Journal of Multinational Financial Management 75 (2024) 100873

Contents lists available at ScienceDirect

Journal of Multinational Financial Management

journal homepage: www.elsevier.com/locate/mulfin

Do cultural differences affect the share price puzzle?

Riccardo Ferretti [a], Pierpaolo Pattitoni [b], Alessia Pedrazzoli [c,*]

[a] Economics and Communication Department, University of Modena and Reggio Emilia, Viale Allegri 9, Reggio Emilia 42121, Italy
[b] Department of Statistical Sciences (Paolo Fortunati), University of Bologna, Via Belle Arti 41, Bologna 40126, Italy
[c] Business and Law Department, University of Milano-Bicocca, Piazza dell'Ateneo Nuovo, 1, Milano 20126, Italy

ARTICLE INFO

JEL Classification code:
G02 G12 G14

Keywords:
Behavioral finance, Catering theory, National culture
GLOBE
Institutions
Nominal share price
Share price puzzle
Stock split

ABSTRACT

We examine the impact of cultural differences on nominal share prices across 63 countries from 2002 to 2018. Using institutional and catering theories, we assess how cultural dimensions—including World Governance Indicators (WGI), legal systems, religious influences, and GLOBE dimensions—affect the spatial heterogeneity of share price levels. Our findings indicate that share prices are higher in countries with common law systems and comprehensive information reporting, as these environments tend to attract institutional investors. Conversely, cultural traits emphasizing altruistic values correspond with lower share prices, reflecting the preferences of individual investors.

1. Introduction

In financial markets, nominal stock prices (simply stock prices from now) influence economic decisions and investors' behavior (Arbel et al., 2014; Ariely et al., 2003; Borsboom and Füllbrunn, 2021; Kahneman and Knetsch, 1992). Firms consider the behavioral effects of stock prices, and corporate financial managers often manipulate the number of outstanding shares to keep stock prices within what they think to be an optimal price range (Baker and Gallagher, 1980; Conroy and Harris, 1999, Desai and Jain, 1997). This defined stock split mechanism starts with identifying an appropriate stock price range. This range represents an anchor that helps financial actors set the desired price (Tversky and Kahneman, 1981). The finance literature has explored different questions related to stock splits: Why do firms proactively keep share prices constant? Why do firms select specific trading ranges for their share prices? Which factors influence the optimal trading range for a firm's shares? These studies contribute to the vast debate on what the literature defines as the 'share price puzzle' (Dyl and Elliott, 2006).

Three stylized facts emerge from the share price puzzle literature. First, stock prices remain flat and stable over time in any given country. Weld et al. (2009) find that the average share price on the New York Stock Exchange (NYSE) and the American Stock Exchange (AMEX) has been approximately $25 from the Great Depression to 2010. Second, stock price stability is more than just an American phenomenon. Instead, it is a global phenomenon, and each country has its preferred level (anchor) of stock prices (Bae et al., 2019). Third, the optimal trading range for a firm's shares varies from firm to firm, but it is similar for companies with common characteristics, such as size and industry (Dyl and Elliott, 2006). Managers often promote stock splits to return share prices to their size and industry peers (Bae et al., 2019) or target specific ownership structures (Dyl and Elliott, 2006; Fernando et al., 2004; Sandhu,

* Corresponding author.
E-mail addresses: riccardo.ferretti@unimore.it (R. Ferretti), pierpaolo.pattitoni@unibo.it (P. Pattitoni), alessia.pedrazzoli@unimib.it (A. Pedrazzoli).

https://doi.org/10.1016/j.mulfin.2024.100873
Received 7 September 2023; Received in revised form 14 August 2024; Accepted 15 August 2024
Available online 17 August 2024

2022). These economic factors may explain the existence of an optimal price range but cannot explain its stability over time in each country. Indeed, "the existence of stock splits is merely a necessary, not a sufficient, condition for nominal prices to remain stable" (Weld et al., 2009; pp.121).

Thus, the question of why companies keep the prices of their shares within the same range remains open, and our work asks: Do cultural differences influence this share price puzzle?

The financial literature suggests several explanations for the 'share price puzzle,' both rational and irrational. Among the former, marketability and investor budget constraints since specific price ranges increase share attractiveness to typical retail or institutional investors (Amini et al., 2020; Baker and Gallagher, 1980; Fernando et al., 1999); the effect of the bid-ask spread and brokerage commissions (Schultz, 2000); the signaling role of stock splits whereas it conveys positive information about firms' prospects (Brennan and Copeland, 1988). Among irrational explanations, catering theory (Baker and Wurgler, 2005; Baker et al., 2009) and anchoring (Tversky and Kahneman's, 1974; Disli et al., 2021) support the existence of price-preferred anchors among investors and managers, although the nominal stock price should be irrelevant for firm value. In anchoring, the stock price relevance is a consequence of the managers' availability heuristic, while catering theory suggests that managing share prices is an attempt for companies to capitalize on the varying valuations that irrational investors temporarily assign to stocks at different price levels.

Since irrational managers and investors can coexist in the market (Altanlar et al., 2023), alternative lenses prove that stock prices constitute a norm (Benartzi et al., 2007). In this framework, norms, conventions, and traditions are dimensions of a more general construct: 'Culture'; thus, a firm's share price is part of the firm's culture. Culture is considered a predictable behavior that is stable over time and leads to the same person showing the same behavior in similar situations (Karolyi, 2016). In this perspective, firms actively split their stock and maintain a constant nominal price because of norms, and the reference price is the price at which investors expect the firm and its peers to trade. Each price is unique since a norm is unique to its country and culture (Benartzi et al., 2007).

Studies on the economic consequences of culture cover many critical corporate decisions (e.g., Abdallah et al., 2022; Costa et al., 2013; Zhou et al., 2021). However, finance schooling has paid little attention to culture's role in financial decision-making compared to other business disciplines and economics (Karolyi, 2016). In particular, as shown by Kutan et al. (2020) in a recent literature review, the impact of culture in explaining share price differences has yet to be investigated directly. Weld et al. (2009) and Bae et al. (2019) suggest that norms and traditions may explain the differences in anchors among countries. Similarly, our work aims to empirically test the hypothesis proposed by Weld et al. (2009) and Bae et al. (2019) that culture impacts the different anchor levels of stock prices.

Using the institutional theory lens (Scott, 2001, 2005), we investigate whether formal and informal institutions influence share price puzzle of 7081 firms traded in 63 countries. Starting with the average prices of individual stocks over 16 years, from 2002 to 2018, we calculated the country-level median values to use as our response variable. On the other hand, formal institutions combine regulative and normative elements, while informal institutions comprise cultural-cognitive elements (DiMaggio and Powell, 1991). Underpinning our analysis is that firm decision-makers and investors are influenced by formal 'rules of the game' and underlying values, norms, and beliefs that constitute their national culture when evaluating anchoring stock price levels. This relationship holds because a firm's decision-makers and investors' behaviors are anchored to heuristics and biases, typically derived from culture, translating into decisions affecting the company's financial outcome (Gilovich et al., 2002; Kutan et al., 2020). The catering theory lens explains that lower/higher prices are preferred when the evaluations of low/high firms are more attractive to investors than those of high/low-priced firms. Thus, it is essential to examine further how cultural values and norms affect companies' decisions regarding low or high share price anchoring.

Our results confirm the significant statistical relationship between national culture and nominal share price. We find that both formal and informal institutions affect share price levels. Indeed, formal and informal institutions constrain political, economic, and social interactions (Greif, 2006; Licht et al., 2007), affecting cultural bias in corporate and investor decisions and, thus, indirectly shaping stock prices. Among formal institutions, countries with common law systems positively relate to high share prices. In addition, results document that share prices are higher in countries with high transparency and information reporting. These informal cultural elements are related to high anchor stock prices and are more likely addressed to answer institutional investors' demands. Cultural values, proxied by GLOBE dimensions, clearly influence share price. While cultural traits that emphasize altruistic values (human orientation, gender egalitarianism, future orientation, and in-group collectivism) are related to low share prices and thus more favorable for individual investors, those that support institutions (institutional collectivism) present high share price anchors. Also, religions are related to price anchoring: Orthodox and Confucian countries present low and high share prices compared to Lutheran countries. As additional analyses, we also evaluate cultural effects on price heterogeneity within a country, and the results evidence that a high level of political stability is associated with low price heterogeneity. Since our prices are all expressed in dollars, we have developed robustness tests to control for the local stock prices of less developed countries, and all our main results have been confirmed.

Our empirical results support several literature contributions. At first, the focus on 63 different countries provides robust evidence about the price stability among different countries and over time directly contributes to the share price puzzle literature (e.g., Bae et al., 2019; Baker et al., 2009; Sandhu, 2022). Second, the work theorizes the influence of institutions and culture on corporate financial decisions (e.g., Benartzi et al., 2007; Guiso et al., 2006; Gupta et al., 2018; Kutan et al., 2020) contributing to the literature that underlines the role of norms and traditions in explaining countries' differences in average stock prices, extending, and complementing the results by Weld et al. (2009) and Bae et al. (2019). While it has been widely shown that culture matters in corporate decisions, studies still need to assess cultural dimensions' impact on share prices. Greif (2006, p.23) notes, "Without testable hypotheses, however, there is no role for culture in economics except perhaps as a selection mechanism among multiple equilibria." Thirdly, it combines the behavioral finance insights on catering and anchoring related biases with the corporate finance literature on the cultural influences in managerial decision-making. Much of the existing literature on share price anchoring takes the investor

perspective to explain why managers would actively manage share prices (Amini et al., 2020) or why investors would use anchoring to evaluate stocks (Disli et al., 2021). This paper brings value by introducing the institutional context managers/companies face in exploring the potential drivers of such behavior.

This paper is organized as follows. Section 2 introduces the literature background and hypotheses, and Section 3 the sample. Section 4 includes the empirical results, and Section 5 provides a discussion and concluding remarks.

2. Literature background and hypotheses

The institutional theory considers institutions of "cultural-cognitive, normative and regulative elements that, together with associated activities and resources, provide stability and meaning to social life" (Scott, 2001, p.48). Institutions are composed of combinations of normative and cultural-cognitive elements that jointly evolve and receive feedback from each other (Bisin and Verdier, 2000; Gupta et al., 2018). Their aspects shape the nature of competition and markets and the meanings of effective organizational performance and efficient operation (DiMaggio and Powell, 1991; Whitley, 1992). According to Williamson (2000), to analyze institutions, four different levels have to be considered: level 1 is composed of cultural values, traditions, and religion (i.e., informal institutions); level 2 includes the executive, legislative, judicial, and bureaucratic functions of government (i.e., formal institutions); level 3 is where the institutions of governance are located (i.e., transactions); finally, level 4 refer to corporate decisions to allocate resources, like corporate financial decisions. All four levels are interconnected. Thus, the higher level imposes constraints on the level immediately below. As factors in Level 1 and Level 2, informal and formal institutions indirectly affect corporate financial decisions, influencing managers' and investors' views and biases.

Although institutional scholars vary in the emphasis they put on one or another level of elements (DiMaggio and Powell, 1991; North, 1990; Scott, 2001; Williamson, 2000), all recognize the common theme that social behavior is anchored in rule systems and cultural schema (Scott, 2005). In this study, we focus on formal institutions (level 2), a combination of regulative and normative factors, and informal institutions (level 1), primarily cultural-cognitive elements (Gupta et al., 2018).

Both formal and informal institutions indirectly affect corporate financial decisions by influencing managers' and investors' biases.

At the corporate level, managers' different values, norms, and culture explain their economic behavior and biases, suggesting that managers exhibit irrational behavior in corporate decision-making. For example, managers adopt psychological anchors during merger and acquisition activity (Baker et al., 2012) or for raising new equity (Baker and Xuan, 2016). Anchors find their foundation in Tversky and Kahneman's (1974) theory, which asserts that the utility of an outcome is determined by its distance from a reference point. According to their perspective, this anchoring point is shaped by contextual factors such as normative or cultural references, or it may be grounded in aspirational levels and expectations rather than the status quo (Kahneman, 1992).

On the other hand, behavioral finance, next to the perspective of the irrational manager, introduces the investors that, in the market, are generally irrational and might suffer from the nominal price illusion. For example, Disli et al. (2021) evidence the existence of a stock price-quality heuristics that investors adopt to predict the company's value. The results show that higher stock prices are consistent with a higher valuation, and thus, for a considerable proportion of investors, their mental representation of a stock's values is influenced by the stock's price. In particular, catering theory (Baker and Wurgler, 2005; Baker et al., 2009) proposes the perspective of irrational investors paying a premium for a certain share price level category, even though that characteristic does not increase fundamental value. Baker and Wurgler (2005) suggest that managers may try to "cater" to prevailing investor demand by splitting shares when investors are putting a premium on low share prices and vice-versa. Share price anchoring can be seen as a corporate rational response to irrational investor demand for securities of different price ranges. The economic rationale behind catering is based on capitalizing on investor preferences to optimize the firm's valuation. Investors often factor in nominal prices as a crucial element in their valuation process, making it strategically advantageous for firms to align with these preferences. Green and Hwang (2009) show that investors categorized stocks based on their nominal prices. Literature provides evidence that managers cater their share price level to different types of investors (individual vs. institutional) to attract them (Amini et al., 2020; Dyl and Elliott, 2006; Fernando et al., 2004). In this context, individual investors often fall prey to a nominal illusion, perceiving a stock as more affordable and potentially having greater growth potential after a split; this introduces low-price premiums for companies that "act small." Moreover, individual investors exhibit a stronger preference for low-priced stocks because of their lottery-like distribution of returns (Birru and Wang, 2016). Conversely, institutional investors find higher share prices more attractive due to enhanced liquidity and lower transaction costs (Dyl and Elliott, 2006; Yan and Zhang, 2009).

Since investor and manager preferences are significant in setting the price norm, the study develops hypotheses by incorporating institutional theory, anchoring, and catering theories. Since irrational managers and irrational investors coexist in the market, we hypothesize that formal and informal institutions affect rational and irrational managers' behavior and biases with nominal stock price anchors while acknowledging investors' rationality presence or absence in shaping these dynamics.

2.1. Hypotheses development

2.1.1. Formal cultural dimensions

Formal institutions are derived from rules such as regulatory structures, governmental agencies, laws, courts, professions, and scripts that exert conformance pressures (DiMaggio and Powell, 1991). As North (1990) noted, the scope of institutions is to reduce uncertainty in the world by providing incentives and disincentives for adopting specific behavior. The regulative elements represent a rational actor model of behavior based on sanctions and conformity. Formal institutions include the government's capacity to formulate and implement policies effectively and the extent to which citizens respect the institutions that govern a country (Slangen

and van Tulder, 2009). Based on the regulatory tradition, nations are divided into common law countries and civil law countries (La Porta et al., 1998).

In the financial literature, country-level formal institutions and legal systems (common law and civil law) influence corporate financial decisions and market proceedings such as initial public offering (IPO) activity across countries (e.g., Cai and Zhu, 2015; Gupta et al., 2018; Lewellyn and Bao, 2014), and dividends policy (e.g., La Porta et al., 1998). The role of legal systems on dividend decisions has been tested by Ferris et al. (2009), who show that catering to dividend decisions occurs only in the set of common law nations since managers are more responsive to investors' demands.

However, manager decisions on price anchoring should be influenced by the type of investor demand concerning price level, which may be heterogeneous. For example, the literature suggests that institutional investors prefer higher-priced stocks while individual investors prefer lower-priced stocks (Amini et al., 2020; Dyl and Elliott, 2006; Fernando et al., 2004; Yan and Zhang, 2009). Examining the country's legal system becomes crucial in understanding the role of institutional investors within firms and their proactive efforts to either align interests or pursue private benefits. Institutional investors, recognized as reference shareholders in common law countries (Jara-Bertin et al., 2012), exert significant influence. Consequently, managers are expected to respond more to their demands, potentially referring to high price anchoring on share prices.

H1. : *Common law countries are related to high share price anchors*.

However, regulations concerning the stock market entail a country's formal institutional setting. Economic agents generally base their decisions on evaluating the formal institutional environment rather than assessing a single aspect (Lewellyn and Bao, 2014; Slangen and van Tulder, 2009). Indeed, in this study, we propose that the broader set of formal institutions, i.e., perception of corruption, government effectiveness, regulator quality, political stability, voice and accountability, and rule of law prevailing within a country, influence the share price anchor. Previous research (Aggarwal et al., 2005; Döring et al., 2021; Ferreira and Matos, 2008) highlights that institutional investors prioritize firms in nations with robust disclosure standards, a high-quality legal environment, and efficient judiciary systems. Considering that institutional investors favor higher share prices (Dyl and Elliott, 2006; Yan and Zhang, 2009), and given the positive correlation between stock prices and perceived company value (Disli et al., 2021), we hypothesize that managers operating within countries with high-quality regulatory environments tend to set higher anchor prices to signal the company's value and respond to institutional investors' preferences:

H2. : *Regulatory quality level in a country is related to high share price anchor*

2.1.2. Informal cultural dimensions

Literature has evidenced that informal institutions influence individuals' economic and investment decisions (Guiso et al., 2006, 2008; Grinblatt and Keloharju, 2001). The role of informal institutions is also reflected in managers' financial decisions at the corporate level (Guiso et al., 2008; Karolyi, 2016; Stulz and Williamson, 2003). Scholars have proposed different approaches to measuring informal institutions. This study focuses on the relevant measures for other facets of corporate finance and financial markets: cultural indices and religion.

Cultural indices capture the similarities and differences in norms, values, beliefs —and practices—among societies, representing background factors that influence people's biases and behavior. One of the most used cultural indices for informal institutions is Hofstede's index, which finds great resonance in business studies. However, some studies have criticized Hofstede's framework and developed a more recent version of these dimensions. Among them, Global Leadership & Organizational Behavior Effectiveness (or GLOBE) project is one of the relatively underutilized databases by Finance scholars (House, 2004; Karolyi, 2016; Stulz and Williamson, 2003). The project incorporates cultural constructs built on Hofstede's findings (1980) and several cultural dimensions that are not included in Hofstede's analysis. Nine cultural values are classified: assertiveness, institutional collectivism, in-group collectivism, future orientation, gender egalitarianism, humane orientation, performance orientation, power distance, and uncertainty avoidance (for a detailed explanation of every cultural value see House, 2004 and Javidan and House, 2001).

Behavioral finance has extensively studied and confirmed the presence of cultural biases in many corporate financial decisions: corporate cash holding and dividends decisions (e.g., Bae et al., 2012; Chang and Noorbakhsh, 2009; Chen et al., 2015); corporate investment efficiency (e.g., Zhang et al., 2016); capital structure and initial public offering decision (e.g., Chui et al., 2002; Costa et al., 2013; Gupta et al., 2018; Rashid et al., 2020), and risk-taking of the financial managers (e.g., Ashraf et al., 2016; Mihet, 2013). For example, Bae et al. (2012) find that firms operating in countries with higher uncertainty avoidance, masculinity, and/or future orientation pay lower dividends.

It is important to highlight that cultural value orientations are interrelated, with some sharing certain basic assumptions (Bae et al., 2012). To our knowledge, the relationship between share prices and cultural values has not been explored. Consequently, our hypotheses are exploratory in nature and build on previous research indicating that managers adjust their share price levels to attract different types of investors (individual versus institutional). We identify potential relationships by examining the definition of cultural elements that may influence managers' preferences in responding to the biases of small or institutional investors within a country. They represent the initial step in developing a conceptual framework incorporating cultural values, making them broad in scope. For example, human and gender orientation or ingroup collectivism share the assumption that individuals in a society are encouraged to be fair, altruistic, generous, caring, and respectful of diversity (Javidan and House, 2001). In-group collectivism is the degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families and favor family and friends in the organization for recruiting and allocating promotions. Future orientation also focuses on how individuals in societies are encouraged to plan and invest for the future (Chui and Kwok, 2009). We expect that societies whose cultural value orientation emphasizes altruistic values may

pressure managers to respond more to small investor preferences. Thus, there should be a lower price anchor level than in societies where these cultural values are less prevalent.

H3a. *Human orientation, Gender orientation, Future Orientation, and Ingroup Collectivism are related to low share price anchor*

Institutional collectivism reflects the degree to which societal institutions encourage the collective distribution of resources and collective action (House et al., 2002). Institutional collectivism shares the assumption that roles and obligations to collectivities are more important than personal ideas and aspirations. Assertiveness and power distance share the assumption that inequality in the distribution of resources is legitimated and sympathizes with the strong (Chui and Kwok, 2009). These characteristics suggest that people in highly assertive countries with high power distance expect others to manage their affairs. We expect that societies whose cultural value orientation emphasizes institutions or hierarchical relationships and less individual needs pressure managers to put more effort into responding to institutional investor preferences.

H3b. *Institutional collectivism, Assertiveness, and Power distance are related to high share price anchor*

Religion is an essential and fascinating element that has attracted economists over the years. For example, Ferretti and Sciandra (2021), Guiso et al. (2003), Kumar et al. (2011), and Stulz and Williamson (2003) argue that religion has a significant influence on the financial choices individuals make, impacting investors' attention and portfolio choices, corporate decisions, and stock returns. Religious values are associated with different investors' and corporates' risk aversion/propensity, trust levels between members of society, herding behavior on the stock market, and gambling preferences (Chang and Lin, 2015; Hilary and Hui, 2009; Kumar et al., 2011). In the U.S., firms located in areas with high levels of religiosity exhibit lower risk exposure as measured by the variance in equity returns and ROA, but if we look at religious values, Protestant and Catholic firms share a common aversion to risk-taking in corporate investments (Hilary and Hui, 2009). The same does not happen in individual investment decisions where U.S. Catholic investors, with a higher gambling propensity and lower risk aversion than the Protestants, assign larger portfolio weights to lottery-type stocks (Kumar et al., 2011). Other differences lie in a more stable shareholder protection rights environment and a better corporate governance framework in Protestant countries than Catholic ones (La Porta et al., 1999). To our knowledge, no studies have evaluated the relationship between religion and share price anchor. Let the empirical findings show us the relationship's nature and/or direction.

H4. *: National religion is related to the share price anchor.*

We use these proxies of formal and informal institutions for two reasons. First, there is a theoretical basis for their use in institutional theory. Second, both constitute the constraints for political, economic, and social interaction, and there is an inextricable link between how informal institutions influence the operation of formal institutions (Greif, 2006; Licht et al., 2007; Williamson, 2000). Thus, there is solid theoretical support behind the premise that national culture influences the national institutional environment, and understanding the institutional environment assists in understanding the effect of cultural background on stock prices.

3. Data and empirical models

Our primary data source is Bloomberg. We collect the average daily stock prices in US dollars for all companies included in the main stock indexes of 63 countries for each year from 2002 to 2018. We choose 2002 as the starting date for two reasons: first, to ensure the availability of the necessary control variables at the country level, and second, to avoid structural changes in local currencies, such as the adoption of the euro in several European countries in 1999.

In cases where a country has multiple market indexes, we select the index with the most constituents. For example, we use the S&P 500 for the U.S. and the Shenzhen Stock Exchange Index for China. We comply the list of constituents for each index as of December 31st of each year. A detailed breakdown of our sample can be found in Table A.1 of the Appendix.

For each year, we calculate the average share prices for each company within the indexes. We then aggregate these prices across companies in each index to obtain the median and average share prices, following the methodology of Bae et al. (2019). Consequently, we obtain median and average prices for each country and year, which we use as dependent variables. We apply a similar approach to calculate other relevant statistics. Our final sample comprises 841 country-year observations from 7081 firms over a 16-year period. Fig. 1 shows the spatial distribution of the companies in our sample. Most companies are in China, the U.S., and the U.K. (deep blue in Fig. 1).

The average stock price calculated for all countries is $22.9 (median $11.94). The average price in the Bae et al. (2019) sample is $135.9 (median $4). Compared to Bae et al. (2019), our sample comprises different countries and refers to more recent data. However, two crucial characteristics are confirmed similar to Bae et al. (2019) and Benartzi et al. (2007): the considerable heterogeneity in prices across countries (for example, the median price for Germany is $68 while for Thailand is $0.66) and a certain degree of stability over time in the level of the share prices (Fig. 2).

To provide more information about price stability, we calculate each country's price standard deviation and coefficient of variation (Table A.2 in the Appendix). For 92 % of countries in the sample, the coefficient of variation is lower than 1. Only Austria, Bulgaria,

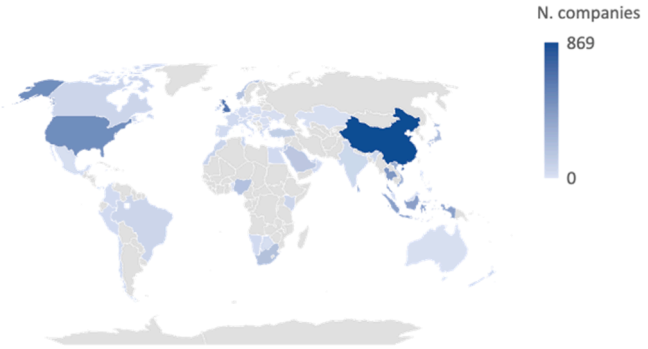

Fig. 1. : Spatial distribution of companies.

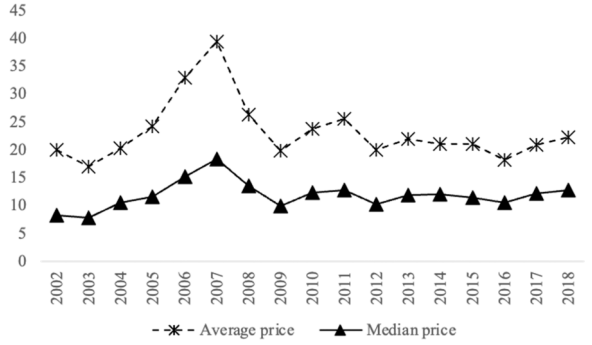

Fig. 2. Average and median stock prices in the period 2002–2018.

Indonesia, Nigeria, and Romania have higher values. This information confirms our initial assumption about share price stability over time for most of the sample. Additional robustness checks have been performed, as reported in the footnote. [1]

3.1. Variables

Here, we summarize the main characteristics of the variables used in the empirical analysis. Details are reported in Table 1. Table 2 shows descriptive statistics.

3.1.1. Dependent variable

Our main dependent variable is the logarithm of the median price (*lnMedPrice*) calculated for each country and year. More specifically, following the methodology of Bae et al. (2019), we have one median price value per year per country. The logarithm transform mitigates the positive skewness in the distribution of stock prices and facilitates the interpretation of the results in terms of elasticities and semi-elasticities. As additional analyses, we also use dispersion measures as the dependent variable: the price standard deviation (*SDprice*), the price interquartile range (calculated as the difference between 75° and 25° percentile, *IntQuartile*), and the range between maximum and minimum price (calculated as the difference between maximum and minimum price, *MaxMinRange*). All these alternative dependent variables are meant to capture the price heterogeneity within a country and the behavior of managers who adopt different anchors and splitting mechanisms to respond to different investors' biases.

3.1.2. Independent variables

Scholars have proposed different approaches to measuring institutions. This study focuses on the more relevant constructs in other facets of corporate finance and financial markets literature.

As for the formal institutions, we emphasize the 'rules of the game' definition (North, 1990) and utilize two institutional background measures. The first is the legal framework that enables private contracts to facilitate economic transactions (Denis and McConnell, 2003; La Porta et al., 1999). The legal systems in the sample are *civil law* (58 % of the sample countries), *common law* (15 % of the sample), and *mixed* (27 % of the sample). Previous studies theorize that the legal country system affects whether nations are

[1] As additional test, we have calculated an indicator suggested by Benartzi et al. (2007) for each country. This indicator shows the difference between the 75th quintile and the 25th quintile of prices about the median price. Unreported results show this indicator is also stable over time, similar to Benartzi et al. (2007).

Table 1
Variables description.

Variable	Description	Source
lnMedPrice	The logarithm of the median value of the average stock price in a country *i* in year *t* (2002–2018)	Bloomberg
AvgPrice	The logarithm of the average value of stock price in a country *i* in year *t* (2002–2018)	Bloomberg
SDprice	The standard deviation of the stock price in a country *i* in year *t* (2002–2018)	Bloomberg
IntQuartile	The difference between the 75° quartile and 25° quartile stock price in a country *i* in year *t* (2002–2018)	Bloomberg
MaxMinRange	The difference between maximum and minimum price in a country *i* in year *t* (2002–2018)	Bloomberg
GDPg	The percentage of country GDP growth of country *i* in year *t* (2002–2018).	World Bank (2020)
Infl	The level of inflation, consumer prices (annual %) for each country *i* in year *t* (2002–2018).	World Bank (2020)
TradeGDP	The percentage of trade to GDP for each country *i* in year *t* (2002–2018).	World Bank (2020)
lnMV	The logarithm of the average market capitalization for each stock exchange and each of the corresponding years *t* (2002–2018).	World Federation of Exchanges database.
FID	The value of the Financial Institution Depth Index for each country *i* in year *t* (2002–2018). Scale 0–1.	International Monetary Fund (2020)
Corrup	Control of corruption, Worldwide Governance Indicators (WGI). Scale −2.5–2.5.	World Bank (2020)
GoverEffect	Government effectiveness, Worldwide Governance Indicators (WGI). Scale −2.5–2.5.	World Bank (2020)
RegQuality	Regulatory quality, Worldwide Governance Indicators (WGI). Scale −2.5–2.5.	World Bank (2020)
PolStab	Political stability, Worldwide Governance Indicators (WGI). Scale −2.5–2.5.	World Bank (2020)
VoiceAccount	Voice and accountability, Worldwide Governance Indicators (WGI). Scale −2.5–2.5.	World Bank (2020)
RuleLaw	Rule of law, Worldwide Governance Indicators (WGI). Scale −2.5–2.5.	World Bank (2020)
Civil law (d)	Dummy variable that takes a value of one if a country's legal origin is civil law and zero otherwise.	CIA Factbook
Mixed (d)	Dummy variable that takes a value of one if a country's legal origin is mized legal system and zero otherwise, CIA Factbook	CIA Factbook
Common law (d)	Dummy variable that takes a value of one if a country's legal origin is common law and zero otherwise.	CIA Factbook
Catholic (d)	Dummy variable that takes a value of one if the majority of the population in a country is catholic and zero otherwise.	CIA Factbook
Confucian (d)	Dummy variable that takes a value of one if the majority of the population in a country is confucian and zero otherwise.	CIA Factbook
Muslim (d)	Dummy variable that takes a value of one if the majority of the population in a country is muslim and zero otherwise.	CIA Factbook
Orthodox (d)	Dummy variable that takes a value of one if the majority of the population in a country is orthodox and zero otherwise.	CIA Factbook
Lutheran (d)	Dummy variable that takes a value of one if the majority of the population in a country is lutheran and zero otherwise.	CIA Factbook
PerfOr	The value of Performance orientation dimension in a country. Defined as the degree to which a collective encourages and rewards group members for performance improvement and excellence. Scale 1–10.	globeproject.com
HumaneOr	The value of Humane orientation dimension in a country. Defined as the degree to which a collective encourages and rewards individuals for being fair, altruistic, generous, caring and kind to others. Scale 1–10.	globeproject.com
Assert	The value of Assertiveness orientation dimension in a country. Defined as the degree to which individuals are assertive, confrontational and aggressive in their relationships with others. Scale 1–10.	globeproject.com
InstCollect	The value of Institutional collectivism dimension in a country. Defined as the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action. Scale 1–10.	globeproject.com
FutureOr	The value of Future orientation dimension in a country. Defined as the extent to which individuals engage in future-oriented behaviors such as delaying gratification, planning, and investing in the future. Scale 1–10.	globeproject.com
IngroupCollect	The value of In-group collectivism dimension in a country. Defined as the degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families. Scale 1–10.	globeproject.com
Gender	The value of Gender egalitarianism dimension in a country. Defined as the degree to which a collective minimizes gender inequality. Scale 1–10.	globeproject.com
PowerDist	The value of Power distance dimension in a country. Defined as the extent to which the community accepts and endorses authority, power differences, and status privileges. Scale 1–10.	globeproject.com
UncertAvoid	The value of Uncertainty avoidance dimension in a country. Defined as the extent to which a society, organization, or group relies on social norms, rules, and procedures to alleviate the unpredictability of future events. Scale 1–10.	globeproject.com
Small Investors orientation	The average among the dimensions that emphasize individual and altruistic values (i.e., HumanOr, Gender, FutureOr, and IngroupCollect)	
Institutional Investors orientation	The average among the dimensions that support hierarchical relationships and institutions (i.e., InstCollect, Assert, and PowerDist)	
GDPXPPP	The gross domestic product (GDP) values expressed in current international dollars are converted by the purchasing power parity (PPP) conversion factor.	World Bank (2020)
Investor Protection Index	The protecting Investors disclosure index measures the degree to which investors are protected by disclosing ownership and financial information.	World Bank (2020)

Table 2
Descriptive statistics.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
lnMedPrice	841	1.26	1.86	−6.19	4.57
MedPrice($)	841	11.94	18.48	0.00	96.81
SDprice	841	52.01	129.59	0.00	221
IntQuartile	841	17.06	28.37	0.00	244
MaxMinRange	841	560	2482	0.01	517
GDPg	841	0.03	0.03	−0.15	0.25
Infl	841	0.03	0.04	−0.04	0.45
TradeGDP	841	0.93	0.69	0.21	4.43
lnMV	841	6.44	1.53	−8.49	10.11
FID	841	0.48	0.28	0.06	1.00
Corrup	841	0.62	0.19	0.27	0.98
GovEffect	841	0.65	0.16	0.32	0.99
RegQuality	841	0.65	0.15	0.32	0.95
PolStab	841	0.54	0.17	0.08	0.82
VoiceAccoun	841	0.60	0.18	0.12	0.85
RuleLaw	841	0.63	0.17	0.26	0.91
CivilLaw	841	0.58	0.49	1	0
CommonLaw	841	0.17	0.37	1	0
Mixed	841	0.25	0.44	1	0
HumanOr	841	5.46	2.90	1	10
Gender	841	5.53	2.88	1	10
FutureOr	841	4.91	2.74	1	10
IngroupCollect	841	5.96	2.71	1	10
InstCollect	841	5.07	2.63	1	10
Assert	841	5.76	2.58	1	10
PowerDist	841	5.90	2.64	1	10
PerfOr	841	5.34	2.94	1	10
UncertAvoid	841	4.82	2.62	1	10
Catholic	841	0.52	0.50	1	0
Confucianism	841	0.18	0.39	1	0
Lutheran	841	0.07	0.25	1	0
Muslim	841	0.17	0.37	1	0
Orthodox	841	0.06	0.24	1	0

market- or bank-oriented; thus, common-law systems offer better investor protection and are more market-oriented (Johnson et al., 2000). The second set of measures comprises the World Bank's Worldwide Governance Indicators (WGI) that reflect nations' rules as they are followed within nations (Kaufmann et al., 2008). Six indicators constitute the WGI: regulatory quality (*RegQuality*), government effectiveness (*GovEffect*), control of corruption (*Corrup*), voice and accountability (*VoiceAccoun*), political stability (*PolStab*), and the rule of law (*RuleLaw*).

About informal institutions, we refer to cultural indices and religion. The GLOBE cultural indices that emphasize altruistic values are humane orientation (HumaneOr), gender egalitarianism (Gender), future orientation (FutureOr), and in-group (*IngroupCollect*). Those that support hierarchical relationships and institutions are institutional collectivism (*InstCollect*), assertiveness orientation (*Assert*), and power distance (*PowerDist*). We also control for the remaining GLOBE dimensions: performance orientation (*PerfOr*) and uncertainty avoidance (*UncertAvoid*) that, from the literature review, it is not possible to relate to small investors or institutional investors orientation. We associate the value of each dimension to each country cluster (Anglo, Latina American, Eastern Europe, Germanic Europe, Latin Europe, Nordic Europe, Middle East, Confucian Asia, Southern Asia, and Sub-Saharan Africa). Then, we rank them from the smallest to the largest using a 1–10 scale to facilitate interpretation. For example, the Anglo cluster has the highest value in performance orientation and assumes a value of 10.

The variable religion is retrieved from the CIA Factbook. Like Stulz and Williamson (2003), we define a country's religion as practiced by the most considerable fraction of the population. The religious groups identified in the sample are *Catholic* (52 %), *Confucianism* (18 %), *Muslim* (17 %), *Lutheran* (7 %), and *Orthodox* (6 %).

3.1.3. Control variables

For each country and year, we use several control variables. These control variables are meant to consider economic growth and the development of the stock markets. All variables have been lagged. Specifically, we have country GDP growth (Zhou et al., 2021, *GDPg*), annual inflation rate (Zhou et al., 2021, *Infl*), the trade to GDP ratio (*TradeGDP*, Ades and Glaeser, 1999; Frankel and Romer, 1999), the logarithm of the average market capitalization in each stock exchange (*lnMV*, Weld, et al., 2009; Dyl and Elliott, 2006). The average market capitalization presents a strong cross-sectional correlation with price, but it is a bit harder for individual investors to obtain capitalization data than a price quote. This supports the idea that prices rather than capitalization are adopted as anchors (Baker et al., 2009). We obtained all data from the World Bank (2020). We also include the Financial Institutions Depth Index *(FID)* from the International Monetary Fund, which compiles data on bank credit to the private sector as a ratio of GDP, pension fund and mutual fund

assets, and insurance premia to GDP. This variable also captures the presence of institutional investors within a country (Sandhu, 2022).

3.2. Model specification

We use regression analysis to perform our empirical tests. The dependent variable is either the logarithm of the median stock price of country i in year t or some dispersion measure (Y_{it}). The model to be estimated is as follows:

$$Y_{it} = x'_{it}\beta + k'_{it}\gamma + c'_{it}\eta + \varepsilon_{it} \quad (1)$$

In the equation, x is a vector of variables that include formal institutional aspects, such as the legal system and WGI indicators, and k is a vector of informal institution variables, including GLOBE variables and religion. The vector c includes controlling variables for economic growth (*GDPg, Infl, TradeGDP*) and financial market dimensions (*lnMV* and *FID*). ε is a stochastic error term.

4. Results and additional analyses

4.1. Median prices

Before our empirical analysis, we estimate a fixed-effects model, including country-specific intercepts. Unreported results show, as expected, a substantial spatial heterogeneity of prices ($F(62, 778) = 69.80$, p-value < 0.01). The following models explain this heterogeneity in terms of institutional variables.

Table 3 presents the results of our regressions. Additional results are available in the Appendix from Table A.3 to A.5. The inference is based on country cluster-robust standard errors.

Considering Model 1 in Table 3 presents the relationship with formal institution variables. Results show a negative correlation between the perception of corruption and the median value of share price, suggesting that the nominal share prices are higher in countries with lower perceived corruption. The other WGI dimension with a significant and positive relationship with share prices is *RuleLaw*. This indicator measures the extent to which individuals and firms trust in the rules of society (the functioning and independence of the judiciary, the protection of property rights, the quality of contract enforcement, and the likelihood of crime and violence). These results support our expectation of a positive relationship between formal institutional quality and high share price anchors. Model 2 presents the impact of GLOBE dimensions. Countries' values that emphasize altruism, i.e., human, gender, and ingroup collectivism, present low share price anchors. Conversely, institutional collectivism demonstrates a positive relationship with share prices, indicating that in societies where societal and institutional goals outweigh individual goals, share prices tend to be higher. Notably, we did not find significant evidence regarding power distance and assertiveness. Also, uncertainty avoidance and performance orientation evidence a significant relationship with low share price anchors. Performance orientation reflects the degree to which culture encourages and rewards its members for performance improvement and excellence. Individuals in high-performance-orientated countries value financial rewards more than people in low-performance-orientated countries (Javidan and House, 2001). In these cases, a low share price anchor emphasizes financial rewards in favor of small investors preference. Uncertainty avoidance refers to how citizens feel uncomfortable with ambiguity, complexity, and taking risks; a country with a high uncertainty avoidance score is less prone to risk (House and Javidan, 2004) and presents a significant relationship with a low share price anchor. Also, Bae et al. (2012) find a positive relationship between uncertainty avoidance and dividend policy, supporting that countries that present this cultural trait are more oriented to small investors' preferences. Religion is significant only for Confucianism.

The Adj. R2s of Models 1 (informal institutions) and 2 (formal institutions) suggest that the informal institutional dimensions better explain the heterogeneity in share prices.

Models 3 and 4 combine formal and informal institution variables. Model 3 includes all variables, while Model 4 reports only the most significant variables using a general-to-specific stepwise selection approach. New relationships appear when the 'rule of the game' and cultural values are considered. Common law system countries present a positive relationship with share prices. Common law countries have higher investor protection, greater property and contract rights security, and thus, more market-oriented than civil law (La Porta et al., 1999). This is reflected in high share price anchors and the need to answer to institutional investors' preferences, supporting our H1. Moreover, among formal institution quality indicators, a high value of voice and accountability is related to high share prices. This outcome aligns with the findings of Ferreira and Matos (2008), who observed a greater presence of institutional investors in countries with robust disclosure standards. Therefore, aligning a high share price anchor caters to the demands of these investors, confirming H2. Cultural values that refer to individuals as expected are related to low share prices, confirming H3a, while only institutional collectivism is related to high share prices (H3b is partially confirmed). Regarding religious groups, results for the Orthodox are confirmed, and Confucians, compared to Lutherans, exhibit high share prices. This preliminary evidence supports that religious values also affect share price anchoring (H4).

In Model 5, we insert two new variables: small investors' orientation (*SmallInvOr*) and institutional investors' orientation (*InstInvOr*). These new variables are calculated as the average among the dimensions oriented through small investors (e.g., *HumanOr*, *Gender*, *FutureOr*, and *IngroupCollect*) or institutional investors (e.g., *InstCollect*, *Assert*, *PowerDist*). All dimensions in the new variables assume the same weight since there is no predetermined hierarchical order. Even if these new variables are less analytical than testing every single dimension, the direction of our results is supported.

Model 6 reports the standardized beta coefficient of our estimates of Model 4. These coefficients make the various variables

Table 3
The influence of formal and informal institutional dimensions on stock prices.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6 Beta Coeff.	Model 7 No-U.S	Model 8 No-JAP	Model 9 AvgPrice
Legal System									
CivilLaw	0.137		−1.101*	−0.951**	−1.111*	−0.254**	−1.2063***	−0.9518**	−1.024**
	(−0.591)		(−0.607)	(−0.391)	(0.596)	(−0.391)	(−0.413)	(−0.394)	(0.437)
Mixed	0.203		−0.291		−0312				−0.973**
	(−0.560)		(−0.595)		(0.491)				(0.382)
WGI									
Corrup	−5.123*		−2.654		−3.930*				−2.376*
	(−2.707)		(−2.344)		(2.213)				(1.376)
GovEffect	0.85		4.002		5.268**				
	(−3.258)		(−2.538)		(2.566)				
RegQuality	0.152		−3.869		−3827				
	(−3.243)		(−3.038)		(2.632)				
PolStab	0.807		−1.608		−1275				−1.863**
	(−1.417)		(−1.142)		(1.206)				(0.875)
VoiceAccoun	1.846		3.226**	3.310***	2.993*	0.314***	3.029***	3.300***	4.093***
	(−1.554)		(−1.550)	(−0.957)	(1.530)	(−0.957)	(−1.094)	(−0.985)	(1.213)
RuleLaw	6.364*		2.968		4098				
	(−3.622)		(−3.741)		(3.829)				
GLOBE									
SmallInvOr					−1.032***				
					(0.241)				
HumanOr		−0.795***	−0.557*	−0.411***		−0.644***	−0.393***	−0.409***	−0.389***
		(−0.294)	(−0.330)	(−0.063)		(−0.063)	(−0.063)	(−0.066)	(0.071)
Gender		−1.159**	−0.547	−0.260***		−0.404***		−0.260***	−0.149**
		(−0.578)	(−0.586)	(−0.077)		(−0.077)		(−0.080)	(0.056)
FutureOr		0.763	0.094						
		(−0.530)	(−0.459)						
IngroupCollect		−2.316*	−0.979	−0.320*		−0.471*		−0.321*	
		(−1.232)	(−1.228)	(−0.162)		(−0.162)		(−0.162)	
InstInvOr					0.4495*				
					(0.234)				
InstCollect		1.420**	0.692	0.290***		0.413***	0.116	0.288***	0.324***
		(−0.678)	(−0.731)	(−0.103)		(−0.103)	(−0.087)	(−0.108)	(0.092)
Assert		−0.064	0.071						
		(−0.104)	(−0.106)						
PowerDist		1.11	0.467						
		(−0.712)	(−0.735)						
PerfOr		−0.674**	−0.406	−0.209**	−0.2893**	−0.332**	−0.316***	−0.209**	−0.402***
		(−0.258)	(−0.281)	(−0.096)	(0.134)	(−0.096)	(−0.118)	(−0.096)	(0.105)
UncertAvoid		−2.517*	−0.971	−0.594***	−0037	−0.843***		−0.593***	
		(−1.266)	(−1.199)	(−0.199)	(0.149)	(−0.199)		(−0.210)	
Religion									
Catholic		0.062	0.366		0163		1.578***		
		(−0.798)	(−0.772)		(0.785)		(−0.472)		
Confucianism		0.833	1.492*	1.269***	1384**	0.266***	2.951***	1.260***	
		(−0.946)	(−0.872)	(−0.447)	(0.989)	(−0.447)	(−0.588)	(−0.447)	
Muslim		−0.508	0.546		0324		2.313***		
		(−1.093)	(−1.049)		(0.943)		(−0.577)		
Orthodox		−1.722*	−1.298	−1.447**	−0927*	−0.185**		−1.449**	−1.377***
		(−0.951)	(−0.909)	(−0.574)	(1.002)	(−0.573)		(−0.573)	(0.393)
Control									
GDPg	−2.482	3.942	4.621*	3.800	1.813**	0.065		3.896	
	(−3.459)	(−3.269)	(−2.415)	(−2.766)	(0.889)	(−2.766)		(−2.927)	
Infl	−6.307	−4.977	−5.539*		3823				−3.133
	(−3.975)	(−3.155)	(−2.911)		(2.667)				(2.131)
TradeGDP	−0.4152*	−0.658***	−0.540**	−0.657***	−6.244**	−0.246***	−0.680***	−0.654***	
	(−0.235)	(−0.189)	(−0.263)	(−0.188)	(2.873)	(−0.188)	(−0.197)	(−0.193)	
lnMV	0.256**	0.236*	0.272**	0.263**	0.558**	0.219**	0.190*	0.262**	0.197**
	(−0.122)	(−0.118)	(−0.126)	(−0.117)	(0.251)	(−0.117)	(−0.100)	(−0.118)	(0.086)
FID	0.286*	2.974***	1.755*	1.557*	0.251**	0.238*	1.709*	1.561*	1.685**
	(−0.828)	(−0.993)	(−0.951)	(−0.997)	(0.113)	(−0.997)	(−0.926)	(−1.003)	(0.788)
Constant	−3.5768**	21.695**	9.165	5.211**	1989		−0.488	5.205**	4.350***
	(−1.346)	(−9.944)	(−10.044)	(−2.087)	(2.478)		(−1.316)	(−2.090)	(1.398)
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.348	0.501	0.567	0.535	0.542	0.533	0.534	0.529	0.658
Obs.	778	778	778	778	778	778	762	762	778

Note: The results from Models 1–6 and Model 9 refer to the sample of 778 country-year observations. Models 7 and 8 refer to a sample of 762 country-year observations since they exclude the US and Japan from the analyses. Models 4 and 6–9 report the results of a general-to-specific stepwise

selection procedure. The dependent variable from Models 1–8 is the logarithm of the median value of the average stock price of each country each year, while in Model 9, it is the logarithm of the average stock price of each country each year. Robust t-statistics are in parentheses. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively. For the definitions of the variables, see Table 1. In the Appendix, for individual variables effects, see Tables A.3, A.4, and A.5.

Fig. 3. Spatial distribution of stock prices: median price on the left; post-estimation residuals on the right.

comparable on a standardized scale, enabling us to understand their impacts better. Indeed, standardized coefficients tell how much the outcome variable is expected to change in standard deviation units for a one standard deviation change in the predictor variable. So, they help to identify which predictors among formal and informal institutions have a more significant impact, regardless of the original units of measurement. The standardized beta coefficients for uncertainty avoidance and human orientation are 0.84 and 0.64, respectively. This result suggests that cultural values, uncertainty avoidance, and human orientation have the most substantial impact on the median price within our model when measured in standard deviations. Similarly, voice and accountability report a value of 0.31 among formal institution dimensions.

Among control variables, we note that the GDP growth, inflation, and the percentage of trade volume on GDP in a country have negative relationships with share prices. This result suggests that the share price anchors tend to be lower in developing countries. Furthermore, the traded companies have higher share prices in economies with a high-capitalized stock market, as supported also by Bernartzi et al. (2007). Also, share prices are high in countries with deep financial systems (FID) (i.e., where the relevance of institutional investors in the market is high), confirming the relationship supported by previous works (Amini et al., 2020; Dyl and Elliott, 2006; Fernando et al., 2004) between high share price and institutional investor preferences.

As robustness, to mitigate potential confounding effects related to the U.S., presence of cross-listed companies, and address concerns about skewness towards larger markets, our models were executed without including the U.S. shares (Models 7) and Japan shares (Models 8) in the analysis. U.S. and Japanese stock markets are among the major stock exchanges for a percentage of cross-listed companies (Roosenboom and van Dijk, 2009). Models 7 and 8 show that most of the significance and signs are confirmed; in particular, when comparing results between Model 4 and Model 8, wherein the latter Japanese companies are excluded, all signs are confirmed. When we exclude the U.S. (Model 7), results about the role of formal institutions are confirmed. At the same time, more relationships emerge in the case of religious variables: also, Catholic and Muslim countries are associated with higher prices than Lutheran countries. Among cultural values, only human and performance orientation is confirmed to be related to low share price anchors, while other cultural values seem irrelevant. Moreover, as the final additional robustness test, we use the logarithm of the average price (*AvgPrice*) rather than the median value as the dependent variable. All our previous results and HPs are confirmed. Furthermore, countries with mixed legal systems are related to low share prices.

Fig. 3 shows the spatial distribution of stock prices before and after our analysis (Model 4). In contrast with the left plot, on the right side, the map presents post-estimate residuals where the heterogeneity of prices is no longer evident (all colors are uniform). The pre-estimation standard deviation of share prices is 22 times higher than the post-estimation standard deviation after controlling for the institutional dimensions.

4.2. Additional analyses: price heterogeneity

We develop additional analyses to investigate i. price heterogeneity within the country and ii. the effect of other potential control variables. Table 4 presents result on price heterogeneity where the dependent variables are the price standard deviation (Models 1 and 2, *SDprice*), the price interquartile range (Models 3 and 4, *IntQuartile*), and the range between the maximum and minimum price (Models 5 and 6, *MaxMinRange*). A high political stability level in a country (Models 1–6) is associated with low heterogeneity within the market. A high level of voice and accountability is related to high price (Model 4, Table 3) and high heterogeneity (Models 1–6, Table 4). Regarding GLOBE cultural values, human orientation is associated with low median prices (Model 4, Table 3) and low heterogeneity within the country's market (Models 2–4, and 6, Table 4). Institutional collectivist countries present a high level of heterogeneity (Models 2 and 4, Table 4). All other cultural dimensions assume different signs based on the price heterogeneity variables identified. Among religious groups, orthodox is related to low price heterogeneity (Models 1–6, Table 4).

Table 4
The influence of formal and informal institutional dimensions on stock prices heterogeneity.

	Model 1 SDPrice	Model 2 SDPrice	Model 3 IntQuartile	Model 4 IntQuartile	Model 5 MaxMinRange	Model 6 MaxMinRange
Legal System						
CivilLaw	−0.775		−1.109**	−0.889**	−0.309	
	(0.537)		(0.522)	(0.342)	(0.613)	
Mixed	−0.650		−0.324		−0.669	
	(0.541)		(0.485)		(0.585)	
WGI						
Corrup	−3.472		−2.397		−4.535	
	(2.448)		(2.034)		(2.611)	
GovEffect	0.309		1.576		−0.009	
	(2.224)		(2.159)		(2.352)	
RegQuality	1.617		−0.914		2.124	
	(2.360)		(2.445)		(2.574)	
PolStab	−3.570***	−3.3265***	−1.776*	−1.745**	−4.327***	−3.498***
	(1.072)	(0.8113)	(0.899)	(0.783)	(1.216)	(0.987)
VoiceAccoun	5.622***	5.1703***	3.974**	3.797***	5.324**	5.203***
	(1.844)	(1.4848)	(1.545)	(1.100)	(2.069)	(1.728)
RuleLaw	1.443		1.385		2.682	
	(3.229)		(3.077)		(3.431)	
GLOBE						
HumanOr	−0.283	−0.2959***	−0.693**	−0.912***	−0.093	−0.123*
	(0.272)	(0.0844)	(0.272)	(0.187)	(0.294)	(0.069)
Gender	0.052		−0.738	−1.118***	0.287	0.246***
	(0.520)		(0.483)	(0.338)	(0.566)	(0.060)
FutureOr	−0.202		0.298	0.610	−0.401	
	(0.512)		(0.402)	(0.360)	(0.563)	
IngroupCollect	0.409	0.1360*	−1.276	−2.131***	0.975	0.555***
	(1.158)	(0.0785)	(1.028)	(0.724)	(1.265)	(0.132)
InstCollect	0.195	0.2925***	0.995	1.442***	−0.037	
	(0.630)	(0.0964)	(0.605)	(0.417)	(0.672)	
Assert	0.098	0.0848*	0.065		0.076	
	(0.090)	(0.0507)	(0.086)		(0.096)	
PowerDist	−0.107		0.746	1.225***	−0.497	−0.498***
	(0.653)		(0.614)	(0.413)	(0.711)	(0.126)
PerfOr	−0.315	−0.2790***	−0.626**	−0.701***	−0.179	
	(0.264)	(0.0728)	(0.244)	(0.179)	(0.288)	
UncertAvoid	0.466		−1.222	−2.169***	0.950	
	(1.247)		(1.030)	(0.733)	(1.364)	
Religion						
Catholic	−0.220	−0.5835*	0.489		−0.725	−0.853**
	(0.562)	(0.3426)	(0.600)		(0.609)	(0.381)
Confucianism	0.165		1.458*	1.174***	−0.476	
	(0.708)		(0.731)	(0.423)	(0.788)	
Muslim	0.539		0.483		0.013	
	(0.782)		(0.895)		(0.845)	
Orthodox	−1.445*	−1.764***	−1.275*	−1.755***	−1.860**	−1.652***
	(0.7894)	(0.5193)	(0.710)	(0.408)	(0.796)	(0.472)
Control						
GDPg	0.550		4.100	4.580*	−0.083	
	(3.161)		(2.457)	(2.540)	(3.473)	
Infl	−2.358		−4.074	−3.366	−2.284	
	(2.380)		(2.498)	(2.357)	(2.627)	
TradeGDP	−0.271	−0.330*	−0.454*	−0.537***	−0.421*	−0.612***
	(0.255)	(0.170)	(0.241)	(0.188)	(0.250)	(0.190)
lnMV	0.205**	0.201**	0.262**	0.264**	0.201**	0.195**
	(0.086)	(0.078)	(0.110)	(0.109)	(0.089)	(0.083)
FID	1.888**	2.081***	2.132***	2.139***	2.538***	1.881**
	(0.847)	(0.664)	(0.800)	(0.707)	(0.914)	(0.770)
Constant	−2.078	−0.226	11.351	18.558***	−4.014	0.860
	(9.391)	(1.593)	(8.213)	(5.980)	(10.420)	(1.799)
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.583	0.560	0.504	0.489	0.618	0.583
Obs.	778	778	778	778	778	778

Note: The results from Models 1–6 refer to the sample of 778 country-year observations. The dependent variables are alternative heterogeneity measures: standard deviation (Models 1 and 2), interquartile range (Models 3 and 4), and the difference between maximum and minimum price (Models 5 and 6). The table reports the results of full models (Models 1, 3, and 5) and of a general-to-specific stepwise selection procedure (Models 2, 4, and 6). Robust t-statistics are in parentheses. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively. For the definitions of the variables, see Table 1.

Table 5
The influence of additional control variables on median prices and stock price heterogeneity.

	Model 1 MedPrice	Model 2 MedPrice	Model 3 SDPrice	Model 4 SDPrice
Legal System				
CivilLaw	−1.492**	−1.089*	−0.827	−0.844*
	(−0.627)	(−0.610)	(0.543)	(−0.494)
Mixed	−0.058	−0.3008	0.053	−0.592
	(−0.658)	(−0.594)	(0.563)	(−0.503)
WGI				
Corrup	−3.02*	−2.714	−3.234	−3.118
	(−2.535)	(−2.328)	(2.748)	(−2.290)
GovEffect	7.676**	4.143	2.744	−0.53
	(−3.059)	(−2.597)	(2.143)	(−2.299)
RegQuality	−4.631	−3.577	3.122	−0.125
	(−3.363)	(−3.119)	(2.542)	(−2.465)
PolStab	−0.665	−1.502	−1.581	−4.204***
	(−1.355)	(−1.273)	(1.023)	(−1.205)
VoiceAccoun	3.611**	3.063*	6.567***	6.598***
	(−1.557)	(−1.618)	(2.195)	(−1.901)
RuleLaw	−0.556	3.065	−4.238	0.86
	(−3.882)	(−3.772)	(3.047)	(−3.015)
GLOBE				
HumanOr	−0.460**	−0.559**	0.023*	−0.273**
	(−0.376)	(−0.335)	(0.329)	(−0.249)
Gender	−0.444**	−0.547*	0.439	0.054
	(−0.614)	(−0.592)	(0.610)	(−0.482)
FutureOr	0.116	0.102	−0.380	−0.249
	(−0.473)	(−0.465)	(0.604)	(−0.479)
IngroupCollect	−0.601***	−0.976*	1.513	0.394
	(−1.326)	(−1.243)	(1.433)	(−1.065)
InstCollect	0.405	0.691**	−0.573	0.203***
	(−0.789)	(−0.740)	(0.750)	(−0.581)
Assert	0.062	0.066	0.091	0.13o
	(−0.106)	(−0.109)	(0.099)	(−0.091)
PowerDistance	0.153	0.456	−0.926	−0.039
	(−0.832)	(−0.741)	(0.809)	(−0.608)
PerfOr	−0.367	−0.412**	−0.1209	−0.280***
	(−0.281)	(−0.283)	(0.275)	(−0.252)
UncertAvoid	−0.893*	−0.983**	1.103	0.539
	(−0.352)	(−1.217)	(1.506)	(−1.150)
Religion				
Catholic	−0.066	0.357	−1.339***	−0.167
	(−0.667)	(−0.785)	(0.428)	(−0.505)
Confucianism	1.430*	1.478*	−0.347	0.248
	(−0.811)	(−0.877)	(0.716)	(−0.659)
Muslim	−0.444	0.550	−1.329	0.514
	(−0.96)	(−1.050)	(0.868)	(−0.763)
Orthodox	−1.280*	−1.278**	−1.867***	−1.564**
	(−0.915)	(−0.924)	(0.612)	(−0.748)
Control				
GDPg	3.075	4.520*	−1.905	1.154
	(−3.068)	(−2.499)	(3.353)	(−2.811)
Infl	−3.614	−5.437**	8.215*	−2.967
	(−3.366)	(−2.717)	(4.207)	(−2.357)
TradeGDP	−0.654**	−0.543**	−0.571**	−0.253
	(−0.300)	(−0.263)	(0.273)	(−0.245)
lnMV	0.305**	0.280**	0.227*	0.154*
	(−0.126)	(−0.134)	(0.117)	(−0.085)
FID	2.088**	1.766*	2.818***	1.829**
	(−0.997)	(−0.954)	(0.830)	(−0.822)
InvProtec	0.8628		2.078	
	(−1.257)		(0.863)	
GDPpcPPP		−0.106		0.638*
		(−0.465)		(−0.461)
Constant	6.665	10.032	−7.7096	−7.268
	−5.664	−10.93	11.455	−9.961
Year F.E.	Yes	Yes	Yes	Yes
Adj. R2	0.623	0.567	0.681	0.501
Obs.	437	778	437	778

Note: The results in Models 1 and 3 refer to the sample of 437 country-year observations, while Models 2 and 4 refer to the sample of 778 country-year observations. Models 1 and 3 introduce the Investor Protection Index as an additional control variable, while Models 2 and 4 the GDP per capita by purchasing power parity. The dependent variable is the logarithm of the median value of the average stock price of each country each year for Models 1 and 2, while Models 3 and 4 consider the price's standard deviation. Robust t-statistics are in parentheses. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively. For the definitions of the variables, see Table 1.

Moreover, in Table 5, we consider additional control variables at the country level in the specifications of the price median and standard deviation models: the level of investor protection[2] (Models 1 and 3) and GDP per capita converted by purchasing power parity (Models 2 and 4). The level of investor protection is insignificant (Models 1 and 3), but its presence adds to previous results regarding institutional quality, the positive relationship between governance effectiveness, and control of corruption on share prices (Model 1).

Since our stock prices are all expressed in US$, this may discount the local stock prices of less developed countries. To tackle this issue, we insert the variable GDP per capita by purchasing power parity (*GDPpcPPP*) as an additional control (Models 2 and 4). The variable provides gross domestic product (GDP) values expressed in current international dollars, converted by the purchasing power parity (PPP) conversion factor. PPP conversion factor is a spatial price deflator and currency converter that eliminates the effects of the differences in price levels between countries. GDP per capita by purchasing power parity does not affect prices' median level (Model 2). A significant and positive result is only found in Model 4, which shows the relationship between the variable and the standard deviation. Also, with these new controls, our results are confirmed.

5. Concluding remark

This work aims to empirically test the relationship between share price anchors and institutions. Our results show that formal and informal institutions are related to share prices. In particular, common law legal systems and countries where citizens can participate in selecting their government, as well as freedom of expression and association, are related to high share prices. Confirming our H1 and H2. Cultural values that refer to altruism (human orientation, gender egalitarianism, future orientation, and in-group collectivism) are related to low-share prices and thus cater prices to individual investor preferences (confirming H3a). Otherwise, among values that support institutions and hierarchy, only institutional collectivism is positively related to share price levels. Partially confirming H3b. Finally, religion represents a novel aspect of the study, and we provide evidence that Orthodox and Confucian countries present low and high share prices compared to Lutheran countries (H4).

Our results strengthen Bae et al. (2019), Weld et al. (2009), and Bernartzi et al. (2007) suppositions about the effect of culture in explaining the 'share price puzzle,' giving solid evidence that institutions, represented by formal and informal dimensions, influence the level of national anchors. Specifically, formal institutions tend to align share price anchors with the preferences of institutional investors, as they are associated with higher share price anchors. On the other hand, cultural values that promote altruism, egalitarianism, and future orientation are linked to lower share price anchors, making them more conducive for small investors.

Moreover, these results contribute to the literature about socio-cultural factors in modeling corporate finance decisions (Guiso et al., 2006; Gupta et al., 2018; Kutan et al., 2020), introducing a new financial aspect affected by culture, e.g., share price. Our results pinpoint that culture should be taken seriously to explain the stock price anchor levels and their heterogeneity, evidencing the link between managers with different values and their economic behavior. This evidence is also helpful to investors, regulators, and all remaining stakeholders.

Research on formal and informal institutional frameworks and stock prices is beginning. There are no accepted mature theories on the relationship between specific dimensions and stock price. Thus, this work remains novel and represents the first step in developing a conceptual framework incorporating cultural values. Moreover, what explains the role of national culture in corporate financial decision-making has yet to be empirically exploited through causal relationships (Kutan et al., 2020). Thus, we leave this issue open for future research.

This research received no specific grant from public, commercial, or not-for-profit funding agencies.

CRediT authorship contribution statement

Riccardo Ferretti: Supervision, Conceptualization. **Pierpaolo Pattitoni:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis. **Alessia Pedrazzoli:** Writing – review & editing, Writing – original draft, Data curation.

Declaration of Competing Interest

None.

Data availability

Data will be made available on request.

[2] Level of investor protection is only present for 437 observations thus we do not add it in our main models.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.mulfin.2024.100873.

References

Abdallah, A.A.N., Abdallah, W., Saad, M., 2022. The impact of national culture on the synchronicity of cross-listed firms. Financ. Res. Lett. 46 https://doi.org/10.1016/j.frl.2021.102293.

Ades, A.F., Glaeser, E.L., 1999. Evidence on growth, increasing returns, and the extent of the market. Q. J. Econ. 114, 1025–1045. https://doi.org/10.1162/003355399556205.

Aggarwal, R., Klapper, L., Wysocki, P.D., 2005. Portfolio preferences of foreign institutional investors. J. Bank. Financ. 29 (12) https://doi.org/10.1016/j.jbankfin.2004.09.008.

Altanlar, A., Amini, S., Holmes, P., Eshraghi, A., 2023. Opportunism, overconfidence and irrationality: A puzzling triad. Int. Rev. Financ. Anal. 88 https://doi.org/10.1016/j.irfa.2023.102643.

Amini, S., Buchner, A., Cai, C.X., Mohamed, A., 2020. Why do firms manage their stock price levels? J. Inter. Financ. Mark. Inst. Mon. 67 https://doi.org/10.1016/j.intfin.2020.101220.

Arbel, Y., Ben-Shahar, D., Gabriel, S., 2014. Anchoring and housing choice: Results of a natural policy experiment. Reg. Sci. Urban Econ. 49, 68–83. https://doi.org/10.1016/j.regsciurbeco.2014.07.004.

Ariely, D., Loewenstein, G., Prelec, D., 2003. "Coherent arbitrariness": Stable demand curves without stable preferences. Q. J. Econ. 118, 73–105. https://doi.org/10.1162/00335530360535153.

Ashraf, B.N., Zheng, C., Arshad, S., 2016. Effects of national culture on bank risk-taking behavior. Res. Int. Bus. Financ. 37, 309–326. https://doi.org/10.1016/j.ribaf.2016.01.015.

Bae, K.H., Bhattacharya, U., Kang, J., Rhee, S.G., 2019. Nominal stock price anchors: A global phenomenon? J. Financ. Mark. 44, 31–41. https://doi.org/10.1016/j.finmar.2018.12.006.

Bae, S.C., Chang, K., Kang, E., 2012. Culture, corporate governance, and dividend policy: International evidence. J. Financ. Res. 35, 289–316. https://doi.org/10.1111/j.1475-6803.2012.01318.x.

Baker, H.K., Gallagher, P.L., 1980. Management's View of Stock Splits. Financ. Manag. 9, 73. https://doi.org/10.2307/3665171.

Baker, M., Xuan, Y., 2016. Under new management: Equity issues and the attribution of past returns. J. Finan. Econ. 121 (1) https://doi.org/10.1016/j.jfineco.2016.03.001.

Baker, M., Greenwood, R., Wurgler, J., 2009. Catering through nominal share prices. J. Financ. 64 https://doi.org/10.1111/j.1540-6261.2009.01511.x.

Baker, M., Pan, X., Wurgler, J., 2012. The effect of reference point prices on mergers and acquisitions. J. Finan. Econ. 106 (1) https://doi.org/10.1016/j.jfineco.2012.04.010.

Baker, M.P., Wurgler, J.A., 2005. Why are Dividends Disappearing? An Empirical Analysis. SSRN Elect. J. https://doi.org/10.2139/ssrn.367168.

Benartzi, S., Michaely, R., Thaler, R.H., Weld, W.C., 2007. The nominal price puzzle. UCLA working paper.

Birru, J., Wang, B., 2016. Nominal price illusion. J. Econ. Finan. 119 (3) https://doi.org/10.1016/j.jfineco.2016.01.027.

Bisin, A., Verdier, T., 2000. "Beyond the melting pot": Cultural transmission, marriage, and the evolution of ethnic and religious traits. Q. J. Econ. 115, 955–988. https://doi.org/10.1162/003355300554953.

Borsboom, C., Füllbrunn, S., 2021. Stock Price Level Effect. SSRN Electron. J. https://doi.org/10.2139/ssrn.3907386.

Brennan, M.J., Copeland, T.E., 1988. Beta Changes around Stock Splits: A Note. J. Financ. 43, 1009–1013. https://doi.org/10.1111/j.1540-6261.1988.tb02618.x.

Cai, K., Zhu, H., 2015. Cultural distance and foreign IPO underpricing variations. J. Multinatl. Financ. Manag. 29 https://doi.org/10.1016/j.mulfin.2014.11.003.

Chang, C.H., Lin, S.J., 2015. The effects of national culture and behavioral pitfalls on investors' decision-making: Herding behavior in international stock markets. Int. Rev. Econ. Finance 37. https://doi.org/10.1016/j.iref.2014.12.010.

Chang, K., Noorbakhsh, A., 2009. Does national culture affect international corporate cash holdings? J. Multinatl. Financ. Manag. 19, 323–342. https://doi.org/10.1016/j.mulfin.2009.07.001.

Chen, Y., Dou, P.Y., Rhee, S.G., Truong, C., Veeraraghavan, M., 2015. National culture and corporate cash holdings around the world. J. Bank. Financ. 50, 1–18. https://doi.org/10.1016/j.jbankfin.2014.09.018.

Chui, A.C.W., Kwok, C.C.Y., 2009. Cultural practices and life insurance consumption: An international analysis using GLOBE scores. J. Multinatl. Financ. Manag. 19 (4) https://doi.org/10.1016/j.mulfin.2009.02.001.

Chui, A.C.W., Lloyd, A.E., Kwok, C.C.Y., 2002. The determination of capital structure: Is national culture a missing piece to the puzzle? J. Int. Bus. Stud. 33, 99–127. https://doi.org/10.1057/palgrave.jibs.8491007.

Conroy, R.M., Harris, R.S., 1999. Stock Splits and Information: The Role of Share Price. Financ. Manag. 28, 28. https://doi.org/10.2307/3666181.

Costa, B.A., Crawford, A., Jakob, K., 2013. Does culture influence IPO underpricing? J. Multinatl. Financ. Manag. 23, 113–123. https://doi.org/10.1016/j.mulfin.2012.12.001.

Denis, D.K., McConnell, J.J., 2003. International Corporate Governance. J. Financ. Quant. Anal. 38 (1) https://doi.org/10.2307/4126762.

Desai, H., Jain, P.C., 1997. Long-run common stock returns following stock splits and reverse splits. J. Bus. 70, 409–433. https://doi.org/10.1086/209724.

DiMaggio, P.J., Powell, W.W., 1991. Introduction. In: Powell, Walter W., DiMaggio, Paul J. (Eds.), The New Institutionalism in Organizational Analysis. University of Chicago Press, Chicago, pp. 1–38.

Disli, M., Inghelbrecht, K., Schoors, K.J.L., Stieperaere, H., 2021. Stock Price Anchoring. SSRN Electron. J. https://doi.org/10.2139/ssrn.3749398.

Döring, S., Drobetz, W., El Ghoul, S., Guedhami, O., Schröder, H., 2021. Cross-country determinants of institutional investors' investment horizons. Financ. Res. Lett. *39* https://doi.org/10.1016/j.frl.2020.101641.

Dyl, E.A., Elliott, W.B., 2006. The share price puzzle. J. Bus. 79, 2045–2066. https://doi.org/10.1086/503656.

Fernando, C.S., Krishnamurthy, S., Spindt, P.A., 1999. Is Share Price Related to Marketability? Evidence from Mutual Fund Share Splits. Financ. Manag. 28, 54. https://doi.org/10.2307/3666183.

Fernando, C.S., Krishnamurthy, S., Spindt, P.A., 2004. Are share price levels informative? Evidence from the ownership, pricing, turnover and performance of IPO firms. J. Financ. Mark. 7, 377–403. https://doi.org/10.1016/j.finmar.2004.01.001.

Ferreira, M.A., Matos, P., 2008. The colors of investors' money: The role of institutional investors around the world. J. Financ. 88 (3) https://doi.org/10.1016/j.jfineco.2007.07.003.

Ferretti, R., Sciandra, A., 2021. Does the attention-grabbing mechanism work on Sundays? Influence of social and religious factors on investors' attention. Rev. Behav. Financ. https://doi.org/10.1108/RBF-03-2021-0047.

Frankel, J.A., Romer, D., 1999. Does trade cause growth? Am. Econ. Rev. 89, 379–399. https://doi.org/10.1257/aer.89.3.379.

Gilovich, T., Griffin, D., Kahneman, D., 2002. Heuristics Biases: Psychol. Intuitive Judgm., Acad. Manag. Rev.

Green, T.C., Hwang, B.H., 2009. Price-based return comovement. J. Finan. Econ. 93 https://doi.org/10.1016/j.jfineco.2008.09.002.

Greif, A., 2006. Institutions and the path to the modern economy: Lessons from medieval trade. Cambridge University Press.

Grinblatt, M., Keloharju, M., 2001. How distance, language, and culture influence stockholdings and trades. J. Financ. https://doi.org/10.1111/0022-1082.00355.

Guiso, L., Sapienza, P., Zingales, L., 2003. People's opium? Religion and economic attitudes. J. Monet. Econ. 50, 225–282. https://doi.org/10.1016/S0304-3932(02)00202-7.

Guiso, L., Sapienza, P., Zingales, L., 2006. Does culture affect economic outcomes? J. Econ. Perspect. https://doi.org/10.1257/jep.20.2.23.

Guiso, L., Sapienza, P., Zingales, L., 2008. Trusting the stock market. J. Financ. 63 https://doi.org/10.1111/j.1540-6261.2008.01408.x.
Gupta, D.R., Veliyath, R., George, R., 2018. Influence of national culture on IPO activity. J. Bus. Res. 90 https://doi.org/10.1016/j.jbusres.2018.04.023.
Hilary, G., Hui, K.W., 2009. Does religion matter in corporate decision making in America? J. Financ. Econ. 93 https://doi.org/10.1016/j.jfineco.2008.10.001.
House, R.J., 2004. Leadership, culture and organizations: The GLOBE study of 62 societies. Recherche 67.
House, R.J., Javidan, M., 2004. Overview of the GLOBE research program, in: Culture, Leadership, and Organizations: The GLOBE Study of 62 Societies.
House, R., Javidan, M., Hanges, P., Dorfman, P., 2002. Understanding cultures and implicit leadership theories across the globe: An introduction to project GLOBE. J. World Bus. 37 (1) https://doi.org/10.1016/S1090-9516(01)00069-4.
Jara-Bertin, M., López-Iturriaga, F.J., López-de-Foronda, Ó., 2012. Does the influence of institutional investors depend on the institutional framework? An international analysis. Appl. Econ. *44* (3) https://doi.org/10.1080/00036846.2010.502112.
Javidan, M., House, R.J., 2001. Cultural acumen for the global manager: Lessons from project GLOBE. Organ. Dyn. 29 https://doi.org/10.1016/s0090-2616(01)00034-1.
Johnson, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2000. Tunneling. Am. Econ. Rev. 90 (2), 22–27.
Kahneman, D., 1992. Reference points, anchors, norms, and mixed feelings. Organ. Behav. Hum. Decis. Process. 51 (2) https://doi.org/10.1016/0749-5978(92)90015-Y.
Kahneman, D., Knetsch, J.L., 1992. Valuing public goods: The purchase of moral satisfaction. J. Environ. Econ. Manag. 22, 57–70. https://doi.org/10.1016/0095-0696(92)90019-S.
Karolyi, G.A., 2016. The gravity of culture for finance. J. Corp. Financ 41. https://doi.org/10.1016/j.jcorpfin.2016.07.003.
Kaufmann, D., Kraay, A., and Mastruzi, M., 2008. Governance matters VIII: aggregate and individual governance indicator 1996-2008. Washington: World Bank Policy Research: Working Paper No 4978.
Kumar, A., Page, J.K., Spalt, O.G., 2011. Religious beliefs, gambling attitudes, and financial market outcomes. J. Financ. Econ. 102 https://doi.org/10.1016/j.jfineco.2011.07.001.
Kutan, A., Laique, U., Qureshi, F., Rehman, I.U., Shahzad, F., 2020. A survey on national culture and corporate financial decisions: current status and future research. Int. J. Emerg. Mark. 16 https://doi.org/10.1108/IJOEM-12-2019-1050.
La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R.W., 1998. Law and finance. J. Polit. Econ. 106, 1113–1155. https://doi.org/10.1086/250042.
La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1999. The quality of government. J. Law, Econ. Organ. 15 https://doi.org/10.1093/jleo/15.1.222.
Lewellyn, K.B., Bao, S.R., 2014. A cross-national investigation of IPO activity: The role of formal institutions and national culture. Int. Bus. Rev. 23 https://doi.org/10.1016/j.ibusrev.2014.03.010.
Licht, A.N., Goldschmidt, C., Schwartz, S.H., 2007. Culture rules: The foundations of the rule of law and other norms of governance. J. Comp. Econ. 35, 659–688. https://doi.org/10.1016/j.jce.2007.09.001.
Mihet, R., 2013. Effects of culture on firm risk-taking: A cross-country and cross-industry analysis. J. Cult. Econ. 37 https://doi.org/10.1007/s10824-012-9186-2.
North, D.C., 1990. Institutions, Institutional Change and Economic Performance. Cambridge University Press, Cambridge.
Rashid, M., Nur Khoirunnisaa Pg Hj Johari, Izadi, S., Izadi, S., 2020. National culture and capital structure of the Shariah compliant firms: Evidence from Malaysia, Saudi Arabia and Pakistan. Int. Rev. Econ. Finance. https://doi.org/10.1016/j.iref.2020.10.006.
Roosenboom, P., van Dijk, M.A., 2009. The market reaction to cross-listings: Does the destination market matter? J. Bank. Financ. 33 (10) https://doi.org/10.1016/j.jbankfin.2009.04.010.
Sandhu, H., 2022. Low price anchors in equity market. Cogent Econ. Finance 10 (1). https://doi.org/10.1080/23322039.2022.2152937.
Schultz, P., 2000. Stock splits, tick size, and sponsorship. J. Financ. 55, 429–450. https://doi.org/10.1111/0022-1082.00211.
Scott, W.R., 2001. Institutions and Organizations, 2nd ed. Sage, Thousand Oaks, CA.
Scott, W.R., 2005. Institutional theory: Contributing to a theoretical research program. Gt. minds Manag.: Process Theory Dev. 37 (2), 460–484.
Slangen, A.H.L., van Tulder, R.J.M., 2009. Cultural distance, political risk, or governance quality? Towards a more accurate conceptualization and measurement of external uncertainty in foreign entry mode research. Int. Bus. Rev. 18 https://doi.org/10.1016/j.ibusrev.2009.02.014.
Stulz, R.M., Williamson, R., 2003. Culture, openness, and finance. J. Financ. Econ. 70, 313–349. https://doi.org/10.1016/S0304-405X(03)00173-9.
Tversky, A., Kahneman, D., 1974. Judgment under uncertainty: Heuristics and biases. Science 185 (4157). https://doi.org/10.1126/science.185.4157.1124.
Tversky, A., Kahneman, D., 1981. The framing of decisions and the psychology of choice. Science 211 (80), 453–458. https://doi.org/10.1126/science.7455683.
Weld, W.C., Michaely, R., Thaler, R.H., Benartzi, S., 2009. The nominal share price puzzle. J. Econ. Perspect. 23, 121–142. https://doi.org/10.1257/jep.23.2.121.
Whitley, R., 1992. European Business Systems: Firms and Markets in their National Contexts. Sage.
Williamson, O.E., 2000. The new institutional economics: Taking stock, looking ahead. J. Econ. Lit. 38 https://doi.org/10.1257/jel.38.3.595.
Yan, X., Zhang, Z., 2009. Institutional investors and equity returns: Are short-term institutions better informed. Rev. Financ. Stud. *22* (2) https://doi.org/10.1093/revfin/hhl046.
Zhang, M., Zhang, W., Zhang, S., 2016. National culture and firm investment efficiency: international evidence. Asia-Pac. J. Account. Econ. 23 https://doi.org/10.1080/16081625.2015.1027714.
Zhou, X., Tang, X., Wu, S., 2021. The impact of national culture on IPO underpricing and its influence mechanism: A cross-border empirical research. Financ. Res. Lett. https://doi.org/10.1016/j.frl.2021.102543.