Empirical Paper

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Initial public offerings of foreign companies on stock markets in Europe – an institutional perspective

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Abstract:
This paper aims to identify the institutional factors that shape the initial public offerings (IPOs) of foreign companies on regulated stock markets in Europe from 2010 to 2022. Using the panel Autoregressive Distributed Lag methodology, this study examines the long- and short-term relationships between institutional factors and the IPO activities of foreign companies. The findings reveal that government spending, the country's image abroad, GDP, the tax burden, scientists' associations, health infrastructure, and pension systems significantly influence IPO activity in European stock markets. The study is distinctive in its use of the PEST method to comprehensively analyze a wide range of institutional factors, offering new insights into the determinants of cross-border IPO performance in European stock markets.

Keywords: European stock market, formal institutions, go public, institutional theory, IPO activity
JEL Classification: G15, G23, G32

1 Introduction

The decision to enter the stock market and issue securities is usually made at an advanced stage of a company's development [Bai, 2022; Helbing and Lucey, 2024]. At this point, the company typically establishes a stable operational foundation and seeks to leverage the capital markets to fuel further growth and expansion. Issuing and offering shares on foreign markets represents an even more advanced phase of development, often indicating the company's ambition to reach a broader investor base and increase its global footprint.

Companies strive for legitimacy to gain acceptance and support from stakeholders, which is crucial for their long-term success. Conducting an initial public offering (IPO) is often seen as a significant milestone in achieving this legitimacy [Moore et al., 2010]. By going public, companies can gain recognition and legitimacy in the eyes of investors and other stakeholders, enhancing their reputation and credibility in the marketplace [Mäntysaari, 2022, p. 272]. This process not only provides access to substantial capital but also increases the visibility and attractiveness of the company to potential investors and stakeholders. The decision to go public is significantly influenced by the external environment, which dictates how the development strategy adapts to prevailing legal and market requirements [Sundarasen, 2019; Meluzín et al., 2021]. The decision to conduct an IPO, although seemingly driven by economic considerations, is also heavily influenced by institutional factors. The changing institutional environment prompts adjustments to a company's strategy and shapes its future actions [Bruton et al., 2010; Meluzín et al., 2021; Serdar et al., 2024].

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Institutional theory [DiMaggio and Powell, 1983] is considered a starting point for research on how the external environment impacts the decision to conduct an IPO. Institutional theory focuses on the role of institutions as a key factor that shapes societies, organizations, and individuals, examining how institutions influence behaviors and social structures [Moore et al., 2010]. Institutional theory is applied in various disciplines, such as sociology, political science, institutional economics, and management [Bruton et al., 2010]. The relationship between IPOs and institutional theory lies in understanding how institutions influence organizational decision-making, including the decision to go public [Tupper and Mehta, 2023]. Therefore, the institutional perspective offers researchers and practitioners tools to analyze the dynamics surrounding IPO activities [Meluzín et al., 2021].

This paper aims to identify and assess the institutional factors that influence foreign companies' decision to conduct an IPO on the regulated stock markets that operate in leading European stock markets. The rationale for this research is the increasing globalization of capital markets and the key role of IPOs in providing companies with access to capital [Filatotchev et al., 2016; Marcato et al., 2018; Irani et al., 2023]. In particular, foreign companies considering an IPO in leading European stock markets face a unique set of challenges and opportunities shaped by the institutional environment [Martonyi, 2020]. Indeed, for foreign companies, the decision to pursue an IPO is strategic and influenced by a variety of external factors [Caglio et al., 2016; Helbing et al., 2019]. Institutional theory provides insights into the characteristics of the external environment, which can influence the adopted strategies, the organizational structures, and the undertaken actions.

In this study, the following research questions were formulated: (1) What institutional factors influence foreign companies' decisions to conduct IPOs in European equity markets? (2) Is there a quantifiable influence of these factors on foreign companies' IPO activity? The answers to these questions enable us to expand knowledge of foreign companies' perceptions of the external environment and understand aspects that these companies consider when deciding to go public. Expanding information on this aspect can provide valuable guidance to policymakers and those responsible for creating policies and strategies for the development of stock exchanges and increasing the investment attractiveness for foreign companies in regulated equity markets in Europe. A more favorable environment for companies, investors, and the financial system contributes to an efficient IPO market [Bongini et al., 2019].

The rationale for investigating this topic is that there is a lack of comprehensive analyses in the literature on how institutional factors affect companies' decisions to conduct an IPO. It is even more noticeable when considering updated data that present the economic, political, technological, and social condition of European countries with developed and regulated securities markets. This research is part of a popular trend in the law and finance literature that demonstrates how the institutional environment influences the stock market [Rivas and Adamuz, 2019; Meluzín et al., 2021; Salerno, 2021].

The research contributes to the literature on several levels. It expands the existing application of institutional theory in the context of primary securities market research by taking a comprehensive look at the impact of institutions on foreign companies' decisions to pursue IPOs in Europe. The broad view of institutional factors classified based on PEST analysis, allows us to extend previous research findings [e.g., Marcato et al., 2018; Salerno, 2021]. Moreover, international institutional differences have become an important subject of research in the context of the increasing internationalization and integration of capital markets [Filatotchev et al., 2016; Irani et al., 2023]. By embracing the most active regulated markets in Europe, this study shows differences between markets that operate under the regulations shaped under the influence of the European Union legal order [Martonyi, 2020]. The institutional perspective, therefore, provides valuable insights to explain the differences in conducting IPOs between the various regulated markets in European countries.

The analysis of how institutional factors impact the stock market was conducted using the Panel Autoregressive Distributed Lag (Panel ARDL) analysis. The approach, first presented by Pesaran et al. [1999], can capture dynamic relationships between variables over time in both the short and long terms.

This paper comprises five sections, beginning with the Introduction. Section 2 presents a literature review. Section 3 discusses the research methodology. The empirical results of the study are presented and discussed in Section 4, and Section 5 draws the conclusions.

2 Literature review

The decision to enter the stock market is influenced by many internal and external factors [Thanh, 2020; Serdar et al., 2024]. In particular, studying external factors is crucial when deciding to enter an overseas securities market, as confirmed by studies conducted in various markets around the world [e.g., Marcato et al., 2018; Cui et al., 2021; Wei et al., 2022].

The theoretical foundation for analyzing the relevance of these factors is institutional theory. It allows for a macro-analytical research perspective, providing a comprehensive approach to the external factors that affect the IPO market [Gupta et al., 2018; Rivas and Adamuz, 2019; Meluzín et al., 2021]. Institutional factors are divided into formal and informal factors. Formal factors are considered to be regulations and political and economic rules that play a crucial role in shaping economic processes in society. Informal institutions function as undefined and unwritten norms and conventions in a given society that guide economic interactions [DiMaggio and Powell, 1983]. According to Hitt [2016], these categories of factors are interconnected, with informal factors influencing the formation of formal ones.

Recent research carried out on the European market indicates that there is a relationship between various external factors and the IPO market. The differences in market performance are particularly significant when comparing markets located in countries at different levels of development [Rivas and Adamuz, 2019] or that are geographically distant [Salerno, 2021]. The literature provides clear evidence that the political environment influences the IPO market [Jannils, 2021]. Research into the impact of politically motivated factors on IPO market activity most often addresses political uncertainty which deters companies from going public due to the unpredictable nature of policy changes and potential market instability [Gupta et al., 2018; Gregory, 2020; Colak et al., 2021; Serdar et al., 2024]. In contrast, strong government effectiveness, characterized by efficient regulatory frameworks and stable governance, can foster a conducive environment for IPO activities [Gupta et al., 2018; Meluzín et al., 2021]. It is also emphasized that board members' political connections may provide firms with strategic advantages such as favorable regulations or enhanced credibility, and thus positively impact their IPO performance [Gounopoulos et al., 2021].

The macroeconomic environment is also identified as one of the key factors that influence the decision to go public. Meluzín et al. [2018] identified the overall economic situation as a significant factor that influences the IPO decision. Demir et al. [2023] evidenced the impact of economic uncertainty on IPO activity in a group of 52 countries. They used the World Economic Uncertainty Index to demonstrate that economic downturns have a negative impact on the IPO number and proceeds. It is also evidenced that during periods of heightened economic uncertainty, firms are less likely to conduct IPOs due to the increased risks and potential undervaluation in turbulent markets [Thanh, 2020]. In addition to economic uncertainty, other macroeconomic factors such as economic market conditions [Meluzín et al., 2018; Verma and Bansal, 2021; Nuhiu et al., 2022; Jamaani and Alawadhi, 2023] or monetary policy [Kerssenfischer, 2019; Gürkaynak et al., 2022] also play crucial roles in IPO decisions. For example, favorable economic conditions, characterized by low inflation [Mehmood et al., 2021; Jamaani and Alawadhi, 2023], high economic growth [Gupta et al., 2018; Bongini et al., 2019; Verma and Bansal, 2021], and stable interest rates [Angelini and Foglia, 2018], tend to encourage more firms to go public. The authors use the economic freedom index to measure the impact of macroeconomic factors on the IPO market [Chen et al., 2017; He et al., 2022]. A higher level of economic freedom generally correlates with a more robust IPO market, as firms operate in an environment that is more conducive to growth and investment. Financial aspects are also mentioned; for example, a lower tax burden positively influences the decision to go public. Salerno [2021] and Yost [2023] highlighted that tax policies significantly impact IPO activity, with lower corporate taxes encouraging firms to enter public markets.

Several studies have explored how social character affects the dynamics of IPO markets. For example, national culture significantly influences IPO decision-making [Lewellyn and Bao, 2014; Gupta et al., 2018; Salerno, 2021; Tupper and Mehta, 2023]. It also explains differences in the level of innovation in stock markets across countries [Taylor and Wilson, 2012], as individualistic countries tend to see greater innovation. Furthermore, there is a two-way relationship between innovation and IPOs. Chemmanur et al.

[2020] indicated that firms with high R&D investment perform more successfully after their IPO, while Cai and Zhu [2020] reported that going public in a more developed market can enhance a company's innovation capabilities. Research has shown that investors favor links between IPO firms and academia [Bonardo et al., 2011; Colombo et al., 2019]. These associations suggest a strong scientific foundation, with access to cutting-edge knowledge and innovation.

Most studies that consider institutional factors focus on IPO underpricing [Marcato et al., 2018; Sundarasen, 2019; Colak et al., 2021; Álvarez-Otero, 2022]. They examine the initial return discrepancies that occur due to institutional influences and market conditions. Other research addresses IPO disinvestment issues [Helbing et al., 2019; Thanh, 2020; Jamaani and Alawadhi, 2023; Helbing and Lucey, 2024], exploring the factors that lead firms to delist or withdraw their public offerings. Another critical area of focus is the information on company valuation [Hearn, 2013; Bai, 2022; He et al., 2022], which assesses how institutional factors impact the valuation and transparency of companies preparing for IPOs.

The decision to go public has frequently been studied with a focus on the US [e.g., Cai and Zhu, 2020; Gregory, 2020; Cui et al., 2021; Reddy et al., 2021; Wei et al., 2022] or Asian markets [e.g., Mehmood et al., 2021]. These studies explore the unique factors of IPO activities within these regions, providing valuable insights into market-specific dynamics. For example, Gregory [2020] investigates the impact of the political uncertainty on the US stock market. It is studied how the Sarbanes-Oxley Act and subsequent regulatory changes affected IPO activity [Moore et al., 2010; Reddy et al., 2021]. There are also studies analyzing the US market economic conditions affecting the performance of foreign firms [Cai and Zhu, 2020; Wei et al., 2022]. The research exploring the Asian market refers to the role of the gradual opening up and liberalization of financial markets in countries such as India, China, and Pakistan, highlighting how these changes affect the attractiveness of IPOs [Ray and Bisbey, 2020; Mehmood et al., 2021; Chi, 2023]. Additionally, the influence of cultural factors and family ownership structures is often more pronounced in Asian markets, affecting both the decision to go public [Fan et al., 2022] and the performance of IPOs post-listing [Yang et al., 2020].

While these studies that consider the regional institutional environment provide a picture of the interrelationship between institutional factors and IPO activity, their conclusions cannot always be transferred to European conditions. Over the past decade, few authors have addressed this topic, including Lewellyn and Bao [2014]; Gupta et al. [2018]; Rivas and Adamuz [2019]; Meluzín et al. [2021]; Salerno [2021]. Thus, the relative scarcity of research in this area underscores the need for further exploration to understand the specific institutional determinants of IPOs within European stock markets.

3 Methodology

The study aims to investigate the influence of institutional considerations on the IPO activity of foreign companies in Europe using PEST analysis. It is a tool for analyzing a company's external macro environment in terms of politics, economics, society, and technology, and it is one of the methods used in stock market research [Miao and Zhu, 2021; Qin, 2022]. PEST analysis helps to systematically organize and categorize indicators, providing a comprehensive framework to evaluate the macro-environmental factors that affect an organization. Thus, the model adopted in the research is formulated as follows:

$$\mathrm{IPO} = f\left(\begin{bmatrix} P_{1,2,3} \\ E_{1,2,3} \\ S_{1,2,3} \\ T_{1,2} \end{bmatrix}, C\right)$$

IPO is the explanatory variable interest and refers to the number of foreign firms that went public in a given market during a certain period, P refers to political factors, E refers to economic conditions, S are social conditions, and T are technological aspects. Thus, our approach comprehensively covers four dimensions of institutional conditions, both formal and informal. The initial selection of institutional factors was based

Table 1. Variable definitions and data sources

Group	Factor	Code	Description	Source
Political	Government spending	P1	The average total government spending at all levels as a percentage of GDP for the most recent 3 years.	Heritage Foundation
	Government integrity	P2	The score for this aspect is calculated by taking the average of scores across three sub-factors of equal weight: 1. Perceptions of corruption, 2. Risk of bribery, and 3. Control of corruption, including "capture" of the state by elites and private interests.	Heritage Foundation
	Image abroad or branding	P3	Survey data collected from mid- and upper-level managers. The respondents were asked to rate their agreement with the statement "The country's image abroad encourages business development" on a scale of 1 (strongly disagree) to 6 (strongly agree).	IMD
Economic	Tax burden	E1	Considers three equally weighted sub-factors: 1. The top marginal tax rate on individual income, 2. The top marginal tax rate on corporate income, and 3. The total tax burden as a percentage of GDP.	Heritage Foundation
	GDP	E2	GDP in US$ billions.	IMD
	Protectionism	E3	Survey data collected from mid- and upper-level managers. The respondents were asked to rate their agreement with the statement "Government protectionism does not impair the way you conduct business" on a scale of 1 (strongly disagree) to 6 (strongly agree).	IMD
Social	Health infrastructure	S1	Survey data collected from mid- and upper-level managers. The respondents were asked to rate their agreement with the statement "Health infrastructure meets the needs of society" on a scale of 1 (strongly disagree) to 6 (strongly agree).	IMD
	Pension funding	S2	Survey data collected from mid- and upper-level managers. The respondents were asked to rate their agreement with the statement "Pension funding is adequately addressed for the future" on a scale of 1 (strongly disagree) to 6 (strongly agree).	IMD
	Gender gap index	S3	Evaluates gender disparities across four main dimensions: 1. Economic Participation and Opportunity, 2. Educational Attainment, 3. Health and Survival, and 4. Political Empowerment.	World Economic Forum
Technological	Higher education researchers	T1	The number of researchers in higher education as a percentage of the national total.	OECD
	Global Innovation Index	T2	Utilizes a comprehensive dataset comprising 81 indicators sourced from various international public and private sources. It also recognizes the leading 100 science and technology hubs globally.	WIPO

Source: own elaboration.

GDP, gross domestic product; IMD, Institute for Management Development; OECD, Organization for Economic Co-operation and Development; WIPO, World Intellectual Property Organization.

on a review of the literature, where the influence of these factors on the IPO market in general was shown. Table 1 describes the specific explanatory variables along with the data source. The number of foreign companies was collected from data published by the Federation of European Securities Exchanges. Control variable *C* is the natural logarithm of market capitalization.

The empirical analysis includes the most active stock markets in Europe in terms of the number of IPOs. It covers the following stock exchanges in Europe: Deutsche Börse, Euronext, Nasdaq, the Warsaw Stock Exchange, Bolsas y Mercados Españoles, and the London Stock Exchange. The study covers the period from 2010 to 2022 on an annual basis. This perspective provides an up-to-date view of the leading stock markets in Europe, while this sampling allows us to capture a factual assessment of the relevance of the institutional environment that supports IPO activity of foreign companies in a given stock market.

As we use a series of data for 13 years and six different countries with specific institutional settings, the model can be presented in both time series and panel form in the following manner:

$$\mathrm{IPO}_{i,t} = \beta_0 + \beta_1 \begin{bmatrix} P_{1,2,3} \\ E_{1,2,3} \\ S_{1,2,3} \\ T_{1,2} \end{bmatrix}_{i,t} + \beta_2 C_{i,t} + \varepsilon_{i,t}$$

where i denotes the country ($i = 1, \ldots, N$) and t indicates the period ($t = 1, \ldots, T$).

The Panel ARDL is applied to develop a nexus between the institutional factors and the IPO activity of foreign companies in Europe. The advantage of this method is the flexibility in handling variables integrated at different orders, as the Panel ARDL can accommodate variables that are a mix of I(0) and I(1). This method enables the simultaneous estimation of long-run and short-run dynamics between variables, understanding how variables interact over different time horizons, and providing a more comprehensive analysis of the data. The Pooled Mean Group estimator applied assumes a diversity of estimators across the group [Pesaran et al., 1999]. However, the Panel ARDL requires high-quality time series data for multiple cross-sections. Missing data, measurement errors, or inconsistencies across periods and cross-sections can severely impact the results.

Following the method applied, the study outlines the following equations of the ARDL (p, q, q ... q) model:

$$\Delta\mathrm{IPO}_{i,t} = \varphi_i \mathrm{ECT} + \sum_{j=1}^{p-1} \beta_{i,j} \Delta\mathrm{IPO}_{i,t-j} + \sum_{j=0}^{q-1} \delta_{ij}^{'} \Delta \begin{bmatrix} P_{1,2,3} \\ E_{1,2,3} \\ S_{1,2,3} \\ T_{1,2} \end{bmatrix}_{i,t-j} + \gamma_i C_{i,t} + \mu_i + \varepsilon_{it}$$

The group-specific speed of adjustment coefficient marked as φ is expected to be negative and significant as it indicates long-term causality between the dependent and independent variables. ECT is the error correction term:

$$\mathrm{ECT} = \mathrm{IPO}_{i,t-1} - \alpha_i^{'} \begin{bmatrix} P_{1,2,3} \\ E_{1,2,3} \\ S_{1,2,3} \\ T_{1,2} \end{bmatrix}_{i,t}$$

Vector α denotes the long-run relationship between the explanatory variables and the IPO. β and δ stand for the short-run coefficients of dependent and independent variables, respectively. γ is the coefficient for our control variable C. μ stands for the constant, and ε represents the error term. In the model, p and q are optimal lag orders.

The suitability of the model was determined by conducting pre-tests to check for the existence of a unit root in each variable. The equations were then estimated using the Augmented Dickey–Fuller-Fisher (ADF-Fisher) and Im, Pesaran, and Shin (IPS) tests. The cointegration between the independent and dependent variables was assessed using the Pedroni Residual Cointegration Test. If the variables were found to be cointegrated, an ECT was incorporated into the model.

4 Results and discussion

ARDL panel analysis requires stationary data to ensure the robustness of the modeling results. In the empirical analysis, only those variables that exhibit a mix of stationarity at level (I(0)) and at first differences

Table 2. Panel unit root test – ADF-Fisher and IPS test results

Test	At level				At first difference				Conclusion
	IPS		ADF-Fisher		IPS		ADF-Fisher		
Series	Statistic	*p*-value	Statistic	*p*-value	Statistic	*p*-value	Statistic	*p*-value	
Y	−3.2188	0.0006	33.7254	0.0007	−5.7724	0.0000	51.1866	0.0000	I(0)
C	0.2640	0.6041	13.4674	0.3360	−2.8261	0.0024	30.1813	0.0026	I(1)
P1	−0.2628	0.3964	11.8564	0.4573	−3.7516	0.0001	36.1439	0.0003	I(1)
P2	0.8100	0.7910	8.5394	0.7417	−1.7530	0.0398	20.2433	0.0626	I(1)
P3	−0.5606	0.2875	13.7125	0.3194	−3.4617	0.0003	33.5602	0.0008	I(1)
E1	−2.0071	0.0224	23.5636	0.0233	−3.4380	0.0003	33.1822	0.0009	I(0)
E2	−0.0757	0.4698	12.2365	0.4269	−3.3064	0.0005	32.2126	0.0013	I(1)
E3	−0.6477	0.2586	15.9307	0.1944	−5.1493	0.0000	46.9509	0.0000	I(1)
S1	−1.4906	0.0680	18.9789	0.0890	−3.2629	0.0006	32.2248	0.0013	I(0)
S2	−1.6880	0.0457	21.7573	0.0403	−6.5507	0.0000	57.0625	0.0000	I(0)
S3	0.8691	0.8076	8.2576	0.7647	−1.3329	0.0913	20.9208	0.0516	I(1)
T1	−1.0899	0.1379	20.3202	0.0613	−2.4274	0.0076	28.6091	0.0045	I(1)/I(0)
T2	1.3170	0.9061	4.5313	0.9718	−1.6903	0.0455	22.2144	0.0352	I(1)

Source: own calculations.

ADF-Fisher, Augmented Dickey–Fuller-Fisher; IPS, Im, Pesaran, and Shin.

(I(1)) can be employed. The appropriate model to use is the Panel ARDL, as it allows for the effective study of long-term and short-term relationships between variables in a panel of data. This is crucial for understanding the complexity of economic and financial processes. Table 2 shows the results of the panel unit root test using the ADF-Fisher and IPS tests.

The panel unit root tests analysis shows a mixture of I(0) and I(1), confirming the suitability of Panel ARDL modeling. For the dependent variable (*Y*), the IPS and ADF-Fisher tests were statistically significant (p-value <0.1), rejecting the null hypothesis of nonstationarity and allowing us to conclude that *Y* is stationary at level (I(0)). Similarly, E1, S1, and S2 were also found to be stationary at level (I(0)). In contrast, *C*, P1, P2, P3, E2, E3, S3, and T2 exhibited nonstationarity at level but became stationary after the first difference (I(1)). The results for the T1 at level were inconclusive, although it was stationary after the first difference. As none of the variables are I(2), they are suitable for further analysis.

Table 3 shows the long- and short-term effects of variables relating to the impact of political and economic conditions on the number of foreign IPOs.

Analysis of the political environment shows that, in the long run, government spending (P1) and the country's image abroad (P3) have a significant negative impact on the number of IPOs conducted by foreign companies at the 1% level. It aligns with the results of previous studies, which demonstrated that a company's lack of confidence [Meluzín et al., 2018] or perception of foreign companies as less profitable by investors [Bruno and Claessens, 2010] might be seen as the obstacles to going public. Moreover, evidence from the U.S. market demonstrates that implementation of stringent regulations may negatively affect IPO activity [Moore et al., 2010; Reddy et al., 2021]. Government integrity (P2) is statistically insignificant as a decisive driver of foreign companies' IPOs in Europe. This factor may have impact on the specific aspects of going public as the underwriter's reputation [Sundarasen, 2019] or, as observed in Asian markets, underpricing [Yang et al., 2020] or initial returns [Mehmood et al., 2021]. Analysis of the short-term relationships suggests that about 80% of the previous period's imbalances are corrected in the next period. The ECT is −0.8026 and is significant at the 1% level. Moreover, in the short term, an increase in government spending (D(P1)) has a positive effect (0.3841) on foreign firms' IPO activity. It may stimulate economic growth by creating

Table 3. Political and economic settings: the long- and short-run results of the Panel ARDL

Political environment				Economic environment			
Variable	**Coefficient**	***t*-Statistic**	***p*-value**	**Variable**	**Coefficient**	***t*-Statistic**	***p*-value**
Panel A: Long run equation							
P1	−0.2980	−13.2177	0.0000	E1	−0.0846	−4.1477	0.0002
P2	−0.0317	−0.9557	0.3456	E2	0.0033	2.6620	0.0115
P3	−1.6533	−4.6709	0.0000	E3	0.0116	0.1360	0.8926
Panel B: Short run equation							
ECT	−0.8026	−3.2775	0.0023	ECT	−0.8623	−4.4294	0.0001
D(P1)	0.3841	2.6611	0.0116	D(E1)	−0.2028	−0.6917	0.4936
D(P2)	−0.5059	−1.0641	0.2944	D(E2)	0.0169	2.0882	0.0439
D(P3)	2.7232	0.8423	0.4052	D(E3)	−0.6772	−1.3344	0.1904
C2	−7.3913	−0.7277	0.4715	C2	0.8338	0.2343	0.8160
C	131.7951	0.8148	0.4206	*C*	−14.2001	−0.3121	0.7567

Source: Own calculations.

ECT, error correction term; Panel ARDL, panel autoregressive distributed lag.

a favorable business environment, encouraging investment and improving investor confidence. The remaining variables lack statistical significance.

Table 3 also shows that economic factors play a significant role in preparing strategies for going public in foreign stock markets. In the long term, two variables proved to be statistically significant, E1 and E2, while protectionism (E3) does not have a statistically significant effect. Thus, trade barriers and other protectionist measures do not seem to be main issues for foreign companies when deciding to go public. An increase in the tax burden (E1) leads to a decrease in the IPO activity of foreign companies. It is in line with the research confirming that firms are more likely to go public in environments where the tax regime is favorable, as it enhances investment appeal and profitability [Salerno, 2021]. The increase in tax burden may negatively affect companies' decision to go public [Yost, 2023].

In contrast, periods of economic development characterized by GDP growth (E2) have a positive impact on the perception of a stock market as a place of expansion. In the short run, changes in GDP (D(E2)) also have a positive and statistically significant effect on foreign companies' perceptions of a market's attractiveness. For the economic environment, ECT is also negative and statistically significant, with 86.23% of the deviation from long-run equilibrium being corrected in the next period. The results of previous studies confirm that GDP growth has a direct correlation with stock market development [Bongini et al., 2019; Verma and Bansal, 2021] and positively affects IPO number and proceeds [Gupta et al., 2018]. Similar conclusions are observed in other major stock markets, such as the United States [Dicle and Levendis, 2018] and India [Bhullar and Sahoo, 2023].

Taking a broader institutional outlook and the approach implied by the PEST methodology highlight the need to consider corporate development strategies from a perspective that goes beyond economic considerations. Table 4 shows the importance of social and technological factors on companies' decisions regarding where to go public.

The results indicate that social determinants may also play an important role in the development of the IPO market in an international context. It provides broad insight into the institutional perspective, suggesting that differences in social insurance system might frame the supportive environment for international expansion of firms. In the long run, health infrastructure (S1) and pension funds (S2) have a positive and statistically significant impact on the number of IPOs of foreign companies. The results suggest that the structure and robustness of social safety nets in different countries may influence companies' strategic decisions to enter foreign markets, as these factors contribute to perceived stability

Table 4. Social and technological settings: the long- and short-run results of the Panel ARDL

Social environment				Technological environment			
Variable	**Coefficient**	***t*-Statistic**	***p*-value**	**Variable**	**Coefficient**	***t*-Statistic**	***p*-value**
Panel A: Long run equation							
S1	1.4604	1.7587	0.0888	T1	0.3711	3.5175	0.0015
S2	0.6294	2.4031	0.0226	T2	−0.0072	−0.2791	0.7822
S3	5.4988	1.0666	0.2947				
Panel B: Short run equation							
ECT	−1.0465	−5.3378	0.0000	ECT	−0.5580	−1.4329	0.1630
D(S1)	−1.1831	−1.2065	0.2371	D(T1)	−0.7753	−0.6515	0.5200
D(S2)	−0.2583	−0.3143	0.7554	D(T2)	−1.5841	−1.0323	0.3108
D(S3)	61.4142	1.2266	0.2295				
C2	−4.7438	−1.4151	0.1673	C2	−65.7641	−0.9297	0.3605
C	48.8363	1.0121	0.3196	*C*	1013.0590	0.9246	0.3631

Source: Own calculations.

ECT, error correction term; Panel ARDL, panel autoregressive distributed lag.

and workforce security. However, our research found no statistically significant effect of the gender gap index (S3). The European integration which affects national culture [Martonyi, 2020] might dilute the distinct impact of this variable. Our short-run analysis did not reveal any statistically significant relationships, which may stem from their gradual and delayed impact on the IPO market. Moreover, in the short run, IPO activity may be more responsive to other factors as economic conditions or regulatory changes which have more immediate and measurable effects on the costs and risks associated with going public.

Nevertheless, a negative and statistically significant ECT means that the system returns to its long-run equilibrium. The literature demonstrates that markets in developed countries attract foreign investors [Caglio et al., 2016; Cai and Zhu, 2020]. A country's development can be measured by the variables concerning the efficiency of social insurance. Tsai and Chiang's [2020] research also finds that European countries with less reliance on public pension schemes attract foreign firms to their stock markets more effectively.

Table 4 also shows the results of the ARDL model estimation focusing on technological factors. In the long run, the scientific pool (T1) has a positive and statistically significant effect on the number of foreign companies going public in a given market. This may be because a higher number of researchers promote the development of innovation and technology, which, in turn, enhances the appeal for further expansion and competitiveness of foreign firms [Bonardo et al., 2011; Colombo et al., 2019]. This is in line with earlier research indicating that companies shortly after an IPO make the largest R&D expenditures [Filatotchev and Piesse, 2009], and, as observed in the US market, companies conducting foreign IPOs are more innovative given the number of patents [Cai and Zhu, 2020]. However, the Global Innovation Index (T2) does not show a statistically significant effect. This factor might be particularly pertinent when analyzing firms within specific sectors, notably the high-tech industry. Considering the growing significance of these companies [Colombo et al., 2019; Dziurski and Sopińska, 2020; Juchniewicz and Łada, 2022], the influence of technological factors on IPO market dynamics might be worth to investigate in future research. In the short run, there is no significant impact of technology-related factors on foreign firms' IPO activity. The reason might be that the country's level of innovation and technological advancement might support long-term market growth and stability. Although the ECT takes values below 0, indicating the seeking of a long-term equilibrium, it is not statistically significant. This suggests that the model may require further refinement to accurately quantify this relationship.

Table 5. Pedroni Residual Cointegration Test for political (*P*), economic (*E*), social (*S*), and technological (*T*) environment models

Panel statistics	rho-Statistic		PP-Statistic		ADF-Statistic	
Models	**Statistic**	***p*-value**	**Statistic**	***p*-value**	**Statistic**	***p*-value**
P	1.7554	0.9604	−5.9067	0.0000	−2.9572	0.0016
E	1.0923	0.8626	−6.3956	0.0000	−9.2053	0.0000
S	1.5407	0.9383	−5.3368	0.0000	−4.5224	0.0000
T	1.3998	0.9192	−0.9927	0.1604	−0.2006	0.4205
Group statistics	**rho-Statistic**		**PP-Statistic**		**ADF-Statistic**	
Models	**Statistic**	***p*-value**	**Statistic**	***p*-value**	**Statistic**	***p*-value**
P	1.8604	0.9686	−11.0133	0.0000	−1.0560	0.1455
E	1.2234	0.8894	−12.5370	0.0000	−3.3129	0.0005
S	2.1967	0.9860	−4.7072	0.0000	0.8662	0.8068
T	2.3146	0.9897	−6.2217	0.0000	−0.4332	0.3324

Source: Own calculations.

ADF, Augmented Dickey–Fuller; PP, Phillips-Perron.

For a more precise assessment of the presence of cointegration in the considered models, additional panel and group cross-section tests were conducted. Table 5 displays the results of the Pedroni Residual Cointegration Test.

The results of the cointegration analysis indicate the presence of a long-run equilibrium relationship in the *P*, *E*, and *S* models for the entire panel but not for the *T* model. In this case, the test statistics lack statistical significance. Overall, our results are consistent with the findings presented in Tables 3 and 4.

5 Conclusion

This paper provides an original study on how institutional factors influence the decision of foreign companies to go public in leading European markets. Institutional theory suggests that organizational behaviors are often shaped by formal and informal rules and norms of a particular environment; thus, this research applies this concept to examine how foreign firms navigate these institutional factors when selecting IPO locations. The study emphasizes the significant role that institutional environments and local economic conditions play in attracting foreign listings. Furthermore, it underscores how factors such as government policies, national economic stability, technological infrastructure, and social frameworks contribute to creating an environment conducive to – or restrictive of – IPO activity.

The results indicate that higher government spending leads to fewer foreign IPOs in the long run, potentially due to companies' concerns about fiscal stability and potential future tax burdens. This aligns with the observation that a high tax burden discourages foreign companies from entering local markets. Unexpectedly, a country's strong international image also negatively affects the number of IPOs. This may suggest that companies perceive these countries as more competitive and challenging markets, while investors see them as riskier and more targets for investment. In contrast, stable economic growth attracts foreign companies to European stock markets in both the short and long terms. A strong economy enhances the perceived attractiveness of local capital markets abroad.

Good scores for health infrastructure and pension systems were important factors in attracting foreign companies to IPOs in the long run, emphasizing the importance of social stability and attention to public health as measures that describe a country's high level of development. Additionally, a large academic pool, as a proxy for innovation and availability of highly skilled labor, emerges also as an important factor

in attracting foreign companies to local stock markets. However, protectionism and the gender wage gap do not exhibit a significant effect on the number of foreign IPOs. This suggests that these issues may be less important to overseas companies compared with other variables considered in this study.

Our results highlight that IPO decisions are characterized by significant complexity and are determined by a number of diverse, intricate, and interrelated factors that can have varying effects on investment decisions in both the short and long terms. Policymakers should consider that creating a favorable external environment can enhance the attractiveness of stock exchange listings. In formulating policies, they should consider the long-term effect of the influence of factors of a technological or social nature, which, although not immediately apparent, can play a crucial role in improving conditions for companies seeking to go public.

However, the study has some limitations. The research period is relatively short, which could have influenced the long-term results. The selected research period was determined by the availability of institutional data, as most indicators were not accessible for prior years. Additionally, the specific institutional factors chosen for analysis were based on the PEST method. The institutional environment may be assessed in various ways. However, due to the research method adopted, some variables were excluded as they were not published annually or included mixed indicators. Additionally, some limitations are related to the data quality – some published factors did not contain data for all the countries studied or contained gaps in certain years. Moreover, in the initial tests, a wide variety of variables were evaluated, but they were excluded due to nonstationarity. This may affect the results by omitting potentially relevant factors that might yield different results.

Future research could be extended by analyzing the impact of signaling theory and information asymmetry theory on the decision to conduct an IPO in foreign securities markets. Using these theories, the significance of institutional factors on the decision to conduct an IPO can be examined by checking the level of development of selected factors in a company's home country and the host country. This would make it possible to ascertain whether companies prefer to go public in more developed European markets than in their own market.

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