0.0000030 (0.0000027)	-0.0000013 (0.0000012)	-0.0000067 (0.0000066)	-0.0000023 (0.0000028)	0.00000082 (0.0000018)
<i>GOODS</i>	0.36** (0.14)	0.12* (0.068)	-0.014 (0.031)	0.27 (0.19)	0.092 (0.093)	-0.0043 (0.046)
<i>SERVICES</i>	-0.15 (0.14)	-0.037 (0.068)	0.0054 (0.030)	-0.32 (0.22)	-0.052 (0.19)	0.0062 (0.058)
<i>CLUSTER</i>	0.22** (0.11)	0.18*** (0.053)	0.086*** (0.024)	0.19 (0.15)	0.15 (0.11)	0.093** (0.044)
<i>CONGLOM</i>	-0.45*** (0.17)	-0.043 (0.082)	-0.025 (0.037)	-0.38* (0.20)	-0.0056 (0.091)	-0.015 (0.057)
<i>FETE</i>	-0.60 (0.48)	-0.22 (0.24)	-0.075 (0.11)	-0.22 (0.53)	-0.46 (0.31)	-0.27* (0.15)
Constant	1.28*** (0.40)	0.16 (0.19)	0.15* (0.087)	0.97** (0.45)	0.22 (0.25)	0.20* (0.11)
R^2	0.210	0.100	0.156	0.1929	0.0643	0.1180

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Tests for effects of multicollinearity in interaction model 30 ($n=330$, standard errors in parentheses)

	(30a) ROS	(30b) ROS	(30c) ROS	(30d) ROS	(30e) ROS	(30f) ROS	(30g) ROS	(30h) ROS
<i>OWNCONC</i> × <i>FETE</i>	0.00047 (0.0024)	0.0013 (0.0021)	0.00012 (0.0023)					
<i>OWNCONC</i>	-0.0016 (0.0017)	-0.0023* (0.0013)	-0.0013 (0.0017)					
<i>FOROWN</i> × <i>FETE</i>	0.0037** (0.0018)	0.0034* (0.0018)		0.0033* (0.0018)		0.0038** (0.0017)	0.0031* (0.0017)	
<i>FOROWN</i>	-0.00042 (0.00082)	-0.00037 (0.00082)		-0.00013 (0.00081)		-0.00036 (0.00075)	0.000064 (0.00077)	
<i>STATEOWN</i> × <i>FETE</i>	0.0035** (0.0017)		0.0029* (0.0016)	0.0045*** (0.0014)	0.0038*** (0.0013)	0.0039** (0.0016)		0.0029** (0.0015)
<i>STATEOWN</i>	-0.00092 (0.0012)		-0.0012 (0.0011)	-0.0018** (0.00082)	-0.0020*** (0.00071)	-0.0016 (0.00098)		-0.0018** (0.00081)
<i>EMPLOYEES</i>	0.00000082 (0.0000018)	0.0000016 (0.0000014)	0.00000096 (0.0000016)	0.00000070 (0.0000019)	0.00000089 (0.0000017)	0.0000013 (0.0000014)	0.0000016 (0.0000013)	0.0000014 (0.0000014)
<i>GOODS</i>	-0.0043 (0.046)	-0.0082 (0.048)	-0.011 (0.052)	-0.0031 (0.043)	-0.010 (0.049)			
<i>SERVICES</i>	0.0062 (0.058)	0.0020 (0.060)	0.049 (0.067)	0.0070 (0.056)	0.047 (0.066)			
<i>CLUSTER</i>	0.093** (0.044)	0.082* (0.046)	0.090* (0.049)	0.089** (0.043)	0.085* (0.047)			
<i>CONGLOM</i>	-0.015 (0.057)	-0.024 (0.058)	-0.0097 (0.061)	-0.0088 (0.063)	-0.0049 (0.065)			
<i>FETE</i>	-0.27* (0.15)	-0.27** (0.14)	-0.12 (0.12)	-0.24*** (0.080)	-0.12** (0.050)	-0.25*** (0.077)	-0.20*** (0.071)	-0.11** (0.053)
Constant	0.20* (0.11)	0.23** (0.10)	0.17 (0.11)	0.12** (0.059)	0.11* (0.059)	0.17*** (0.056)	0.14*** (0.047)	0.16*** (0.038)
Highest VIF	22.80	20.06	17.04	16.44	6.60	12.10	11.68	4.62
Mean VIF	11.43	8.87	7.93	6.74	3.80	6.56	7.12	3.11

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix 1: Correlation matrix for variables used in analyses

	<i>OWNCONC</i>	<i>FOROWN</i>	<i>STATEOWN</i>	<i>EMPLOYEES</i>	<i>GOODS</i>	<i>SERVICES</i>	<i>CLUSTER</i>	<i>CONGLOM</i>	<i>FSTS</i>	<i>FETE</i>	<i>ROA</i>	<i>ROS</i>	<i>TOBQ</i>
<i>OWNCONC</i>	1												
<i>FOROWN</i>	-0.223***	1											
<i>STATEOWN</i>	0.386***	-0.251***	1										
<i>EMPLOYEES</i>	0.207***	0.0304	0.365***	1									
<i>GOODS</i>	-0.145***	-0.176***	-0.0434	0.0335	1								
<i>SERVICES</i>	0.0414	0.333***	-0.167***	-0.121**	-0.661***	1							
<i>CLUSTER</i>	0.184***	0.0953*	-0.0250	0.137**	-0.506***	0.349***	1						
<i>CONGLOM</i>	0.0990*	-0.152***	0.165***	0.427***	0.267***	-0.263***	0.127**	1					
<i>FSTS</i>	-0.221***	0.396***	-0.244***	-0.0461	0.132**	-0.0496	0.145***	0.0339	1				
<i>FETE</i>	-0.190***	0.452***	-0.232***	-0.00298	0.0272	0.270***	0.0462	-0.174***	0.510***	1			
<i>ROA</i>	-0.120**	0.136**	0.0861	-0.00209	0.0244	-0.0385	0.0946*	0.0169	0.0376	-0.0207	1		
<i>ROS</i>	-0.136**	0.184***	0.0514	-0.0416	-0.209***	0.178***	0.223***	-0.0600	0.0777	0.0603	0.518***	1	
<i>TOBQ</i>	-0.300***	0.236***	-0.0529	-0.136**	0.0995*	-0.0722	-0.0579	-0.123**	0.104*	-0.00388	0.280***	0.218***	1

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix 2: Minimum and maximum variance inflation factors for variables included in the random effects analyses (model numbers in parentheses)

	<i>OWNCONC</i>	<i>FOROWN</i>	<i>STATEOWN</i>	<i>EMPLOYEES</i>	<i>GOODS</i>	<i>SERVICES</i>	<i>CLUSTER</i>	<i>CONGLOM</i>	<i>FSTS</i>	<i>FETE</i>
Min	6.53 (4-6)	3.71 (4-6)	2.14 (4-6)	2.36 (4-6)	3.70 (4-6)	2.79 (4-6)	3.26 (4-6)	1.65 (4-6)	8.43 (4-6)	7.14 (10-12)
Max	24.81 (22-24)	29.97 (22-24)	12.88 (28-30)	2.64 (28-30)	4.72 (28-30)	3.43 (28-30)	3.89 (28-30)	1.89 (28-30)	16.44 (22-24)	15.63 (28-30)

	<i>OWNCONC</i> × <i>FSTS</i>	<i>FOROWN</i> × <i>FSTS</i>	<i>STATEOWN</i> × <i>FSTS</i>	<i>OWNCONC</i> × <i>FETE</i>	<i>FOROWN</i> × <i>FETE</i>	<i>STATEOWN</i> × <i>FETE</i>
Only one specification each	25.42	31.47	10.84	20.15	22.70	9.54
