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CEO's Culture and Firms' Leverage Decisions

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ABSTRACT

Debt mitigates agency problems between managers and stockholders by reducing free cashflows; yet, why managers voluntarily adopt debt discipline remains unclear. This paper examines how chief executive officers' (CEOs') managerial traits, shaped by national culture, influence leverage decisions. Analysing 3338 CEOs from 41 nationalities in 2280 US firms in Bloomberg 3000 index (from 2007 to 2024), we find that cultural values impact CEOs' perceptions of debt's costs/benefits. High-mastery CEOs reduce debt regardless of current leverage, while highly embedded CEOs inadvertently pursue target capital structures. A non-US CEO sample shows that cultural values are portable. Our findings are robust to sensitivity and endogeneity tests.

JEL Classification: G32, M14, F22, C31, C33

1 | Introduction

What determines a firm's capital structure decision? Several studies, since the ground-breaking work of Modigliani and Miller (1958), have run "empirical horse races" between the well-known trade-off and pecking order models of capital structure (Fama and French 2002; Frank and Goyal 2003; Shyam-Sunder and Myers 1999) and have produced mixed, and at times, contradictory results. Given that the financing decision is in the hands of a manager, specifically a human prone to various biases, a more recent strand of literature directs the argument toward the importance of managerial biases (Hackbarth 2008; Heaton 2005; Larwood and Whittaker 1977; Malmendier and Tate 2008; Malmendier et al. 2011). However, empirical evidence shows distinct variations in corporate debt levels across countries (Booth et al. 2001; Kester 1986; Rajan and Zingales 1995; Sekely and Collins 1988; Wald 1999). The diverging relevance of certain behavioural patterns between countries (i.e., people from the same culture share certain behavioural biases among them, whilst people from different countries have different biases) might suggest that a *country-specific trait* may determine firm leverage, in addition to all other well-known firms, as well as industry, market and managerial factors. Figure 1 describes this argument.

Many researchers consider treating this country factor in the form of institutional differences (Booth et al. 2001; La Porta et al. 1997; Rajan and Zingales 1995; Wald 1999). In our study, the diverging relevance of behavioural patterns can be explained, at least partially, by the national culture of each country, much in line with Chui et al. (2002) and Li et al. (2011), among others. However, our research differs measurably from the above-mentioned scholars by emphasising that corporate decisions, including the leverage decision, are made by individuals, and, hence, we highlight the traits of individual chief executive officers (CEOs) that we believe to be conditioned by their national cultural background. We believe that culture is the software of the mind, as in the tradition of Hofstede et al. (2014). Previous research has established that culturally transmitted preferences are determined early in life

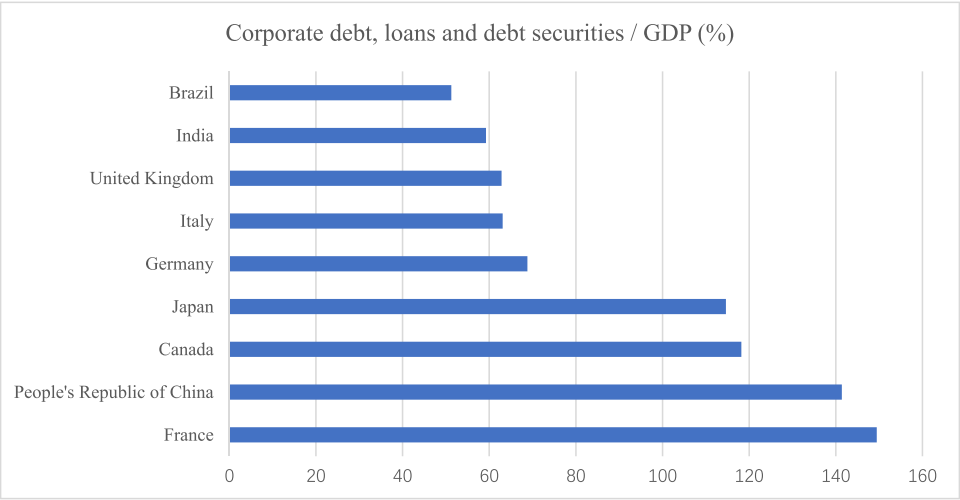

FIGURE 1 | Total stock of loans and debt securities issued by nonfinancial corporations, as a percent of GDP, in the 10 largest world economies as of 2023. *Source:* International Monetary Fund (n.d.). GDP, gross domestic product. [Color figure can be viewed at wileyonlinelibrary.com]

(Giavazzi et al. 2019), deeply rooted in a person's mind (Fernández and Fogli 2009; Giavazzi et al. 2019; Nguyen et al. 2018), persistent (Giavazzi et al. 2019) and guide the behaviour of an individual (Breuer and Quinten 2009; Nguyen et al. 2018). Thus, we contend that national cultural values contribute to the behaviour of executives. Our empirical scrutiny has several goals. *First*, we study whether the cultural upbringing of a CEO is an inseparable factor when analysing the determinants of a firm's leverage decision. *Second*, we closely observe the relationship between CEO culture and firm leverage to investigate whether CEO cultural values have a heterogeneous effect on the leverage decision of firms at varying levels of debt. Finally, we also exploit the epidemiological approach as described by Fernández (2011) and scrutinise a subsample of foreign CEOs to gauge whether they reflect their own national culture when making a leverage decision, although they are employed in US companies. This implies that cultural values are portable (Fernández 2011; Fisman and Miguel 2007; Li et al. 2011; Nguyen et al. 2018).

Although the cultural influence on leverage decisions has been explored in recent studies, their focus has largely remained on firms' nationality, based on their country of origin. Furthermore, the exact nature of the relationship between leverage and a firm's national culture is contested, producing divergent views on its strength and direction. For instance, Chui et al. (2002) employ Schwartz (2004) cultural dimensions to measure national cultures and regress country- and firm-level debt ratios on mastery and embeddedness and find that, at both levels, cultural values are negatively associated with debt ratios. Li et al. (2011) also employ mastery and embeddedness in Schwartz's framework, investigating the role of a firm's country of origin in the leverage decision using foreign joint ventures operating in China. According to these authors, mastery has negative and significant effects on a firm's short-term debt and positive and significant effects on a firm's long-term debt. Furthermore, Li et al. (2011) state that embeddedness does not significantly affect firm leverage decisions. They also confirm the portability of national cultures, as foreign joint ventures in China were making corporate decisions outside their home country. Other influential studies extending the link between national culture and financial policies have explored various aspects, such as the impact on the financing environment and cost of debt (Chui et al. 2016; Kwok and Tadesse 2006), the choice between bank debt and public debt (Chui et al. 2021), corporate debt maturity (Zheng et al. 2012), the costs associated with high leverage (El Ghoul et al. 2019) and the phenomenon of zero-leverage firms (El Ghoul et al. 2018).

Importantly, a concluding remark in Li et al. (2011, p. 497), which has significantly motivated our study, noted that "an interesting area for future research, when more detailed data become available, is to examine whether managers' decision-making reflects their corporate culture or their own national culture".

Distinct from existing work in the area, in our research, we underline the interaction between CEO culture and traditional capital structure theories, particularly the trade-off theory. We emphasise that a CEO is the ultimate authority of decision making (Malmendier and Tate 2008; Malmendier et al. 2011; Nguyen et al. 2018). Accordingly, we develop a model to test the association between the national cultural values of CEOs and the debt level of a firm whilst controlling for well-known firm-related variables (e.g., tangibility, market-to-book ratio, profitability, asset maturity, number of employees, board size and board independence), personal characteristics of CEOs, such as age, length of time in role, length of time on the board, gender and education (Hambrick and Mason 1984), industry characteristics (e.g., industry median leverage and industry concentration) and market conditions (e.g., volatility index [VIX] and Nonfarm Payrolls) (Jiang 2023; Salisu et al. 2022). The results help us to capture and distinguish CEO behaviour guided by cultural values when other personal, firm-related and industry/market dynamics are constant. To elicit the variations between national cultures, we employ Schwartz (2004) cultural dimensions and adopt two broad dimensions of cultural values, namely, *embeddedness* (the opposite of autonomy) and *mastery* (the opposite of harmony and egalitarian commitment), as per the work of Chui et al. (2002, 2016) and Li et al. (2011).

We investigate the main traits of high-mastery and embedded managers and develop distinct hypotheses. Interestingly, there are compelling theoretical arguments for and against CEOs with high-mastery/embeddedness traits favouring more or less debt. For instance, we postulate that a high-mastery CEO, who is highly concerned about personal success and the value of control, would steer away from the financial distress costs and agency cost of debt, respectively, and would opt for less debt (Chui et al. 2002, 2016; Li et al. 2011). In contrast, high-mastery managers who value control would be averse to agency cost of equity and choose more debt (Li et al. 2011). On the other hand, highly embedded managers relish harmonious relationships with their stakeholders. They are concerned about the liquidation costs that will have to be borne by them (Chui et al. 2002, 2016); therefore, they would exacerbate possible bankruptcy risks and refrain from contacting excessive leverage, which might disrupt in-group solidarity, and opt for less debt. On the contrary, highly embedded managers foster values, such as obedience and respect for tradition. They dislike autonomy (Li et al. 2011) or taking the initiative, instead favouring the debt covenants, and monitoring imposed by debt financing, and prefer more debt. Hence, we have tested out our bidirectional hypothesis and let the data speak.

We scrutinise a sample of 3338 CEOs, originating from 41 different nationalities, serving 2280 Bloomberg–3000 firms over 18 years (from 2007 to 2024). US companies boast a higher proportion of foreign-born CEOs as compared with their European and Asian counterparts (Hymowitz 2004). Concentrating on large firms that represent a sizeable fraction of the total market capitalisation of all public companies in the US helps reveal a reliable association between CEO culture and firm leverage decisions (Berger et al. 1997) that can be generalised to a European context where economic liberalisation and free mobility of labour in the European Union have significantly increased boardroom diversity.

We find that, ceteris paribus, the cultural values of CEOs exert a statistically significant impact on a firm's leverage decision. High-mastery CEOs tend to reduce a firm's debt irrespective of the current firm leverage, whereas highly embedded CEOs build up debt when the existing leverage of a company is low. Debt is well known to mitigate manager–shareholder agency conflicts in a firm (Jensen 1986; Jensen and Meckling 1976). However, given that the financing decision is in the hands of the manager, why would a highly embedded CEO voluntarily choose to increase debt when a high-mastery CEO tends to reduce it? We find that the costs and benefits of debt are perceived differently by CEOs with distinct cultural values. For instance, highly embedded CEOs foster values such as obedience and respect for tradition and would favour the debt covenants and monitoring imposed by debt financing, as they dislike taking their own initiative. Therefore, they would attenuate the agency cost of debt and, instead, consider the additional controls placed by obtaining more debt as a benefit, thereby choosing higher debt that is enabled by the existing low leverage of the firm. On the contrary, at higher existing debt levels, highly embedded CEOs who relish harmonious relationships with their stakeholders will be concerned about the liquidation costs that they will have to bear if a firm is likely to face financial distress. Therefore, they might exacerbate possible bankruptcy risks and would reduce borrowing. This implies that highly embedded CEOs, inadvertently, are in pursuit of a target capital structure as they trade-off between their value of obedience and the value of nurturing harmonious relationships.

On the other hand, high-mastery CEOs reduce borrowing, irrespective of the current level of firm debt, as they prioritise personal success. They would exacerbate the financial distress costs associated with higher debt and would choose less debt. Moreover, they reduce debt because they value control and are averse to the agency costs of debt. Finally, we also conclude that cultural values are portable. Our results remain robust to sensitivity tests and endogeneity concerns caused by both omitted variable bias and simultaneous causality.

We further extend the work of Chui et al. (2002, 2016) and Li et al. (2011), along with a few other scholars who have contributed to the relatively underexplored area of the impact of national culture. However, our work differs from previous research in two key aspects. *First*, we go beyond the previous conventional emphasis on a firm's nationality on the leverage decision (macrocosmic effect), as it would only suffice if both the CEO and the firm originate from the same national culture. However, this assumption may not always hold, given the rise in international migration owing to economic globalisation and the intense public pressure to increase workplace diversity.[1] Therefore, in our study, we move beyond the macrocosmic effect to one of microcosmic impacts, that is, CEOs' cultural values in the leverage decision process. We also apply the epidemiological approach as described by Fernández (2011) and scrutinise a subsample of foreign CEOs. Our findings show that these CEOs reflect their own national culture when making leverage decisions, even though they are employed in US companies, which suggests that cultural values are portable. *Second*, we move one step beyond and examine the association more closely. We investigate the heterogeneous effect of culture on leverage by categorising the existing leverage in firms and examining three scenarios: when current leverage is at its lowest, highest and median. How would the financing decision be influenced by a CEO guided by their cultural values in each scenario? Our analysis indicates that the degree of current firm leverage significantly matters when examining the association between CEO culture and firm leverage. As we model directional heterogeneous effects across firms over the entire distribution of the leverage spectrum, our paper appears to be among the first to propose a complete characterisation of the tail behaviour of cultural attributes across the entire leverage spectrum.

In summary, we contribute to the existing literature on the impact of culture on corporate outcomes by focusing on immigrants rather than on firm nationality as in prior studies, and by examining the heterogeneous effects of culture on leverage at various levels of current firm leverage. We conclude that highly embedded CEOs make capital structure decisions more in the interest of shareholders. In contrast, the capital structure decisions of high-mastery CEOs may not always prioritise shareholder interests.

We structure the rest of the paper as follows. Section 2 comprehensively discusses the related literature and logically develops the hypotheses that we test using an extended data sample. Section 3 describes our data sample and the variables that we test in our analysis. Section 4 provides a commentary on our methodology and briefly discusses our preliminary observations. Section 5 lists our main empirical findings and discusses the inferences of these results. We conduct robustness checks of our results, which are presented in Section 6. The demonstration of the portability of cultural traits in a foreign context in Section 7 adds more credibility to our work. Section 8 briefly illustrates some implications of our work, followed by Section 9, which concludes our paper.

2 | Literature and the Development of Hypotheses

2.1 | Overview of Literature

Schwartz (2004, p. 44) defines culture as the "rich complex of meanings, beliefs, practices, symbols, norms, and values prevalent among people in a society". Although the effect of culture on business practices has remained in the limelight for a long time, the impact of culture on financial outcomes has only recently received academic attention (Aggarwal et al. 2016; Karolyi 2016).

For example, previous research of the influence of culture, on national stock market characteristics (de Jong and Semenov 2006; Guiso et al. 2008; Pirouz 2012), international asset allocation (Aggarwal et al. 2012; Beugelsdijk and Frijns 2010; Chui et al. 2010; Griffin et al. 2003; Grinblatt and Keloharju 2001; Siegel et al. 2011), cross-border acquisition performance (Chakrabarti et al. 2009; Morosini et al. 1998; Weber et al. 1996), asset management (Beckmann et al. 2008), insurance (Chui and Kwok 2008), dividend policy (Shao et al. 2010), cash holding and financial planning (K. Chang and Noorbakhsh 2009; Desender et al. 2011; Fidrmuc and Jacob 2010; Ramírez and Tadesse 2009), financing environment (Breuer and Salzmann 2012; Kwok and Tadesse 2006; Malul and Shoham 2008; Stulz and Williamson 2003), capital structure decisions (Chui et al. 2002; Li et al. 2011), contracting arrangements, and cost of debt (Giannetti and Yafeh 2012; Chui et al. 2016) has largely contributed to developing this strand of literature. Moreover, research extending the link between national culture and leverage has explored various aspects, such as the choice between bank debt and public debt (Chui et al. 2021), corporate debt maturity (Zheng et al. 2012), costs associated with high leverage (El Ghoul et al. 2019) and zero-leverage firms (El Ghoul et al. 2018).

Culture, the "fuzzy, difficult to define construct" (Triandis et al. 1986), is even more challenging to measure. Hofstede (2011, 2014), Schwartz (1994), World Values Survey (WVS) (n.d.) and the Global Leadership and Organisational Behaviour Effectiveness (GLOBE) framework (House et al. 2004) are some of the frameworks that exist to explain the variations in culture among nations. Although Hofstede's framework has remained the most influential one to date (Karolyi 2016; Kirkman et al. 2006), it has also been subjected to more recent criticisms (Ailon 2008; Imm Ng et al. 2007; Karolyi 2016; McSweeney 2002; Steenkamp 2001) owing to several methodological weaknesses inherent in the model. Although the Schwartz (2004) model is not void of all errors, it is employed in our study to align with previous work undertaken in this area (Chui et al. 2002, 2016; Li et al. 2011). For a number of reasons, Siegel et al. (2011) point out that Schwartz's model is superior to Hofstede's model. First, the former is theory-driven, where its central elements have stemmed from preceding work in the social sciences, and second, the model uses value measures shown to acquire cross-culturally equivalent meanings at the individual level to operationalise the cultural dimensions.

Schwartz identifies seven value types, which are listed below, followed by the most relevant property for each value type in parentheses: embeddedness (social order, obedience, respect for tradition), hierarchy (authority, humble), mastery (ambition, daring), affective autonomy (pleasure, exciting life), intellectual autonomy (broadmindedness, curiosity), egalitarianism (social justice, equality) and harmony (unity with nature, world at peace). A particular country (if included in Schwartz's research) is given a score for the seven cultural dimensions (Schwartz 2008). The *seven* scores for cultural value orientations for 80 countries have been derived using data collected from 1988 to 2007. Schwartz (1994) consolidates these value types into two broad dimensions: *embeddedness* and *Mastery*. Culture is defined by these two distinct dimensions. The opposite pole of embeddedness is autonomy, and that of mastery and hierarchy is harmony and egalitarian commitment. We employ Schwartz (2004) cultural values in our paper and, in particular, employ the two broad dimensions of cultural values—*embeddedness* and *mastery*—as per the work of Chui et al. (2002, 2016) and Li et al. (2011).

Managerial biases are as important as the well-known firm/industry and market characteristics in determining a firm's capital structure. Exploring the heterogeneous effects of culture on firm leverage sheds new light upon the interlinkage between cultural finance[2] and the already established and quite popular domain of behavioural finance. Whilst both research fields strictly reject the neoclassical "economic man" that serves as the foundation for most classical finance theories, behavioural finance assumes the behavioural biases of managers to be universal, whereas cultural finance postulates the diverging relevance of certain behavioural patterns between countries (Breuer and Quinten 2009). This implies that people of the same culture will share certain behavioural biases among them. For instance, recent studies have explored how well-known behavioural biases, such as loss aversion (Fan and Xiao 2006; Ji et al. 2008), overconfidence, optimism, self-attribution (Antonczyk and Salzmann 2014; Chui et al. 2010), framing (Levinson and Peng 2006) and herding behaviour (C.-H. Chang and Lin 2015), among others, are shown to be comparatively higher among certain cultures.

By determining how data have been collected and analysed, Kirkman et al. (2006) classify previous research on culture and business by three levels of analysis—namely, individual, group/organisational and country—and assert that most of the studies have been carried out at the individual and group/

organisational levels. According to the authors, individual-level studies typically examine relationships between individuals' cultural values and various outcomes. Our study emphasises CEOs. A growing literature documents the impact of various CEO characteristics on corporate outcomes (Bernile et al. 2017; Dittmar and Duchin 2016; Orens and Reheul 2013; Schoar and Zuo 2017; Tuliao and Chen 2017). The focus of our paper is different from these, as our study revolves around how the national culture of a CEO can shape the firm's leverage decision.

Culture is found to affect financial decision making via two channels: first, by beliefs or values that influence an individual's perceptions, preferences and behaviour, and second, by influencing national institutions (Aggarwal et al. 2016). The centre of our attention lies with the former; that is, the impact of culture on financial decision making exercised through the beliefs or values of individuals.

Nevertheless, *how can the two channels be distinguished from one another?* One way to tackle this is by utilising the difference in the "portability" of culture relative to economic and institutional conditions (Fernández and Fogli 2009). This is described as the "epidemiological approach" by Fernández (2011). When individuals emigrate, they carry with them some aspects of their culture and transmit them intergenerationally whilst living in the economic and formal institutional environment of the host country. This is the epidemiological approach's central premise, which attempts to identify "the effect of culture through the variation in economic outcomes of individuals who share the same economic and institutional environment, but whose social beliefs are potentially different" (p. 11). Thus, focusing on immigrants or their descendants helps isolate some aspects of culture (Fernández and Fogli 2009). Recent literature on culture and business benefitted largely from a variety of novel approaches that resulted in more persuasive evidence that culture matters, and a substantial amount of research on culture's impact on economic outcomes has resulted from the epidemiological approach (Fernández 2011).

As stated above, the epidemiological approach mostly focuses on immigrants or their descendants. Guiso et al. (2004) narrate how, for instance, immigrants from southern, low-trust regions in Italy tend to carry their mistrust with them to their new locations. Similarly, studies such as Antecol (2000), Blau (1991) and Carroll et al. (1994) employ immigrants to explore portability. On the other hand, in a noncorporate setting, Fisman and Miguel (2007) focus on United Nations diplomats and infer that diplomats from countries with a prominent level of corruption accumulate more unpaid parking violations in Manhattan. In their study on international soccer players in the European professional leagues, Miguel et al. (2011) conclude that a player from a country with a history of civil conflict has a higher propensity of behaving violently on the field, measured by yellow/red cards. The subjects of all these studies are first-generation immigrants or foreigners.

Nevertheless, to explore the same phenomenon of cultural portability, another set of researchers (Fernández and Fogli 2009; Giuliano 2007; Liu 2016; Nguyen et al. 2018; Pan et al. 2017) have employed descendants of immigrants as the study population. According to Fernández and Fogli (2009), the strength of cultural effects on economic outcomes may be diluted when studied through the descendants of immigrants. Therefore, in our paper, we only consider first-generation immigrants currently employed in the USA to prevent the dilution of culture or cultural assimilation. The nationality of an immigrant is sourced from their passports,[3] as documented in the BoardEx database.

However, these CEOs were born and bred in different environments. Thus, they can differ in more than just their cultural heritage (Carroll et al. 1994; Nguyen et al. 2018). Therefore, later in the study, we add a battery of additional controls to consider the heterogeneities in the level of socio-economic development, legal environment and financial institution development in CEOs' home countries for increased robustness.

2.2 | Conceptual Framework and Hypothesis Development

What determines a firm's leverage decision? Existing frameworks such as the trade-off theory (Kim 1978; Kraus and Litzenberger 1973; Lloyd-Davies 1975; Scott 1977), pecking order theory (Myers 1984) and market timing theory (Baker and Wurgler 2002; Myers 1984) emphasise the firm-, industry- and market-level determinants, such as tax rates, bankruptcy costs, firm-level asymmetric information and asset prices.

The trade-off theory focuses on the trade-off between the tax advantages of debt and the bankruptcy costs. Another aspect of the trade-off framework is the agency perspective. Increased debt in the firm will minimise free cash flows available to managers, thereby restraining them from transferring the firm's resources to their benefit (Jensen 1986; Jensen and Meckling 1976). However, increased debt leads to debt overhang and asset substitution problems between stockholders and bondholders (Jensen 1986; Jensen and Meckling 1976; Myers 1977). Hence, trading off the previously mentioned benefits versus agency debt costs will form the optimal capital structure. Harris and Raviv (1990), Hirshleifer and Thakor (1992), Morellec (2004) and Stulz (1990), among others, interpret the agency conflicts between manager–shareholder conflicts and equity holder–debtholder from different perspectives, yet agree that optimal capital structure can be obtained by striking a balance between the benefits and costs of debt.

On the other hand, managerial influences (e.g., CEO overconfidence, optimism, early life experiences, entrenchment) (Berger et al. 1997; Bertrand and Schoar 2003; Hackbarth 2008; Malmendier and Tate 2008; Malmendier et al. 2011) have long been included in the analysis and have produced, at times, contradictory results. Hackbarth (2008) suggests that overconfident and optimistic CEOs borrow more and behave in line with the tenets of the trade-off theory. In contrast, Malmendier and Tate (2008) and Malmendier et al. (2011), while deriving the same conclusion, support the pecking order hypothesis. Similarly, managerial entrenchment would result in reduced borrowing, as per Berger et al. (1997), whereas Harris and Raviv

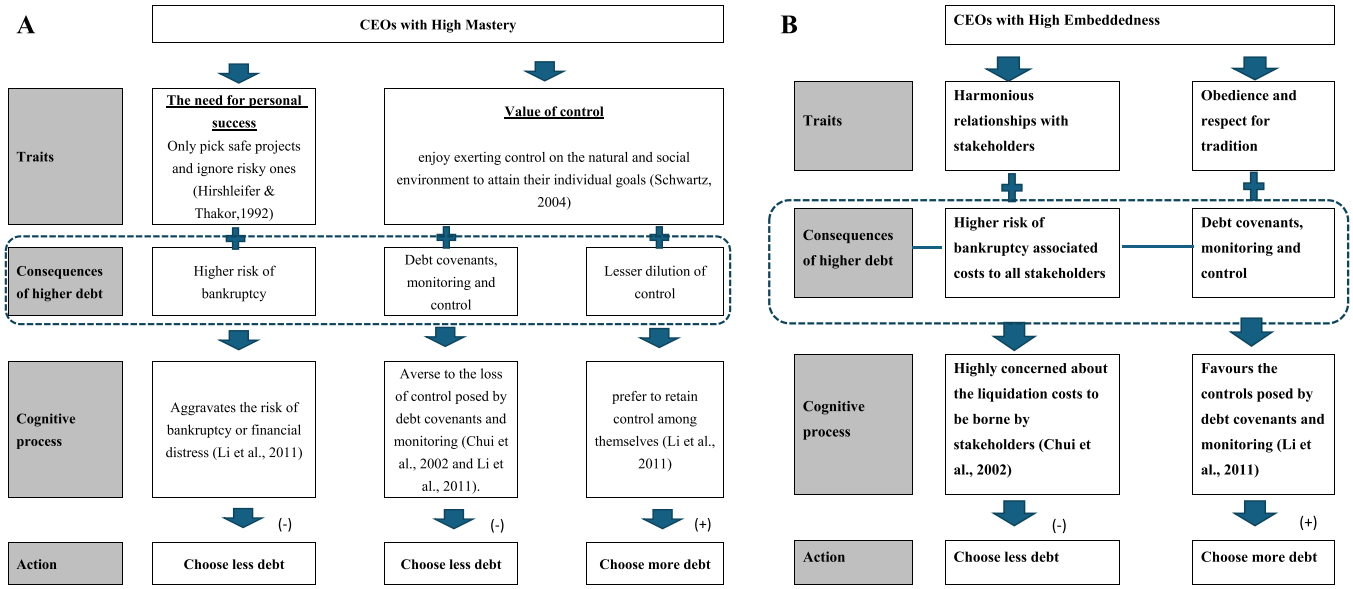

FIGURE 2 | (A) Conceptual foundation: The association between CEO mastery and the firm leverage decision—channels of influence. (B) Conceptual foundation: The association between CEO embeddedness and the firm leverage decision—channels of influence. CEO, chief executive officer. [Color figure can be viewed at wileyonlinelibrary.com]

(1988) and Stulz (1988) argue that entrenched managers borrow more to pre-empt takeover assets. Thus, a growing body of literature has documented the importance of including managerial factors in the capital structure equation. However, behavioural biases and managerial traits are difficult to observe and empirically measure. Therefore, one approach followed by previous researchers has been to study the observable characteristics of managers, such as their age, gender and education.

This aligns with the upper echelons perspective introduced by Hambrick and Mason (1984), which posits that "organizational outcomes, both strategies and effectiveness—are viewed as reflections of the values and cognitive bases of powerful actors in the organization" (p. 193), emphasising the role of top executives in shaping organisational outcomes.[4] In contrast, some authors argue that large organisations are driven by external forces and operate autonomously. However, Carnegie School theorists (March and Simon 1993) contend that complex decisions are influenced by behavioural factors, such as bounded rationality, conflicting goals, myriad options and varying aspiration levels, which limit purely techno-economic decision making (Hambrick and Mason 1984).

The Upper Echelons theory expects that, to a certain degree, the linkages between organisational strategies and the values and cognitive bases of powerful organisational actors can be detected empirically. Hambrick and Mason (1984) argue that observable background characteristics of managers can be used to predict "givens" (e.g., cognitive bases and values) that a manager brings to an administrative situation. They further argue that background characteristics are a better choice over psychological characteristics as, first, cognitive bases, values and perceptions of top-level managers are difficult to measure. Second, some background characteristics (such as functional background and tenure) may not be close substitutes for a psychological construct. Third, limitations to standard psychological dimensions (such as locus of control, cognitive style, etc.) could unnecessarily hinder investigations. Hambrick and Mason (1984) identify several important managerial characteristics in their study, such as age, functional tracks, other career experiences, education, socioeconomic roots, financial position and group characteristics.

Our paper extends this analysis and includes the cultural background of CEOs. Li et al. (2011) postulate that cultural characteristics affect the way that CEOs perceive the possible costs and benefits of debt financing. Our paper underlines the interaction between CEO culture and the notions of the trade-off framework. Whilst the tax advantage versus bankruptcy costs is the most common version of the trade-off framework, it is well known that tax effects are relatively hard to clearly identify in the data (Frank and Goyal 2009). Hennessy and Whited (2005) illustrate that transaction costs make it difficult to empirically identify the tax effects, although it is a principal element of the firm's problem. Furthermore, although taxes are crucial in steering leverage decisions, they are nominated as a subordinate factor by managers, among other firm-level drivers (Graham and Harvey 2001). Therefore, our paper underlines how a CEO's cultural background would exacerbate or attenuate debt's well-known benefits and costs. This line of thought is extended when developing the following hypotheses. In Figure 2A,B, we present the conceptual foundations of both mastery and embeddedness.

2.2.1 | The Association of Mastery and Leverage

According to Schwartz (2004), managers with high-mastery values foster self-assertion and exert power on the natural and social environment to attain personal goals. Furthermore, they nurture values such as ambition, success, daring and competence. To develop our hypotheses, we focus on two of the main traits of high-mastery managers; the need for personal success and the value of control (see Figure 2A).

1. *Mastery: The need for personal success and its influence on the costs of financial distress*

   Managers with high-mastery values cherish personal success. Hirshleifer and Thakor (1992) assert that, when managers are concerned about their personal performance, they would only pick safe projects that have higher rates of success and will ignore risky ones. Higher debt is associated with a higher risk of bankruptcy. High-mastery CEOs would exacerbate the financial distress costs, and their desire for personal success would lead them to choose less debt (Chui et al. 2002, 2016; Li et al. 2011), implying a negative relationship between mastery and leverage.

2. *Mastery: The value of control and the aversion to agency cost of debt*

   As mentioned above, high-mastery managers value control. As per Schwartz (2004), they enjoy exerting control on the natural and social environment to attain their individual goals. Covenants, monitoring and control associated with debt finance are known to mitigate free cash flow problems, such as managers enjoying unreasonably high perquisites, empire building, investing in value-destroying ventures and so forth (Jensen 1986; Jensen and Meckling 1976). High-mastery managers are averse to the strict discipline and loss of control posed by debt covenants and monitoring (Chui et al. 2002; Li et al. 2011). Thus, they would opt for less debt, denoting a negative relationship between mastery and leverage.

3. *Mastery: Value of control and the aversion to agency cost of equity*

Jensen (1986) argues that leverage alleviates managerial discretion. If so, managers may not issue the optimal level of debt unless there is pressure from disciplining forces (Berger et al. 1997). Harris and Raviv (1988) confirm that one possible reason for the issuance of more debt by managers is to retain voting control. Further, Graham and Harvey (2001) demonstrate that managers dislike the dilution of EPS. It is well known that if the firm is to raise finance through equity, it would lead to dilution of control. High-mastery managers, who value control, would desire to retain control among themselves. Hence, they may prefer debt financing and would curtail equity funds. This demonstrates a positive relationship between mastery and leverage.

Considering the above three channels of cultural influence on the firm leverage decision, we develop our first hypothesis as follows:

H_{a1}. *The leverage decision of a firm is influenced by the CEO's level of mastery.*

However, as the above three viewpoints on the association between mastery and target capital structure perspectives are contradictory, the ultimate direction of the association is an empirical question.

2.2.2 | The Association of Embeddedness and Leverage

Schwartz (2004) demonstrates that, in highly embedded societies, meaning of life percolates largely through harmonious social relationships and striving toward its shared goals. He further stresses that highly embedded cultures accentuate "maintaining the status-quo and restraining actions that might disrupt in-group solidarity or the traditional order" (p. 4). In addition, highly embedded managers place higher importance on values, such as respect for tradition, obedience and social order (see Figure 2B).

1. *Embeddedness: Nurturing harmonious relationships and its influence on the costs of financial distress*

   Bankruptcy costs are a part and parcel of increased debt. When the firm fails to respect its financial obligations, the associated costs will affect all stakeholders. Highly embedded managers relish harmonious relationships with their stakeholders. They are highly concerned about the liquidation costs which will have to be borne by them (Chui et al. 2002). Therefore, they would exacerbate possible bankruptcy risks (Chui et al. 2002, 2016; Li et al. 2011) and refrain from contacting excessive leverage which might disrupt in-group solidarity, and would, instead, opt for less debt. This infers a negative relationship between embeddedness and leverage.

2. *Embeddedness: Value of obedience that favours agency cost of debt*

Highly embedded managers foster values such as obedience and respect for tradition. Thus, in line with Li et al. (2011), we propose that highly embedded CEOs favour the debt covenants and monitoring imposed by debt financing, as they dislike taking their own initiative. They would rather prefer to be guided and favour shared responsibility of their actions rather than claiming ownership. In other words, they attenuate the agency cost of debt and, instead, consider the additional controls placed by obtaining more debt as a benefit. This portrays a positive association between embeddedness and leverage.

Summarising the above, we develop our Hypothesis 2 as follows:

H_{a2}. *The leverage decision of a firm is influenced by the CEO's level of embeddedness.*

However, whether the above two contradictory viewpoints of embeddedness on leverage result in the direction of the association between the two is an empirical question.

2.2.3 | The Portability of Mastery and Embeddedness to a Foreign Context

Portability, in our context, is defined as the persistent influence of the two cultural values of CEOs' mastery and embeddedness on firm leverage in a foreign setting, different from CEO's country of origin.

We examine portability by testing the following two hypotheses on a subsample that consists of only non-US CEOs:

$H_{a3.1}$. *The leverage decision of a US firm with a non-US CEO is influenced by the CEO's level of mastery.*

$H_{a3.2}$. *The leverage decision of a US firm with a non-US CEO is influenced the CEO's level of embeddedness.*

If the cultural values of the non-US CEOs evince statistical significance in the firm leverage decision, we can conclude that CEO culture is portable.

3 | Our Sample and Key Variable Construction

3.1 | Sample Overview

Our sample is based on the companies included in the Bloomberg US 3000 Index, which is a float market-cap-weighted benchmark of the 3000 most highly capitalised US companies (Bloomberg Finance LP 2024). The focus is on US companies because, as Hymowitz (2004) notes, "the number of foreign-born CEOs is increasing steadily in the USA, whilst European and Asian companies still look mostly to their own, to fill the corner office" (p. 2). Furthermore, Hambrick (2007) argues that US CEOs are arguably more diverse than those in nearly any other country in terms of age, educational background, socioeconomic status and functional experience. Another rationale for selecting a US sample is that US CEOs generally have more discretion compared with their counterparts in other developed economies. The US benefits from formal institutions that allow and encourage CEOs of publicly held corporations to take bold actions that they deem appropriate (Hambrick 2007). Consequently, this study posits that a US sample is more likely to yield results that support the Upper Echelons Theory.

Our sample selection follows a structured sequence of steps, as explained below. We first collate all companies included in the Bloomberg US 3000 Index over an 18-year period from 2007 to 2024, retrieving the annual list of observations from Bloomberg as of December 31st for each year (except for 2024, for which the data are based on updates available in early December). Consistent with prior research, we then apply the Industry Classification Benchmark (ICB) to exclude companies in the Financial and Utility industries, as their capital structures are likely to differ from those of the other firms in the sample, compiling the remaining firms into an unbalanced panel design comprising 2280 firms.

This approach offers two key advantages. First, the unbalanced longitudinal panel design includes all available firm-year observations, minimising potential survival bias. Second, by sampling companies in the Bloomberg US 3000 Index, we focus on the largest listed firms in the United States by market capitalisation, which represents a significant portion of the total market capitalisation of all publicly listed companies in the US. Therefore, it is assumed that the findings will provide a reliable association between CEO culture and firm leverage decisions (Berger et al. 1997).

We then obtain the nationality data for the CEOs of the sample companies from the BoardEx database. We recognise 41 different CEO nationalities in our sample, from which a majority represents the USA. This step is discussed in further detail in Section 3.2.1.

3.2 | Key Variables Construction

3.2.1 | Measures of Cultural Values

In accordance with prior research, we focus specifically on two cultural dimensions proposed by Schwartz (2004)—mastery and embeddedness—with the scores for these dimensions obtained for each CEO nationality collated in the previous step, from Schwartz (2004) study.

Occasionally, Schwartz's study distinguishes cultural groups within a single country; for example, Canadians as English and French-speaking and Germany as East and West. We exclude CEOs from the said two countries, due to the unavailability of specific information. CEOs originating from Armenia were also excluded, as Armenia is not included in Schwartz's research. In total, we gather nationalities of 3338 CEOs, originating from 41[5] different nationalities, serving 2280 firms from 2007 to 2024. The resultant data set is an unbalanced panel of 13,531 observations.

3.2.2 | Measures of Firm Leverage Decision

Our response variable is the firm's debt ratio, operationalised by the proportion of the firm's total debt to total assets at book value (Frank and Goyal 2009). A full description of all variables used in our study is provided in A1 in the Supporting Information Appendix. The required data to calculate the ratio are sourced from the Bloomberg database. We employ book values following Myers (1977), where book values refer to assets that are already in place. Frank and Goyal (2009) also state that market leverage numbers may be unreliable as a guide to corporate financial policy due to rapid fluctuations in the financial markets.

3.2.3 | Additional Variables

The lagged level of the debt ratio is considered in the model, as leverage decisions made may be based on previous policies (Brown et al. 2009). Furthermore, by including the lagged level of debt ratio in the model, we attempt to *first* control for the existing high or low levels of firm leverage and *second* better capture the decision making of the CEO, as a given CEO may take over the reins of a company with high/low level of gearing (ex ante). A number of firm-related and industry-level variables that are well known to affect capital structure (Frank and Goyal 2009; Rajan and Zingales 1995) are controlled for. These are tangibility, market-to-book ratio, profitability, number of employees, number of board members, board independence and industry median leverage. In addition, we include asset maturity (Li et al. 2011), industry concentration (MacKay and Phillips 2005) and market conditions (e.g., VIX and Nonfarm Payrolls) (Jiang 2023; Salisu et al. 2022) to our regression. Following the Upper Echelons theory, we also control for upper echelons characteristics of CEOs such as age, length of time in

the role, length of time on the board, gender and education (Hambrick and Mason 1984). A full description of all control variables and the expected signs is provided in A1 in the Supporting Information Appendix.

4 | Our Empirical Specification and Preliminary Observations

4.1 | Our Model Specification

The selected US companies in our sample may consist of both US-born and non-US-(foreign) born CEOs. To test our first and second hypotheses, we focus on the total sample, which comprises both US-born and foreign-born CEOs, and employ the following baseline specifications:

$$Q_{\text{debt}_{it}|X_{it}(\tau)} = \alpha + \beta_1 Mastery_{it} + \beta_2 debt_{(t-1)it} + \beta_3 tangi_{it} + \cdots + \beta_k NonFarmPayrolls_{it} + \varepsilon_{it,\tau}, \quad (1)$$

$$Q_{\text{debt}_{it}|X_{it}(\tau)} = \alpha + \beta_1 Embedded_{it} + \beta_2 debt_{(t-1)it} + \beta_3 tangi_{it} + \cdots + \beta_k NonFarmPayrolls_{it} + \varepsilon_{it,\tau}. \quad (2)$$

Matching the instrumental variables (IVs):

$$X_{it} = Z_{it}\gamma + \varphi_{it},$$
$$Z_{it} = \{debt_{(t-2)}, debt_{(t-3)}, debt_{(t-4)}, tangi_{(t-1)}, mktbk_{(t-1)}, \ldots\},$$

where $debt_{it}$ is the dependent variable and represents the leverage level of firm i at time t. X_{it} is a set of explanatory variables including, in order, firm characteristics variables, CEO characteristics, and market and industry variables. τ in the subsequent tests takes the values of 0.25, 0.5 and 0.75. *Mastery* and *Embedded* are scores for the cultural values *mastery* and *embeddedness*, as developed by Schwartz (2004). From a firm's point of view, these values not only vary with the individual firm (i) or CEO but also with the time (t) as a firm might have different CEOs at each year-end. The two cultural values, mastery and embeddedness, are considered separately in two regression models, as they show high correlation among each other. We include the lagged level of the debt ratio to proxy previous firm leverage policies and firm and year fixed effects and control for various CEO characteristics to take CEO fixed effects into account (Nguyen et al. 2018). $\varepsilon_{it,\tau}$ are the regression residuals indicating unexplained variation.

In the choice of IVs, we consider the following two main points. First, lagged variables ($debt_{(t-2)}$, $debt_{(t-3)}$, $debt_{(t-4)}$) can explain the current level of debt (*debt*) because past debt positions usually have a significant effect on the current level of debt (satisfying correlation). At the same time, lagged variables (especially earlier lagged terms) are generally not considered to directly affect the current error term (satisfying exogeneity), especially when there is no question of serial correlation of the error term or when its effect is small. The use of multiple lagged variables enhances the explanatory power of IVs and avoids possible weak correlation problems with single lagged IVs. Second, to control for potential endogeneity of the variables, we used lagged values of a range of explanatory variables (e.g., $tangi_{(t-1)}, mktbk_{(t-1)}, \ldots$) as IVs to reduce the potential endogeneity problem of these variables. These variables can avoid the problem of direct correlation with the current error term due to the time lag. At the same time, macro variables (e.g., $VIX_{(t-1)}, NonFarmPayroll_{(t-1)}, \ldots$) are typically exogenous and their lagged values are more likely to satisfy the IV assumptions.

To test the third hypothesis on the portability of cultural values to a foreign context, we create a subset of our sample which only consists of foreign-born CEOs. We collate the data for 246 foreign CEOs serving 225 companies during our sample period from 2007 to 2024. Baseline specifications (1) and (2) remain the same. The statistical significance of cultural dimensions in the non-US sample infers that the cultural values of CEOs are persistent in influencing the firm's leverage decisions, even in a foreign setting, which is different from the CEO's country of origin. This entails that cultural values are portable.

4.2 | Quantile Panel Regression (QR) With IVs

One objective of this study is to investigate how culturally biased CEOs manifest their financing decisions at varying levels of firm leverage. Therefore, to allow for the asymmetries between cultural values and leverage, we employ QR, which was introduced by Koenker and Bassett (1978) for our data analysis and estimate parameters that describe the 25%, median (50%) and 75% of the conditional distribution. QR models have significant advantages over Gaussian models, as the former is a semiparametric model and is less sensitive to the tail behaviour of the underlying random variables, representing the forecasting variables of interest, and, as a result, is less sensitive to outliers. Furthermore, controlling for individual specific heterogeneity via fixed effects while exploring heterogeneous covariate effects within the QR framework offers a more flexible approach to analysing panel data than that offered by the classical Gaussian fixed and random effects estimators (Galvao 2011).

There are, essentially, two ways to understand dynamic correlation; the first is a systemic approach (such as estimation within a vector autoregression with/without long-memory), where interdependence across markets is assumed but not modelled (Cheah et al. 2018). Yet, using this approach, one would be able to shed light on the "average" dynamic effect while being silent on what is happening on the other part of the distribution of this relationship. The second approach, which we propose in this paper, is a full-distributional approach where focus is laid on each part of the distribution of the variable; in our case, it is a study of a quantile-based dynamic correlation structure at various points of the distribution of a firm's leverage. A theoretical expectation is that a dynamic correlation between firms in markets A and B, for instance, will be heterogeneous over the entire distribution range. By modelling such heterogeneity, one is able to gather complete information about

the directional prediction pattern of one market over the other at distinct parts of the distribution of the tail. A further implication is that, since "fat-tailed" distributions depict implicit "biased behavioural patterns" (generated by asymmetric and incomplete information plus bounded rationality of agents), the same variable in two different markets can depict distinct cultural dynamics. Only when one can fully characterise the correlation of these "biased" cultural dynamics is it possible to create an exhaustive information set that can be used to predict the dynamic path of one over the others. We model directional heterogeneous effects across firms over the entire distribution of the leverage spectrum and, to the best of our knowledge, appear to be the first paper to propose a complete characterisation of the tail behaviour of cultural attributes across the entire leverage spectrum.

The presence of a lagged dependent variable as a regressor gives rise to serial correlation in the error terms. According to Nickell (1981), classical ordinary least squares (OLS) estimators in dynamic panel models with fixed effects are critically biased when the time dimension of the panel is short. Conventional QR estimation of dynamic panel data models with fixed effects also suffers from bias effects, as seen in the least squares case, when the temporal dimension is modest (Galvao 2011), as in our case. Therefore, to reduce the dynamic bias in the quantile regression fixed effects estimator, we use the IVs quantile regression method of Chernozhukov and Hansen (2005, 2008) along with lagged regressors as instruments, as suggested by Galvao (2011).[6]

4.3 | Accounting for the CEO–Firm Matching Problem and Endogeneity Concerns

Our empirical specification may be beset with possible CEO–firm matching problems. CEOs and firms may not match randomly, but firms may select CEOs to match the values of the existing leadership (Pan et al. 2017). This implies that firms with foreign executives or directors are innately different from others, due to unobserved characteristics. We use firm fixed effects, as these are known to control for unobserved heterogeneity in a panel data regression.

A possible source of endogeneity can be due to the mutual causality between a firm's leverage decision and CEO mastery/embeddedness values. Reverse causation between firm leverage decisions and CEO cultural values may occur if firms hire CEOs with preferred characteristics to continue their existing leverage policies. This problem has already been considered, as explained above. Another source of endogeneity is the existence of an omitted variable that is confounding both independent and dependent variables. To alleviate this problem, we employ two steps. First, we employ (unconditional) quantile regression approach with IVs (Chernozhukov and Hansen 2005, 2008) along with lagged regressors as instruments, as suggested by Galvao (2011). Second, we control for additional formal institutions to capture the effect of variables that may not have been controlled for previously, which is explained under Section 6 robustness tests. Furthermore, the robust quantile regression methods solve, in part, the problem of outliers in the data.

4.4 | Preliminary Observations

First, pairwise correlations were examined for the total sample. Despite the high correlation between the number of board members and the number of employees in the firm, as well as between the length of time that the CEO has been in the position and the time he or she has been on the board, variance inflation factors among the same are well below the cut-off threshold of 10 (Hair et al. 2010), which suggests a moderate correlation that is not severe enough to warrant corrective measures (see Table 1).

With reference to Das (2019), we applied the Fisher-type panel unit root test based on the Phillips–Perron procedure to account for potential nonstationarity in the variables. This method was chosen because it accommodates unbalanced panels and allows for heterogeneity across individual units (Habimana 2016; Veeravel et al. 2024). We find overwhelming evidence against the null hypothesis of a unit root and, therefore, conclude that total debt as a proportion of total assets at book value is stationary. Unit root tests are also run for alternative debt ratios and other variables (see Table 2). We reject the null of unit roots for all debt ratios and control variables at the 1% level.

Pesaran et al.'s (2004) cross-sectional dependence test indicates that the residuals are not correlated across entities. However, the modified Wald test implies the presence of groupwise heteroscedasticity in our fixed effect regression model. Wooldridge's test denotes that there is a serial correlation in the error terms in the main specifications used in our research, which is inevitable with the presence of a lagged dependent variable as a regressor. The use of QR methods with instruments overcomes both these problems.

4.5 | Summary Statistics

Table 3 depicts the summary statistics. Panel A of Table 3 depicts that 246 out of the 3338 (7.37%) are foreign-born CEOs. We find only 17 (6.91%) females in the foreign-born category, whereas there are 392 (12.68%) US-born female CEOs in our sample. In contrast, male CEOs constitute the majority, with 229 (93.09%) foreign-born and 2700 (87.32%) US-born CEOs. According to panel B, the average mastery and embeddedness scores in our sample are 4.080 and 3.645, respectively. The three countries with the highest scores of *Mastery* are China (4.41), India (4.28) and Greece (4.25), whilst the three countries with the lowest scores of mastery are Egypt (3.66), France (3.72) and Spain (3.80). Similarly, Egypt (4.45), Iran (4.18) and Cyprus (4.04) are the countries with the highest scores of embeddedness and Germany (3.095), Austria (3.11) and Sweden (3.12) are the three countries with the lowest scores of embeddedness in our sample.

Panel B illustrates some summary statistics of alternative dependent variables, firm, industry, market condition and CEO-level control variables. The average debt ratio for all companies in the sample, irrespective of their industry, is 25.37% of total debt and 23.06% of long-term debt when calculated as a proportion of the book value of assets. The same ratios drop to

TABLE 1 | Pairwise correlation matrix and variance inflation factor (VIF) test.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	VIF (1)	VIF (2)
(1) *Mastery*	1.0000										—	1.04
(2) *Embedded*	0.8018***	1.0000									1.03	—
(3) *l_debt*	−0.0425***	−0.0384***	1.0000								1.13	1.13
(4) *tangi*	0.0260***	0.0286***	0.1875***	1.0000							1.40	1.40
(5) *mktbk*	−0.0174**	−0.0054	−0.0043	−0.2257***	1.0000						1.15	1.15
(6) *profit*	0.0204***	0.0440***	0.0333***	0.0652***	−0.1359***	1.0000					1.22	1.22
(7) *assetmat*	−0.0551***	−0.0545***	0.0213**	0.1970***	0.0745***	−0.3770***	1.0000				1.32	1.32
(8) *Ln (no. of employees)*	−0.0905***	−0.0657***	0.1970***	0.0361***	−0.1356***	0.2128***	−0.2450***	1.0000			1.58	1.59
(9) *Number_Directors*	−0.1197***	−0.1127***	0.2203***	0.0680***	−0.0435***	0.0630***	−0.0486***	0.5295***	1.0000		1.46	1.46
(10) *time_role*	0.0450***	0.0256***	−0.0319***	0.0034**	−0.0303***	0.0454***	−0.0583***	0.1208***	0.0910***	1.0000	1.92	1.92
(11) *Time_Brd*	0.0710***	0.0549***	−0.0605***	0.0241***	−0.0381***	0.0578***	−0.0565***	0.0987***	0.0387***	0.6760***	2.05	2.05
(12) *Age*	0.0643***	0.0383***	−0.0146*	0.0326***	−0.1352***	0.0295***	−0.0327***	0.0053***	0.0454***	0.2336***	1.17	1.17
(13) *no_quals*	−0.0255***	−0.0074***	0.0031	−0.0651***	0.0064	−0.0093**	0.0155***	0.0090	0.0374***	−0.0097	1.03	1.03
(14) *gender*	−0.0367***	−0.0316***	−0.0300***	0.0287***	−0.0361***	−0.0045	0.0063	−0.0558***	−0.0266***	0.0457***	1.05	1.05
(15) *Board_independence*	−0.0465***	−0.0349***	0.0508***	−0.0390***	0.0790***	−0.0458***	0.0499***	−0.0179***	0.0394**	−0.3721***	1.25	1.25
(16) *median_leverage*	0.0020	0.0166**	0.1942***	0.4309***	−0.2463***	0.0846***	−0.0287***	0.0584***	0.0940***	0.0661***	1.37	1.37
(17) *industry_hhi*	−0.0231***	−0.0112	−0.0033	0.1421***	−0.0342***	0.0083**	−0.0033	−0.0446***	−0.0251***	−0.0173**	1.06	1.06
(18) *VIXindex*	0.0053	0.0033	−0.0373***	−0.0137**	−0.0932***	−0.0095	−0.0254***	−0.0021**	−0.0035*	−0.0362***	1.87	1.87
(19) *NonFarmPayrolls*	−0.0086	−0.0074	0.0295***	0.0055	0.0802***	0.0188	0.0272***	0.0109**	0.0144***	0.0417***	1.84	1.84

Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(11) *Time_Brd*	1.0000								
(12) *Age*	0.2816***	1.0000							
(13) *no_quals*	−0.0710***	0.0391***	1.0000						
(14) *gender*	0.0962***	0.1666***	−0.0842***	1.0000					

(Continues)

TABLE 1 | (Continued)

Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(15) *Board_independence*	−0.4135***	−0.1453***	0.0445***	−0.0511***	1.0000				
(16) *median_leverage*	0.0522***	0.0539***	−0.0425***	0.0145***	−0.0591	1.0000			
(17) *industry_hhi*	−0.0296***	−0.0428***	−0.0213***	0.0103***	0.0418	0.1724***	1.0000		
(18) *VIXindex*	−0.0356***	0.0917***	−0.0095***	0.0205	0.0283***	0.1481***	0.1110***	1.0000	
(19) *NonFarmPayrolls*	0.0404***	−0.1128***	0.0082***	−0.0328	−0.0146***	−0.1058	−0.0864***	−0.6716***	1.0000

Note: VIF(1) column reports the variance inflation factors for econometric specification (1) and VIF(2) column reports the variance inflation factors for econometric specification (2). All variables are defined in Supporting Information S1: Appendix.
***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

13.21% and 11.98%, respectively, when calculated as a proportion of market values of assets. It further portrays that the average age of a CEO is about 74 years old and that he or she, on average, holds two educational qualifications (undergraduate) at the selected annual report date. In addition, they have approximately 6 years of CEO experience in the position and approximately 8 years of Board of Directors experience.

5 | Main Empirical Results and Discussion

5.1 | The Association of Mastery and Leverage

Panel A of Table 4 depicts the results of the quantile regression method for panel data using instrumental variables (QRPIV) for specification (1). The results demonstrate that there is a negative relationship between mastery and leverage which is statistically significant at the 1% level for all three quantiles.

When mastery increases by one unit, total debt as a proportion of total assets at book value reduces, by about 6.86%, 0.59% and 13.63% on average at $q = 0.25$, 0.5 and 0.75, respectively, holding all other variables constant.

The inverse relationship between CEO mastery and firm leverage can be a result of two phenomena. First, it is well known that debt finance is accompanied by debt covenants, monitoring and control. As high-mastery managers cherish control, they would be averse to the loss of control posed by debt covenants and monitoring introduced by higher debt in the capital structure (Chui et al. 2002; Li et al. 2011). On the other hand, high-mastery CEOs like to demonstrate their abilities and, hence, enjoy implementing aggressive policies in a firm (Chui et al. 2002, 2016). They would not want their assertive corporate initiatives to be hindered by debt covenants at any cost. Rajan and Zingales (1995), however, indicate that debt monitoring is somewhat attenuated in large firms, as the size of the firm is an inverse proxy of the risk of bankruptcy. Our sample consists of the largest firms in the US; hence, debt monitoring in these firms may be moderated to a certain degree.

Then again, the risk of bankruptcy and financial distress would understandably increase when the relative level of debt increases in a firm's capital structure. High-mastery managers are overly concerned about personal success (Schwartz 2004) and they aggravate bankruptcy-related costs (Chui et al. 2002, 2016; Li et al. 2011). Bankruptcy is perceived as a failure of the management, and hence, it is presumable that high-mastery managers would tend to avoid such a situation. Therefore, the desire of high-mastery managers for personal success would steer them away from debt (Li et al. 2011).

A closer examination of the three quantiles (0.25, 0.5 and 0.75) indicates that the coefficients of CEO mastery are slightly higher at the ends of the leverage distribution than at the middle. This implies that the effects of CEO mastery are higher in magnitude in the lower and upper tails of the distribution rather than in the middle. Thus, we conclude that mastery plays its role best at extreme levels of leverage rather than at the average level (see panel A of Figure 3).

TABLE 2 | Fisher-type panel unit root test.

Variable	Test statistic	Statistic	*p* value	Conclusion
*debt*1	Inverse Chi-squared	8648.3200	0.0000	Stationary
	Inverse normal (*Z*)	−13.4647	0.0000	
	Inverse logit	−34.9626	0.0000	
	Modified Chi-squared	53.5097	0.0000	
*debt*2	Inverse Chi-squared	7913.5948	0.0000	Stationary
	Inverse normal (*Z*)	−12.3968	0.0000	
	Inverse logit	−31.0236	0.0000	
	Modified Chi-squared	45.2054	0.0000	
*debt*3	Inverse Chi-squared	8443.8940	0.0000	Stationary
	Inverse normal (*Z*)	−18.1104	0.0000	
	Inverse logit	−37.3749	0.0000	
	Modified Chi-squared	51.1991	0.0000	
*debt*4	Inverse Chi-squared	8917.1993	0.0000	Stationary
	Inverse normal (*Z*)	−19.6075	0.0000	
	Inverse logit	−40.2560	0.0000	
Mastery	Modified Chi-squared	56.5487	0.0000	
	Inverse Chi-squared	652.1539	0.0000	Stationary
	Inverse normal (*Z*)	−16.9774	0.0000	
	Inverse logit	−18.4156	0.0000	
	Modified Chi-squared	−32.2372	0.0000	
Embedded	Inverse Chi-squared	652.1539	0.0000	Stationary
	Inverse normal (*Z*)	−16.6151	0.0000	
	Inverse logit	−18.0907	0.0000	
	Modified Chi-squared	−32.7223	0.0000	

Note: Fisher-type panel unit root test based on the Phillips–Perron procedure is applied to account for potential nonstationarity in the variables. All variables are stationary. For brevity, results for the control variables are unreported. All variables are defined in Supporting Information Appendix.

5.2 | The Association of Embeddedness and Leverage

Panel B of Table 4 depicts the results of the QRPIV for specification (2).

5.2.1 | At the Lowest Quantile ($q = 0.25$) and the Median ($q = 0.50$)

Our results portray that, at the lowest quantile, a one-unit increase in embeddedness can increase incremental debt on average by approximately 2.12%. At the median, the effect is negligible, when all other variables are held constant.

In general, these two quantiles comprise firms with low and moderate leverage. When firms are low geared ($q = 0.25$), our results depict that the embeddedness value of a manager plays a crucial role in determining the leverage of the firm. On average, it can increase the proportion of debt by about 2.12%, holding all other variables constant. This implies that, given the choice, highly embedded CEOs would opt for debt, as they dislike taking the initiative and prefer to be guided. They are willing to adhere to controls placed by debt finance. Moreover, as current leverage is low, CEOs have more flexibility in terms of funding decisions and are in a better position to increase current debt levels with minimum stakeholder scrutiny. On the other hand, this tendency could also stem from the fact that managers from highly embedded cultures prioritise self-discipline and are less inclined toward activities driven by agency considerations. As a result, they are less concerned about the additional monitoring mechanisms imposed by increased debt financing (Chui et al. 2016), making them more comfortable with maintaining high debt in the capital structure.

Alternatively, these firms that occupy the lowest quantile reveal that they have excess debt capacity. The excess debt capacity may be a result of the existence of frictions, such as agency costs and asymmetric information. Hence, CEOs' increasing debt in least levered firms may also be driven by the intense pressure from board members, shareholders and other related parties to enhance firm value.

TABLE 3 | Summary statistics.

A: CEO statistics			
	US	**Foreign**	**Total**
Section A			
Female	1902 (12.01%)	99 (7.70%)	2001 (11.68%)
Male	13,941 (87.99%)	1187 (92.30%)	15,128 (88.32%)
Total	15,843	1286	17,129
Section B			
Female	392 (12.68%)	17 (6.91%)	409 (12.25%)
Male	2700 (87.32%)	229 (93.09%)	2929 (87.75%)
Total	3092	246	3338

Note: This table classifies CEOs by nationality (US or foreign) and gender (male or female). Section A reports statistics for all firm-year observations, while Section B reports statistics for the number of CEOs.

B: CEO, firm, industry and market characteristics						
Variables	***N***	**Mean**	**SD**	**Minimum**	**Median**	**Maximum**
Dependent variables: Different methods of measurement						
Total debt/Total assets	17,129	0.2537	0.2215	0.0000	0.2280	1.0317
Long-term debt/Total assets	17,129	0.2306	0.2142	0.0000	0.2001	1.0121
Long-term debt/Market value of assets	17,129	0.1198	0.1262	0.0000	0.0894	1.1145
Total debt/Market value of assets	17,129	0.1321	0.1333	0.0000	0.1021	1.1145
Independent variables						
Mastery	17,129	4.0799	0.0422	3.8100	4.0900	4.0900
Embedded	17,129	3.6452	0.0934	3.1900	3.6700	3.6700
Firm-specific variables						
Tangibility	17,129	0.2350	0.2193	0.0035	0.1568	0.9447
Market-to-book ratio	17,129	2.6770	2.0003	0.0727	2.0619	13.5616
Profitability	17,129	−0.996	1.6014	−22.9603	0.0843	0.5229
Asset maturity	17,129	0.0508	0.1228	0.0020	0.0212	1.1136
Ln (*no. of employees*)	17,129	8.2215	1.7506	2.9444	8.2646	12.2259
Number_Directors	17,129	8.8629	2.0132	5.0000	9.0000	14.0000
Board_independence	17,129	0.5323	0.2080	0.0000	0.5556	0.9000
CEO-specific variables						
Time in role	17,129	6.4542	5.8459	0.1000	4.7000	27.8000
Time_Brd	17,129	8.8202	8.0078	0.2000	6.5000	38.9000
Age	17,129	74.6475	7.6979	56.0000	75.0000	93.0000
No. of qualifications	17,129	2.1983	1.0344	0.0000	2.0000	6.0000
gender	17,129					
Industry-specific variables						
median_leverage	17,129	0.1507	0.0871	0.0095	0.1684	0.7189
industry_hhi(*concentration*)	17,129	0.0529	0.0369	0.0164	0.0465	0.6187
Market-related variables						
VIXindex	17,129	19.7373	6.5254	11.0400	18.2100	40.0000

(Continues)

TABLE 3 | (Continued)

B: CEO, firm, industry and market characteristics						
Variables	***N***	**Mean**	**SD**	**Minimum**	**Median**	**Maximum**
NonFarmPayrolls	17,129	0.9495	2.7999	−6.9800	1.4600	5.6600
Other controls: CEO's country of origin						
Ln (*GDP*)	17,071	30.3577	0.6031	25.9602	30.4995	30.7918
Life expectancy	17,074	78.4341	1.3008	54.9920	78.6390	83.4976
Ln (*Stock trading as a % of GDP*)	16,709	5.3385	0.3774	0.8335	5.3998	5.7679
Ln (*Bank deposits as a % of GDP*)	15,200	4.4085	0.0829	3.0889	4.3992	4.8425
same_nationality	17,129					

Note: This table reports the summary statistics for other CEO, firm, industry and market variables. Our sample covers all firms listed in Bloomberg 3000 for the period from 2007 to 2024 excluding financial and utility sectors. All variables are defined in Supporting Information Appendix.
Abbreviations: CEO, chief executive officer; GDP, gross domestic product.

5.2.2 | At the Highest Quantile ($q = 0.75$)

When moving along the leverage distribution from the lower quartiles to the upper quartiles, the positive association between CEO mastery and firm leverage moves in the opposite direction, indicating a nonlinear relationship.

At the upper quartile, 0.75, embeddedness is negative and statistically significant at the 1% level. At the upper tail of the leverage distribution ($q = 0.75$), when mastery increases by one unit, the average drop in total debt as a proportion of total assets at book value is about 0.59%, ceteris paribus. The negative relationship may stem from highly embedded managers' preference for harmonious stakeholder relationships and their aggravation of bankruptcy costs. To avoid potential bankruptcy risks and preserve in-group solidarity, they tend to limit excessive leverage and opt for lower debt levels (Chui et al. 2002, 2016; Li et al. 2011), especially when the existing gearing is high ($q = 0.75$).

The nonlinear association of embeddedness with leverage directs our conclusions to a new spectrum. First, it reveals that highly embedded CEOs behave in line with the notions of the trade-off theory. Highly embedded CEOs, inadvertently, follow an implicit target capital structure, where they increase firm leverage to a certain level and then drive down the same. Second, it also implies that financing decisions taken by culturally influenced foreign CEOs are contextual and that they may not always lead to higher debt. This finding is in line with Nguyen et al. (2018), who contend that the performance effects of certain cultures are not consistently good or poor; rather, they are context-dependent.

5.2.3 | Other Determinants

All firm- and industry-related variables indicate a statistically significant (at the 1% level) impact on firm leverage for both models with mastery and embeddedness. The lag level of the debt ratio has a positive association with the current debt ratio, as expected. Tangibility shows a positive relationship with leverage at low to moderate current debt levels. Still, it reverses to a negative relationship at very high debt levels ($q = 0.75$), indicating a nonlinear association with leverage in both models featuring mastery and embeddedness. This observation warrants further research.

The signs are as expected for market-to-book ratio (negative), firm size (positive) and asset maturity (positive). Profitability depicts a positive relationship for both models when existing gearing is low, as, when profits are high, financial distress costs are less likely, but changes sign from positive to negative when existing gearing increases. Board size, independence, industry median leverage and industry concentration are all positively related to the firm's debt ratio, as expected.

All CEO characteristics are statistically significant for at least one quantile in both models. While the coefficients are negligible at lower quantiles, they slightly increase at higher quantiles. These findings offer new insights. First, the results infer that managerial fixed effects can significantly explain a firm's financial practices (Bertrand and Schoar 2003). Second, the results also imply that managerial characteristics on the leverage decision become more prominent at extreme situations, like, when the firm is highly geared. However, negligible values of the coefficients suggest low economic significance.

6 | Robustness Tests

6.1 | Addressing Endogeneity Concerns

Both leverage decisions and our cultural values may be a determinant of a third factor that we have not controlled for in our specifications (1) and (2). Thus, to overcome possible endogeneity concerns caused by omitted variables, we include the following variables in our main specifications.

1. *Adjustment for the heterogeneity in the level of socioeconomic development in CEOs' home countries*

   Although all the CEOs in our sample currently reside in the United States and are employed by US firms, their countries of origin are diverse. Thus, the socioeconomic status of these countries also varies from one another (Carroll et al. 1994). According to previous studies, cultural values are interrelated with the wealth of nations (Schwartz 1994). Therefore, does this mean that the leverage decision of the individual CEOs was merely influenced by their different socioeconomic background and not by national cultural values?

TABLE 4 | CEOs' culture and firm leverage.

QRPIV							
Dependent variable = Total debt/Total assets at book value							
	Panel A				**Panel B**		
Variables	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**Variables**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**
Mastery	−0.0686***	−0.0059***	−0.1363***	*Embedded*	0.0212***	0.0057***	−0.0059**
	(0.0140)	(0.0007)	(0.0152)		(0.0029)	(0.0004)	(0.0024)
l_debt	0.8872***	0.9774***	1.0000***	*l_debt*	0.8879***	0.9774***	0.9984***
	(0.0004)	(0.0001)	(0.0002)		(0.0001)	(0.0000)	(0.0001)
Firm-specific variables				Firm-specific variables			
tangi	0.0013***	0.0015***	−0.0047***	*tangi*	0.0004**	0.0015***	−0.0090***
	(0.0001)	(0.0000)	(0.0004)		(0.0002)	(0.0000)	(0.0001)
mktbk	−0.0005***	−0.0000***	−0.0006***	*mktbk*	−0.0006***	−0.0000	−0.0003***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
profit	0.0000***	−0.0001***	−0.0099***	*profit*	0.0001***	−0.0001***	−0.0093***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
assetmat	0.0040***	0.0013***	0.0272***	*assetmat*	0.0070***	0.0015***	0.0242***
	(0.0004)	(0.0001)	(0.0003)		(0.0002)	(0.0000)	(0.0003)
Ln (no. of employees)	0.0009***	0.0001***	0.0022***	*Ln_(no. of employees)*	0.0007***	0.0001***	0.0025***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
Number_Directors	0.0006***	0.0001***	0.0003***	*Number_Directors*	0.0006***	0.0001***	0.0004***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
Board_independence	0.0013***	0.0005***	0.0144***	*Board_independence*	0.0022***	0.0004***	0.0131***
	(0.0002)	(0.0000)	(0.0001)		(0.0002)	(0.0000)	(0.0002)
CEO-specific variables				CEO-specific variables			
time_role	−0.0000***	−0.0000***	−0.0002***	*time_role*	−0.0001***	−0.0000***	−0.0003***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
Age	0.0000***	0.0000***	0.0002***	*Age*	0.0000	0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
no_quals	0.0007***	0.0001***	0.0008***	*no_quals*	0.0004***	0.0001***	−0.0000
	(0.0001)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)

(Continues)

TABLE 4 | (Continued)

QRPIV							
Dependent variable = Total debt/Total assets at book value							
	Panel A				**Panel B**		
Variables	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**Variables**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**
gender	0.0015***	−0.0000	0.0001	*gender*	−0.0001	0.0001***	0.0022***
	(0.0001)	(0.0000)	(0.0001)		(0.0002)	(0.0000)	(0.0001)
Time_Brd	−0.0000***	−0.0000***	−0.0002***	*Time_Brd*	−0.0000***	−0.0000***	−0.0003***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
Industry-specific variables				Industry-specific variables			
median_leverage	0.0103***	0.0031***	0.0623***	*median_leverage*	0.0122***	0.0036***	0.0752***
	(0.0007)	(0.0000)	(0.0004)		(0.0001)	(0.0001)	(0.0006)
industry_hhi	−0.0164***	0.0060***	0.0570***	*industry_hhi*	−0.0070***	0.0070***	0.0291***
	(0.0025)	(0.0003)	(0.0013)		(0.0009)	(0.0001)	(0.0009)
Market-related controls				Market-related controls			
VIXindex	0.0002***	0.0000***	0.0006***	*VIXindex*	0.0001***	0.0000***	0.0007***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
NonFarmPayrolls	0.0004***	0.0000***	0.0008***	*NonFarmPayrolls*	0.0003***	0.0000***	0.0013***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
Observations	13,531	13,531	13,531	*Observations*	13,531	13,531	13,531
No. of groups	2280	2280	2280	*No. of groups*	2280	2280	2280

Note: The dependent variable is the proportion of the firm's total debt to total assets at book value. Panels A and B depict specifications (1) and (2). The coefficients are estimated based on fixed effects quantile regression dynamic panel instrumental variables (QRPIV), for quantiles (0.25, 0.5 and 0.75) in columns (1)–(3), respectively. Results are based on 1000 replications. All time-variant independent variables are assumed to be endogenous and are instrumented by lags $t-2$, $t-3$ and $t-4$ firm's total debt to total assets at book value, as well as lags dated $t-1$ of tangibility, market-to-book ratio, profitability, asset maturity, no. of employees, time in role, age, number of directors, time on board, no. of qualification, gender, board independence, industry median leverage, industry concentration, VIX index and nonfarm payrolls. All models include firm and year fixed effects. Standard errors are shown in parentheses. All the variables are defined in Supporting Information Appendix.

Abbreviations: CEO, chief executive officer; VIX, volatility index.

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

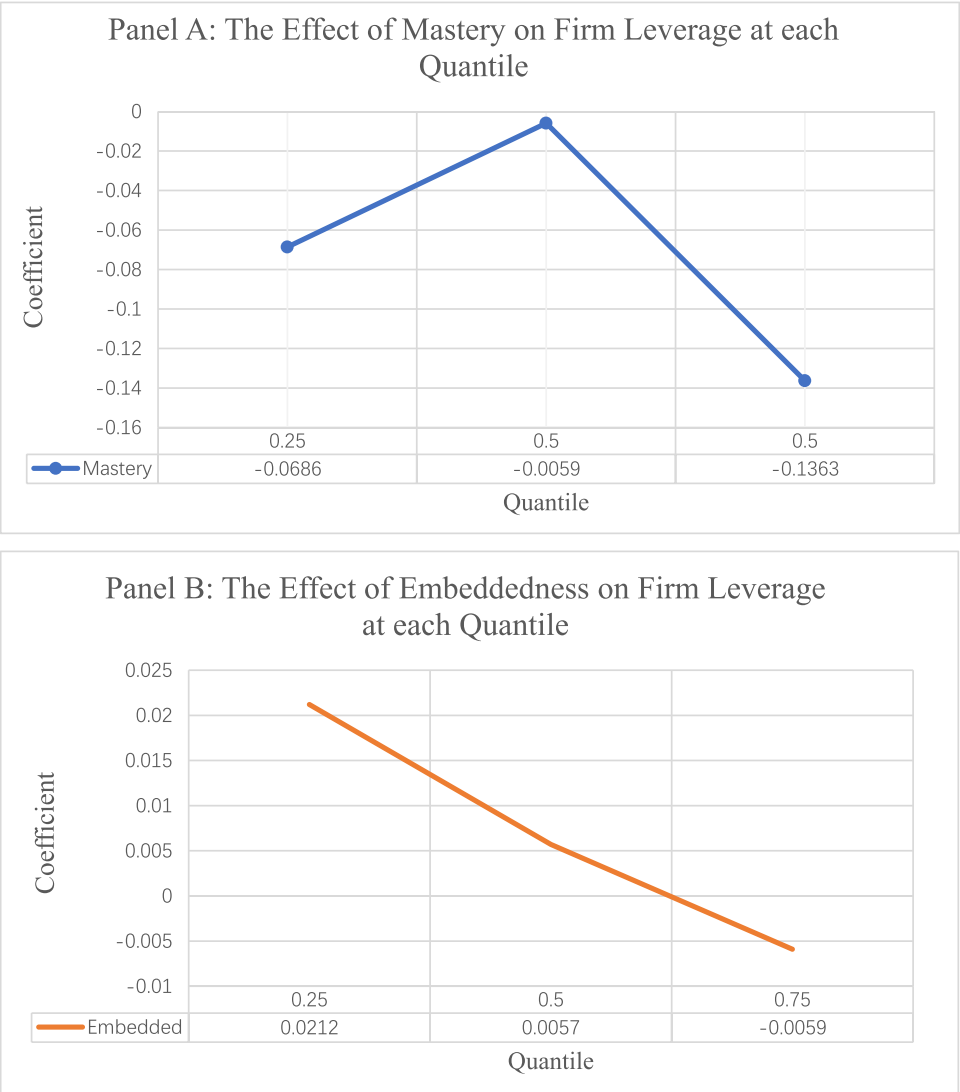

FIGURE 3 | The heterogeneous effects of culture on firm leverage. Panel A: The effect of mastery on firm leverage at each quantile. Panel B: The effect of embeddedness on firm leverage at each quantile. [Color figure can be viewed at wileyonlinelibrary.com]

To address this question, we have gathered data on GDP per capita and life expectancy for a CEO's country of origin from the World Bank, following Nguyen et al. (2018). GDP per capita and life expectancy[7] are included in our econometric specifications (1) and (2) and the results are revealed in panels A and B in Table 5. Our hypotheses are supported even after controlling for the heterogeneity in the level of socioeconomic development in CEOs' home countries.

2. *Adjustment for the heterogeneity in financial institutions in CEOs' home countries*

Countries differ in terms of the configuration of their financial systems. Some countries, like, Germany and Japan, have very strong banking systems, while countries such as the US and the United Kingdom (UK) have active stock markets (Barth et al. 1997). Therefore, when a CEO, who originates from a country with a strong banking sector and a less active stock market, is considering raising additional funds, his or her decision would be naturally biased toward obtaining more debt, and vice versa. To address this matter, we consider the level of stock market activity and the size of the banking sector of each CEO's home country in our regression equation. To proxy the stock market activity, we employ total value of stocks traded as a percentage of GDP, and to measure the size of the banking sector, we use bank deposits as a percentage of GDP, sourced from the World Bank (Chui et al. 2002). We include these two variables in our econometric specifications (1) and (2), and the results validate that cultural values are still significant at the 1% level, even after controlling for the heterogeneity in financial institutions (see Table 5).[8]

Considering the above, we can conclude that the cultural values of a CEO have a statistically significant impact on a firm's leverage decision, even after taking into account the differences in the socioeconomic and financial institutions of the CEO's country of origin. This finding also reinforces the view of Anderson et al. (2011), which asserts that culture

TABLE 5 | Robustness tests (total sample): Controlling for socioeconomic development, legal environment and the quality of financial institutions of the CEO's country of origin.

	QRPIV								
	Dependent variable = Total debt/Total assets at book value								
	Panel A					Panel B			
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Variables	$q = 0.5$				Variables	$q = 0.5$			
Mastery	−0.0420***	−0.0678***	−0.0268***	−0.0082***	*Embedded*	0.0171***	0.0320***	0.0163***	0.0081***
	(0.0016)	(0.0063)	(0.0017)	(0.0019)		(0.0023)	(0.0015)	(0.0007)	(0.0004)
l_debt	0.9773***	0.9771***	0.9773***	0.9773***	*l_debt*	0.9773***	0.9775***	0.9773***	0.9789***
	(0.0000)	(0.0001)	(0.0000)	(0.0000)		(0.0000)	(0.0001)	(0.0000)	(0.0001)
Firm-specific variables					Firm-specific variables				
tangi	0.0016***	0.0043***	0.0016***	0.0012***	*tangi*	0.0017***	0.0041***	0.0020***	0.0009***
	(0.0000)	(0.0001)	(0.0001)	(0.0001)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
mktbk	−0.0000***	0.0000	−0.0000***	−0.0000***	*mktbk*	−0.0000***	−0.0000***	0.0000**	−0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
profit	−0.0001***	−0.0001***	−0.0002***	−0.0002***	*profit*	−0.0001***	−0.0001***	−0.0001***	−0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
assetmat	0.0017***	0.0028***	0.0017***	0.0018***	*assetmat*	0.0016***	0.0028***	0.0016***	0.0023***
	(0.0000)	(0.0000)	(0.0000)	(0.0001)		(0.0001)	(0.0000)	(0.0001)	(0.0001)
Ln (no. of employees)	0.0001***	0.0001***	0.0001***	0.0001***	*Ln (no. of employees)*	0.0001***	0.0000***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
Number_Directors	0.0001***	0.0003***	0.0002***	0.0001***	*Number_Directors*	0.0001***	0.0003***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
Board_independence	0.0005***	0.0008***	0.0004***	0.0003***	*Board_independence*	0.0005***	0.0010***	0.0005***	0.0006***
	(0.0000)	(0.0000)	(0.0001)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
CEO-specific variables					CEO-specific variables				
time_role	−0.0000***	−0.0000***	−0.0000**	−0.0000	*time_role*	−0.0000	−0.0000***	0.0000***	−0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
Age	0.0000***	0.0000***	0.0000***	−0.0000	*Age*	0.0000***	0.0000**	0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
no_quals	0.0001***	0.0002***	0.0000***	0.0001***	*no_quals*	0.0000***	0.0002***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)

(Continues)

TABLE 5 | (Continued)

	QRPIV								
	Dependent variable = Total debt/Total assets at book value								
	Panel A					Panel B			
Variables	(1)	(2)	(3)	(4)	Variables	(1)	(2)	(3)	(4)
	$q = 0.5$					$q = 0.5$			
gender	0.0001***	0.0002***	0.0001***	0.0001***	*gender*	0.0001***	0.0000	−0.0001	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0001)	(0.0000)
Time_Brd	−0.0000***	−0.0000***	−0.0000***	−0.0000***	*Time_Brd*	−0.0000***	−0.0000***	−0.0000***	−0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
Industry-specific variables					Industry-specific variables				
median_leverage	0.0035***	0.0050***	0.0033***	0.0037***	*median_leverage*	0.0030***	0.0049***	0.0032***	0.0024***
	(0.0001)	(0.0000)	(0.0001)	(0.0001)		(0.0001)	(0.0001)	(0.0001)	(0.0001)
industry_hhi	0.0066***	0.0172***	0.0076***	0.0084***	*industry_hhi*	0.0076***	0.0168***	0.0097***	0.0079***
	(0.0002)	(0.0002)	(0.0002)	(0.0001)		(0.0001)	(0.0003)	(0.0001)	(0.0002)
Market-related controls					Market-related controls				
VIXindex	0.0000***	0.0001***	0.0000***	0.0000***	*VIXindex*	0.0000***	0.0001***	0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
NonFarmPayrolls	0.0000***	0.0002***	0.0001***	0.0000***	*NonFarmPayrolls*	0.0000***	0.0002***	0.0000***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
Additional controls					Additional controls				
Ln (GDP)	0.0001***				Ln (GDP)	−0.0002***			
	(0.0000)					(0.0000)			
Ln (Stock trading as a % of GDP)		0.0008***			*Ln (Stock trading as a % of GDP)*		0.0003***		
		(0.0000)					(0.0000)		
Ln (Bank deposits as a % of GDP)		0.0014***			*Ln (Bank deposits as a % of GDP)*		0.0010***		
		(0.0002)					(0.0001)		
life_exp			0.0001***		*life_exp*			0.0001***	
			(0.0000)					(0.0000)	
same_nationality				−0.0009***	*same_nationality*				0.0010***
				(0.0001)					(0.0001)

(Continues)

TABLE 5 | (Continued)

Variables	QRPIV Dependent variable = Total debt/Total assets at book value Panel A (1)	(2) $q = 0.5$	(3)	(4)	Variables	Panel B (1)	(2) $q = 0.5$	(3)	(4)
Observations	13,486	11,806	13,486	13,531	*Observations*	13,486	11,806	13,486	13,531
No. of groups	2277	2133	2277	2280	*No. of groups*	2277	2133	2277	2280

Note: This table tests whether firm specific cultural norms and the differences in the level of socioeconomic development and financial institutions of CEOs' country of origin have any impact on the leverage decision. Panels A and B depict specifications (1) and (2). Columns (1)–(4) add GDP, the level of institutional development (measured by stocks traded as a % of GDP and bank deposits as a % of GDP) of CEOs' country of origin, life expectancy and whether the nationality of the former CEO is the same as the country in which the company is located and the nationality of the current CEO is different from that of the former CEO to our baseline specifications (1) and (2) sequentially. The dependent variable is the annual proportion of the firm's total debt to total assets at book value. The coefficients are estimated based on fixed effects quantile regression dynamic panel instrumental variables (QRPIV), for the 0.5th quantile (median). For brevity, results for the quantiles 0.25 and 0.75 are unreported. Results are based on 1000 replications. All time-variant independent variables are assumed to be endogenous and are instrumented by lags $t-2$, $t-3$ and $t-4$ firm's total debt to total assets at book value, as well as lags dated $t-1$ of tangibility, market-to-book ratio, profitability, asset maturity, no. of employees, time in role, age, number of directors, time on board, no. of qualification, gender, board independence, industry median leverage, industry concentration, VIX index and nonfarm payrolls and $t-1$ of all additional controls. All models include firm and year fixed effects. Standard errors are shown in parentheses. All the variables are defined in Supporting Information Appendix.
Abbreviations: CEO, chief executive officer; GDP, gross domestic product.
*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

impacts (investor) behaviour directly, not merely through indirect channels, such as legal and regulatory frameworks.

3. *Adjustment for the heterogeneity in firm-specific cultural norms*

Chakrabarty (2009) establishes that cultural and institutional norms within a firm are often shaped by historical factors, including the influence of prior leadership and the broader cultural environment. These norms create a persistent organisational framework that affects managerial decisions, including financial policies,[9] and these norms may also influence leverage decisions independently of the cultural values of the current CEO, which raises the concern that unobserved firm-specific norms or policies could confound the relationship between CEO cultural values and leverage decisions.

In our research, we introduce a binary variable to account for the potential influence of firm-specific cultural norms and historical practices. This variable takes the value of 1 if two conditions are met—(1) the nationality of the former CEO matches the country where the company is registered and (2) the nationality of the current CEO differs from that of the former CEO; otherwise, the variable takes the value of 0.

The rationale for this variable is that the nationality of the former CEO may reflect, to some extent, the cultural background of the firm's environment or historical management norms. If the former CEO's nationality matches the country in which the firm is located, it is likely that the firm's cultural norms and historical practices reflect the national culture of the company. Moreover, if the current CEO's nationality is different from that of the former CEO, this suggests a potential shift in cultural influence within the firm. By introducing this variable, we aim to capture the effect of underlying cultural norms at the firm level on the relationship between the current CEO's cultural values and leverage decisions.

Specifically, when the variable equals 1, it indicates that the home country's cultural norms may be more entrenched due to alignment with the former CEO's nationality, potentially attenuating the current CEO's influence on the firm's culture and decisions. This enables us to more clearly isolate the impact of the incumbent CEO's cultural values on leverage decisions by controlling for the firm's historical norms and mitigating confounding effects.

The results confirm that, after including this control variable, the relationship between current CEO cultural values and leverage decisions remains statistically significant (refer to Table 5). This suggests that the observed relationship is robust and not driven solely by pre-existing cultural norms or historical financial policies. Moreover, this approach addresses potential endogeneity concerns by explicitly accounting for the influence of prior leadership and organisational norms on leverage decisions.

6.2 | Regression With Alternative Debt Ratios

Furthermore, to increase robustness, we study alternative response variables. We employ three additional dependent

variables—the proportion of long-term debt to total assets at book value, market value and the proportion of total debt to total assets at market value. By employing market values, we alleviate the concerns of book value measures being backward-looking and the fact that book value of equity is a "plug number" to simply balance the left-hand side and the right-hand side of the balance sheet (Welch 2004). The (quasi) market value of assets is calculated by subtracting the book value of common equity from total assets and adding back the market value of common equity (Rajan and Zingales 1995). The results reveal that mastery and embeddedness remain statistically significant at the 1% level for almost all quartiles, inferring that mastery and embeddedness of CEOs play dominant roles in shaping the leverage decision of a firm, irrespective of different measures used to explain debt ratio (refer to Tables 6 and 7).

6.3 | Regression With Alternative Cultural Dimensions

To enhance the robustness of the analysis, this paper employs alternative cultural frameworks in place of Schwartz's model. While Schwartz's framework has been widely used, it has faced several criticisms, including concerns regarding the representativeness of its sample (Schwartz 1994). Another widely recognised alternative, Hofstede's model, also faces criticisms. Specifically, Hofstede's model has been criticised for relying on data from a single multinational corporation (Sivakumar and Nakata 2001) and for its limited scope in a small number of countries, raising questions about the generalisability of its findings and the likelihood of the data set being outdated (Schwartz 1994). Furthermore, both Schwartz's and Hofstede's models are criticised for assuming that culture is synonymous with country, overlooking within-country cultural variations, the malleability of culture over time and oversimplifying the concept of culture. For a detailed discussion, refer to Steenkamp (2001), McSweeney (2002), Imm Ng et al. (2007) and Ailon (2008).

To address these concerns, this study incorporates the GLOBE framework, conceived by Robert J. House in 1991, and the WVS, founded by Ronald F. Inglehart in the early 1980s. Both frameworks offer more nuanced approaches: GLOBE emphasises societal clusters rather than nations and WVS includes multiple waves of data collection, allowing for a more dynamic understanding of cultural values over time. These frameworks help mitigate some of the limitations of Schwartz and Hofstede, thus providing additional robustness to the analysis[9].

We choose the following alternative cultural variables—*Assertiveness* (from the GLOBE framework) and *Success* (from the WVS) as proxies for mastery, and *Uncertainty Avoidance* (*UAI*) (from GLOBE) and *Society* (from WVS)—as proxies for embeddedness. Assertiveness reflects the extent to which an individual is assertive, confrontational and aggressive in relationships, while success reflects a focus on self-worth fulfilment and the pursuit of personal goals, both capturing the core characteristics of mastery (Gerganov et al. 1996). In contrast, *UAI* measures the extent to which a society, organisation, or group relies on social norms, rules and procedures to reduce unpredictability, while *Society* measures its focus on group interests and social responsibility, both highlighting key characteristics of embeddedness (Qu and Yang 2015).

The results (refer to Tables 8a and 8b) show that *Assertiveness* and *Success* are statistically significant with a negative correlation at the 1% level across all quartiles, consistent with the findings for mastery. Meanwhile, *UAI* and *Society* are positive at the lower quantiles but change sign to negative at the higher quantiles, following the pattern observed for embeddedness. This further strengthens the reliability of our results.

7 | The Portability of Mastery and Embeddedness to a Foreign Context

We now consider the impacts of mastery and embeddedness on the proportion of total debt in the non-US sample; that is, a subset of our sample consisting of only foreign CEOs. These CEOs do not operate in their own territories but in a foreign setting. Similar to the total sample, we also look at the heterogeneity in the impact of culture in the non-US sample. Once again, a QRPIV is employed to explore the robustness of estimates across the distribution of the dependent variable. Despite smaller samples, the heteroscedasticity test as well as the dip test for the dependent variable point to the existence of a nonuniform distribution as well as variability in the response of the dependent variable (total debt/total assets at book value) to a change in the independent variables (mastery and embeddedness). To compare results, in Table 9, we have presented conventional Instrumental Variable Dynamic Panel regression results (which we call "OLS-based or effects at the mean") and compare them with the median effects. Our estimates are based on IV panel quantile regression for the latter.

The findings are consistent with those from the total sample for both the "mean effects and the median effects", although the results at the median are far smaller than those of the effects at the mean. Median estimates are robust to outliers. Therefore, we may think that the effects at the mean are measurably overestimated.

Our empirical evidence clearly suggests that the mastery and embeddedness values of foreign CEOs play a vital role in shaping the leverage decisions of their respective firms. This supports our argument that cultural values are deeply rooted and can be observed through their behaviour, irrespective of their current location. In other words, cultural values are portable. In unreported analysis, we have conducted robustness checks like our analysis in the total sample and have established that our results are robust to a variation in the control variables.

8 | Implications of the Research

One strategy to maximise shareholder wealth is to have the optimum mix of debt and equity in the capital structure. All capital structure theories, such as trade-off theory, pecking order theory and market timing theory, guide managers to maximise shareholder wealth by minimising financing costs and maximising financing gains of either debt or equity.

TABLE 6 | Robustness tests (total sample): CEO mastery and alternative measures of leverage as the dependent variable.

QRPIV											
	y = Long-term debt/Total assets at BV Panel A				y = Long-term debt/Total assets at MV Panel B				y = Total debt/Total assets at MV Panel C		
Variables	(1) $q = 0.25$	(2) $q = 0.5$	(3) $q = 0.75$	Variables	(1) $q = 0.25$	(2) $q = 0.5$	(3) $q = 0.75$	Variables	(1) $q = 0.25$	(2) $q = 0.5$	(3) $q = 0.75$
Mastery	−0.0061***	0.0009***	−0.0211**	*Mastery*	−0.0383***	−0.0373***	−4.4829***	*Mastery*	−0.0542***	0.0791***	0.1909***
	(0.0021)	(0.0001)	(0.0089)		(0.0015)	(0.0039)	(0.6632)		(0.0054)	(0.0034)	(0.0038)
l_debt	0.8761***	0.9762***	1.0094***	*l_debt*	0.8059***	0.9309***	1.0121***	*l_debt*	0.8126***	0.9276***	0.9948***
	(0.0001)	(0.0000)	(0.0002)		(0.0001)	(0.0000)	(0.0011)		(0.0003)	(0.0000)	(0.0001)
Firm-specific variables				Firm-specific variables				Firm-specific variables			
tangi	0.0013***	0.0002***	−0.0046***	*tangi*	−0.0005***	0.0014***	0.0336***	*tangi*	−0.0001	0.0024***	0.0112***
	(0.0000)	(0.0000)	(0.0003)		(0.0001)	(0.0001)	(0.0031)		(0.0002)	(0.0000)	(0.0001)
mktbk	−0.0002***	−0.0000***	−0.0002***	*mktbk*	−0.0003***	−0.0005***	−0.0022***	*mktbk*	−0.0006***	−0.0006***	−0.0019***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0000)
profit	−0.0000**	−0.0000***	−0.0084***	*profit*	0.0001***	−0.0001***	−0.0032***	*profit*	−0.0001***	−0.0002***	−0.0022***
	(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0000)
assetmat	0.0017***	0.0001***	0.0396***	*assetmat*	0.0043***	0.0034***	0.1392***	*assetmat*	0.0044***	0.0084***	0.0306***
	(0.0001)	(0.0000)	(0.0014)		(0.0002)	(0.0001)	(0.0165)		(0.0001)	(0.0001)	(0.0001)
Ln (no. of employees)	0.0004***	0.0000***	0.0030***	*Ln (no. of employees)*	0.0005***	0.0004***	−0.0409***	*Ln (no. of employees)*	0.0009***	0.0008***	−0.0000***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0061)		(0.0000)	(0.0000)	(0.0000)
Number_Directors	0.0002***	0.0000***	0.0007***	*Number_Directors*	0.0003***	0.0003***	0.0051***	*Number_Directors*	0.0004***	0.0004***	0.0002***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0007)		(0.0000)	(0.0000)	(0.0000)
Board_independence	0.0007***	0.0001***	0.0155***	*Board_independence*	0.0010***	0.0023***	−0.0620***	*Board_independence*	0.0011***	0.0013***	0.0064***
	(0.0000)	(0.0000)	(0.0005)		(0.0001)	(0.0000)	(0.0104)		(0.0001)	(0.0000)	(0.0001)
CEO-specific variables				CEO-specific variables				CEO-specific variables			
time_role	−0.0000***	0.0000*	−0.0003***	*time_role*	−0.0000***	−0.0000***	−0.0030***	*time_role*	−0.0001***	−0.0001***	−0.0003***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0004)		(0.0000)	(0.0000)	(0.0000)
Age	0.0000***	0.0000***	0.0001***	*Age*	0.0000***	−0.0000***	−0.0016***	*Age*	0.0000***	0.0001***	0.0000***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0002)		(0.0000)	(0.0000)	(0.0000)
no_quals	0.0002***	0.0000***	0.0010***	*no_quals*	0.0000***	0.0004***	−0.0219***	*no_quals*	0.0001***	−0.0000***	0.0006***

(Continues)

TABLE 6 | (Continued)

	QRPIV											
	y = Long-term debt/Total assets at BV Panel A				y = Long-term debt/Total assets at MV Panel B				y = Total debt/Total assets at MV Panel C			
Variables	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**Variables**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**Variables**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0033)		(0.0000)	(0.0000)	(0.0000)	
gender	−0.0000	0.0000	0.0016***	*gender*	−0.0000**	0.0000	−0.0661***	*gender*	0.0009***	0.0006***	−0.0005***	
	(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0095)		(0.0001)	(0.0000)	(0.0000)	
TimeBrd	−0.0000***	−0.0000***	−0.0001***	*Time_Brd*	−0.0000***	−0.0001***	−0.0063***	*Time_Brd*	−0.0000***	−0.0000***	−0.0001***	
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0009)		(0.0000)	(0.0000)	(0.0000)	
Industry-specific variables				Industry-specific variables				Industry-specific variables				
median_leverage	0.0035***	0.0002***	0.0596***	*median_leverage*	0.0078***	0.0159***	0.5896***	*median_leverage*	0.0151***	0.0270***	0.0575***	
	(0.0000)	(0.0000)	(0.0007)		(0.0001)	(0.0002)	(0.0810)		(0.0002)	(0.0001)	(0.0002)	
industry_hhi	−0.0057***	0.0007***	0.0464***	*industry_hhi*	0.0029***	0.0177***	−1.2684***	*industry_hhi*	0.0023***	0.0265***	0.0546***	
	(0.0002)	(0.0000)	(0.0015)		(0.0002)	(0.0002)	(0.1976)		(0.0002)	(0.0002)	(0.0003)	
Market-related controls				Market-related controls				Market-related controls				
VIXindex	0.0001***	0.0000***	0.0005***	*VIXindex*	0.0002***	0.0006***	0.0120***	*VIXindex*	0.0004***	0.0008***	0.0018***	
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0016)		(0.0000)	(0.0000)	(0.0000)	
NonFarmPayrolls	0.0001***	0.0000***	0.0006***	*NonFarmPayrolls*	0.0003***	0.0003***	0.0074***	*NonFarmPayrolls*	0.0006***	0.0005***	0.0011***	
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0009)		(0.0000)	(0.0000)	(0.0000)	
Observations	13,531	13,531	13,531	*Observations*	13,531	13,531	13,531	*Observations*	13,531	13,531	13,531	
No. of groups	2280	2280	2280	*No. of groups*	2280	2280	2280	*No. of groups*	2280	2280	2280	

Note: This table reports alternative regression specifications. Panels A–C use alternative measures of leverage as dependent variables and mastery as the main independent variable. The coefficients are estimated based on fixed effects quantile regression dynamic panel instrumental variables (QRPIV), for quantiles 0.25, 0.5 and 0.75 in columns (1)–(3), respectively for each dependent variable. Results are based on 1000 replications. All time-variant independent variables are assumed to be endogenous and are instrumented by lags $t-2$, $t-3$ and $t-4$ firm's alternative measures of leverage, as well as lags dated $t-1$ of tangibility, market-to-book ratio, profitability, asset maturity, no. of employees, time in role, age, number of directors, time on board, no. of qualification, gender, board independence, industry median leverage, industry concentration, VIX index and nonfarm payrolls. All models include firm and year fixed effects. Standard errors are shown in parentheses. All the variables are defined in Supporting Information Appendix.

Abbreviations: BV, book value; CEO, chief executive officer; MV, market value; VIX, volatility index.

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

TABLE 7 | Robustness tests (total sample): CEO embeddedness and alternative measures of leverage as the dependent variable.

	QRPIV								
	y = Long-term debt/Total assets at BV Panel A			y = Long-term debt/Total assets at MV Panel B			y = Total debt/Total assets at MV Panel C		
Variables	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**
Embedded	0.0069***	0.0012***	−0.0369***	−0.0038***	0.0019***	0.0056***	−0.0018	0.0202***	0.0333***
	(0.0006)	(0.0001)	(0.0024)	(0.0005)	(0.0005)	(0.0016)	(0.0019)	(0.0007)	(0.0017)
l_debt	0.8763***	0.9763***	1.0085***	0.8054***	0.9316***	1.0033***	0.8128***	0.9271***	0.9916***
	(0.0000)	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0003)	(0.0001)	(0.0002)
Firm-specific variables				Firm-specific variables			Firm-specific variables		
tangi	0.0011***	0.0002***	−0.0001	0.0006***	0.0020***	0.0124***	−0.0020***	0.0022***	0.0138***
	(0.0000)	(0.0000)	(0.0002)	(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0000)	(0.0002)
mktbk	−0.0002***	−0.0000***	−0.0006***	−0.0003***	−0.0004***	−0.0018***	−0.0006***	−0.0007***	−0.0023***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
profit	−0.0000	−0.0000***	−0.0089***	−0.0000***	−0.0002***	−0.0031***	−0.0001***	−0.0004***	−0.0027***
	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
assetmat	0.0021***	0.0001***	0.0342***	0.0020***	0.0029***	0.0285***	0.0045***	0.0068***	0.0279***
	(0.0001)	(0.0000)	(0.0005)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0002)
Ln (no. of employees)	0.0004***	0.0000***	0.0032***	*Ln (no. of employees)* 0.0005***	0.0005***	0.0001***	Ln (no. of employees) 0.0009***	0.0004***	−0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Number_Directors	0.0003***	0.0000***	0.0007***	*Number_Directors* 0.0003***	0.0003***	0.0002***	*Number_Directors* 0.0005***	0.0003***	0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Board_independence	0.0005***	0.0001***	0.0165***	*Board_independence* 0.0004***	0.0014***	0.0073***	*Board_independence* 0.0007***	0.0027***	0.0087***
	(0.0001)	(0.0000)	(0.0003)	(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
CEO-specific variables				CEO-specific variables			CEO-specific variables		
time_role	−0.0000***	−0.0000***	−0.0003***	*time_role* −0.0000***	−0.0001***	−0.0001***	*time_role* −0.0000***	−0.0000***	−0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Age	0.0000***	0.0000***	0.0003***	*Age* −0.0000***	−0.0000***	0.0000***	*Age* 0.0000***	0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

(Continues)

TABLE 7 | (Continued)

	QRPIV											
	***y* = Long-term debt/Total assets at BV Panel A**				***y* = Long-term debt/Total assets at MV Panel B**				***y* = Total debt/Total assets at MV Panel C**			
Variables	**(1) *q* = 0.25**	**(2) *q* = 0.5**	**(3) *q* = 0.75**	**Variables**	**(1) *q* = 0.25**	**(2) *q* = 0.5**	**(3) *q* = 0.75**	**Variables**	**(1) *q* = 0.25**	**(2) *q* = 0.5**	**(3) *q* = 0.75**	
no_quals	0.0002***	0.0000***	0.0010***	*no_quals*	0.0001***	0.0002***	0.0004***	*no_quals*	−0.0000	0.0001***	0.0005***	
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	
gender	−0.0001***	0.0000**	0.0013***	*gender*	0.0002***	0.0004***	−0.0010***	*gender*	0.0008***	0.0005***	0.0003***	
	(0.0000)	(0.0000)	(0.0002)		(0.0000)	(0.0000)	(0.0000)		(0.0001)	(0.0000)	(0.0001)	
Time_Brd	−0.0000***	−0.0000***	−0.0001***	*Time_Brd*	−0.0000***	−0.0000***	−0.0001***	*Time_Brd*	−0.0000***	−0.0001***	−0.0001***	
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	
Industry-specific variables				Industry-specific variables				Industry-specific variables				
median_leverage	0.0041***	0.0002***	0.0436***	*median_leverage*	0.0069***	0.0179***	0.0476***	*median_leverage*	0.0174***	0.0272***	0.0521***	
	(0.0001)	(0.0000)	(0.0004)		(0.0002)	(0.0001)	(0.0001)		(0.0003)	(0.0002)	(0.0005)	
industry_hhi	−0.0054***	0.0007***	0.0380***	*industry_hhi*	0.0013***	0.0168***	0.0709***	*industry_hhi*	0.0038***	0.0257***	0.0638***	
	(0.0001)	(0.0000)	(0.0008)		(0.0004)	(0.0001)	(0.0003)		(0.0005)	(0.0002)	(0.0008)	
Market-related controls				Market-related controls				Market-related controls				
VIXindex	0.0001***	0.0000***	0.0004***	*VIXindex*	0.0002***	0.0006***	0.0015***	*VIXindex*	0.0004***	0.0008***	0.0018***	
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	
NonFarmPayrolls	0.0001***	0.0000***	0.0003***	*NonFarmPayrolls*	0.0003***	0.0004***	0.0011***	*NonFarmPayrolls*	0.0006***	0.0005***	0.0011***	
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	
Observations	13,531	13,531	13,531	*Observations*	13,531	13,531	13,531	*Observations*	13,531	13,531	13,531	
No. of groups	2280	2280	2280	*No. of groups*	2280	2280	2280	*No. of groups*	2280	2280	2280	

Note: This table reports alternative regression specifications. Panels A–C use alternative measures of leverage as dependent variables and embeddedness as the main independent variable. The coefficients are estimated based on fixed effects quantile regression dynamic panel instrumental variables (QRPIV), for quantiles 0.25, 0.5 and 0.75 in columns (1)–(3), respectively for each dependent variable. Results are based on 1000 replications. All time-variant independent variables are assumed to be endogenous and are instrumented by lags $t-2$, $t-3$ and $t-4$ firm's alternative measures of leverage, as well as lags dated $t-1$ of tangibility, market-to-book ratio, profitability, asset maturity, no. of employees, time in role, age, number of directors, time on board, no. of qualification, gender, board independence, industry median leverage, industry concentration, VIX index and nonfarm payrolls. All models include firm and year fixed effects. Standard errors are shown in parentheses. All the variables are defined in Supporting Information Appendix.

Abbreviations: BV, book value; CEO, chief executive officer; MV, market value; VIX, volatility index.

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

TABLE 8a | Robustness tests (use of different cultural dimensions—GLOBE).

QRPIV									
Dependent variable = Total debt/Total assets at book value									
	Panel A				**Panel B**				
Variables	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**Variables**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**(4) $q = 0.8$**	**(5) $q = 0.9$**
Assertiveness	−0.0003***	−0.0005***	−0.0021***	*UAI*	0.0027***	0.0002***	0.0016***	−0.0020***	−0.0041***
	(0.0000)	(0.0001)	(0.0002)		(0.0003)	(0.0000)	(0.0005)	(0.0004)	(0.0004)
l_debt	0.8880***	0.9771***	1.0024***	*l_debt*	0.8859***	0.9775***	1.0032***	0.9527***	0.9547***
	(0.0001)	(0.0001)	(0.0001)		(0.0001)	(0.0000)	(0.0003)	(0.0003)	(0.0005)
Firm-specific variables				Firm-specific variables					
tangi	0.0009***	0.0021***	−0.0041***	*tangi*	0.0008***	0.0016***	−0.0078***	−0.0277***	−0.0316***
	(0.0001)	(0.0002)	(0.0007)		(0.0001)	(0.0000)	(0.0006)	(0.0004)	(0.0005)
mktbk	−0.0005***	−0.0001***	−0.0005***	*mktbk*	−0.0005***	−0.0000***	−0.0001	0.0078***	0.0076***
	(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0001)
profit	−0.0001***	−0.0001***	−0.0095***	*profit*	0.0001***	−0.0001***	−0.0095***	−0.0296***	−0.0297***
	(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0001)
assetmat	0.0045***	0.0005***	0.0369***	*assetmat*	0.0039***	0.0011***	0.0422***	0.0453***	0.0575***
	(0.0001)	(0.0001)	(0.0014)		(0.0001)	(0.0001)	(0.0024)	(0.0005)	(0.0013)
Ln (no. of employees)	0.0007***	0.0001***	0.0017***	*Ln (no. of employees)*	0.0008***	0.0001***	0.0019***	−0.0044***	−0.0040***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0001)
Number_Directors	0.0005***	0.0001***	0.0010***	*Number_Directors*	0.0006***	0.0001***	0.0006***	−0.0008***	−0.0007***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0001)	(0.0001)	(0.0001)
Board_independence	0.0009***	0.0005***	0.0155***	*Board_independence*	0.0017***	0.0004***	0.0156***	0.0355***	0.0351***
	(0.0001)	(0.0000)	(0.0003)		(0.0000)	(0.0000)	(0.0001)	(0.0009)	(0.0004)
CEO-specific variables				CEO-specific variables					
time_role	−0.0001***	−0.0000***	−0.0003***	*time_role*	−0.0000***	0.0000	−0.0003***	−0.0005***	−0.0005***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Age	(0.0000)	(0.0000)	0.0002***	*Age*	0.0001***	0.0000***	0.0001***	0.0001***	0.0000
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
no_quals	0.0003***	0.0001***	−0.0001	*no_quals*	0.0007***	0.0000***	−0.0004**	0.0003***	−0.0001
	(0.0000)	(0.0000)	(0.0003)		(0.0000)	(0.0000)	(0.0002)	(0.0000)	(0.0001)

(Continues)

TABLE 8a | (Continued)

QRPIV									
Dependent variable = Total debt/Total assets at book value									
	Panel A				**Panel B**				
Variables	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**Variables**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**(4) $q = 0.8$**	**(5) $q = 0.9$**
gender	0.0010***	0.0001***	−0.0006**	*gender*	−0.0001	0.0001***	−0.0002	0.0006**	−0.0009*
	(0.0001)	(0.0000)	(0.0002)		(0.0001)	(0.0000)	(0.0002)	(0.0003)	(0.0005)
Time_Brd	−0.0000***	−0.0000***	−0.0002***	*Time_Brd*	−0.0001***	−0.0000***	−0.0002***	−0.0002***	−0.0002***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Industry-specific variables				Industry-specific variables					
median_leverage	0.0102***	0.0041***	0.0593***	*median_leverage*	0.0107***	0.0029***	0.0730***	0.0609***	0.0545***
	(0.0002)	(0.0001)	(0.0014)		(0.0002)	(0.0001)	(0.0013)	(0.0011)	(0.0008)
industry_hhi	−0.0099***	0.0054***	0.0615***	*industry_hhi*	−0.0042***	0.0067***	0.0456***	0.1074***	0.0735***
	(0.0004)	(0.0002)	(0.002)		(0.0005)	(0.0003)	(0.0008)	(0.0035)	(0.0048)
Market-related controls				Market-related controls					
VIXindex	0.0002***	0.0000	0.0004***	*VIXindex*	0.0002***	0.0000***	0.0007***	0.0015***	0.0014***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
NonFarmPayrolls	0.0003***	0.0000	0.0005***	*NonFarmPayrolls*	0.0003***	0.0000***	0.0010***	0.0020***	0.0016***
	(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0001)	(0.0001)	(0.0001)
Observations	13,864	13,864	13,864	*Observations*	13,864	13,864	13,864	13,864	13,864
No. of groups	2320	2320	2320	*No. of groups*	2320	2320	2320	2320	2320

Note: The dependent variable is the proportion of the firm's total debt to total assets at book value. This is to further test different cultural dimensions to enhance the robustness of findings. The meanings of the above alternative cultural variables are: (1) Assertiveness (as a proxy for *Mastery*): refers to the societal value of assertiveness, that is, the degree to which assertive, outspoken and confrontational behaviours are endorsed at the value level. (2) *UAI* (as a proxy for *Embedded*): refers to the societal value of uncertainty avoidance, that is, a society's attitude toward uncertainty about the future at the value level. The coefficients are estimated based on fixed effects quantile regression dynamic panel instrumental variables (QRPIV), for quantiles (0.25, 0.5 and 0.75) in columns (1)–(3), respectively. Results are based on 1000 replications. All time-variant independent variables are assumed to be endogenous and are instrumented by lags $t-2$, $t-3$ and $t-4$ firm's total debt to total assets at book value, as well as lags dated $t-1$ of tangibility, market-to-book ratio, profitability, asset maturity, no. of employees, time in role, age, number of directors, time on board, no. of qualification, gender, board independence, industry median leverage, industry concentration, VIX index and nonfarm payrolls. All models include firm and year fixed effects. Standard errors are shown in parentheses. All the variables are defined in Supporting Information Appendix.

Abbreviations: CEO, chief executive officer; GLOBE, Global Leadership and Organisational Behaviour Effectiveness; UAI, Uncertainty Avoidance Index; VIX, volatility index.

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

TABLE 8b | Robustness tests (use of different cultural dimensions—WVS).

QRPIV							
Dependent variable = Total debt/Total assets at book value							
	Panel A				**Panel B**		
Variables	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**Variables**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**
Success	−0.0183***	−0.0159***	−0.0224***	*Society*	0.0265***	0.0101***	−0.0311***
	(0.0036)	(0.0004)	(0.0064)		(0.0007)	(0.0001)	(0.0014)
l_debt	0.8859***	0.9772***	1.0001***	*l_debt*	0.8857***	0.9773***	1.0019***
	(0.0002)	(0.0000)	(0.0002)		(0.0003)	(0.0001)	(0.0001)
Firm-specific variables				Firm-specific variables			
tangi	0.0032***	0.0020***	−0.0041***	*tangi*	0.0029***	0.0019***	−0.0065***
	(0.0001)	(0.0000)	(0.0002)		(0.0000)	(0.0000)	(0.0001)
mktbk	−0.0007***	−0.0000***	−0.0006***	*mktbk*	−0.0005***	−0.0000***	−0.0007***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
profit	−0.0001***	−0.0000***	−0.0116***	*profit*	−0.0002***	−0.0000***	−0.0114***
	(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0000)
assetmat	0.0047***	0.0013***	0.0306***	*assetmat*	0.0022**	0.0014***	0.0419***
	(0.0002)	(0.0000)	(0.0008)		(0.0009)	(0.0001)	(0.0007)
Ln (no. of employees)	0.0006***	0.0001***	0.0022***	*Ln (no. of employees)*	0.0005***	0.0001***	0.0024***
	(0.0000)	(0.0000)	(0.0001)		(0.0001)	(0.0000)	(0.0000)
Number_Directors	0.0005***	0.0001***	0.0006***	*Number_Directors*	0.0006***	0.0001***	0.0007***
	(0.0000)	(0.0000)	(0.0001)		(0.0000)	(0.0000)	(0.0000)
Board_independence	0.0014***	0.0003***	0.0146***	*Board_independence*	0.0040***	0.0005***	0.0130***
	(0.0001)	(0.0000)	(0.0003)		(0.0005)	(0.0000)	(0.0001)
CEO-specific variables				CEO-specific variables			
time_role	−0.0000***	−0.0000***	−0.0004***	*time_role*	0.0000	−0.0000***	−0.0004***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
Age	0.0001***	0.0000***	0.0002***	*Age*	0.0000**	0.0000***	0.0001***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
no_quals	0.0001***	0.0001***	0.0005***	*no_quals*	0.0009***	0.0001***	0.0013***
	(0.0000)	(0.0000)	(0.0001)		(0.0001)	(0.0000)	(0.0001)

(Continues)

TABLE 8b | (Continued)

QRPIV							
Dependent variable = Total debt/Total assets at book value							
	Panel A				**Panel B**		
Variables	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**	**Variables**	**(1) $q = 0.25$**	**(2) $q = 0.5$**	**(3) $q = 0.75$**
gender	0.0002**	0.0001***	0.0018***	*gender*	0.0002**	0.0001***	−0.0006***
	(0.0001)	(0.0000)	(0.0001)		(0.0001)	(0.0000)	(0.0001)
Time_Brd	−0.0001***	−0.0000***	−0.0001***	*Time_Brd*	−0.0001***	−0.0000***	−0.0001***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
Industry-specific variables				Industry-specific variables			
median_leverage	0.0085***	0.0028***	0.0703***	*median_leverage*	0.0172***	0.0028***	0.0718***
	(0.0001)	(0.0000)	(0.0004)		(0.0022)	(0.0001)	(0.0004)
industry_hhi	−0.0133***	0.0092***	0.0658***	*industry_hhi*	−0.0161***	0.0086***	0.0727***
	(0.0005)	(0.0001)	(0.0018)		(0.0003)	(0.0001)	(0.0012)
Market-related controls				Market-related controls			
VIXindex	0.0001***	0.0000***	0.0006***	*VIXindex*	0.0002***	0.0000***	0.0006***
	(0.0000)	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)
NonFarmPayrolls	0.0004***	0.0000***	0.0008***	*NonFarmPayrolls*	0.0006***	0.0000***	0.0010***
	(0.0000)	(0.0000)	(0.0000)		(0.0001)	(0.0000)	(0.0000)
Observations	13,083	13,083	13,083	*Observations*	13,083	13,083	13,083
No. of groups	2233	2233	2233	*No. of groups*	2233	2233	2233

Note: The dependent variable is the proportion of the firm's total debt to total assets at book value. This is to further test different cultural dimensions to enhance the robustness of this paper. The meanings of the above alternative cultural variables are: (1) *Success* (as a proxy for *Mastery*): refers to "Schwartz_It_is_important_to_this_person_being_very_successful" in WVS. (2) *Society* (as a proxy for *Embedded*): refers to "Schwartz_It_is_important_to_this_person_to_do_something_for_the_good_of_society" in WVS. The coefficients are estimated based on fixed effects quantile regression dynamic panel instrumental variables (QRPIV), for quantiles (0.25, 0.5 and 0.75) in columns (1)–(3), respectively. Results are based on 1000 replications. All time-variant independent variables are assumed to be endogenous and are instrumented by lags $t-2$, $t-3$ and $t-4$ firm's total debt to total assets at book value, as well as lags dated $t-1$ of tangibility, market-to-book ratio, profitability, asset maturity, no. of employees, time in role, age, number of directors, time on board, no. of qualification, gender, board independence, industry median leverage, industry concentration, VIX index and nonfarm payrolls. All models include firm and year fixed effects. Standard errors are shown in parentheses. All the variables are defined in Supporting Information Appendix.

Abbreviations: CEO, chief executive officer; VIX, volatility index; WVS, World Values Survey.

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

TABLE 9 | CEOs' culture and firm leverage in the sample of non-US CEOs (IV dynamic panel regression [system GMM and quantile]).

Dependent variable = Total debt/Total assets at book value					
	Panel A			Panel B	
	(1)	(2) IV panel Quantile		(1)	(2) IV panel Quantile
Variables	Panel IV results	($q = 0.5$)	Variables	Panel IV results	($q = 0.5$)
Mastery	−0.0295	−0.1101**	*Embedded*	0.0878	0.1418***
	(0.3729)	(0.0464)		(0.1326)	(0.0167)
l_debt	0.9190***	0.9859***	*l_debt*	0.9192***	0.9795***
	(0.0189)	(0.0011)		(0.0189)	(0.0039)
Firm-specific variables			Firm-specific variables		
tangi	0.0177	0.0070***	*tangi*	0.0161	0.0011
	(0.0142)	(0.0025)		(0.0146)	(0.0038)
mktbk	0.0024	0.0014***	*mktbk*	0.0023	−0.0003
	(0.0031)	(0.0004)		(0.0032)	(0.0002)
profit	−0.0030	−0.0067***	*profit*	−0.0029	−0.0050***
	(0.0026)	(0.0009)		(0.0026)	(0.0002)
assetmat	0.0183	−0.0062***	*assetmat*	0.0184	0.0013
	(0.0244)	(0.0020)		(0.0240)	(0.0024)
Ln (no. of employees)	0.0013	−0.0006***	*Ln (no. of employ*	0.0013	0.0003
	(0.0025)	(0.0001)		(0.0024)	(0.0003)
Number_Directors	0.0010	0.0004***	*NumberDirectors*	0.0010	−0.0004
	(0.0018)	(0.0002)		(0.0018)	(0.0002)
Board_independence	0.0360**	−0.0085	*Board_independence*	0.0363**	−0.0071***
	(0.0166)	(0.0062)		(0.0165)	(0.0026)
CEO-specific variables			CEO-specific variables		
time_role	−0.0015	−0.0002*	*time_role*	−0.0015	−0.0002
	(0.0009)	(0.0001)		(0.0009)	(0.0002)
Age	0.0002	−0.0002**	*Age*	0.0002	−0.0001
	(0.0006)	(0.0001)		(0.0006)	(0.0001)
no_quals	−0.0024	−0.0012***	*no_quals*	−0.0025	−0.0014**
	(0.0027)	(0.0004)		(0.0027)	(0.0006)
gender	−0.0117	0.0023	*gender*	−0.0115	−0.0061***
	(0.0088)	(0.0041)		(0.0087)	(0.0012)
Time_Brd	0.0008	−0.0002***	*Time_Brd*	0.0009	−0.0003
	(0.0009)	(0.0001)		(0.0009)	(0.0003)
Industry-specific variables			Industry-specific variables		
median_leverage	−0.0526	0.0431***	*median_leverage*	−0.0551	0.0484***
	(0.0359)	(0.0052)		(0.0356)	(0.0058)
industry_hhi	−0.0735	−0.0516***	*industry_hhi*	−0.0768	−0.0968***
	(0.0901)	(0.0167)		(0.0904)	(0.0119)
Market-related controls			Market-related controls		
VIXindex	−0.0013	0.0006***	*VIXindex*	−0.0013	0.0005**
	(0.0015)	(0.0001)		(0.0015)	(0.0002)
NonFarmPayrolls	−0.0069**	−0.0005***	*NonFarmPayrolls*	−0.0069**	−0.0004

(Continues)

TABLE 9 | (Continued)

Dependent variable = Total debt/Total assets at book value					
	Panel A			Panel B	
Variables	(1) Panel IV results	(2) IV panel Quantile ($q = 0.5$)	Variables	(1) Panel IV results	(2) IV panel Quantile ($q = 0.5$)
	(0.0028)	(0.0002)		(0.0028)	(0.0003)
Observations	930	930	*Observations*	930	930
No. of groups	225	225	*No. of groups*	225	225

Note: This table reports our specifications (1) and (2) in panels (A) and (B), respectively, using a subset of our sample, which only consists of data for non-US CEOs. The dependent variable is the annual proportion of the firm's total debt to total assets at book value. The coefficients are estimated based on conventional instrumental variable dynamic panel regression results ("OLS based or effects at the mean") and fixed effects quantile regression dynamic panel instrumental variables (QRPIV), for the median in columns (1) and (2), respectively. All the variables are defined in Supporting Information Appendix.
Abbreviations: CEO, chief executive officer; GMM, generalised method of moments; IV, instrumental variable; OLS, ordinary least squares; VIX, volatility index.
*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

However, our study points out that CEOs' leverage decisions may be guided by their cultural values. Our study points out that, whilst highly embedded CEOs appear to behave according to the tenets of trade-off theory, high-mastery CEOs may not always prioritise shareholder interests. Precisely, low- to moderately geared firms may suffer from having a high-mastery CEO as their preference to reduce borrowing, irrespective of the existing debt levels, which could prevent the firm from reaping the benefits of debt and potentially lower its value.

9 | Conclusion

How do firms choose their capital structures? Is it by focusing exclusively on firm/industry- and market-level factors as advocated by the classic trade-off model, pecking order and market timing theories? Given that, at the end of the day, it is a human CEO who gives a nod to make these decisions, would it not be plausible to comprehend that the individual cultural traits of a CEO might also play a significant part in this financing decision? A growing body of literature has documented the importance of including managerial biases in the capital structure puzzle. However, empirical evidence illustrates the diverging relevance of certain behavioural patterns between countries—that is, people of the same culture will share certain behavioural biases. This implies the existence of a *country factor*, which we propose to be the national culture. Our study explores the interaction between CEO culture and trade-off theory. We find that CEOs with diverse cultural biases perceive the costs and benefits of debt differently. Our analysis of CEO cultural impact on firm leverage neither contradicts nor confirms traditional theories. Rather, extending the traditional capital structure theories to account for CEO culture can tighten some important gaps between known theoretical predictions and unresolved empirical facts.

Our study provides conclusive evidence that CEO mastery and embeddedness are significantly associated with the firm's debt after controlling for well-known firm-/industry-/market-related determinants and personal characteristics of CEOs. Highly embedded CEOs increase debt when existing firm leverage is low and reduce debt when existing leverage is high, inadvertently following a target capital structure as they attempt to strike a trade-off between their value of obedience and the value of nurturing harmonious relationships. On the other hand, high-mastery CEOs seem to reduce leverage, irrespective of the current gearing of the firm, for which the causes seem to be ambiguous. Finally, we also conclude that cultural values are portable by employing a subsample with only non-US CEOs. Our results remain robust to alternative specifications of the dependent/independent variable and endogeneity concerns caused by both omitted variable bias and simultaneous causality.

We conclude that highly embedded CEOs make capital structure decisions that are more in the interest of shareholders, while the capital structure decisions of high-mastery CEOs may not always be in the best interest of the shareholders. The findings of this paper can promote new paradigms of exposition in agency conflicts and monitoring costs.

Our work has significant implications on corporate policy, especially in the important decisions of CEO appointments. We shed insights into the interplay between a CEO's individual culture and the major decision of corporate leverage, an aspect that can be significant in times of financial turmoil. Hence, our work brings to the fore a factor that is not at times explicitly recognised in the CEO appointment decision, especially in today's volatile economic climate.

For future research, we propose extending our analysis to small and medium enterprises (SMEs) in different economic contexts, such as emerging economies. SMEs are vital to a country's economic output but differ significantly from large firms, which is this study's focus. Large firms benefit from diversification and stable cash flows, making them less likely to default on debt. Therefore, the trade-off theory suggests that large firms can use more debt. However, pecking order theory posits that large firms tend to have lower leverage due to fewer information asymmetry issues, leading to more issuance of informationally sensitive securities. The contrasting predictions of these two theories provide an interesting avenue for further investigation, making the study of CEO cultural traits and leverage decisions in an SME context particularly worthwhile.

Prior research indicates that CEOs in SMEs may have more discretion than those in large firms (Miller et al. 1982; Van

Gils 2005), making the Upper Echelons theory particularly relevant. However, SMEs often face growth constraints and limited access to formal external financing (Shen et al. 2009), relying more on internal resources, informal credit, or local banks. As a result, CEO cultural traits in SMEs may have a different influence on leverage decisions, with values such as risk aversion and caution potentially becoming more prominent due to financial constraints.

In emerging markets, many countries have a sizable number of state-owned companies, which may limit CEO discretion as they may need to align with national policy agendas. Additionally, varying investor protection laws can influence leverage decisions. Prior research suggests that higher creditor protection correlates with higher leverage, while higher shareholder protection leads to more equity (Cheng and Shiu 2007). Thus, the typically weak investor protection frameworks in emerging countries may also influence leverage decisions. Moreover, in emerging economies, less prescriptive regulatory and legislative environments (Li et al. 2017) may shape how CEOs perceive and manage risk, thereby affecting their approach to leverage. Cultural differences also play a role, as emerging markets (e.g., China) often exhibit more collectivistic cultures than Western cultures' individualistic tendencies, which can further influence corporate financial strategies (Li et al. 2017).

Considering these factors, it would be valuable to examine how a CEO's national cultural values (such as uncertainty avoidance) influence firm leverage decisions in these contexts while controlling for other factors. As noted, leverage decisions are likely influenced by uncertainties, risk aversion and caution, which may vary across different economic and cultural settings.

Another interesting avenue for future research would be to explore how the national cost of debt moderates the effect of CEO cultural values on firm leverage.[10] For instance, it would be plausible to assume that an increase in the national cost of debt, which can result in the increase of country risk, may have a knock-on effect that can increase the firm-level cost of debt. Hence, as the firm's cost of debt rises (through the channel of increased country risk), firms with high leverage may face an even higher risk of financial distress. This is because the burden of servicing debt becomes more difficult when borrowing costs are higher, particularly if the firm does not generate enough cash flow to meet its debt obligations. We conjecture that highly embedded CEOs, who prioritise long-term relationships with stakeholders, in-group solidarity and stability, may steer firms toward lower leverage to mitigate financial distress risks (Chui et al. 2002, 2016, 2021; Li et al. 2011). High-mastery CEOs may also reduce debt, as they are concerned about their personal performance and the potential to exacerbate financial distress costs (Chui et al. 2002, 2016; Li et al. 2011). On the other hand, higher debt costs can lead to a debt overhang, where distressed firms avoid additional borrowing, even if profitable. However, a high-mastery CEO, who is ambitious, daring and focused on personal success, may continue to increase debt in pursuit of high-return projects with significant risks, accepting the possibility of financial distress for the potential rewards if successful (Chui et al. 2002, 2016; Li et al. 2011). This presents an interesting dynamic, where the CEO's cultural values and motivations may significantly influence the company's approach to risk and leverage, shaping its financial strategies and long-term sustainability.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author, Chandrasena, S., upon reasonable request.

Endnotes

[1] Berkshire Hathaway was under immense scrutiny by media and shareholders, as a 2015 report prepared by Calvert Investments ranked it among the four worst companies on workplace diversity among S&P 100 companies.

[2] Cultural finance is defined as (a field of research that) "tries to capture and assess the influence on decisions concerning both the allocation of funds and the procurement of funds that stems from a decision-maker's cultural background" (Nadler and Breuer 2019).

[3] The nationality of a person endorsed in the passport can result from one of the following two scenarios: First, the nationality certified in the passport can be the holder's nationality at birth. Second, the nationality validated in the passport can be the nationality of a country, which the holder acquired later through a naturalisation process. Thus, the non-US-born CEOs in our sample are those new to the US and have yet to undergo the naturalisation process. Studying new migrants helps the analysis as their cultural roots are much stronger when compared with descendants of migrants (Fernández and Fogli 2009). Conversely, there is a caveat. A fraction of the US CEOs in our total sample are not born in the US. They have migrated later and now hold US passports. However, due to the limited data availability on their true country of origin, we acknowledge this limitation and count them as US CEOs. In this scenario, we assume that the naturalised group of CEOs follows integration or assimilation strategies of acculturation, presented by Berry et al. (1989).

[4] Hambrick and Mason suggest that understanding the upper echelons perspective may bring multiple benefits. First, from an academic perspective, it can tighten and fill important empirical gaps and offer greater predictive power to organisational outcomes than current theories do. Second, it can provide valuable information for those who are responsible for selecting and developing upper-level executives. Finally, a study of upper echelons characteristics can assist strategists in predicting competitors' moves and countermoves.

[5] The 41 different nationalities are American, Australian, Austrian, Belgian, Bermudian, Brazilian, British, Canadian, Chinese, Colombian, Cuban, Czech, Danish, Dutch, Egyptian, Finnish, French, German, Haitian, Hungarian, Indian, Iranian, Irish, Israeli, Italian, Japanese, Luxembourger, Mexican, Norwegian, Panamanian, Polish, Puerto Rican, Saudi, South African, South Korean, Spanish, Swedish, Swiss, Thai, Turkish and Vietnamese.

[6] It is not straightforward, as in the case of mean-based regression, to assess for exogeneity and overidentification conditions of instruments using quantile regression. The reason is that data at each quantile are supposedly heterogeneous, and hence, the instruments, which are likely to be exogenous at one quantile, may not be exogenous across all quantiles.

[7]These variables are added sequentially, as they are highly correlated with each other.

[8]We thank the anonymous reviewers for this insightful suggestion.

[9]We thank the anonymous reviewers for this insightful suggestion.

[10]We propose the following model: $Q_{debt_{ijt}|X_{ijt}(\tau)} = \alpha + \beta_1 CEO\ culture_{ijt} + \beta_2 National\ Kd_{jt} + \beta_3 CEO\ culture_{ijt} * National\ Kd_{jt} + \beta_4 controls_{ijt} + \varepsilon_{ijt,\tau}$, where $debt_{ijt}$ is the dependent variable and represents the leverage level of firm i in country j at time t. X_{ijt} is a set of explanatory variables, including, in order, firm characteristics variables, CEO characteristics, market, industry and country-level variables. $National\ Kd_{ijt}$ acts as the moderating variable. $\varepsilon_{ijt,\tau}$ is the regression residuals indicating unexplained variation.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.