BJM BRITISH JOURNAL of MANAGEMENT
BRITISH ACADEMY OF MANAGEMENT
Check for updates
British Journal of Management, Vol. 34, 2354–2373 (2023)
DOI: 10.1111/1467-8551.12704

Do Firms Earn Rents from the Intangible Assets of Their Owners? Institution-Based Insights from the Energy Sector

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Firms can earn rents not only from their own intangible assets (FIAs), but also from the intangible assets of their owner organizations (OIAs). Although the literature has established that rent creation from FIAs depends on the quality of institutions, it remains unclear how institutional quality influences rents from OIAs. This study examines how the rents from OIAs and FIAs change when they are deployed in environments with different institutional quality. Combining insights from the resource-based view and institutional economics, we develop and test a set of predictions using a sample of over 6000 energy firms from 23 European countries. The study shows that the effect of institutional quality on rent creation is asymmetric, being positive for FIAs and negative for OIAs. In addition, OIAs drawn from multiple owners create higher rents than OIAs from a single owner. Such 'multiplicity-of-ownership' advantages are stronger in countries with better institutional quality. The contribution of the study lies in explaining how the two types of intangible assets generate rents for the focal firm, and in clarifying why the creation of such rents is contingent on the institutional context in which they are deployed.

Introduction

Intangible assets (IAs), such as technology and brands, are characterized by path dependency that makes their accumulation and imitation difficult (Dierickx and Cool, 1989), therefore helping firms to create sustained competitive advantages and rents in a market (Huang *et al.*, 2015; Peteraf, 1993). Extant research focuses on how firms create such rents from their own intangible assets (FIAs) (He and Wang, 2009; Kafouros and Aliyev, 2016b) and recognizes that sharing assets through ownership links (e.g., in family firms, business groups, multinational enterprises and other types of corporate diversification) can be beneficial for the owners of such assets (Anderson *et al.*, 2022; Hautz, Mayer and Stadler, 2013). Yet, what remains unclear is whether and how a focal firm can create rents by accessing the intangible assets possessed by its domestic and/or foreign owner organizations (hereafter owners' intangible assets, OIAs), and how the creation of these rents is influenced by the institutional context in which the focal firm deploys such OIAs.

To address this limitation, we examine how the economic rents that OIAs and FIAs generate for the focal firm are influenced by the institutional quality – the effectiveness of rules in governing transactions between organizations (North, 1991) – of the country in which they are deployed. Addressing this limitation is important for three reasons. First, the rent-generating potential of OIAs and FIAs may differ considerably, depending on the country and the institutional context in which they are employed (i.e. they may generate rents at a different rate in different institutional contexts) (Fuentelsaz, Garrido and Maicas, 2015; Hughes *et al.*, 2017). Second, a focal firm that is owned

by other organizations can access and potentially profit from OIAs without incurring the costs of developing such assets itself. However, since FIAs are internal assets and OIAs are not, it would be incorrect to assume that rents from OIAs and FIAs generate economic rents in similar ways and that these rents are influenced similarly by institutional quality. Third, while some firms are owned by a single organization, other firms have multiple owners. Once again, it would be unwarranted to assume that the advantages of OIAs are the same in single- and multiple-ownership settings.

Focusing on the context in which IAs are deployed (while distinguishing between FIAs and OIAs) enables us to explain the institutional conditions under which a focal firm can create rents from such assets. The literature suggests that rents from IAs are typically higher when the quality of institutions in a country is stronger (Kafouros and Aliyev, 2016b; Qian *et al.*, 2017). However, in the case of OIAs, ownership links offer access to such assets but the extent to which these represent a competitive advantage for the focal firm depends on whether its rivals can access such IAs through market mechanisms (e.g. through licencing). Consequently, we expect the rent-enhancing advantages of OIAs to be stronger when the costs of transacting in the market are very high (i.e. when institutional quality is low).

This prediction about OIAs stands in contrast to the established view about FIAs, which suggests that rents from such assets increase in high-quality institutional environments. We argue that the theoretical predictions about FIAs are not applicable to OIAs because institutional quality affects the rents created from FIAs and OIAs asymmetrically. To this end, this study explains the mechanisms through which institutional quality makes the exploitation of FIAs more effective and increases rent creation, while it has the opposite effect on OIAs, decreasing the rents they create. It therefore reveals how the advantages that OIAs provide to the focal firm change depending on the institutional contexts in which such assets are deployed.

Furthermore, recognizing that some firms can access OIAs from multiple owners, we develop the premise that multiplicity-of-ownership advantages change the usefulness of accessing OIAs (vis-à-vis OIAs from single owners). However, the relationships between multiple owners are, once again, subject to institutional forces because ex-ante agreements about combining IAs from multiple owners and ex-post sharing of the associated proceeds among the firm and its multiple owners require complex contracts. We thus theorize that institutional quality widens the difference between the rents created from multiple-owner OIAs and those from single-owner OIAs.

To explain how rents are created from OIAs and how such rents are conditioned by the institutional context, our framework combines theoretical insights from the resource-based view (RBV) (to specify the sources of VRIN[1] characteristics; Barney, 1991) and new institutional economics (to explain how institutional quality influences the VRIN characteristics of OIAs and the associated rents; North, 1991; Williamson, 2000). We test our hypotheses in the context of the European energy sector, using 54,520 observations from 6005 firms and 23 European countries (during 2003−2019). The deregulation of the energy sector has encouraged firms to invest in new technologies and build their reputation, increasing their reliance on IAs (Allen *et al.*, 2021; European Commission, 2012, 2017; Liu *et al.*, 2021). Moreover, due to long-term agreements between energy companies, governments and financial institutions, there is strong dependence on institutions (Allen *et al.*, 2021). Finally, technological complexity, large-scale projects and long-term pay-off schemes increase the prominence of multiple-ownership arrangements, making the energy sector a suitable context for our analysis.

This study makes three key contributions. First, it clarifies the mechanisms through which OIAs create rents for the focal firm. It therefore advances research that examines the rent-creating potential of IAs (Huang *et al.*, 2015; Knott, Bryce and Posen, 2003), but focuses only on FIAs without exploring the effects of OIAs. Its second contribution lies in showing that the institutional quality influences the competitive advantages and rent-creating potential of FIAs and OIAs in a different way. This suggests that the institutional mechanisms that affect the IAs that a firm owns and those that it can access through ownership links hinge on different forces. Unlike prior conceptualizations that view institutional quality only as a facilitator for the better exploitation of firms' own IAs, we show that it also determines the

[1]VRIN = valuable, rare, imperfectly imitable, non-substitutable (Barney, 1991).

competitive advantages driven by OIAs but in the opposite direction. Third, the study develops the concept of multiplicity-of-ownership advantages and shows how such advantages create rents that go beyond the rents created by OIAs from a single owner. This concept expands our understanding of the role of institutional contexts and how they affect rent creation from resources (Fuentelsaz, Garrido and Maicas, 2015; Hughes *et al.*, 2017) and IAs (Gardberg and Fombrun, 2006; Kafouros and Aliyev, 2016b; Qian *et al.*, 2017).

Theoretical foundation

Intangible assets and their role in the energy sector

IAs refer to patents and technologies, technological licences, designs, processes or systems, trademarks, copyrights, brand names, servicing and marketing rights, and other types of market and technical knowledge. As the RBV recognizes that IAs can create competitive advantages and rents for firms (Dierickx and Cool, 1989; Hall, 1992), it is ideal for examining the performance effects of IAs (Delios and Beamish, 2001; Kafouros and Aliyev, 2016b; Surroca, Tribó and Waddock, 2010). While the RBV initially focused on the VRIN characteristics of the firm's own IAs (Barney, 1991; Dierickx and Cool, 1989), it has subsequently recognized that owning such assets is not a necessary condition for creating rents and that having access and the right to use such assets may be sufficient (Hsieh *et al.*, 2018; Lavie, 2006).

IAs play an important role in creating rents. For instance, competitive advantages in the energy sector depend largely on power-generation technologies that change continuously due to institutional and market pressures (Allen *et al.*, 2021; Jacobsson and Bergek, 2004; Liu *et al.*, 2021; Tarim, Finke and Liu, 2021). To remain competitive, energy firms use various technologies (Delmas, Russo and Montes-Sancho, 2007; Kim, 2013) pertaining to energy generation (e.g. solar, wind, geothermal, hydropower, nuclear and bioenergy) and specialized information technology and usage-management technologies. Similarly, natural gas companies use technology-intensive processes for gas production, storage and distribution. These technologies are complemented by IAs such as licences, rights of operation, customer contracts and brands (PWC, 2011). Customer- and brand-related IAs also play an important role. For instance, as electricity retailers build their brand image (e.g. that of being 'environmentally friendly' or 'local'), they can benefit from affiliation to an owner who already possesses such a brand name and reputation, or assets that can help build that image (Shin *et al.*, 2018; Wiedmann, 2004).

Liberalization in the energy sector has strengthened its reliance on IAs (Delmas, Russo and Montes-Sancho, 2007). The European Union (EU) lowered entry barriers, allowing consumers to choose suppliers on a competitive basis (European Commission, 2012). These changes, along with EU directives about renewable energy, promoted competition and innovation (Allen *et al.*, 2021; European Commission, 2017) and increased reliance on IAs (Kim, 2013), as shown in Figures 1(a) and (b). Figure 1(a) presents the OECD regulation scores for the energy sector for our sample countries between 2003 and 2018 (higher scores mean higher regulation) (Vitale *et al.*, 2020). EU policies resulted in the deregulation of the energy sector in all countries (but to a different extent). Figure 1(b) presents a scatterplot for the regulation scores and the ratio of IAs to total assets, showing that reforms have substantially increased the energy sector's reliance on IAs. Nevertheless, creating value from IAs remains challenging in the energy sector due to the high costs of new technology (Liu *et al.*, 2021). Many new technologies concern renewable energy and are more expensive than carbon-based energy technologies. As a result, the role of OIAs becomes very important.

Multiple-ownership arrangements and access to intangible assets

An overarching premise in our analysis is that ownership arrangements enable firms to benefit from IAs that are not directly owned by them (Gulati, Nohria and Zaheer, 2000; Lavie, 2007). However, ownership arrangements differ across firms (Aguilera and Crespi-Cladera, 2016; Lafuente, Bayo-Moriones and García-Cestona, 2010). While some firms are owned by one organization, others are owned by multiple organizations. Owner organizations hold a significant stake in the focal firm (i.e. they are not

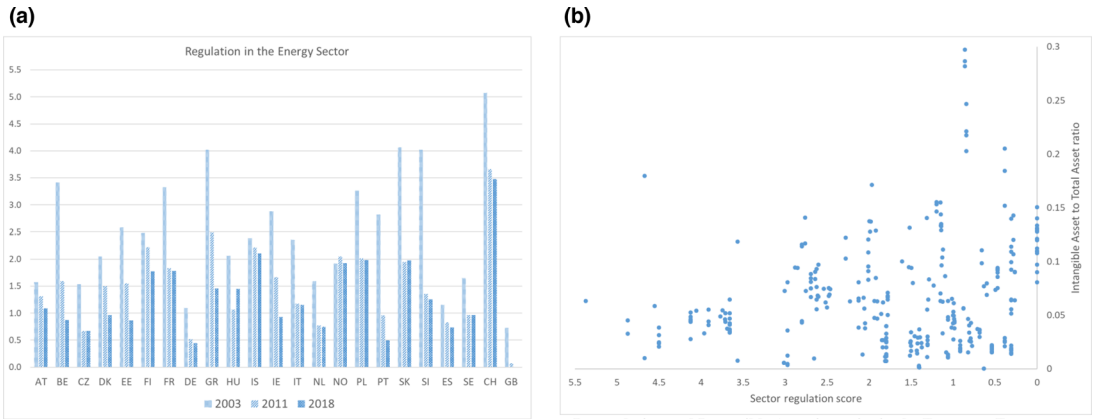

Figure 1. (a) OECD indicators of regulation in the energy sector: Austria (AT), Belgium (BE), Switzerland (CH), Czech Republic (CZ), Germany (DE), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), United Kingdom (GB), Greece (GR), Hungary (HU), Ireland (IE), Iceland (IS), Poland (PL), Italy (IT), Netherlands (NL), Norway (NO), Portugal (PT), Sweden (SE), Slovenia (SI), Slovak Republic (SK). (b) Deregulation and intangible asset intensity in the European Energy sector (higher values of the regulation score mean higher regulation). [Colour figure can be viewed at wileyonlinelibrary.com]

portfolio investors with a negligible share) and can be domestic business groups or multinational enterprises located either domestically or abroad.[2] Firms end up being owned by multiple organizations through different routes (e.g. acquisitions, privatization and collaborative agreements).

Multiple ownership implies that the focal firm's access to OIAs depends not only on its relationship with each individual owner, but also on the relationships between the owners. OIAs that are accessible from multiple owners can be more versatile, consist of idiosyncratic combinations and offer the focal firm wider opportunities to come up with unique and valuable configurations of IAs. However, access to OIAs requires governance mechanisms that enable the owners of assets to enter into reliable agreements, specify how they will share the assets and distribute the proceeds. Therefore, any advantage that could stem from multiple-owner OIAs (relative to single-owner OIAs) would depend on institutions that determine contracting between firms.

Cross-country variations in institutional quality

In our framework, we complement the RBV with new institutional economics (Williamson, 2000). We focus on the new institutional economics strand of institutional theory (Aguilera and Grøgaard, 2019) because its transaction-cost-based rationale is consistent with the cost-minimization and profit-maximization assumptions in the RBV (Peteraf, 1993). This choice is also consistent with prior research on institutional quality (Chan, Isobe and Makino, 2008; Kafouros and Aliyev, 2016b; Sena *et al.*, 2022). It is frequently used in this literature because it defines the concept with direct reference to minimizing transaction costs: 'Effective institutions raise the benefits of cooperative solutions or the costs of defection, to use game theoretic terms. In transaction cost terms, institutions reduce transaction and production costs per exchange so that the potential gains from trade are realizeable' (North, 1991, p. 98). This definition is consistent with our aim to explain rent creation through transaction cost mechanisms (North, 1991; Williamson, 2000).

Our hypotheses predict that institutional quality affects rents from OIAs differently (compared to those from FIAs). In high-quality institutional environments, firms rely on strong legal frameworks, developed government intermediaries and effective judicial systems (Adomako *et al.*, 2021; Jung and Lee, 2022). When institutions are less

[2]Throughout the study, the term 'owner organizations' refers to owners who can provide technical knowledge (e.g. technology) and industry-relevant reputation (e.g. brands). Therefore, we only consider the intangible assets of owners from the energy sector, rather than the intangible assets of financial organizations (e.g. banks, investment funds) and government organizations (e.g. states, sovereign wealth funds, local municipalities).

effective, ownership networks become more important in helping firms overcome institutional voids (Khanna and Palepu, 1997). Hence, institutional quality influences the relative advantages of ownership ties vis-à-vis formal market-based rules (Adomako *et al.*, 2021; Peng, 2003). With better institutions, the advantages of ownership ties decline while the benefits of market-based transactions increase.

Hypotheses

Intangible assets of owner organizations

The starting point of our analysis is that a focal firm can access an 'ownership network' including the headquarters and subsidiaries of its owners. Our reasoning relies on two premises: (1) that the dispersion of OIAs across the focal firm's ownership network increases their value, rareness and inimitability; and (2) that the ownership network and the associated relational ties enable the focal firm to create rents by providing (a) access to OIAs (Gulati, Nohria and Zaheer, 2000; Lavie, 2006; Xia and Walker, 2015) and (b) information that assists in the selection and deployment of such assets (Dyer and Singh, 1998; Gulati, 1998). These asset-based and informational advantages of OIAs are distinct but also interdependent, given that informational advantages become stronger in larger portfolios of assets. Table 1 summarizes the theoretical mechanisms.

First, various characteristics of OIAs contribute to their value, rareness, inimitability and non-substitutability (Barney, 1991). Access to OIAs creates value by giving focal firms the opportunity to use technological and reputational assets. Such assets are more difficult and costly to access in the market (relative to tangible assets) because of their information-based nature and information asymmetries regarding their value to different parties (Bergh *et al.*, 2019; Lavie, 2006; Xia and Walker, 2015). IAs, such as technology and brand equity, have significant value but their accumulation requires time and investment (Barney, 2001; Montgomery and Wernerfelt, 1988). Firms can access the IAs of their owners without incurring the full costs of developing such assets. Due to the scale-free nature of IAs, they can be deployed by the focal firm without being extracted from the owner organization. Access to IAs through ownership networks also adds to the rareness of OIAs. As OIAs are embedded in ownership structures, they become idiosyncratic asset combinations that cannot easily be found by competitors (Soda and Furlotti, 2014).

The stochastic nature through which OIAs are combined in ownership networks also increases 'causal ambiguity', preventing competitors from identifying which combinations are worth imitating (Barney, 1991; Dierickx and Cool, 1989). In addition, as OIAs are located across the ownership network, they add to 'structural complexity'. Causal ambiguity and difficulties in replicating the firm's ownership network increase the inimitability of the OIAs (Konlechner and Ambrosini, 2019). Given the scarcity of (owner) organizations with the right combinations of assets, the competitors of the focal firm also face significant difficulties in identifying substitutes for the OIAs accessible to the focal firm.

Second, access to information about assets enables the focal firm to understand their value and create advantages (Barney, 1986; Makadok and Barney, 2001). Ownership networks provide superior and systematic access to such information and therefore create OIA-related informational advantages specific to the focal firm. Rent creation also depends on the focal firm's ability to identify and select valuable IAs and utilize them (Foss *et al.*, 2021; Makadok, 2001). Under conditions of perfect information, the focal firm would be able to optimize asset selection through arm's-length market transactions (Denrell, Fang and Winter, 2003). However, information asymetry in knowledge-rich assets creates barriers (Bergh *et al.*, 2019). These challenges increase the costs and complexity of developing contracts that typically require firms to set prices, consider possible contigencies and estimate the expected returns from these assets (Bergh *et al.*, 2019; Foss and Foss, 2005; Williamson, 1985). Ownership networks improve the quality and reduce the costs of information exchange, enable renegotiation through informal governance routes (Filatotchev and Nakajima, 2010) and facilitate the gathering of OIA-specific intelligence. Such networks lower the inscrutability of IAs and uncertainty about their value to the focal firm (Makadok and Barney, 2001). These advantages, in turn, help the focal firm to outperform its competitors in asset selection and deployment (Parmigiani and Rivera-Santos, 2011). Hence

Table 1. Summary of theoretical mechanisms for OIAs[a]

Sources of competitive advantage from OIAs (H1)	Influence of institutional quality (IQ) (H2b)	Influence of multiple ownership (MO) (H3a: MO advantages)	Influence of IQ on MO advantages (H3b)
Value Valuable IAs that are not available internally or are difficult to obtain from the market.	In lower quality institutional environments, ownership links provide an alternative to market mechanisms in accessing IAs. In higher quality institutional environments, market mechanisms represent an alternative means of accessing IAs, reducing the value of ownership links (and that of OIAs).	A wider variety of OIAs increases the opportunities for complementary combinations. However, such opportunities are subject to formal agreements between the owner organizations regarding the shared use of IAs and ex-ante agreements of the future proceeds.	IQ facilitates the effectiveness of formal agreements, encouraging partnerships and assisting in realizing the value of MO-specific advantages of OIAs.
Rareness Ownership networks are idiosyncratic, offering rare combinations.	Market munificence reduces reliance on OIAs. Hence, access to valuable IAs is less rare (for the focal firm as well as its competitors).	Stronger idiosyncrasies in OIA structures increases the rareness of OIAs and potential resource combinations.	
Inimitability OIAs contribute to the resource structure accessible to the focal firm, featuring causal ambiguity and structural complexity.		MO widens and complicates the structure of OIAs, increasing causal ambiguity and structural complexity. It thus makes them more difficult to imitate.	Structural complexity results in potentially more complex relationships between the owner organizations. Better quality institutions help manage such complex formal relationships.
Non-substitutability Scarcity of IA-rich owners makes the strategic substitution of OIAs difficult and costly.	Market munificence offers a wider variety of IA combinations for competitors, increasing the potential for market IAs to serve as strategic substitutes for OIAs.	The advantages built on complex OIAs will require more effort from competitors to find strategic substitutes.	
Informational advantages The focal firm can access information about OIAs that is not available to competitors. Ownership links create advantages (vis-à-vis the competitors of the focal firm) over market access to IAs due to the easier tackling of information asymmetry in exchange.	Higher quality institutions facilitate credible contracting and enforcement of formal agreements, contributing to the practices of licensing, alliances or other partnerships. They thus reduce the role of ownership-links-based informational advantages.	Accessing information about OIAs is subject to mutual trust between the owner organizations. This creates additional challenges in the ex-ante mapping of OIAs (who owns what) before combinatorial opportunities can be recognized.	Access to the OIAs of multiple owners implies sharing information between owners. Effective institutions governing IP rights and formal agreements facilitate partnerships and access to information for potential bundling.

[a] Better protection and exploitation of IAs is likely to increase the proprietary value of IAs, but the extra rents will likely go to the owners of the IAs rather than the focal firm.

H1: The intangible assets possessed by the organizations that own the focal firm (OIAs) enhance the profitability of the focal firm.

Intangible assets and rents across contexts with different institutional quality

We further expect the institutional context to influence the effectiveness of both FIAs and OIAs, but asymmetrically. We posit that FIAs create greater economic rents under higher quality institutions. The logic is that institutional quality enhances the focal firm's ability to exploit and protect FIAs (He, Tong and Xu, 2022; Kafouros and Aliyev, 2016b).

Starting from the exploitation of FIAs, rent creation from a given set of IAs depends on the opportunities available in the environment (Penrose, 1959; Sirmon, Gove and Hitt, 2008). Institutional voids in countries with low institutional quality increase the difficulty of identifying market opportunities through which FIAs can be exploited (Adomako *et al.*, 2021; Khanna and Palepu, 1997). In such situations, the exploitation of FIAs is adversely influenced by ineffective institutions that limit the focal firms' ability to develop contracts and transact with other parties (Kafouros and Aliyev, 2016b; Yuan *et al.*, 2018). The limited use of FIAs constrains economies of scope and therefore rents.

The second mechanism depends on how well legal institutions protect IAs from imitation (Belderbos, Park and Carree, 2021; He, Tong and Xu, 2022). Under low-quality legal frameworks, including contract enforcement and intellectual property rights (IPR), the protection of FIAs through legal means is more challenging, costly and time consuming, reducing the rents that the firm can capture from its FIAs (Foss and Foss, 2005; Kafouros and Aliyev, 2016b). Weaker institutional quality may also result in lower rents by increasing the costs and challenges associated with licensing, contract enforcement and legal disputes (Chan, Isobe and Makino, 2008; Cuervo-Cazurra and Dau, 2009; Wang, Wang and Zhang, 2022). Similarly, as less developed legal institutions encourage opportunistic behaviour by firms and government agents, they limit how fruitfully FIAs can be deployed when the focal firm engages in partnerships (Fuentelsaz, Garrido and Maicas, 2015; Jung and Lee, 2022).

In summary, we hypothesize that the rent-creating benefits of FIAs are greater in countries with stronger institutional quality than in countries with less-developed institutions.

H2a: [3]Institutional quality in the country of the focal firm enhances the positive effects of the focal firm's own intangible assets (FIAs) on profitability.

Although institutional quality facilitates the exploitation and protection of all IAs (including FIAs and OIAs), we expect that it reduces the rent-creating benefits that OIAs provide to the focal firm (i.e. OIAs remain useful but their usefulness to the focal firm weakens). As FIAs are fully owned and controlled by the focal firm, their rent-creating effects depend on how effective institutions are in facilitating their exploitation and protection. By contrast, the rent-creating effects of OIAs depend primarily on how institutions influence the asset-based and informational advantages that the focal firm gains from accessing such assets through ownership networks.

First, we expect the asset-based advantages of ownership networks to be greater in countries with weaker institutions. Weak factor markets in institutionally weaker contexts increase the difficulties of accessing IAs from the market (Xia and Walker, 2015). Therefore, the value of OIAs for the focal firm would be stronger in lower quality institutional contexts because the value of ownership links as a means of accessing such assets remains at its highest in such environments (Belderbos, Park and Carree, 2021). In addition, high transaction costs in these contexts would encourage owner organizations to share their assets with the firms they own (Parmigiani and Rivera-Santos, 2011), rather than with other firms in the market. By contrast, under high-quality legal institutions, owners can more easily allow firms that are not owned by them to access their IAs in an effort to increase the returns to their assets (Meyer *et al.*, 2009). In such situations, OIAs decline in rareness for the focal firm.

Moreover, weaker institutions limit market munificence and the availability of IAs in external markets (Sirmon, Hitt and Ireland, 2007), while high-quality institutions facilitate rule-based transactions (Cuervo-Cazurra, Gaur and Singh,

[3]The main purpose of H2a and H2b is to emphasize the contrast in the moderating role of institutions with respect to FIAs and OIAs, respectively.

2019) and decrease the difficulty and costs of accessing IAs from the market (Hoskisson *et al.*, 2005; Peng, 2003). This facilitates access to IAs for both the focal firm and its competitors through market mechanisms, limiting the rareness of the OIAs and the associated advantages. Similarly, high-quality institutions enable the focal firm to reduce reliance on its owners by using external markets to partly substitute for the IAs that are accessible through ownership links (Adomako *et al.*, 2021; Kafouros and Aliyev, 2016b; Taussig and Delios, 2015). Market munificence offers a wider variety of IA combinations to competitors of the focal firm. It therefore increases the potential that IAs from the market will serve as strategic substitutes for OIAs. Hence, institutional quality weakens the non-substitutability advantages that OIAs offer to the focal firm.

A second important mechanism is that institutional quality decreases the rent-creating effects of OIAs by weakening the ownership-driven value of informational advantages. As high-quality institutions strengthen the benefits of rule-based exchange in external markets (Fuentelsaz, Garrido and Maicas, 2015; He, Tong and Xu, 2022; Peng, 2003), the value of informational advantages associated with relational governance through ownership networks declines. Similarly, as external contracting and enforcement becomes easier for the competitors of the focal firm, the OIA-specific advantages in the form of asset selection also become weaker.

In summary, we expect the asset and informational advantages that OIAs provide to the focal firm to be stronger when weaker institutions increase the focal firm's reliance on ownership networks.[4] Hence

H2b: Institutional quality in the country of the focal firm decreases the positive effects of OIAs on rent creation in the focal firm.

Multiplicity-of-ownership advantages of OIAs

We further posit that, all things being equal, the rent-creating effect of OIAs from multiple owners is stronger than that from single owners. We refer to this difference as the multiplicity-of-ownership advantages of OIAs. We argue that such advantages exist for a number of reasons. First, the value of OIAs depends on how well these assets can be combined together (Gnyawali and Ryan Charleton, 2018; Makadok, 2001; Sirmon, Gove and Hitt, 2008). Having multiple owners enables the firm to draw from a wider variety of OIAs, experiment with new alternatives and increase the likelihood of finding novel, complementary and valuable combinations (Dellermann, Fliaster and Kolloch, 2017; Kafouros *et al.*, 2022). Second, multiple owners make the structure of ownership networks more idiosyncratic. This structure makes combinations unique, increases the difficulty for competitors to find similar asset combinations and, therefore, contributes to the rareness of OIAs.

Third, a wider variety of OIAs adds to causal ambiguity as it would be more difficult for competitors to identify which owner's IAs are responsible for creating the competitive advantage of the focal firm. Similarly, OIAs embedded in networks of multiple owners allow the focal firm to construct bundles with a more complex structure, which adds to the structural complexity of IAs, making it more difficult for its competitors to imitate (Huemer and Wang, 2021). Finally, as the competitive advantages of the focal firm rely on more complex OIAs, competitors would likely need to put more effort into finding strategic substitutes. Therefore, the increased variety of IAs and more complex structures (caused by multiple ownership of OIAs) will strengthen the inimitability and non-substitutability of the OIAs offered by multiple owners relative to those by a single owner.

However, although the above logic suggests that multiple ownership of OIAs adds to the VRIN characteristics, the provision of OIAs also brings an additional transactional relationship – that between the (multiple) owners. Therefore, the multiple ownership advantage of the OIAs will be subject to institutional quality (Sena *et al.*, 2022; Yiu, Wan and Xu, 2019; Young *et al.*, 2008). Specifically, we expect that the multiplicity-of-ownership advantages of OIAs will be greater in institutionally stronger contexts than in lower quality institutional environments.

In single-ownership settings, the decision of the (single) owner organization to give the focal firm access to its IAs depends largely on the rents that can be created by those assets. However, multiple ownership arrangements complicate

[4]To avoid confusion, easier exploitation and protection mechanisms will likely apply to OIAs as they increase the proprietary value of all IAs. However, such benefits and associated rents would accrue to the owners of the IAs.

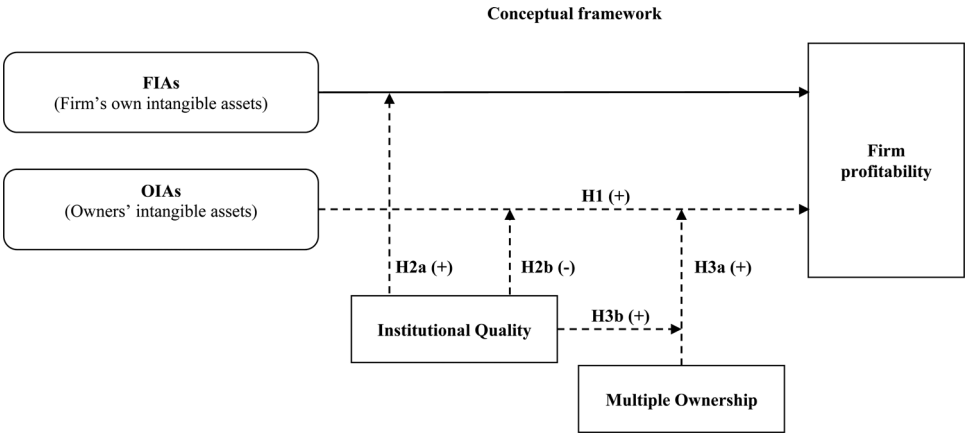

Figure 2. Conceptual framework

the provision of OIAs to the focal firm due to the transaction costs associated with knowledge exchange across multiple actors and the distribution of future rents. Contractual agreements can help organizations manage complex relationships in multiple-ownership arrangements, but their effectiveness depends on institutional quality (Young *et al.*, 2008). High-quality institutional environments make formal agreements more reliable and effective (Pereira *et al.*, 2020), encouraging partnerships and assisting in realizing the value of multiplicity-of-ownership advantages of OIAs. Moreover, while the structural complexity of multiple ownership increases inimitability, this benefit depends on whether contractual agreements can govern such complex formal relationships. Hence, institutional quality must support the multiple ownership-based benefits of OIAs (Adomako *et al.*, 2021).

In addition to the above asset-based benefits, we can evaluate the role of institutions from the point of view of informational advantages. In multiple-ownership arrangements, owners' decision to share IAs also depends on how effectively institutions help owners protect their assets (He, Tong and Xu, 2022; Yiu, Wan and Xu, 2019), given that access to OIAs from multiple owners implies sharing information between the owners. In such situations, difficulties in protecting IAs reduce the willingness of owners to provide access to other owners and the focal firm (Belderbos, Park and Carree, 2021). Effective institutions governing IP rights and formal agreements facilitate partnerships and access to information for potential bundling (He, Tong and Xu, 2022; Sirmon, Gove and Hitt, 2008). Therefore, we expect the multiplicity-of-ownership advantages of OIAs to be greater in contexts with higher quality institutions. Hence:

H3a: The intangible assets of multiple owners are more effective than those of single owners in enhancing the profitability of the focal firm (i.e. multiplicity-of-ownership enhances the rents from OIAs).

H3b: The multiplicity-of-ownership advantages of OIAs are greater in countries with higher quality institutions than in countries that feature lower quality institutions.

Figure 2 presents the conceptual framework and the hypothesized effects.

Data and methods

We use the European energy sector as our empirical context due to its reliance on IAs following deregulation in the early 2000s, its dependence on institutions and the widespread practice of multiple ownership.[5] We collected firm-level data from the ORBIS database (Bureau van Dijk) for firms operating in the energy sector, that is, production, distribution and trade of gas and electricity (NACE 3500−3523). We selected 23 European countries[6] appearing in the list of 'OECD Product Market Regulation Network Sectors Indicators' (Vitale *et al.*, 2020). After removing extreme values (Chang, Chung and Moon, 2013),

[5]See the section 'Intangible assets and their role in the energy sector' for a more detailed discussion of these points.
[6]Figure 1(a) contains the full list of countries.

the dataset includes 6005 firms for the 2003−2019 period (54,520 observations). We traced multi-tier ownership links until the ultimate owner using BvD ownership data (Belenzon and Berkovitz, 2010).

Dependent variable

We use return on assets[7] (ROA) as it is one of the most consistently used measures of profitability and rent creation (e.g. Bamiatzi *et al.*, 2016; Hsu and Wang, 2012; Miller and Eden, 2006) in the IAs literature (e.g. Bromiley, Rau and Zhang, 2017; Hough, 2006; Zhang *et al.*, 2007). It is also suitable for the energy sector due to the industry's strong reliance on assets. As ROA can take negative values, we use the inverse hyperbolic sine (IHS) method of logarithmic transformation (Burbidge, Magee and Robb, 1988). Formally, $IHS(x) = ln(x + \sqrt{(x^2)+1})^2$ (Carroll, Dynan and Krane, 2003; Nyberg *et al.*, 2010). This transformation is also applied to the continuous independent variables.

Independent variables

Intangible assets. Given that we focus on intangible assets for energy firms, we only take into consideration IAs of owners classified as energy companies. While other institutional owners (e.g. banks) may possess IAs, they are less relevant to the operational and competitive activities of the firms operating in the energy sector. We used the book value of IAs reported by the owner energy companies of each focal firm. The book value of IAs is a widely used measure (e.g. Chang, Chung and Moon, 2013; Filatotchev and Piesse, 2009; Kafouros, Aliyev and Krammer, 2019; Zhang, Li and Li, 2014), which represents the stock of IAs accumulated over time. To avoid double counting, we calculate OIAs net of FIAs:

$$OIA_i = \sum_{1}^{n} IA_{ni} - FIA_i$$

where OIA_i represents owners' IAs pertaining to firm i. IA_{ni} is the book value of IAs of (firm i's) owner n. FIA_i is the book value of IAs of the focal firm. To measure FIAs, we used the book value of IAs for the focal firm.

[7]Profits before tax divided by total assets.

Multiple ownership. To differentiate firms with multiple owners from firms with a single owner, we use a dummy variable that takes the value of one for firms with two or more owners from the energy sector.

Institutional quality. To measure institutional quality, we follow previous studies (Chan, Isobe and Makino, 2008; Kafouros and Aliyev, 2016b; Shaner and Maznevski, 2011) and use the measure provided by the World Economic Forum (WEF, 2012). The WEF measure ranges between 1 and 7, with higher values representing higher quality institutions.[8]

Control variables. First, we control for firm age, measured as the number of years since the firm's establishment. Second, we controlled for diversification by including the number of subsectors in which the firm operates (Miller, 2006). Third, we use the debt-to-equity ratio to control for organizational slack (Bradley, Shepherd and Wiklund, 2011). Fourth, we control for firm size using the firm's tangible assets. We also include controls to account for ownership effects. Specifically, we include the share of domestic energy groups in firms' equity (domestic corporate ownership). Given that state ownership can influence firm performance, we also control for state ownership using the share of ownership attributable to government organizations (e.g. local municipalities and state agencies) (Adomako *et al.*, 2021; Liu and Sun, 2005). Given that some of the energy owner organizations may have state ownership, we also incorporate a dummy variable of government affiliation that takes the value 1 if government organizations hold a share of the owner organization (Sun *et al.*, 2015; Tarim, Finke and Liu, 2021).

We also control for taxation that varies across countries, sectors and over time. Using data on the taxes paid by firms, we estimated the mean value of country/sector/year-specific taxes (at the four-digit level). To account for variations in national business systems, we added controls using the classification developed by Fainshmidt *et al.* (2018). We created dummy variables for each type of business system, where the dummies equal 1 if the focal firm

[8]Note that in 2018, the WEF changed the methodology for calculating the indices, making them incomparable with the previous methodology. Therefore, for 2018 and 2019, we use the 2017 scores. As our analysis builds on cross-country variations, year-on-year changes are considerably smaller than cross-country variations.

is located in a country of that type. Similarly, we created dummies for owner companies, where the dummy variable equals 1 if the focal firm has an owner located in that type of business system.

Firm performance also depends on sector- and country-specific factors. To account for market concentration, we calculate the (inverse) Herfindahl index for each country/sector/year at the four-digit industry level. Given that regulatory liberalization occurred at a varying pace across countries, we control for the level of government regulation using the OECD sector regulation scores (Vitale *et al.*, 2020). Furthermore, we use GDP per capita to control for economic development. Given that some of the owners might be foreign, we control for the institutional quality distance between the owner's home country and the focal firm's location. Finally, we use four-digit industry dummy variables as well as year-specific dummy variables. Table 2 provides descriptive statistics.

Results

Although a traditional panel fixed-effects model would provide an extra layer of confidence by removing time-invariant fixed effects, the method would undermine our goals for two reasons. First, having a longitudinal panel dataset means that the number of firms significantly exceeds the number of time periods. Therefore, most of the information in the dataset comes from between-firm rather than within-firm variation. A fixed-effects model would remove the between-firm variation, losing most of the information in the dataset (Manikandan and Ramachandran, 2015). Second, as institutions change slowly (North, 2005), between-country variation in institutional quality significantly exceeds within-country variation. The within transformation of the fixed-effects model would remove the between-country variation. Therefore, many studies about the impact of institutions on firm-level outcomes rely on between-country variations in institutions (Beynon *et al.*, 2021; Liu *et al.*, 2021; Shaner and Maznevski, 2011).

Considering the multilevel context of our empirical setting, we followed the past literature on multilevel performance estimation (Guo, 2017; Karniouchina *et al.*, 2013; Misangyi *et al.*, 2006) and used the multilevel mixed model estimation, specifying the country and the focal firm as hierar-

Table 2. Descriptive statistics and correlations[a]

	Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	ROA (%)	4.266	11.118																
2	FIAs	16,645	249,078	0.114*															
3	OIAs	6,818,337	330,000,000	0.074*	0.083*														
4	Institutional Quality	4.855	0.877	0.156*	−0.063*	0.107*													
5	Multiple Ownership	0.173	0.378	0.071*	0.072*	0.526*	0.122*												
6	Taxation	−8.766	99.579	0.020*	−0.050*	−0.021*	0.129*	−0.001											
7	Tangible Assets	186,799	1,269,322	0.126*	0.277*	0.083*	0.127*	0.049*	−0.021*										
8	Domestic Ownership	25.663	40.419	0.061*	0.070*	0.485*	0.059*	0.338*	0.029*	0.006									
9	State Ownership	1.375	8.528	0.086*	0.070*	0.161*	0.101*	0.201*	0.023*	0.061*	0.207*								
10	Government Affiliation	0.157	0.364	0.036*	0.092*	0.497*	0.113*	0.296*	−0.014*	0.020*	0.317*	0.072*							
11	Firm Slack (D/E ratio)	23.562	1,419.365	0.043*	0.041*	0.040*	−0.005	0.024*	−0.021*	0.091*	0.023*	−0.009*	0.019*						
12	Firm Diversification	1.998	2.459	0.126*	0.164*	0.033*	0.162*	0.044*	0.080*	0.106*	−0.051*	0.116*	−0.013*	−0.036*					
13	Age	18.135	22.089	0.246*	0.160*	0.058*	0.189*	0.092*	0.067*	0.242*	0.098*	0.145*	0.032*	−0.012*	0.229*				
14	Herfind. Ind. (inverse)	0.728	0.224	0.081*	0.071*	0.059*	0.120*	0.087*	−0.157*	−0.029*	0.074*	0.064*	0.018*	−0.009*	0.078*	0.103*			
15	Regulation Score	1.079	0.661	−0.090*	−0.025*	−0.012*	−0.216*	0.008	0.004	−0.066*	−0.004	−0.043*	0.095*	−0.012*	−0.156*	−0.067*	−0.242*		
16	GDP p/c	41,385	15,811	0.117*	−0.001	0.028*	0.633*	0.080*	0.015*	0.033*	0.126*	0.086*	0.143*	0.011*	−0.095*	0.131*	0.200*	−0.035*	
17	Institutional Distance	−0.185	0.762	−0.080*	−0.036*	−0.145*	−0.183*	−0.154*	−0.037*	−0.041*	−0.169*	−0.290*	−0.090*	0.004	−0.031*	−0.098*	−0.019*	0.063*	−0.090*

[a]Correlations are reported in IHS transformation (except dummy variables); N = 54,520 (6005 firms).
*Statistically significant at the 5% level or higher.

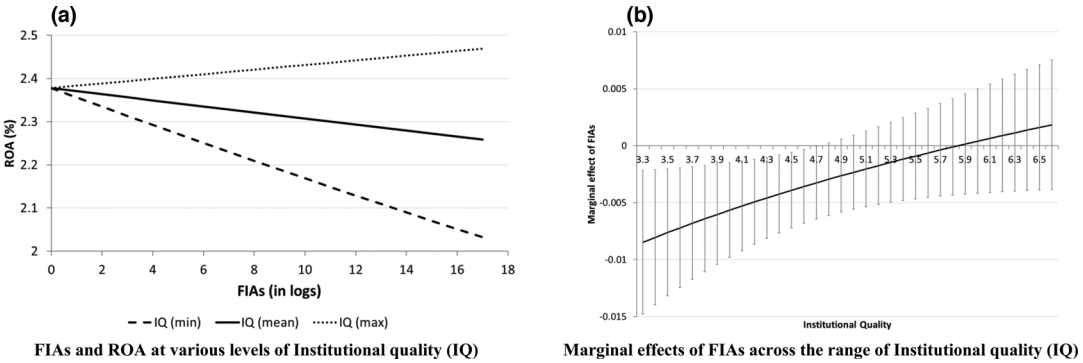

Figure 3. (a) FIAs and ROA at various levels of institutional quality (IQ). (b) Marginal effects of FIAs across the range of institutional quality (IQ)

chical levels. We report variance partitions along with the results. We undertook VIF analysis[9] to ensure that the results are not distorted by multicollinearity. Residual-centring-based VIF analysis returned variable-specific scores that ranged between 1.00 and 5.61 (i.e. below the threshold level of 10; Myers, 1990).

Table 3 presents the findings. Model 1 shows that the coefficient of OIAs is positive and statistically significant, supporting H1 and indicating that OIAs increase the profitability of the focal firm. The interaction between FIAs and institutional quality in Model 2 is a positive and statistically significant coefficient. It therefore supports H2a, indicating that the rent-creating effects of FIAs increase with the level of institutional quality. However, when interpreted along with the direct effect of FIAs (which is negative), the picture is slightly unusual. It suggests that when institutional quality is weak, the overall effect of FIAs may be negative. In Figure 3(a) we depict the predicted relationship between FIAs and ROA at three different levels (minimum, mean and maximum) of institutional quality. The horizontal axis shows the full range of FIAs.

Figure 3(a) confirms that the effects of FIAs increase with institutional quality (i.e. the effect of FIAs is negative at the minimum and mean values of institutional quality, and positive at the maximum line of IQ). The negative effect implies that the returns to FIAs are not large enough to compensate for their costs. Hence, institutional quality appears to alleviate the negative effects (costs) from FIAs. This conclusion is also reflected in Figure 3(b), which plots point-by-point estimates of marginal effects of FIAs (along with 95% confidence intervals) across the range of institutional quality. A marginal effect at a given point is statistically significant if the confidence interval is either fully above or below 0. Up to the level of institutional quality of 4.7, the overall effect of FIAs is, on average, negative and statistically significant. The effects turn positive after the institutional score exceeds 5.9 (although the positive effect remains statistically insignificant).

This finding is consistent with H2a, suggesting that there is a positive moderating effect of institutional quality. However, a large part of the point-by-point marginal effects located in the negative area might be specific to the energy sector. For instance, previous studies find that investments in new technologies, such as renewable energy, are still risky and more expensive than traditional energy technologies (Liu *et al.*, 2021). Given that new technologies feature IAs in larger proportions, they may still be less profitable when considered in terms of return on assets. Nevertheless, this does not change the conclusion that the rents from FIAs improve with institutional quality.

Model 2b includes the interaction between OIAs and institutional quality. The interaction term is negative, indicating that institutional quality negatively moderates the rent-enhancing effects of OIAs. This finding supports H2b, suggesting that institutional quality decreases the rents that OIAs create for the focal firm. Figure 4(a) plots the predicted ROA against the full range of OIAs at different levels of institutional quality. The effects of OIAs on rent creation (i.e. the slopes of the lines) decline as institutional quality increases, which suggests that the positive effect of OIAs declines as

[9]VIF = variance inflation factor. The online Appendix provides additional details.

Table 3. Regression results[a]

		Model 1		Model 2a		Model 2b		Model 3a		Model 3b (low ID)		Model 3c (high ID)		Model 4	
		Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
	FIAs	−0.003†	(0.002)	−0.038*	(0.017)	−0.003†	(0.002)	−0.003†	(0.002)	−0.005*	(0.002)	−0.002	(0.002)	−0.042*	(0.017)
	Institut-l Quality (IQ)	−0.170	(0.202)	−0.062	(0.209)	−0.040	(0.206)	−0.187	(0.202)	1.563***	(0.392)	−1.548***	(0.370)	0.078	(0.213)
H1:	OIAs	0.005**	(0.002)	0.005**	(0.002)	0.066***	(0.017)	0.003	(0.002)	0.005†	(0.003)	0.002	(0.003)	0.069***	(0.018)
	Multiple Ownership (MO)	−0.041	(0.027)	−0.042	(0.027)	−0.033	(0.027)	−0.192***	(0.054)	−0.040	(0.082)	−0.309***	(0.071)	−0.188***	(0.054)
H2a:	FIAs*IQ			0.015*	(0.008)									0.017*	(0.008)
H2b:	OIAs*IQ					−0.026***	(0.008)							−0.029***	(0.008)
H3:	OIAs*MO							0.013**	(0.004)	0.010	(0.006)	0.016**	(0.005)	0.013***	(0.004)
	Taxation	−0.007	(0.006)	−0.008	(0.006)	−0.006	(0.006)	−0.007	(0.006)	−0.007	(0.008)	−0.012	(0.012)	−0.007	(0.006)
	Tangible Assets	0.058***	(0.003)	0.058***	(0.003)	0.058***	(0.003)	0.058***	(0.003)	0.057***	(0.005)	0.050***	(0.005)	0.058***	(0.003)
	Domestic Ownership	0.005	(0.005)	0.005	(0.005)	0.005	(0.005)	0.006	(0.005)	0.029***	(0.007)	−0.014*	(0.007)	0.005	(0.005)
	State Ownership	0.015	(0.014)	0.015	(0.014)	0.016	(0.014)	0.014	(0.014)	−0.036	(0.039)	0.041**	(0.014)	0.015	(0.014)
	Government Affiliation	−0.035	(0.027)	−0.033	(0.027)	−0.036	(0.027)	−0.031	(0.027)	−0.026	(0.046)	0.013	(0.034)	−0.029	(0.027)
	Firm Slack (D/E ratio)	0.057***	(0.005)	0.057***	(0.005)	0.057***	(0.005)	0.057***	(0.005)	0.072***	(0.006)	0.023**	(0.008)	0.057***	(0.005)
	Firm Diversification	0.020	(0.042)	0.022	(0.042)	0.016	(0.042)	0.020	(0.042)	−0.170**	(0.065)	0.174**	(0.053)	0.017	(0.042)
	Age	0.409***	(0.014)	0.407***	(0.014)	0.410***	(0.014)	0.408***	(0.014)	0.457***	(0.021)	0.326***	(0.019)	0.407***	(0.014)
	Herfindahl Ind. (inverse)	0.024	(0.079)	0.032	(0.079)	0.035	(0.079)	0.016	(0.079)	−0.063	(0.121)	0.475***	(0.109)	0.036	(0.079)
	Regulation Score	−0.204**	(0.062)	−0.207***	(0.062)	−0.198**	(0.062)	−0.205***	(0.062)	−0.157	(0.096)	−0.055	(0.071)	−0.202**	(0.062)
	GDP p/c	0.163†	(0.099)	0.186†	(0.100)	0.146	(0.100)	0.175†	(0.099)	0.069	(0.208)	0.123	(0.109)	0.183†	(0.100)
	Institutional Distance	−0.025	(0.019)	−0.024	(0.019)	−0.032†	(0.020)	−0.028	(0.019)	−0.093**	(0.031)	0.006	(0.026)	−0.035†	(0.020)
	Year, Industry and Business System dummy variables	Incl.		Incl.		Incl.		Incl.		Incl.		Incl.		Incl.	
	Constant	−1.779†	(1.034)	−2.270*	(1.059)	−1.876†	(1.040)	−1.853†	(1.032)	−4.893*	(2.190)	2.610†	(1.559)	−2.523*	(1.062)
	Random Effects (levels)														
	Country variance	0.040	(0.019)	0.039	(0.018)	0.041	(0.019)	0.039	(0.018)	0.079	(0.042)	0.008	(0.008)	0.019	(0.016)
	Firm variance	1.348	(0.031)	1.349	(0.031)	1.338	(0.03)	1.346	(0.031)	1.268	(0.042)	1.426	(0.044)	1.335	(0.03)
	Residual variance	2.089	(0.013)	2.089	(0.013)	2.090	(0.013)	2.089	(0.013)	2.403	(0.022)	1.726	(0.016)	2.090	(0.013)
	Wald chi^2 (*p-val*)	2954	*0.000*	2958	*0.000*	2970	*0.000*	2966	*0.000*	2094	*0.000*	1067	*0.000*	2990	*0.000*

[a]Dependent variable: Return on Assets; standard errors in parentheses; multilevel (hierarchical) model used with country and firm specified as levels. N = 54,520. ***p < 0.001; **p < 0.01; *p < 0.05; †p < 0.10. Residual-centring-based VIF analysis returned variable-specific scores ranging between 1.00 and 5.61. The online Appendix provides additional details.

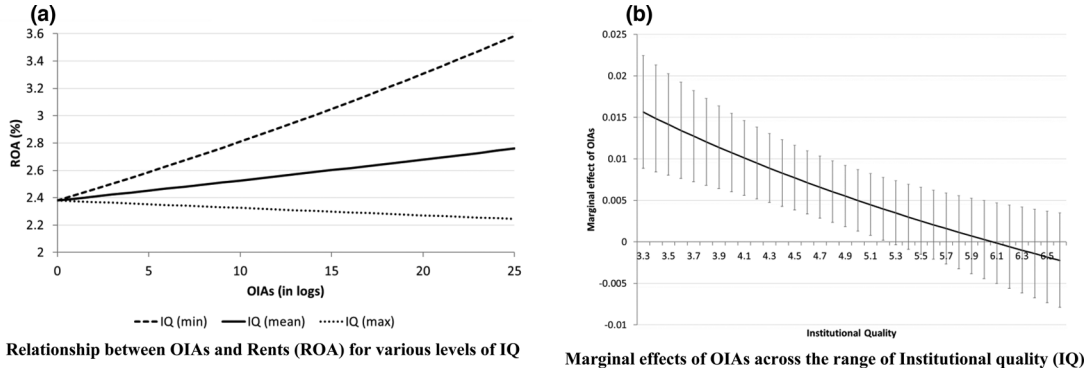

Figure 4. (a) Relationship between OIAs and rents (ROA) for various levels of IQ. (b) Marginal effects of OIAs across the range of institutional quality (IQ)

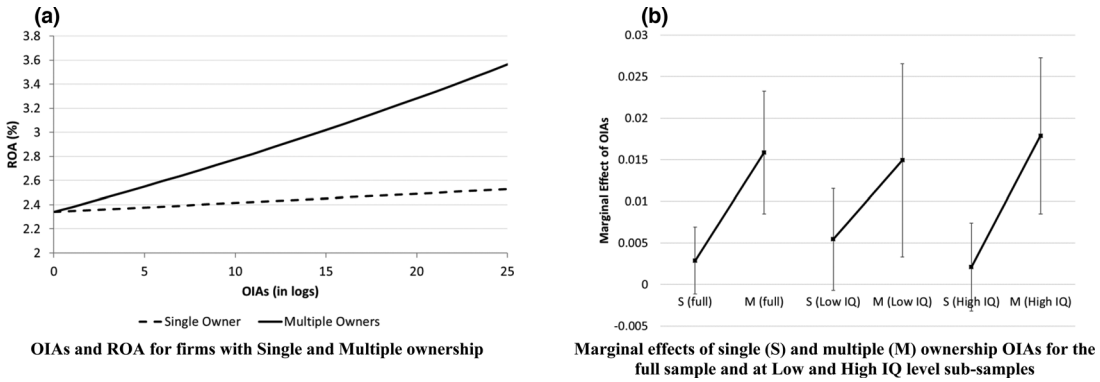

Figure 5. (a) OIAs and ROA for firms with single and multiple ownership. (b) Marginal effects of single (S) and multiple (M) ownership OIAs for the full sample and at low and high IQ level subsamples

institutional quality improves. Figure 4(b) depicts the marginal effects and shows that the effects are positive and statistically significant up until the institutional quality level of 5.2. The effects become negative beyond the institutional quality level of 6.1, but they are statistically insignificant. If we put H2a and H2b together, the overwhelmingly negative effects of FIAs and positive effects of OIAs are consistent with our expectation that firms can earn rents from accessing OIAs at lower marginal costs (i.e. without fully incurring the cost of developing or acquiring IAs).

To test H3a, Model 3a includes the interaction between multiple ownership (MO) and OIAs. The interaction term is positive and statistically significant. To test the effect of institutional quality, we estimate the model with low IQ and high IQ subsamples (Models 3b and 3c, respectively). This analysis yields a statistically insignificant coefficient for the interaction term in the low IQ subsample and a positive and significant coefficient in the high IQ subsample. These findings support H3a and H3b, indicating that OIAs from multiple owners are more advantageous than OIAs in single-ownership arrangements, and that this relationship is conditional on the quality of institutions.

Figure 5(a) shows the predicted ROA for OIAs of single (S) and multiple (M) ownership. The solid line representing multiple-owner OIAs is significantly steeper. Figure 5(b) depicts the marginal effects. The first line shows the marginal effect from the full sample (i.e. the same effects as in Figure 5(a). The other two lines in Figure 5(b) plot the same effects but at low and high institutional quality subsamples (Models 3b and 3c, respectively). The difference in marginal effects is larger in the high IQ subsample than in the low IQ subsample. Moreover, the confidence interval at 'M (low IQ)' captures the marginal effect at 'S (low IQ)', which means that the difference is not statistically significant. In contrast, the difference at high

institutional quality is larger in size and statistically significant; the confidence interval of 'M (high IQ)' does not capture the marginal effect at 'S (high IQ)'. Put differently, the multiplicity-of-ownership advantage of OIAs becomes stronger and more consistent in higher quality institutional environments. The online Appendix describes the endogeneity and multicollinearity tests.

Discussion and concluding remarks

Theoretical contributions

The current study addresses the overarching question of whether and how a firm can create rents by accessing the IAs possessed by its owner organizations (OIAs), and how the creation of these rents is influenced by the institutional context in which the focal firm deploys such OIAs. In addressing this question, we make three contributions to the literature that examines the relationship between intangible assets and firm performance, as well as to the RBV and new institutional economics.

First, the study advances the RBV and research that identifies IAs as a source of sustained competitive advantage and rent creation for the firm (Arrighetti, Landini and Lasagni, 2014; He and Wang, 2009; Hsu and Wang, 2012; Huang *et al.*, 2015; Kafouros and Aliyev, 2016b; Knott, Bryce and Posen, 2003). To do so, rather than considering the focal firm's own IAs only, it shifts attention towards OIAs and explains how two OIA-specific characteristics (ownership links and multiplicity-of-ownership) that do not feature in FIAs strengthen their VRIN-related attributes and, in turn, the rents that OIAs create for the focal firm. Another contribution to the RBV lies in clarifying the OIA-specific mechanisms for creating rents and in showing that it is incorrect to assume that OIAs and FIAs generate rents in similar ways. An important theoretical implication for the RBV is that the same IAs create different rents depending on how the focal firm accesses such assets (i.e. through full ownership, ownership links or market institutions).

A second interrelated theoretical implication of the study is that rent creation from OIAs and FIAs differs considerably, depending on the institutional context in which they are deployed. Put differently, IAs generate different rents in different institutional contexts. This finding advances theoretical understanding of the institutional contingencies of IAs (e.g. Gardberg and Fombrun, 2006; Kafouros and Aliyev, 2016b; Qian *et al.*, 2017). Prior research typically assumes that IAs are internal resources and focuses on the value captured by the owners of IAs (Foss and Foss, 2005). However, the driving force for rent creation in the case of OIAs is the focal firm's ownership links (rather than the direct ownership of assets). Extending the premise that ownership links become more valuable when institutional voids and transaction costs are significant (Khanna and Palepu, 1997; Williamson, 2000), we show that rents from OIAs and FIAs are influenced by institutional quality in the opposite direction. This finding complements the literature that examined how institutions affect rent creation from FIAs without considering how they affect rents from OIAs. This is important because it shows that institutions not only determine the exploitation of the firms' own IAs, but also affect the returns from OIAs (but in the opposite direction).

This analysis also advances thinking in new institutional economics. One of the key conclusions of new institutional economics is that institutional change redistributes rents and creates winners and losers (Kafouros and Aliyev, 2016a; North, 1991; Williamson, 2000). However, the literature remains silent about how rent redistribution occurs and does not specify which firms gain and which firms lose. By examining how rents from IAs are affected by institutions, we explain how institutions change the competitive advantages of firms and, thereby, shape the rent creation and redistribution process. A key implication is that institutional quality influences firms differently, depending not only on the assets they possess, but also on the assets they can access through their owners. Hence, the extent to which a firm relies on FIAs and OIAs has a profound role in determining whether the firm would end up as a net winner or a net loser from institutional changes.

A third contribution of our analysis rests on developing the premise that the rent-creation potential of OIAs differs in single- and multiple-ownership settings. This view emphasizes the value of differentiating between firms that are owned by one organization and those owned by multiple organizations (Andreou *et al.*, 2021; Hautz, Mayer and Stadler, 2013). We show that this distinction is important because multiple-ownership settings change the effectiveness of OIAs. While

most prior studies either focus on dyadic relationships or implicitly assume that each firm has a single owner (Anderson *et al.*, 2022; Hautz, Mayer and Stadler, 2013), we show that the multiplicity-of-ownership advantages of OIAs are strategically important and generate value that goes well above the value that is generated in single-ownership settings. A related theoretical implication is that the multiplicity-of-ownership advantages of OIAs are greater in higher quality institutional contexts. This finding adds to the tenet that the value of assets depends not only on their characteristics, but also on the transaction costs involved in accessing and deploying them (Foss and Foss, 2005).

Managerial implications

The first practical implication involves the institutional contingencies that affect rents from OIAs. A finding that managers may not expect is that the performance effect of OIAs is highest when the focal firm competes in less developed institutional environments, whereas the opposite is true for FIAs. Trading equity to an owner may provide access to valuable IAs, particularly when factor markets are not munificent. However, the relative advantages of OIAs are weaker when factor markets are developed, enabling the focal firm's rivals to access such assets. Nevertheless, in institutionally strong environments, managers should expect the rent-enhancing effects of their firms' own IAs to increase. These findings also have implications for firms that expand and need to manage new institutional contexts or identify new locations to enter.

Second, managers should not see a change in ownership merely as a change in the equity structure of their firm. Rather, they should see it as a change in the resources accessible to their firms that affects their ability to create rents. A practical implication is that because of differences in the asset endowments of bidders, each focal firm may have a different value for different owners. This may explain why valuations in acquisitions vary so much. In addition, although transaction costs in new deals might be higher in those cases involving multiple owners, managers should know that the IAs of multiple owners provide advantages and stronger rents over those of single owners, especially in stronger institutional contexts.

Limitations and future research

Three key limitations pertaining to the role of resources, industry and institutions offer useful opportunities for future research. First, while we focused on IAs, future research should examine whether our theoretical predictions are valid for other types of resources. For instance, transferring tacit knowledge requires different conditions compared to transferring a technology or the right to use a brand. Some technologies might also be embedded in tangible assets. Whether or not the transfer of assets that are not scale-free is economical, will depend on opportunity costs and associated quasi-rents (Jia, 2013; Klein, Crawford and Alchian, 1978; Peteraf, 1993). Hence, the value of other resources might differ from those of OIAs (and institutional contingencies may also differ). Hence, a promising avenue for future research would be to investigate how various types of resources generate rents in multiple-ownership contexts and varying institutional quality settings.

Second, our study focuses on one industry only. Future research should investigate different industry contexts (Mavroudi, Kesidou and Pandza, 2023). For instance, new technologies in the energy sector (e.g. renewable energy) are more costly than traditional carbon-based technologies and are motivated by institutional pressures and societal benefits. While we focused on the role of IAs and institutions, we kept the industry constant. Future research should examine industry-specific characteristics as additional explanatory factors for the role of IAs. For instance, as technological dynamism varies across industries, it may influence the rents created from OIAs (Schubert, Baier and Rammer, 2018; Tatarynowicz, Sytch and Gulati, 2016).

Finally, some firms may engage in exporting and other types of internationalization, reducing their dependence on local institutions. Future research should examine how the internationalization of the focal firm changes the role of its home-country institutions in affecting rent creation from OIAs. For instance, operating in foreign countries may help the focal firm escape specific institutional constraints that are unfavourable for its IAs (Witt and Lewin, 2007). Furthermore, building on the literature on institutional arbitrage (Rosenbusch *et al.*, 2019; Schneider, Schulze-Bentrop and Paunescu, 2010), future research can investigate the strategic allocation of activities across

different institutional settings in a way that maximizes the exploitation of OIAs by the focal firm.

Conclusion

The present study shows that OIAs can have a profound effect on the performance of the focal firm. These effects vary considerably in different institutional contexts and also depend on whether OIAs are coming from a single or multiple owners. Another contribution of the study lies in showing that the impact of institutional quality on OIAs and FIAs is asymmetric. There is a clear and significant distinction in how institutional contexts influence rents from IAs. Therefore, conceptualizations about the value of IAs should specify who utilizes such assets and in what contexts. Institutional quality may add to the value of FIAs, but the effects on OIAs manifest in the opposite direction. Finally, by clarifying the complex relationships between IAs and rent creation, the study underscores the theoretical value of combining RBV thinking and institutional economics, and that of understanding the institutional contexts in which IAs are deployed.

References

Adomako, S., J. Amankwah-Amoah, Y. A. Debrah, Z. Khan, I. Chu and C. Robinson (2021). 'Institutional voids, economic adversity and inter-firm cooperation in an emerging market: the mediating role of government R&D support', *British Journal of Management*, **32**, pp. 40–58.

Aguilera, R. V. and R. Crespi-Cladera (2016). 'Global corporate governance: on the relevance of firms' ownership structure', *Journal of World Business*, **51**, pp. 50–57.

Aguilera, R. V. and B. Grøgaard (2019). 'The dubious role of institutions in international business: a road forward', *Journal of International Business Studies*, **50**, pp. 20–35.

Allen, M. L., M. M. C. Allen, D. Cumming and S. Johan (2021). 'Comparative capitalisms and energy transitions: renewable energy in the European Union', *British Journal of Management*, **32**, pp. 611–629.

Anderson, R. C., N. Li, D. M. Reeb and M. Karim (2022). 'The family firm ownership puzzle', *Review of Corporate Finance*, Forthcoming.

Andreou, P. C., F. Fiordelisi, T. Harris and D. Philip (2021). 'Institutional ownership and firms' thrust to compete', *British Journal of Management*, **33**, pp. 1346–1370.

Arrighetti, A., F. Landini and A. Lasagni (2014). 'Intangible assets and firm heterogeneity: evidence from Italy', *Research Policy*, **43**, pp. 202–213.

Bamiatzi, V., K. Bozos, S. T. Cavusgil and G. T. M. Hult (2016). 'Revisiting the firm, industry, and country effects on profitability under recessionary and expansion periods: a multi-level analysis', *Strategic Management Journal*, **37**, pp. 1448–1471.

Barney, J. (1986). 'Strategic factor markets: expectations, luck, and business strategy', *Management Science*, **32**, pp. 1231–1241.

Barney, J. (1991). 'Firm resources and sustained competitive advantage', *Journal of Management*, **17**, pp. 99–120.

Barney, J. B. (2001). 'Resource-based theories of competitive advantage: a ten-year retrospective on the resource-based view', *Journal of Management*, **27**, pp. 643–650.

Belderbos, R., J. Park and M. Carree (2021). 'Do R&D investments in weak IPR countries destroy market value? The role of internal linkages', *Strategic Management Journal*, **42**, pp. 1401–1431.

Belenzon, S. and T. Berkovitz (2010). 'Innovation in business groups', *Management Science*, **56**, pp. 519–535.

Bergh, D. D., D. J. Ketchen, I. Orlandi, P. P. M. A. R. Heugens and B. K. Boyd (2019). 'Information asymmetry in management research: past accomplishments and future opportunities', *Journal of Management*, **45**, pp. 122–158.

Beynon, M., M. Battisti, P. Jones and D. Pickernell (2021). 'How institutions matter in the context of business exit: a country comparison using GEM data and fsQCA', *British Journal of Management*, **32**, pp. 832–851.

Bradley, S. W., D. A. Shepherd and J. Wiklund (2011). 'The importance of slack for new organizations facing "tough" environments', *Journal of Management Studies*, **48**, pp. 1071–1097.

Bromiley, P., D. Rau and Y. Zhang (2017). 'Is R&D risky?', *Strategic Management Journal*, **38**, pp. 876–891.

Burbidge, J. B., L. Magee and A. L. Robb (1988). 'Alternative transformations to handle extreme values of the dependent variable', *Journal of the American Statistical Association*, **83**, pp. 123–127.

Carroll, C. D., K. E. Dynan and S. D. Krane (2003). 'Unemployment risk and precautionary wealth: evidence from households' balance sheets', *Review of Economics and Statistics*, **85**, pp. 586–604.

Chan, C. M., T. Isobe and S. Makino (2008). 'Which country matters? Institutional development and foreign affiliate performance', *Strategic Management Journal*, **29**, pp. 1179–1205.

Chang, S.-J., J. Chung and J. J. Moon (2013). 'When do wholly owned subsidiaries perform better than joint ventures?', *Strategic Management Journal*, **34**, pp. 317–337.

Cuervo-Cazurra, A. and L. A. Dau (2009). 'Promarket reforms and firm profitability in developing countries', *Academy of Management Journal*, **52**, pp. 1348–1368.

Cuervo-Cazurra, A., A. Gaur and D. Singh (2019). 'Pro-market institutions and global strategy: the pendulum of pro-market reforms and reversals', *Journal of International Business Studies*, **50**, pp. 598–632.

Delios, A. and P. W. Beamish (2001). 'Survival and profitability: the roles of experience and intangible assets in foreign subsidiary performance', *Academy of Management Journal*, **44**, pp. 1028–1038.

Dellermann, D., A. Fliaster and M. Kolloch (2017). 'Innovation risk in digital business models: the German energy sector', *Journal of Business Strategy*, **38**, pp. 35–43.

Delmas, M., M. V. Russo and M. J. Montes-Sancho (2007). 'Deregulation and environmental differentiation in the electric

utility industry', *Strategic Management Journal*, **28**, pp. 189–209.
Denrell, J., C. Fang and S. G. Winter (2003). 'The economics of strategic opportunity', *Strategic Management Journal*, **24**, pp. 977–990.
Dierickx, I. and K. Cool (1989). 'Asset stock accumulation and sustainability of competitive advantage', *Management Science*, **35**, pp. 1504–1511.
Dyer, J. H. and H. Singh (1998). 'The relational view: cooperative strategy and sources of interorganizational competitive advantage', *Academy of Management Review*, **23**, pp. 660–679.
European Commission (2012). 'Energy and environment: overview'. http://ec.europa.eu/competition/sectors/energy/overview_en.html.
European Commission (2017). *The Strategic Energy Technology (SET) Plan*. Luxembourg: Publications Office of the European Union.
Fainshmidt, S., W. Q. Judge, R. V. Aguilera and A. Smith (2018). 'Varieties of institutional systems: a contextual taxonomy of understudied countries', *Journal of World Business*, **53**, pp. 307–322.
Filatotchev, I. and C. Nakajima (2010). 'Internal and external corporate governance: an interface between an organization and its environment', *British Journal of Management*, **21**, pp. 591–606.
Filatotchev, I. and J. Piesse (2009). 'R&D, internationalization and growth of newly listed firms: European evidence', *Journal of International Business Studies*, **40**, pp. 1260–1276.
Foss, K. and N. J. Foss (2005). 'Resources and transaction costs: how property rights economics furthers the resource-based view', *Strategic Management Journal*, **26**, pp. 541–553.
Foss, N. J., P. G. Klein, L. B. Lien, T. Zellweger and T. Zenger (2021). 'Ownership competence', *Strategic Management Journal*, **42**, pp. 302–328.
Fuentelsaz, L., E. Garrido and J. P. Maicas (2015). 'Incumbents, technological change and institutions: how the value of complementary resources varies across markets', *Strategic Management Journal*, **36**, pp. 1778–1801.
Gardberg, N. A. and C. J. Fombrun (2006). 'Corporate citizenship: creating intangible assets across institutional environments', *Academy of Management Review*, **31**, pp. 329–346.
Gnyawali, D. R. and T. Ryan Charleton (2018). *Nuances in the Interplay of Competition and Cooperation: Towards a Theory of Coopetition*. Los Angeles, CA: SAGE Publications.
Gulati, R. (1998). 'Alliances and networks', *Strategic Management Journal*, **19**, pp. 293–317.
Gulati, R., N. Nohria and A. Zaheer (2000). 'Strategic networks', *Strategic Management Journal*, **21**, pp. 203–215.
Guo, G. (2017). 'Demystifying variance in performance: a longitudinal multilevel perspective', *Strategic Management Journal*, **38**, pp. 1327–1342.
Hall, R. (1992). 'The strategic analysis of intangible resources', *Strategic Management Journal*, **13**, pp. 135–144.
Hautz, J., M. C. J. Mayer and C. Stadler (2013). 'Ownership identity and concentration: a study of their joint impact on corporate diversification', *British Journal of Management*, **24**, pp. 102–126.
He, J. and H. C. Wang (2009). 'Innovative knowledge assets and economic performance: the asymmetric roles of incentives and monitoring', *Academy of Management Journal*, **52**, pp. 919–938.
He, W., T. W. Tong and M. Xu (2022). 'How property rights matter to firm resource investment: evidence from China's property law enactment', *Organization Science*, **33**, pp. 293–310.
Hoskisson, R. E., R. A. Johnson, L. Tihanyi and R. E. White (2005). 'Diversified business groups and corporate refocusing in emerging economies', *Journal of Management*, **31**, pp. 941–965.
Hough, J. R. (2006). 'Business segment performance redux: a multilevel approach', *Strategic Management Journal*, **27**, pp. 45–61.
Hsieh, W.-L., P. Ganotakis, M. Kafouros and C. Wang (2018). 'Foreign and domestic collaboration, product innovation novelty, and firm growth', *Journal of Product Innovation Management*, **35**, pp. 652–672.
Hsu, L.-C. and C.-H. Wang (2012). 'Clarifying the effect of intellectual capital on performance: the mediating role of dynamic capability', *British Journal of Management*, **23**, pp. 179–205.
Huang, K.-F., R. Dyerson, L.-Y. Wu and G. Harindranath (2015). 'From temporary competitive advantage to sustainable competitive advantage', *British Journal of Management*, **26**, pp. 617–636.
Huemer, L. and X. Wang (2021). 'Resource bundles and value creation: an analytical framework', *Journal of Business Research*, **134**, pp. 720–728.
Hughes, M., T. H. Powell, L. Chung and K. Mellahi (2017). 'Institutional and resource-based explanations for subsidiary performance', *British Journal of Management*, **28**, pp. 407–424.
Jacobsson, S. and A. Bergek (2004). 'Transforming the energy sector: the evolution of technological systems in renewable energy technology', *Industrial and Corporate Change*, **13**, pp. 815–849.
Jia, N. (2013). 'Competition, governance, and relationship-specific investments: theory and implications for strategy', *Strategic Management Journal*, **34**, pp. 1551–1567.
Jung, H. J. and S.-H. Lee (2022). 'The impact of bribery relationships on firm growth in transition economies', *Organization Science*, Forthcoming.
Kafouros, M. and M. Aliyev (2016a). 'Institutional development and firm profitability in transition economies', *Journal of World Business*, **51**, pp. 369–378.
Kafouros, M. and M. Aliyev (2016b). 'Institutions and foreign subsidiary growth in transition economies: the role of intangible assets and capabilities', *Journal of Management Studies*, **53**, pp. 580–607.
Kafouros, M., M. Aliyev and S. Krammer (2019). 'Patent litigation and firm performance', *Academy of Management Proceedings*, **2019**, art. 12760.
Kafouros, M., N. Hashai, J. A. Tardios and E. Y. Wang (2022). 'How do MNEs invent? An invention-based perspective of MNE profitability', *Journal of International Business Studies*, **53**, pp. 1420–1448.
Karniouchina, E. V., S. J. Carson, J. C. Short and D. J. Ketchen Jr (2013). 'Extending the firm vs. industry debate: does industry life cycle stage matter?', *Strategic Management Journal*, **34**, pp. 1010–1018.
Khanna, T. and K. Palepu (1997). 'Why focused strategies may be wrong for emerging markets', *Harvard Business Review*, **75**, pp. 41–51.
Kim, E.-H. (2013). 'Deregulation and differentiation: incumbent investment in green technologies', *Strategic Management Journal*, **34**, pp. 1162–1185.

Klein, B., R. G. Crawford and A. A. Alchian (1978). 'Vertical integration, appropriable rents, and the competitive contracting process', *The Journal of Law and Economics*, **21**, pp. 297–326.

Knott, A. M., D. J. Bryce and H. E. Posen (2003). 'On the strategic accumulation of intangible assets', *Organization Science*, **14**, pp. 192–207.

Konlechner, S. and V. Ambrosini (2019). 'Issues and trends in causal ambiguity research: a review and assessment', *Journal of Management*, **45**, pp. 2352–2386.

Lafuente, E., A. Bayo-Moriones and M. García-Cestona (2010). 'ISO-9000 certification and ownership structure: effects upon firm performance', *British Journal of Management*, **21**, pp. 649–665.

Lavie, D. (2006). 'The competitive advantage of interconnected firms: an extension of the resource-based view', *Academy of Management Review*, **31**, pp. 638–658.

Lavie, D. (2007). 'Alliance portfolios and firm performance: a study of value creation and appropriation in the U.S. software industry', *Strategic Management Journal*, **28**, pp. 1187–1212.

Liu, G. S. and P. Sun (2005). 'The class of shareholdings and its impacts on corporate performance: a case of state shareholding composition in Chinese public corporations', *Corporate Governance: An International Review*, **13**, pp. 46–59.

Liu, J., D. Zhang, J. Cai and J. Davenport (2021). 'Legal systems, national governance and renewable energy investment: evidence from around the world', *British Journal of Management*, **32**, pp. 579–610.

Makadok, R. (2001). 'Toward a synthesis of the resource-based and dynamic-capability views of rent creation', *Strategic Management Journal*, **22**, pp. 387–401.

Makadok, R. and J. B. Barney (2001). 'Strategic factor market intelligence: an application of information economics to strategy formulation and competitor intelligence', *Management Science*, **47**, pp. 1621–1638.

Manikandan, K. S. and J. Ramachandran (2015). 'Beyond institutional voids: business groups, incomplete markets, and organizational form', *Strategic Management Journal*, **36**, pp. 598–617.

Mavroudi, E., E. Kesidou and K. Pandza (2023). 'Effects of ambidextrous and specialized R&D strategies on firm performance: the contingent role of industry orientation', *Journal of Business Research*, **154** art. 113353.

Meyer, K. E., S. Estrin, S. K. Bhaumik and M. W. Peng (2009). 'Institutions, resources, and entry strategies in emerging economies', *Strategic Management Journal*, **30**, pp. 61–80.

Miller, D. J. (2006). 'Technological diversity, related diversification, and firm performance', *Strategic Management Journal*, **27**, pp. 601–619.

Miller, S. R. and L. Eden (2006). 'Local density and foreign subsidiary performance', *Academy of Management Journal*, **49**, pp. 341–355.

Misangyi, V. F., H. Elms, T. Greckhamer and J. A. Lepine (2006). 'A new perspective on a fundamental debate: a multilevel approach to industry, corporate, and business unit effects', *Strategic Management Journal*, **27**, pp. 571–590.

Montgomery, C. A. and B. Wernerfelt (1988). 'Diversification, Ricardian rents, and Tobin's q', *The RAND Journal of Economics*, **19**, pp. 623–632.

Myers, R. H. (1990). *Classical and Modern Regression with Applications*. Westford, MA: Duxbury/Thompson Learning.

North, D. C. (1991). 'Institutions', *The Journal of Economic Perspectives*, **5**, pp. 97–112.

North, D. C. (2005). *Understanding the Process of Economic Change*. Princeton, NJ: Princeton University Press.

Nyberg, A. J., I. S. Fulmer, B. Gerhart and M. A. Carpenter (2010). 'Agency theory revisited: CEO return and shareholder interest alignment', *Academy of Management Journal*, **53**, pp. 1029–1049.

Parmigiani, A. and M. Rivera-Santos (2011). 'Clearing a path through the forest: a meta-review of interorganizational relationships', *Journal of Management*, **37**, pp. 1108–1136.

Peng, M. W. (2003). 'Institutional transitions and strategic choices', *The Academy of Management Review*, **28**, pp. 275–296.

Penrose, E. T. (1959). *The Theory of the Growth of the Firm*. Oxford: Blackwell.

Pereira, V., C. Corradini, Y. Temouri and K. Mellahi (2020). 'Investigating institutional, economic and social determinants of European regions for firm growth through employment generation', *British Journal of Management*, **31**, pp. 162–183.

Peteraf, M. A. (1993). 'The cornerstones of competitive advantage: a resource-based view', *Strategic Management Journal*, **14**, pp. 179–191.

PWC (2011). *Financial Reporting in the Power and Utilities Industry*, 2nd edn. London: PricewaterhouseCoopers.

Qian, C., H. Wang, X. Geng and Y. Yu (2017). 'Rent appropriation of knowledge-based assets and firm performance when institutions are weak: a study of Chinese publicly listed firms', *Strategic Management Journal*, **38**, pp. 892–911.

Rosenbusch, N., M. Gusenbauer, I. Hatak, M. Fink and K. E. Meyer (2019). 'Innovation offshoring, institutional context and innovation performance: a meta-analysis', *Journal of Management Studies*, **56**, pp. 203–233.

Schneider, M. R., C. Schulze-Bentrop and M. Paunescu (2010). 'Mapping the institutional capital of high-tech firms: a fuzzy-set analysis of capitalist variety and export performance', *Journal of International Business Studies*, **41**, pp. 246–266.

Schubert, T., E. Baier and C. Rammer (2018). 'Firm capabilities, technological dynamism and the internationalisation of innovation: a behavioural approach', *Journal of International Business Studies*, **49**, pp. 70–95.

Sena, V., M. Marra, M. Demirbag and G. Lubrano Lavadera (2022). 'The impact of institutions on collaborative innovations and the role of equity-based entry modes', *British Journal of Management*, **33**, pp. 1395–1411.

Shaner, J. and M. Maznevski (2011). 'The relationship between networks, institutional development, and performance in foreign investments', *Strategic Management Journal*, **32**, pp. 556–568.

Shin, H., A. E. Ellinger, H. H. Nolan, T. D. DeCoster and F. Lane (2018). 'An assessment of the association between renewable energy utilization and firm financial performance', *Journal of Business Ethics*, **151**, pp. 1121–1138.

Sirmon, D. G., S. Gove and M. A. Hitt (2008). 'Resource management in dyadic competitive rivalry: the effects of resource bundling and deployment', *Academy of Management Journal*, **51**, pp. 919–935.

Sirmon, D. G., M. A. Hitt and R. D. Ireland (2007). 'Managing firm resources in dynamic environments to create value: looking inside the black box', *The Academy of Management Review*, **32**, pp. 273–292.

Soda, G. and M. Furlotti (2014). 'Bringing tasks back in: an organizational theory of resource complementarity and partner selection', *Journal of Management*, **43**, 10.1177/0149206314535435.

Sun, P., K. Mellahi, M. Wright and H. Xu (2015). 'Political tie heterogeneity and the impact of adverse shocks on firm value', *Journal of Management Studies*, **52**, pp. 1036–1063.

Surroca, J., J. A. Tribó and S. Waddock (2010). 'Corporate responsibility and financial performance: the role of intangible resources', *Strategic Management Journal*, **31**, pp. 463–490.

Tarim, E., T. Finke and L. Liu (2021). 'Energy firms' responses to institutional ambiguity and complexity in long energy transitions: the case of the UK and China', *British Journal of Management*, **32**, pp. 648–692.

Tatarynowicz, A., M. Sytch and R. Gulati (2016). 'Environmental demands and the emergence of social structure:technological dynamism and interorganizational network forms', *Administrative Science Quarterly*, **61**, pp. 52–86.

Taussig, M. and A. Delios (2015). 'Unbundling the effects of institutions on firm resources: the contingent value of being local in emerging economy private equity', *Strategic Management Journal*, **36**, pp. 1845–1865.

Vitale, C., R. Bitetti, I. Wanner, E. Danitz and C. Moiso (2020). 'The 2018 edition of the OECD PMR indicators and database: methodological improvements and policy insights', OECD Working Paper.

Wang, L., L. Wang and M. Zhang (2022). 'Contract-based knowledge protection and cooperation performance: the effects of technological turbulence and legal system completeness', *British Journal of Management*, **33**, pp. 2033–2051.

WEF (2012). *The Global Competitiveness Report 2012–2013*. Geneva: World Economic Forum.

Wiedmann, K.-P. (2004). 'Measuring brand equity for organising brand management in the energy sector: a research proposal and first empirical hints. Part 1: the development of a theoretical concept and a research programme', *Journal of Brand Management*, **12**, pp. 124–139.

Williamson, O. E. (1985). *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*. London: Collier Macmillan.

Williamson, O. E. (2000). 'The new institutional economics: taking stock, looking ahead', *Journal of Economic Literature*, **38**, pp. 595–613.

Witt, M. A. and A. Y. Lewin (2007). 'Outward foreign direct investment as escape response to home country institutional constraints', *Journal of International Business Studies*, **38**, pp. 579–594.

Xia, F. and G. Walker (2015). 'How much does owner type matter for firm performance? Manufacturing firms in China 1998–2007', *Strategic Management Journal*, **36**, pp. 576–585.

Yiu, D. W., W. P. Wan and Y. Xu (2019). 'Alternative governance and corporate financial fraud in transition economies: evidence from China', *Journal of Management*, **45**, pp. 2685–2720.

Young, M. N., M. W. Peng, D. Ahlstrom, G. D. Bruton and Y. Jiang (2008). 'Corporate governance in emerging economies: a review of the principal–principal perspective', *Journal of Management Studies*, **45**, pp. 196–220.

Yuan, C., Y. Li, C. O. Vlas and M. W. Peng (2018). 'Dynamic capabilities, subnational environment, and university technology transfer', *Strategic Organization*, **16**, pp. 35–60.

Zhang, Y., H. Li, M. A. Hitt and C. Geng (2007). 'R&D intensity and international joint venture performance in an emerging market: moderating effects of market focus and ownership structure', *Journal of International Business Studies*, **38**, pp. 944–960.

Zhang, Y. A., Y. Li and H. Li (2014). 'FDI spillovers over time in an emerging market: the roles of entry tenure and barriers to imitation', *Academy of Management Journal*, **57**, pp. 698–722.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section at the end of the article.