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*Foreign State-Owned Enterprises in the World's Largest Economies
– Comparative and Sectoral Analysis**

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Abstract

Theoretical background: In the last 20–30 years, particularly after the financial crisis of the end of the first decade of the 21st century, state-owned enterprises (SOEs), historically associated with local markets, have increasingly expanded internationally. As a result, foreign state-owned enterprises (FSOEs) have emerged in many countries, particularly in strategic industries. The internationalisation of SOEs is a new, important and relatively under-researched phenomenon in today's global economy. The literature on the subject so far lacks extensive, comparable figures on FSOEs on a global scale, which is a prerequisite for qualitative research.

Purpose of the article: The purpose of this article is to determine – based on original empirical research – the status, significance, and sectors of FSOEs in the groups of the largest non-financial enterprises (Top 100, by operating revenues) of the 32 world's largest economies, as well as the changes that have occurred in this respect between 2009 and 2018. The analysis of FSOEs was carried out with the enterprises divided according to their origins (“green-field FSOEs” and “M&A FSOEs”), industries, and home countries. Listed FSOEs were analysed separately.

Research methods: The research used the original author's method of distinguishing (finding) FSOEs, based on the criterion of actual corporate control rather than on the criterion of formal state ownership. The source data, derived mainly from the Orbis database, has been thoroughly supplemented and verified. Special indicators were created for the comparative analysis of FSOEs across the 32 economies under review.

Main findings: The results of the analysis determined the status of FSOEs in the group of the 32 world's largest economies, as well as in distinguished subgroups: developed economies (19) and emerging economies (13). The analysis of the changes in the shares of FSOEs in the studied economies between 2009 and 2018 led to the conclusion that the shares, and therefore the economic importance of FSOEs, increased in the studied years. The sectoral distribution of FSOEs shows that the largest number of them operate in Oil & Gas and Energy sectors.

Introduction. Purpose and scope of the study

State-owned enterprises (SOEs), which have existed for hundreds of years in the vast majority of countries around the world, have usually functioned within the framework of a given economy, fulfilling specific special, both economic and non-economic, functions. There were few instances of SOEs whose purpose was to operate abroad, but this mainly applied to states with superpower aspirations, and most often such foreign activity involved colonial conquests. From the end of World War I until the end of the 20th century, foreign expansion of SOEs was sporadic.

This situation has changed in the last 20–30 years, particularly after the financial crisis at the end of the first decade of the 21st century (Kowalski, 2020). The number of SOEs making foreign expansions increased from 650 in 2010 to 1,600 in 2020 (UNCTAD, 2021). A fairly natural reason for the increased foreign expansion of SOEs has been the rapid development of the BRIC countries, primarily China, in which SOEs are an important part of the economies, as well as the development of state capitalism associated with the increasing activity of SOEs, including their internationalisation. The changes that are taking place in the world economy, due to intensifying globalisation and privatisation processes, favour the internationalisation of all enterprises, including state-owned ones.

Foreign expansion of enterprises, including SOEs, usually takes place in two ways – either by acquiring shares in foreign entities, also as part of privatisation, espe-

cially in the case of post-communist countries, or by setting up their own subsidiaries or branches in other countries. SOEs making capital expansion abroad are usually referred to in the economic literature as “multinational state-owned enterprises” (or “state-owned multinational companies” – SOMNCs). This term means “independent firms with direct ownership by the state that have value-adding activities outside its home country. These value-added activities can be production facilities or sales subsidiaries or purchasing subsidiaries or design or R&D centres” (Cuervo-Cazurra et al., 2014, p. 925).

The subject of the analysis in this article, however, is not the SOMNCs but the individual foreign elements (subsidiaries) of SOMNCs. Sometimes the term “a state-owned enterprise’s foreign affiliate (SOE’s-FA)” is used in the literature for this type of entities (Szarzec et al., 2021). Such entities can be referred to as foreign SOEs (FSOEs) from the point of view of a given economy. The basic aim of the analysis is to examine the scope, significance, and sectoral distribution of FSOEs in a large group of the 32 world’s largest economies. Based on the results of original empirical research, we seek to answer the following research questions:

- What is the scope and significance of FSOEs in the world’s largest economies?
- What changes have taken place in this area between 2009 and 2018?
- What is the industry structure and structure by home country of FSOEs?

Such a quantitative analysis, showing the state and significance of FSOEs in host countries, is missing from the world literature to date. Its results can make an important contribution to further qualitative research on the international expansion of SOMNCs.

The article consists of three main sections. The first section reviews the state of research on SOMNCs and FSOEs. The second section describes the methodological framework of the empirical research, presents the purpose of the study, research assumptions, as well as the sources and methods of data preparation. The third part demonstrates the results of the research. The article concludes with a summary of the analysis and the conclusions drawn.

1. Foreign state-owned enterprises – literature review

The scientific literature on SOMNCs is quite extensive. A comprehensive monograph *State-Owned Multinationals: Governments in Global Business* (Cuervo-Cazurra, 2017), published a few years ago, exhaustively presents and analyses various aspects of the theory and principles of operation of SOMNCs, as well as their role in the modern globalised economy. International strategies of SOMNCs are brilliantly presented in the paper by Estrin et al. (2021). Issues such as the reasons for the creation and growth of SOMNCs (Cuervo-Cazurra et al., 2014; Bass & Chakrabarty, 2014; Finchelstein, 2017), or the selection of a country to locate investments made by SOEs (García-Canal & Guillén, 2008; Duanmu, 2014; Blomqvist & Mahmood,

2021) are also discussed in depth in the literature. Similar issues, although more in practical than theoretical terms, are analysed in the OECD report entitled *State-Owned Enterprises as Global Competitors. A Challenge or an Opportunity?* (OECD, 2016). When it comes to databases on SOMNCs, the most comprehensive and widely used source is the UNCTAD's *World Investment Report*.

The findings on SOMNCs presented in the literature do not lead to clear conclusions. For example, there are studies showing that state capital involvement has a negative effect on the internationalisation of enterprises (Huang et al., 2017; Deng et al., 2018). Other studies, on the other hand, indicate that state ownership has no clear impact on this aspect (Hu & Cui, 2014), or even fosters the internationalisation of their activities (Mariotti & Marzano 2019; Nuruzzman et al., 2020). Another area of research where no scientific consensus has been reached to date is the effectiveness of SOMNCs compared to their private counterparts (Chen & Young, 2010; Miroudot & Ragoussis, 2013; Guo & Clougherty, 2015; Benito et al., 2016).

Scientific articles dealing directly with the functioning of foreign SOEs, and thus parts (subsidiaries) of SOMNCs in host countries, are much less numerous. In the contemporary economic literature, we have found only two texts containing the results of empirical research. The first is Carney's (2015) study, which included 200 largest listed companies from nine East Asian economies in 1996 and 2008 is an example here. The study distinguished between foreign-controlled entities, including government-controlled ones, meaning FSOEs (foreign state-owned enterprise was defined as an entity in which the state, directly or indirectly, held at least 10% of the ownership stake in a given enterprise). The results showed that in 1996 there was no FSOE in the surveyed group, while 12 years later there were as many as 68 such entities. The largest number of them operated in Thailand, Singapore and Indonesia, with Singapore, China and Malaysia as their main home countries. The author points out that the changes were initiated by the Asian economic crisis of 1998, which resulted in an increase in the value of foreign investment by government agencies such as stabilisation funds and pension funds. However, these types of investors usually hold small stakes in companies and, therefore, in most cases, have limited influence on their management. Carney points out that there has also been an increase in the share of Sovereign Wealth Funds in foreign investments, which are characterised by a long-term investment outlook and, what is important, much larger ownership stakes in companies, allowing for corporate control. The study also showed that in the case of relatively many FSOEs, their home countries were authoritarian countries, generally characterised by large shares of SOEs in their economies.

The second important article regarding the subject analysed here is the work of Szarzec et al. (2021). It focuses on SOEs and their foreign direct investment originating from European Union countries in 2017. The authors assumed that SOEs and FSOEs are those enterprises in which the state (directly or indirectly) held more than 25% of the shares. The analysis showed that the largest number of FSOEs operated in the so-called old EU countries (EU-15), and in particular, in economies such as

the United Kingdom, the Netherlands and Germany. The share of post-socialist countries in the number of FSOEs was minimal, from which the authors conclude that, when internationalising, SOEs seek higher profit margins in richer countries. By industry, FSOEs most often operated in the energy and transport sectors. Another major point of the research was the analysis of home countries of FSOEs. The results showed that most of them also came from the EU-15, in particular France, Germany and Italy, probably due to their high economic importance in the EU and, in the case of France and Italy, the large scale of SOEs. This study also showed that in post-socialist countries the number of FSOEs is negatively correlated with the GDP of the country receiving the investment.

The studies described above, however, have some limitations. First of all, they applied to a specific geographical or economic area. The study by Szarzec et al. (2021) considered only the countries of the European Union, which is a problem pointed out by the authors of the study themselves, who suggested that the range of economies analysed should be broadened in future research. Additionally, the study included data from only one year – 2017. Carney's study, in turn, is also not comprehensive, covering only selected countries in Asia. The analysis covers 1998 and 2008, so does not include the period after the financial crisis of the first decade of the 21st century, which was very important for the changes that occurred in the global economy.

The literature review, therefore, shows that there is a lack of comprehensive, comparable data in the economic literature concerning the status and significance of FSOEs globally. This article is an attempt to fill this substantial research gap.

2. Methodological framework of the research

2.1. Purpose and basic assumptions of the research

The purpose of our analysis, as mentioned above, is to determine the scope, significance and sectoral distribution of FSOEs in the host countries studied, i.e. in a large group of the world's largest economies. We also analyse the changes that took place in this area between 2009 and 2018.

In the empirical research, the results of which are used in this article, we make two research assumptions. The first assumption is to focus the analysis on a collection of the largest companies in a given country, falling within the Top 100 national non-financial companies ranked by operating revenues. We make this assumption for two reasons. First, because the largest companies, both private and state-owned, are central to any modern economy. Their dynamics, innovativeness, industry and ownership structure, determine the operation, capabilities and development directions of the economic system. This is particularly the case with the so-called strategic industries – power sector, national transport, telecommunications or banking – which

in most countries of the world are characterised by a high level of concentration. Second, because both financial and ownership structure data related to the largest, relatively few enterprises are more readily available and verifiable, and, therefore, more reliable than the data related to a very large set of smaller enterprises. This reason is particularly important for our research methodology of distinguishing FSOEs, which is based on a case-by-case analysis. Such an analysis is possible for the largest national companies even for many countries in the world, but unrealistic in practice for many hundreds or thousands of smaller companies.

The second assumption is to adopt a uniform definition of an FSOE for all countries analysed. We define a foreign state-owned enterprise as a company operating in a country over which effective corporate control is exercised by a state-owned enterprise or other state-owned entity of another country, regardless of the size of its ownership stake. In order to verify whether a company can be treated as an FSOE, both the ownership structure of the company and, if necessary, its institutional shareholders/owners were analysed in detail.

2.2. Data sources and their preparation

In this article, we use our own lists of the top 100 non-financial enterprises (Top 100) for the 32 world's largest economies (by nominal GDP in 2018) for 2009 and 2018. The main data source for the 64 Top 100 lists (32 lists for 2018 and 2009) was the Orbis database, and the data contained therein was often corrected or supplemented with data from other sources, such as Fortune Global 500 and Forbes Global 2000 lists or websites of specific companies. The years – 2018 and 2009 – were selected due to the availability of relevant (the most recent and the “oldest”) data in the Orbis database. Each company on the lists was assigned three characteristics: operating revenues, total assets and industry.

The Top 100 lists were developed as part of a research project funded by the National Science Centre (NCN 2017/25/B/HS4/01103), led by one of the co-authors of this article. Detailed information on the scope and method of data acquisition, as well as the assumptions made in the procedure of creating Top 100 lists, is presented in the book using the same database for other purposes (Bałtowski & Kwiatkowski, 2022, ch. 3).

Out of the 6,400 enterprises on the Top 100 lists (32 lists for 2009 and 2018), as a result of a painstaking, case-by-case analysis of the ownership and control structure (some of which are available in the Orbis database), entities that meet the above definition of foreign state-owned enterprises were identified. The resulting set of FSOEs was divided according to two criteria. First, FSOEs were grouped according to the level of ownership stake held by the foreign owner controlling a given company. When the level exceeded 50%, the company was classified as a majority-FSOE (Ma-FSOE), and otherwise as a minority-FSOE (Mi-FSOE).

Second, FSOEs were categorised according to the way the FSOE came into being, or to be more precise, according to its origins. Here, green-field FSOEs (Gr-

FSOES) and FSOEs created as a result of mergers and acquisitions (M&A-FSOES) were distinguished. For this purpose, their history, mainly contained in the corporate documents of both the analysed entities and their foreign parent companies, was verified. Other data sources, such as newspaper articles and industry reports, were also very important.

Additionally, from the whole set of FSOEs, those whose shares were listed on stock exchanges – listed foreign state-owned enterprises (L-FSOEs) – were distinguished.

In turn, host countries of FSOEs were divided, according to the IMF classification,¹ often used in cross-country analyses, into two groups: Developed Market Economies (DMEs) and Emerging Market Economies (EMEs). The group of the 32 world's largest economies included 19 DMEs, i.e. almost 60% of the set of countries under review (Australia, Austria, Belgium, Canada, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, Norway, Singapore, Spain, Switzerland, Sweden, Taiwan, United Kingdom, United States of America) and 13 EMEs, i.e. slightly less than 40% of the set of countries under review (Argentina, Brazil, Egypt, India, Indonesia, Mexico, Poland, Russia, Saudi Arabia, South Africa, Thailand, Turkey).

2.3. Share ratios of FSOEs and other indicators used in the analysis

According to the data contained in the Orbis database, the basic economic categories used in our research were operating revenues (OR, expressed in the euro) and total assets (TA, expressed in the euro) of each company analysed. The following indicators were introduced to determine the share of FSOEs in the economies and their changes:

- OR-F/Top100 (%) – the share of operating revenues of FSOEs from the Top 100 in the total ORs of the entire Top 100,
- OR-F/Top20 (%) – the share of operating revenues of FSOEs from the Top 20 in the total ORs of the entire Top 20 set,
- TA-F/Top100 (%) – the share of total assets of FSOEs from the Top 100 in the total TAs of the entire Top 100,
- OR-F/GDP (%) – the ratio between ORs of FSOEs from the Top 100 and nominal GDP in a given year and country.

Another element of the analysis was to identify countries where FSOEs are important in strategic industries traditionally characterised by a strong presence of SOEs, such as telecommunications, energy and oil & gas. In order to estimate the significance of FSOEs in these three industries, we determined their share (by OR) in the set of industry players present in the Top 100 of each country, while the point of reference was the set of five largest (by OR) companies in the industry. A situation where FSOEs have at least a 15% share in a given sector is defined as highly significant in a given industry.

¹ <https://www.imf.org/external/pubs/ft/weo/2021/01/weodata/groups.htm>

3. Results

3.1. Basic figures

In 2018, there were 130 FSOEs, i.e. 4.1% of all companies, in the analysed collection of the 100 largest companies from 32 countries. The sum of ORs of these 130 FSOEs was EUR 1094.4 billion which represented 3.1% of the sum of ORs of all 3,200 companies analysed. Table 1 presents the number and share of FSOEs by the characteristics and country groups analysed.

Table 1. Numbers and shares (by OR) of FSOEs in the Top 100 by distinguished country groups and types of FSOEs, 2018

	No. of FSOEs			OR-F/TOP100 (%)		
	Total	DMEs	EMEs	Total	DMEs	EMEs
	130	98	32	3.05	3.88	0.73
Including:						
Gr-FSOEs	55	45	10	1.29	1.67	0.21
M&A-FSOEs	75	53	22	1.76	2.20	0.52
Including:						
Ma-FSOEs	110	82	28	2.29	2.88	0.62
Mi-FSOEs	20	16	4	0.76	0.99	0.11
L-FSOEs	33	16	17	1.00	1.20	0.44

Source: Authors' own study based on the Orbis database.

A narrow majority of FSOEs (57.7%) was created through the processes of acquisition of already existing entities, and while in the DME countries, the difference between the M&A-FSOEs set and the Gr-FSOEs set is not large, in the EME countries, it is significant. The vast majority of FSOEs, both in terms of quantity (84.6%) and value (75.0%), are majority-owned by domestic SOEs. These characteristics of FSOEs may suggest that parent companies do not want to lose or reduce corporate control over their subsidiaries and, therefore, usually hold majority ownership stakes in them. More than 25% of FSOEs are listed companies, obviously controlled by domestic SOEs. There are relatively more such FSOEs in the EME group.

Foreign state-owned enterprises operating in developed countries accounted for 75.4% of all FSOEs, and their share in ORs of all FSOEs was as high as 93.7%. Average FSOEs in the DME group had operating revenues of EUR 10.5 billion and in the EME group of EUR 2.1 billion, almost five times less. These results confirm the aforementioned conclusion of Szarzec et al.'s (2021) analysis that, while internationalising, SOEs are mainly guided by the search for the highest possible profit margin, therefore, they locate investments mainly in developed countries. Another reason for the dominance of developed countries may also be the relatively fewer restrictions on capital flows in these countries, especially among EU countries (where almost half of FSOEs came from other EU countries in 2018). Governments may

protect their markets from companies with foreign state capital, so in this situation, they will restrict its inflow.

Table 2. Sectoral distribution of foreign SOEs, 2018

	Total	DMEs	EMEs	Gr-FSOEs	M&A-FSOEs	L-FSOEs
Oil & gas	32	29	3	22	10	4
Energy	30	21	9	7	23	10
Post & tel.	17	8	9	4	13	10
Chemicals	13	12	1	7	6	3
Transport	13	12	1	3	10	2
Machin. & equipm.	12	8	4	8	4	1
Food, Tobacco	5	1	4	2	3	1
Other	8	7	1	2	6	2
	130	98	32	55	75	33

Source: As in Table 1.

Table 2 shows that by far, the largest number of FSOEs operated in two industries (oil & gas and energy), which are also typical of the presence of SOEs in the economy. More than 80% of FSOEs from these two industries operate in developed countries. It is interesting to note that in the oil & gas sector as many as 69% of FSOEs are Gr-FSOEs, while in the energy sector the situation is fundamentally different – over $\frac{3}{4}$ are M&A-FSOEs. This prevalence of M&A-FSOEs in the energy sector is probably due to privatisation processes in this sector in which foreign SOEs were the acquirers (e.g. Brazilian Coelce, acquired by Italian Enel in 1998).

For two sectors (post & telecommunications and food, tobacco) the number of FSOEs in EMEs is greater than the number of FSOEs in DMEs. As many as three FSOEs in the food, tobacco sector are subsidiaries of Japan Tobacco, with operations in Russia, Poland and Turkey. In contrast, the large number of FSOEs from the post & telecommunications sector in emerging countries is due to the expansion of SOEs coming mainly from developed countries (France's Orange, Germany's Deutsche Telekom), which have probably used their market position and technological advantage to acquire many of the industry players in this group of countries.

3.2. Cross-country analysis

Five of the 32 world's largest economies surveyed lacked FSOEs in the 2018 sets of the 100 largest non-financial enterprises (Canada, China, India, Mexico, Taiwan). Trace amounts of FSOEs occur in important contemporary economies such as Russia, Indonesia and Thailand. These economies (like China and India) are characterised by a large or very large share of domestic SOEs. However, what is characteristic, the largest scale of FSOEs is found in the countries where the share of domestic state-owned enterprises is low, such as the Netherlands, Spain, Belgium, Ireland and the UK (Baltowski & Kwiatkowski, 2022, ch. 6.2).

Table 3 is a set of host countries by the size of achieved ORs and TAs of FSOEs. These economies account for over 84% of the total ORs of the FSOEs under review.

Table 3. Host countries of FSOEs by the highest ORs of FSOEs, 2018

Country	Group	A	B	No. of FSOEs
Germany	DME	195.9	72.5	6
Singapore	DME	194.2	35.5	14
UK	DME	127.1	71.3	8
Netherlands	DME	107.0	146.4	11
Japan	DME	92.9	152.1	1
Spain	DME	62.7	85.9	7
USA	DME	37.8	63.3	1
Italy	DME	37.2	33.7	7
Australia	DME	34.7	62.1	10
Ireland	DME	31.5	41.2	5

A – the sum of operating revenues of foreign SOEs (bill. EUR)

B – the sum of total assets of foreign SOEs (bill. EUR)

Source: As in Table 1.

FSOEs achieved the highest OR value in Germany and in Singapore, which should not be surprising given the many FSOEs operating in these countries. In addition, these entities are among the largest companies in these economies. What is interesting, Japan and the US were also included in the list, although each of these economies has only one FSOE. In the case of Japan, this is because the FSOE is the largest company in the country and a global company (Nissan), whereas, in the case of the US, the only FSOE is a subsidiary of Deutsche Telekom, which, thanks to the very large US market, has achieved a high OR value.

Table 4 presents a list of the countries with the highest share of ORs of FSOEs among the 100 largest enterprises, together with other characteristics on the shares of FSOEs.

Table 4. Countries with the largest share of FSOEs

Country	OR-F/Top100 (%)	OR-F/GDP (%)	TA-F/Top100 (%)	Group
Singapore	15.1	59.6	5.9	DME
Spain	9.1	5.1	9.1	DME
Germany	8.2	5.7	2.5	DME
Netherlands	7.8	13.4	11.9	DME
Egypt	6.2	1.6	4.6	EME
Ireland	6.0	9.4	5.1	DME
Austria	5.8	4.1	4.1	DME
Italy	5.8	2.0	3.2	DME
Australia	5.6	2.4	6.9	DME
UK	5.4	5.1	2.4	DME

Source: As in Table 1.

Among the 10 economies with the largest share of FSOEs, there are as many as nine from the DME group, with Singapore leading the way, according to two of the three criteria in the table. Only for the TA-F/Top100 indicator, Singapore ranks behind the Netherlands and Australia. This is probably because Singaporean FSOEs are often companies that distribute goods produced by their parent companies (e.g. Sinochem International Oil PTE Ltd distributes petroleum and petroleum products throughout Southeast Asia).

Table 5 presents a list of the 10 countries with the highest number of FSOEs along with their breakdown according to the criteria adopted earlier. As many as 63% of all FSOEs analysed are located in these 10 economies.

Table 5. Breakdown of FSOEs in countries with the highest number of them, 2018

Country	No. of FSOEs	No. of Gr-FSOEs	No. of M&A-FSOEs	No. of L-FSOEs	Group
Singapore	14	12	2	2	DME
Netherlands	11	6	5	-	DME
Australia	10	3	7	1	DME
UK	8	5	3	-	DME
Spain	7	4	3	2	DME
Italy	7	3	4	2	DME
Brazil	7	1	6	4	EME
Austria	6	4	2	-	DME
Germany	6	1	5	1	DME
Norway	6	2	4	1	DME
Sum	82	41	41	13	

Source: As in Table 1.

The largest number of FSOEs operate in Singapore. This economy is dominated by FSOEs that were created through green-field investment. In other countries presented in the table, such dominance of Gr-FSOEs is not observed, and in total there are as many Gr-FSOEs as M&A-FSOEs in the group of countries analysed. It is also worth noting that the only EME country in this list is Brazil, which has the highest number of L-FSOEs of all economies.

The next table lists the countries with the highest presence of FSOEs in the Top 20, a narrow group of the largest domestic enterprises. FSOEs were among the top 20 enterprises in 16 out of the 32 economies analysed. As before, the vast majority are economies from the DME group.

Table 6. Countries with the largest share of FSOEs in the Top 20

Country	OR-F/Top20 (%)	No. of FSOEs	Group
Singapore	14.64	4	DME
Germany	8.46	2	DME
Egypt	7.81	2	EME
Ireland	7.70	2	DME
Netherlands	5.77	2	DME

Country	OR-F/Top20 (%)	No. of FSOEs	Group
Japan	5.76	1	DME
Austria	5.73	1	DME
Italy	5.63	2	DME
Belgium	4.30	1	DME
UK	3.95	2	DME

Source: As in Table 1.

Table 7 lists countries with significant shares of FSOEs in strategic industries (a situation when FSOEs hold at least 15% of the sector's ORs within the Top 100 is taken into account). In all 32 countries surveyed, there are relatively few significant large FSOEs in the so-called strategic industries. There is no economy where FSOEs are present in all strategic industries. They usually operate in one or two industries.

Table 7. List of countries with FSOEs in strategic industries

Oil & Gas	Energy	Telecomm.
Germany	Belgium	Australia
Korea	Brazil	Indonesia
Singapore	Germany	Poland
South Africa	Netherlands	Saudi Arabia
Spain	Spain	Thailand
Sweden	Switzerland	Ireland
UK	UK	

Source: As in Table 1.

3.3. Analysis of FSOEs by home country

When it comes to the analysis of FSOEs by home country, the situation is fundamentally different from the analysis by host country presented above. Only a narrow majority of FSOEs comes from developed countries (52.3%), while the value of total ORs of FSOEs from developed countries is almost equal to the value of total ORs of FSOEs from emerging countries.

Table 8 shows the main characteristics of FSOEs by home country. The set of these countries, for obvious reasons, goes beyond the set of 32 host countries analysed earlier – the world's largest economies. By far, the largest number of FSOEs originated from China, France and Italy, countries where the range of domestic SOEs is very large or large. A significant number of FSOEs also come from economies rich in energy resources (Saudi Arabia, UAE, Qatar, Kuwait). As often happens in such cases, the investors are not SOEs but government-controlled, domestic entities like Sovereign Wealth Funds (Megginson et al., 2021).

Table 8. Home countries with the highest number of FSOEs, 2018

Country	Group	No. of FSOEs	No. of Gr-FSOEs	No. of M&A-FSOEs	No. of L-FSOEs
China	EME	29	18	11	9
France	DME	25	10	15	6
Italy	DME	14	7	7	2
UAE	EME	8	3	5	2
Japan	DME	6	3	3	0
Germany	DME	5	1	4	3
Russia	EME	5	3	2	0
Saudi Arabia	EME	5	2	3	2
Qatar	EME	4	0	4	2
Kuwait	EME	4	1	3	1

Source: As in Table 1.

Table 9 shows the sum of ORs and TAs of FSOEs, by home country. The largest number of FSOEs originated from China and France and, therefore, achieved the highest cumulative OR and TA values. It may be surprising to see a high position of Finland in this set, as only two FSOEs in our lists came from this country. This high position is due to the acquisition by Fortum (Finnish SOE) of one of the largest energy companies in Germany (Uniper).

Table 9. Home countries of FSOEs by the highest ORs of FSOEs, 2018

Country	Group	A	B	No. of FSOEs
China	EME	302.7	133.4	29
France	DME	217.1	348.0	25
Finland	DME	86.0	52.0	2
Saudi Arabia	EME	74.8	62.8	5
UAE	EME	57.3	40.9	8
Italy	DME	50.3	80.1	14
Germany	DME	42.8	70.1	5
Sweden	DME	41.8	12.9	3
Qatar	EME	30.0	49.0	4
Norway	DME	28.9	6.8	3

A – the sum of operating revenues of foreign SOEs (bill. EUR)

B – the sum of total assets of foreign SOEs (bill. EUR)

Source: As in Table 1.

3.4. Changes in the number and significance of FSOEs in the economies analysed between 2009 and 2018

We begin our analysis with an overview of the basic data on FSOEs in 2009 and 2018, as shown in Table 10.

Table 10. Values of different characteristics and indicators concerning FSOEs in the analysed set (2009–2018)

	2009	2018	Change
No. of FSOEs	117	130	11.1%
Sum of ORs of FSOEs (bill. EUR)	530.5	1094.4	106.3%
Share of FSOEs (%)	3.7	4.1	0.4 pp
OR-F/Top100 (%)	2.6	3.1	0.5 pp
TA-F/Top100 (%)	2.1	2.0	-0.1 pp
OR-F/GDP (%)	1.5	1.7	0.2 pp

Source: As in Table 1.

The data in Table 10 show a clear increase in both the number and share of FSOEs in the entire analysed set between 2009 and 2018. The share of ORs of FSOEs in relation to the sum of GDP of the countries analysed has also increased. On this basis, it can be concluded that the significance of FSOEs in the global economy has increased during the period under review. Between 2009 and 2018, in the studied set of the 32 Top 100 companies, the total ORs of all companies increased by 76.3%, while the ORs of FSOEs increased by 106.3%, so almost half as much. This was most likely due to the nationalisation of some global companies after the 2008–2009 financial crisis.

On the other hand, the share of FSOEs measured by total assets (TA) decreased slightly, which can probably be explained by the fact that a relatively large part of FSOEs has been operating in recent years in “lighter” industries, such as trade or services, where TAs are relatively lower.

The following tables (11 and 12) present changes in the indicators showing the significance of FSOEs in each economy. When looking at the increase in the OR-F/Top 100 indicator, it can be seen that once again developed countries dominate. The largest increase in the share of ORs of FSOEs among the largest companies was recorded in Germany, even though the number of FSOEs in this country decreased by one entity in the analysed years. However, the increase in ORs of FSOEs was the result of the aforementioned acquisition of the large energy company Uniper, by the Finnish state-owned entity. In other economies, the increase in the value of the indicator was associated with an increase in the number of FSOEs among the largest companies. In the case of the ORs of FSOEs to GDP ratio, it can also be seen that the largest increase was recorded in Singapore even though this economy recorded the largest decrease in the number of FSOEs. This situation is mainly due to the very strong nominal growth in ORs of FSOEs and the fact that Singapore is a relatively

small and open economy where the 100 largest companies (which often also operate outside Singapore) have relatively large ORs in relation to GDP.

Table 11. Countries with the highest increases in the two indicators of FSOE share among the largest companies between 2009 and 2018

Country	Group	OR-F/Top100 (%)	OR-F/GDP (%)
Germany	DME	4.6	3.1
Ireland	DME	4.1	6.9
Norway	DME	3.1	2.4
Australia	DME	2.6	0.9
Italy	DME	2.5	0.7
Brazil	EME	2.4	0.8
Austria	DME	1.9	1.6
UK	DME	1.9	1.9
Singapore	DME	1.8	20.3
Turkey	EME	1.8	0.5

Source: As in Table 1.

Emerging countries predominate when considering the countries with the greatest decline in FSOEs. Argentina recorded the largest decrease in ORs of FSOEs in all companies, and this was due, among others, to the sale of the Argentine subsidiary of Petrobras into the hands of a private investor. In other countries, the reduction in the share of ORs of FSOEs among the largest enterprises is the result of a decline in the number of functioning FSOEs in these economies.

Table 12. Countries with the highest increases in the two indicators of FSOE share among the largest companies between 2009 and 2018

Country	Group	OR-F/Top100 (%)	OR-F/GDP (%)
Argentina	EME	-5.6	-1.5
Spain	DME	-5.5	-2.9
Mexico	EME	-4.1	-1.6
Belgium	DME	-3.9	-3.2
Thailand	EME	-1.9	-1.5
Poland	EME	-1.5	-0.8
Canada	DME	-1.3	-0.5
Sweden	DME	-0.9	-1.1
Indonesia	EME	-0.7	-0.3
Saudi Arabia	EME	-0.7	-0.8

Source: As in Table 1.

Table 13 summarises the changes in the distinguished groups of FSOEs over the studied period based on an analysis of the characteristics of the “average” FSOE in a given group (i.e. according to the average values of a given group).

Table 13. Characteristics of an average FSOE in the distinguished groups of FSOEs from 2009 to 2018

	OR (bill. EUR)			TA (bill. EUR)		
	2009	2018	Ch. (%)	2009	2018	Ch. (%)
DMEs	5.5	10.5	90.9	5.3	9.2	73.6
EMEs	1.9	2.1	10.5	2.6	2.9	11.5
GR-FSOEs	3.4	8.4	147.1	2.6	4.7	80.8
M&A-FSOEs	5.5	8.4	52.7	6.2	9.8	58.1
Ma-FSOEs	3.7	7.5	102.7	3.7	6.6	78.4
Mi-FSOEs	9.3	13.7	47.3	9.3	13.8	48.4
L-FSOEs	6.4	10.9	70.3	8.9	14.7	65.2

Source: As in Table 1.

The highest average OR of FSOEs, in both 2009 and 2018, was achieved by the Mi-FSOE group. As many as 80% of Mi-FSOEs operate in developed economies. The likely reason for this is that DMEs generally have more developed capital markets and companies more dispersed shareholdings. With this, the entity controlling an FSOE does not need to hold a majority shareholding to exercise corporate control over it. It is also worth noting that L-FSOEs are relatively large entities in terms of OR and TA values. This group includes the largest FSOEs on the list (e.g. Nissan Motors and Uniper). In contrast, the mean OR and TA of Gr-FSOEs increased very sharply during the period under review.

The group of FSOEs operating in the EME countries had by far the lowest average value of ORs. This is probably due to the relatively lower attractiveness of EMEs as an investment location and a less receptive market compared to DMEs.

In terms of the origin of FSOEs, the number of FSOEs originating from China increased very strongly between 2009 and 2018, by 15 entities. China, following the increase in numbers, has also seen a very strong increase in ORs of FSOEs. Such rapid growth of these entities originating from China is likely a result of China's economic development and its "Going Global" strategy, which aimed to strengthen China in the global economy (Alon et al., 2014).

3.5. List of the largest FSOEs in 2018

Table 14 shows the 20 largest FSOEs in the group of the 32 world's largest economies analysed. These data indicate that all largest FSOEs operated in developed countries, while the entities come from both developed and emerging countries. Most come from China, which reflects China's growing importance in the global economy and the foreign expansion of Chinese companies. As many as 17 FSOEs are companies with 100% or majority foreign state capital. Only three of them (Nissan Motor, Uniper and Petroineos Trading) are Min-FSOEs, while six of them are listed FSOEs (Nissan Motor, Uniper, T-Mobile US, Endesa S.A., S-Oil Corporation, China Aviation Oil). The number of FSOEs that were created through greenfield

and M&A investments is almost equal, but the precise group of the largest FSOEs is dominated by entities created through M&A.

Table 14. List of the 20 largest (by operating revenues) foreign SOEs, 2018

No.	Name of FSOEs	Industry	OR (bill. EUR)	Type	Host country	Home country
1	Nissan Motor	Mach. & eq.	92.9	M&A	Japan	France
2	Uniper	Energy	84.5	M&A	Germany	Finland
3	Vattenfall Energy Trading	Energy	38.0	M&A	Germany	Sweden
4	T-Mobile US	Post & tel.	37.8	M&A	US	Germany
5	CNOOC Trading	Oil & gas	36.2	Green.	Singapore	China
6	Sinochem In. Oil (Singapore)	Chemicals	32.4	Green.	Singapore	China
7	Petrochina International	Oil & gas	30.2	Green.	Singapore	China
8	Sinochem Internat. Oil	Chemicals	29.2	Green.	UK	China
9	Petroineos Trading	Oil & gas	26.7	Green.	UK	China
10	Statkraft Markets	Energy	25.6	Green.	Germany	Norway
11	Comp. Espanola De Petr.	Oil & gas	24.8	M&A	Spain	UAE
12	Aramco Overseas	Oil & gas	24.6	Green.	Netherlands	Saudi Arabia
13	Unipet U.K.	Oil & gas	24.3	Green.	UK	China
14	SABIC International	Oil & gas	24.3	Green.	Netherlands	Saudi Arabia
15	Endesa, S.A.	Energy	20.2	M&A	Spain	Italy
16	S-Oil Corporation	Oil & gas	19.9	M&A	Korea	Saudi Arabia
17	TenneT TSO	Energy	19.1	M&A	Germany	Netherlands
18	Wingas	Oil & gas	18.2	M&A	Germany	Russia
19	China Aviation Oil	Oil & gas	18.0	Green.	Singapore	China
20	Petrobras Global Trading	Oil & gas	15.0	Green.	Netherlands	Brazil

Source: As in Table 1.

Summary and conclusions

1. The article presents and analyses data, unique in the literature on the status and significance of foreign state-owned enterprises in the sets of the largest enterprises (Top 100) of the 32 world's largest economies. The source of the data is the authors' own empirical research, characterised in section 2 of the article.

2. There were 130 FSOEs identified in the 32 economies studied in 2018, representing 4.1% of the total 3,200 companies analysed. The share of FSOEs, measured according to ORs is 3.1%. These entities were present in 27 economies – except for Canada, China, India, Mexico, and Taiwan. The economy with the highest number and share of these entities in ORs was Singapore, with 14 such entities.

3. The vast majority of FSOEs studied operate in developed countries. As much as 90% of ORs of FSOEs of the entire analysed set of 130 FSOEs in 2018 came from entities operating in developed countries. This is probably due to the fact that developed countries have large and receptive markets, which allow to relatively easily increase the operating income of foreign companies. This conclusion is consistent with the results of earlier work of Szarzec et al. (2021).

4. In the studied set of the 32 largest economies, both in terms of quantity and value, the majority are M&A-FSOEs (by origin) and Ma-FSOEs (by the share of state capital). The analysis showed that listed FSOEs account for just over $\frac{1}{4}$ of all FSOEs.

5. When considering home countries of FSOEs, there is no significant difference between emerging and developed countries. FSOEs mainly come from countries, where the level of significance of SOEs in the economy is high or very high, such as China or France.

6. In 2009, 117 companies were classified as FSOEs, which indicates that between 2009 and 2018, the number of FSOEs increased by 13 entities. As the number of FSOEs increased, so did their share in ORs among all companies and the share in GDP of the economies analysed. These results are compliant with the annual reports of the UNCTAD and Carney's study (2015). FSOEs most often operate in oil & gas, energy and post & telecommunication sectors, meaning sectors of a strategic nature, whose main feature is a high share of state ownership – both of SOEs in home countries, as well as FSOEs.

7. Future research in the analysed area should focus on qualitative analysis. It seems particularly important to thoroughly identify the reasons for the diversity of geographical distribution of FSOEs and the factors that favour the expansion of SOEs and the establishment of their foreign subsidiaries. Yet another issue is to study the extent of restrictiveness of capital flows in different countries and their impact on SOEs' foreign investments. An analysis of these areas will provide a better understanding of the internationalisation phenomenon of SOEs.

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